EXHIBIT 2008

Preliminary Invalidity Contentions

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

ENVIRO TECH CHEMICAL SERVICES, INC. **Plaintiff,** **v.** **CLEAN CHEMISTRY, INC.** **Defendant.**	Case No. 1:24-cv-1313-ADA Judge Alan Albright Magistrate Judge Susan Hightower

DEFENDANT CLEAN CHEMISTRY, INC.'S PRELIMINARY INVALIDITY CONTENTIONS

I. Introduction

Pursuant to the Standing Order Governing Proceedings (OGP)—Patent Cases of March 5, 2025 ("Standing Order"), and the Scheduling Order (Doc. 22) entered in this case on March 26, 2025, Defendant Clean Chemistry, Inc. (also referred to as “Defendant” or “Clean Chemistry”) hereby provides its Preliminary Invalidity Contentions to Plaintiff Enviro Tech Chemical Services, Inc. (also referred to as “Plaintiff” or “Enviro Tech”).

These contentions and disclosures are preliminary, and Defendant reserves the right to supplement these contentions and disclosures based on fact and expert discovery, after claim terms are construed, and as permitted by the Court's rules and orders. These contentions and disclosures are subject to correction for inadvertent errors or omissions, if any.

Defendant understands that, pursuant to the Standing Order, preliminary invalidity contentions may be amended without leave of court so long as counsel certifies that it undertook reasonable efforts to prepare its preliminary contentions and the amendment is based on material identified after those preliminary contentions were served, and that Defendant should do so seasonably upon identifying any such material.

For any claim limitation that Plaintiff may contend is not disclosed in the cited prior art, Defendant reserves the right to assert that the limitation is inherent, the limitation would have been obvious to a person of ordinary skill in the art, or that the limitation is disclosed in other prior art that may be combined with the cited prior art.

The invalidity claim charts attached as Exhibits (i) list specific examples of where the prior art discloses, either expressly or inherently, each limitation of the Asserted Claims,[1] and (ii)

[1] The Asserted Claims are presumably those specifically listed in the Complaint, which are Claim 1 of each of the four Asserted Patents. However, to be complete and with full reservation of all

identify examples of modifications to and combinations of prior art that render the claims of the Asserted Patents obvious. These citations are compliant with the Standing Order of March 5, 2025, but they are not intended to be exhaustive. Defendant may rely on uncited portions of the cited prior art and offer expert testimony to explain and provide context for the prior art. The citation of certain exemplary obviousness combinations does not exclude other combinations. The obviousness combinations are not intended to be exhaustive.

The Asserted Patents are U.S. Patents 8,546,449 (the "'449 patent"); 9,363,997 (the "'997 patent"); 9,730,443 (the "'443 patent"); and 9,737,072 (the "'072 patent"). Plaintiff's Preliminary Infringement Contentions nominally appear to assert all claims of each asserted patent as allegedly being infringed, i.e., Claims 1-23 of U.S. 8,546,449; Claims 1-14 of U.S. 9,363,997; Claims 1-3 of U.S. 9,730,443; and Claims 1-3 of U.S. 9,737,072, a total of 43 claims. Plaintiff's Preliminary Infringement Contentions admit that Enviro Tech does not have any factual or evidentiary basis for alleging infringement of Claims 3, 7, 8, 12, 13, 17, 20, 22, and 23 of the 8,546,449 patent; Claims 2, 5, 7, 8, 11, and 12 of the 9,363,997 patent; Claim 3 of the 9,730,443 patent; and Claims 2 and 3 of the 9,737,072 patent. Plaintiff's Preliminary Infringement Contentions are further deficient in that no facts are alleged to plausibly support any contention for infringement under the doctrine of equivalents. As such, Clean Chemistry reserves all rights to respond in any manner and for any claim to any supplemental contentions by Enviro Tech that is not otherwise precluded under the Local Rules, the Federal Rules, and the Court's Orders.

As set forth herein, each and every claim asserted by Enviro Tech in this action is invalid on one or more grounds. Voluminous prior art was known in the field prior to the earliest effective

rights, claims and defenses, all of the claims listed in the Plaintiff's Preliminary Infringement Contentions are addressed.

priority date of the Asserted Patents. Furthermore, to the extent that Enviro Tech argues that its claims are distinct from the prior art based on allegedly narrow points of distinction, then any such alleged distinctions only further minimize any alleged infringement liability that Enviro Tech seeks in this matter. Nothing in the claims of the Asserted Patents presents any fundamentally new advance over the prior art, and any alleged incremental advances were at least obvious to those of ordinary skill in the art at the relevant time period, and do not support meritorious infringement claims against Clean Chemistry.

Discovery has not started, and Clean Chemistry reserves the right to supplement or modify these Preliminary Invalidity Contentions as applicable under the Local Rules, the Federal Rules, and the Court's Orders. Clean Chemistry further reserves the right to supplement and amend these disclosures and associated document production based on further investigation, analysis, and discovery, information received through third-party discovery, Clean Chemistry's consultation with experts and others, and contentions or Court rulings on relevant issues such as claim construction and priority dates. Clean Chemistry also reserves the right to amend these Invalidity Contentions and/or to modify its selection of prior art references in the event that Enviro Tech is permitted to serve supplemental or modified infringement contentions.

The following contentions are based on Clean Chemistry's current understanding of the claims of the Asserted Patents as listed in Enviro Tech's Preliminary Infringement Contentions, served on March 5, 2025, without the benefit of completed claim construction. Clean Chemistry will provide its claim construction positions at the appropriate time pursuant to the Scheduling Order. Accordingly, these Preliminary Invalidity Contentions may reflect various potential and alternative positions regarding claim construction and scope. To the extent that these contentions reflect or suggest a particular interpretation or reading of any claim element, Clean Chemistry *does*

not adopt or agree to any such interpretation or reading. To the extent that the following contentions reflect constructions consistent with or implicit in Enviro Tech's Preliminary Infringement Contentions, no inference is intended nor should any be drawn that Clean Chemistry agrees with or concedes those claim constructions. Clean Chemistry expressly does not do so and reserves its right to contest such claim constructions.

Nor do these Preliminary Invalidity Contentions constitute any admission by Clean Chemistry that any Accused Products, including any current or past versions of those products, are covered by any claim of an Asserted Patent. Clean Chemistry does not take any position herein regarding proper scope or construction of the claims of the Asserted Patents. To the extent that prior art cited for a particular limitation discloses functionality or characteristics that are the same or similar in some respects to the alleged functionality and characteristics of the Accused Products as set forth in Enviro Tech's Preliminary Infringement Contentions, Clean Chemistry does not concede that those limitations are met by those accused functionalities or characteristics.

Because Clean Chemistry is continuing its analysis of relevant prior art, Clean Chemistry reserves the right to further revise, amend, and/or supplement the information provided herein, including identifying, charting, and/or relying upon additional prior art references, relevant disclosures, and bases for (Preliminary) Invalidity Contentions. Additional prior art, disclosures, and invalidity defects, whether cited in this disclosure and whether known to Clean Chemistry, may become relevant as investigation, analysis, and discovery continue. Additionally, Clean Chemistry reserves the right to present additional prior art references and/or disclosures under pre-AIA 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103 located during the course of such discovery or further investigation, and to assert invalidity under pre-AIA 35 U.S.C. §§ 102(c), (d), or (f) to the extent that such discovery or investigation yields information forming a basis for such

invalidity.

Furthermore, to the extent that Enviro Tech asserts the doctrine of equivalents, a "doctrine of equivalents theory cannot be asserted if it will encompass or 'ensnare' the prior art." *Jang v. Boston Sci. Corp.*, 872 F.3d 1275, 1285 (Fed. Cir. 2017). To the extent that Enviro Tech has asserted and intends to assert the doctrine of equivalents for any of the claim limitations, this would ensnare the prior art for the reasons and based on the evidence discussed below and in the accompanying charts. Defendants reserve the right to use these disclosures as well as further discovery and disclosures for purposes of noninfringement.

II. The Asserted Patents

A. The Asserted '449 Patent

The non-provisional application that resulted in the '449 patent was filed on March 24, 2011. The application was an original application that does not claim priority to an earlier application. The '449 patent issued on October 1, 2013. Enviro Tech alleges in its Preliminary Infringement Contentions that the earliest date of invention of each asserted claim "is not earlier than June 18, 2008." It is Enviro Tech's burden to establish actual and/or constructive reduction to practice for any alleged date of invention that precedes the filing date of the application that resulted in the '449 patent. Clean Chemistry disputes any allegation by Enviro Tech seeking to claim an alleged date of invention for the '449 Patent earlier than the filing date of the nonprovisional application.

B. The Asserted '997 Patent

The non-provisional application that resulted in the '997 patent was filed on April 8, 2015. The application was a divisional of an application that is now U.S. Patent 9,370,180, which in turn was a divisional of the application that matured into the Asserted '449 patent. The '997 patent

issued on June 14, 2016. As noted for the '449 patent, Enviro Tech alleges in its Preliminary Infringement Contentions that the earliest date of invention of each asserted claim "is not earlier than June 18, 2008." It is Enviro Tech's burden to establish actual and/or constructive reduction to practice for any alleged date of invention that precedes the filing date of the application that matured into the grandparent '449 patent, i.e., March 24, 2011.

C. The Asserted '443 Patent

The non-provisional application that resulted in the '443 patent was filed on March 7, 2016. The application was a divisional of what is now U.S. Patent 9,370,180, which in turn was a divisional of the application that matured into the Asserted '449 patent. The '443 patent issued on August 15, 2017. As noted for the '449 Patent, Enviro Tech alleges in its Preliminary Infringement Contentions that the earliest date of invention of each asserted claim "is not earlier than June 18, 2008." It is Enviro Tech's burden to establish actual and/or constructive reduction to practice for any alleged date of invention that precedes the filing date of the application that matured into the grandparent '449 patent, i.e., March 24, 2011.

D. The Asserted '072 Patent

The non-provisional application that resulted in the '072 patent was filed on March 24, 2011. The application was a divisional of what is now U.S. Patent 9,370,180, which in turn was a divisional of the application that matured into the Asserted '449 patent. The '072 patent issued on August 22, 2017. As noted for the '449 patent, Enviro Tech alleges in its Preliminary Infringement Contentions that the earliest date of invention of each asserted claim "is not earlier than June 18, 2008." It is Enviro Tech's burden to establish actual and/or constructive reduction to practice for any alleged date of invention that precedes the filing date of the application that matured into the grandparent '449 patent, i.e., March 24, 2011.

II. Preliminary Invalidity Disclosures

A. Invalidity under 35 U.S.C. § 112

To be valid, a patent claim must "particularly point [] out and distinctly claim[] the subject matter which the inventor . . . regards as the invention." 35 U.S.C. § 112(2). The Supreme Court has held that the proper standard for indefiniteness is as follows: "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124, 189 L. Ed. 2d 37 (2014). The Supreme Court further explained that "a patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them." *Id.* at 2129.

To uphold claims that do not clearly define the scope of the invention would thwart the ultimate purpose of the patent laws: to "promote the Progress of Science and useful Arts." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 730 (2002) (quoting U.S. Const. art. I, § 8, cl. 8). As the Supreme Court explained in *Festo*, a patent claim "is a property right; and like any property right, its boundaries should be clear. This clarity is essential to promote progress, because it enables efficient investment in innovation. A patent holder should know what he owns, and the public should know what he does not." *Id.* The identified claim terms of Enviro Tech's claims in the Asserted Patents "fall[] within the innovation-discouraging 'zone of uncertainty' against which the Supreme Court has warned." *Interval Licensing LLC v. AOL, Inc.*, 766 F. 3d 1364, 1374 (Fed. Cir. 2014), quoting *Nautilus*, 134 S. Ct. at 2130 (internal quotations and brackets omitted).

The claims of the Asserted Patents suffer from defects that may render them indefinite, at least under Enviro Tech's apparent view of the claim scope. Enviro Tech's Preliminary Infringement Contentions further indicate that Enviro Tech may interpret the claims in a manner that renders them further indefinite, particularly in view of the absence of sufficient supporting disclosure in the intrinsic evidence.

Clean Chemistry notes that the attached claim charts identify disclosures in the prior art that correspond to limitations of the claims of the Asserted Patents. In some cases, Clean Chemistry has identified prior art disclosures corresponding to limitations identified herein as being potentially indefinite. The identification of corresponding disclosures in the prior art for such limitations should not be construed as a concession that Clean Chemistry believes those limitations fulfill the definiteness requirement, or inform persons of ordinary skill in the art of the metes and bounds of the full scope of the claims with reasonable certainty. Rather, Clean Chemistry's prior art disclosures are based on its best understanding (without the benefit of claim construction by the Court) informed in some instances by the Preliminary Infringement Contentions served by Enviro Tech, and in other instances, were chosen because they most closely mirror exemplary embodiments in the Specification of the particular Asserted Patent, and thus are likely to meet the disputed claim limitations in the event they are not adjudged to be indefinite.

In view of the foregoing, Clean Chemistry identifies below potential grounds of invalidity for indefiniteness, which Clean Chemistry reserves the right to present during claim construction proceedings and/or summary judgment proceedings in this action. Clean Chemistry provides these contentions without the benefit of upcoming claim construction discovery and other discovery. Clean Chemistry may provide proposed claim constructions to be adopted in the alternative to the extent that certain claim terms and elements are not determined to be indefinite. Where a certain

claim term or limitation in one claim is identified as indefinite, Clean Chemistry contends that the same claim term or limitation is indefinite in every instance the term or limitation is recited throughout the claims of the Asserted Patents. Where Clean Chemistry has identified a phrase as indefinite, Clean Chemistry also contends that the subparts of the phrase are indefinite within the context recited in the claim.

For the written description requirement, "the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharms. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Possession requires a "show[ing] that the inventor actually invented the invention claimed." *Id.* The "level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology." *Id.* "[T]he purpose of the written description requirement is to 'ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification.'" *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1376-79 (Fed. Cir. 2009) (citations omitted).

The claims of the Asserted Patents are invalid for lack of written description where indicated below, including under the reasoning of precedent such as *Ariad*, *ICU Medical*, *Synthes USA, LLC v. Spinal Kinetics, Inc.*, 734 F.3d 1332, 1341-45 (Fed. Cir. 2013), *LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1343-48 (Fed. Cir. 2005), *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 905-914 (Fed. Cir. 2004), and other case law, because the Specification does not contain a written description of the claimed subject matter.

For example, in *LizardTech*, the claim was directed to a method of compressing digital images using seamless discrete wavelet transformation ("DWT"). The court found that the claim covered all ways of performing DWT-based compression processes that lead to a seamless DWT because there were no limitations as to how the seamless DWT was to be accomplished. However, the specification provided only one method for creating a seamless DWT, and there was no evidence that the specification contemplated a more generic way of creating a seamless array of DWT coefficients. Therefore, the written description requirement was not satisfied in this case because the specification did not provide sufficient evidence that the inventor invented the generic claim. "[T]he description of one method for creating a seamless DWT does not entitle the inventor . . . to claim any and all means for achieving that objective." *LizardTech*, 424 F.3d at 1346.

Similarly, in *ICU Medical*, the written description described the use of valves with a spike, but the patent applicant later prosecuted claims with a "spikeless" claim scope that "do not require a spike." *ICU Med.*, 558 F.3d at 1377. As the Federal Circuit explained:

> ICU's asserted spikeless claims are broader than its asserted spike claims because they do not include a spike limitation; these spikeless claims thus refer to medical valves generically—covering those valves that operate with a spike and those that operate without a spike. But the specification describes only medical valves with spikes. See supra Part I. We reject ICU's contention that the figures and descriptions that include spikes somehow demonstrate that the inventor possessed a medical valve that operated without a spike. Based on this disclosure, a person of skill in the art would not understand the inventor of the '509 and '592 patents to have invented a spikeless medical valve.

Id. at 1378. Because the specification did not disclose subject matter that operated without a spike, the Federal Circuit affirmed summary judgment of invalidity for failure to satisfy the written description requirement. *Id.* at 1379.

In *Synthes USA*, as further illustration, the written description described only certain subject matter including "a plurality of grooves and a plurality of channels, but did not describe

'openings' generally." *Synthes USA*, 734 F.3d at 1341. The applicant broadened the claim scope during prosecution to a more general claim scope, in an attempt to read the claims on a competitor's product. *Id.* A jury found invalidity for lack of written description, and the Federal Circuit affirmed. The Federal Circuit found that the evidence supported a finding that "the as-filed disclosure did not demonstrate possession of an intervertebral implant that employed *any sort* of openings *anywhere* on the cover plates." *Id.* (emphasis in original). The Federal Circuit noted that the written description "never discloses anything broader than using grooves to anchor the fiber system to the cover plates." *Id.*

The "enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." *Auto. Techs. Int'l, Inc. v. BMW of N. Am.*, 501 F.3d 1274, 1282 (Fed. Cir. 2007) (citations omitted). A claimed invention may be invalid under § 112 for lack of written description and non-enablement even if it was disclosed in the prior art: "It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement." *Genentech v. Novo Nordisk*, 108 F.3d 1361, 1366 (Fed. Cir. 1997). The patentee is "required to provide an adequate enabling disclosure in the specification; it cannot simply rely on the knowledge of a person of ordinary skill to serve as a substitute for the missing information in the specification." *Alza Corp. v. Andrx Pharms., LLC*, 603 F.3d 935, 940-41 (Fed. Cir. 2010). "A patentee who chooses broad claim language must make sure the broad claims are fully enabled." *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999-1000 (Fed. Cir. 2008). As the Federal Circuit has explained:

> Enablement serves the dual function in the patent system of ensuring adequate disclosure of the claimed invention and of preventing claims broader than the disclosed invention. This important doctrine prevents both inadequate disclosure of an invention and overbroad claiming that might otherwise attempt to cover more

> than was actually invented. Thus, a patentee chooses broad claim language at the peril of losing any claim that cannot be enabled across its full scope of coverage.

MagSil Corp. v. Hitachi Global Storage Techs., 687 F.3d 1377, 1380-81 (Fed. Cir. 2012) (citation omitted). "The specification must contain sufficient disclosure to enable an ordinarily skilled artisan to make and use the entire scope of the claimed invention at the time of filing." *Id.* at 1381(citation omitted).

The claims are invalid for enablement when the written description does not enable the full scope of the claimed subject matter. *Amgen Inc. v. Sanofi*, 598 U.S. 594, 610 (2023); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1381 (Fed. Cir. 2007); *Automotive Techs.*, 501 F.3d at 1284-85; *Sitrick*, 516 F.3d at 999-1000; *MagSil*, 687 F.3d at 1380-81. In *Liebel-Flarsheim*, for example, the claimed invention was a front-loading fluid injector system with a replaceable syringe capable of withstanding high pressure for delivering a contrast agent to a patient. *Liebel-Flarsheim*, 481 F.3d at 1373. The claims were construed to cover systems with or without a pressure jacket, but the written description failed to enable "both injector systems with and without a pressure jacket." *See Automotive Techs.*, 501 F.3d at 1285 (citation omitted).

Similarly, in *Automotive Techs.*, the claims covered "both mechanical and electronic side impact sensors," but the specification failed to enable the full scope: "in order to fulfill the enablement requirement, the specification must enable the full scope of the claims that includes both electronic and mechanical side impact sensors, which the specification fails to do." *Id.*

In *Sitrick*, the claims were broad enough to cover integrating signals into pre-existing media: "Because the asserted claims are broad enough to cover both movies and video games; the patents must enable both embodiments." *Sitrick*, 516 F.3d at 999-1000. The specification failed to enable embodiments using movies: "one skilled in the art could not take the disclosure in the specification with respect to substitution or integration of user images in video games and

substitute a user image for a pre-existing character image in movies without undue experimentation." *Id.* at 1000. *See also, e.g., MagSil*, 687 F.3d at 1381-84 (the claims covered a broad range of resistive charge that the written description did not enable); *Alza*, 603 F.3d at 940-943 ("ALZA's patent specification does not enable the full scope of the claims, namely non-osmotic oral dosage forms with ascending release rates").

In view of the foregoing, Clean Chemistry identifies below the following grounds of invalidity under § 112. Clean Chemistry provides these contentions without the benefit of upcoming discovery. These § 112 contentions are a reflection of Enviro Tech's apparent asserted scope of the claim language as set forth in Enviro Tech's Preliminary Infringement Contentions, which suggests a broader scope than the Specification of the Asserted Patents sufficiently supports, although at this stage Enviro Tech has not yet disclosed its claim construction positions. Discovery has not begun, and Clean Chemistry's analysis and investigation continues. Clean Chemistry accordingly reserves the right to amend these disclosures in view of discovery, information, and/or analysis.

Where a certain claim term or limitation in one claim is identified as being subject to a § 112 invalidity defect, Clean Chemistry contends that the same claim term or limitation, and each constituent phrase and term containing substantially the same claim limitation, is subject to the same defect in every instance the term or limitation is recited throughout the claims of the Asserted Patents. Furthermore, each ground of invalidity under § 112 for any identified claim also applies to any claim of an Asserted Patent that depends from it.

The following terms render the claims of the Asserted Patents invalid for indefiniteness, lack of written description, and/or lack of full scope enablement.

U.S. 8,546,449			
Claim	Claim term	§112 Ground	Exemplary Description
1	generating non-equilibrium solution of peracetic acid	Indefiniteness; lack of written description; lack of enablement	A POSA would be unable to ascertain with reasonable certainty what the term “non-equilibrium solution” and the phrase “generating non-equilibrium solution of peracetic acid” means in view of the specification and the context of the claims. A POSA would not find that the inventors were in possession or had enabled claims regarding the full scope of the claimed generating non-equilibrium solution of peracetic acid.
1	b. a hydrogen peroxide-acetyl precursor *solution*	Indefiniteness; lack of written description support	A POSA would be unable to ascertain with reasonable certainty what the term "solution" means in view of the specification and the context of the claims. Further, the specification lacks written description support for the scope of the claimed "solution."
1	c. mixing the hydrogen peroxide-triacetin solution and the water to form a mixture;	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "a mixture" means in view of the specification and the context of the claims.

1	d. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture;	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty the antecedent basis for "the mixture" if it is not otherwise limited to “a mixture” as set forth in claim element 1c. The specification also lacks written description and enablement support for the full scope of the claimed "aqueous source of an alkali metal or earth alkali metal hydroxide."
1	e. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the term “reaction medium” and the phrase “a reaction medium comprising a non-equilibrium solution of peracetic acid” mean in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed "reaction medium comprising a non-equilibrium solution of peracetic acid."

2	the hydrogen peroxide-triacetin *solution*	Indefiniteness; lack of written description support	A POSA would be unable to ascertain with reasonable certainty what the term "solution" means in view of the specification and the context of the claims. Further, the specification lacks written description support for the scope of the claimed "solution."
3, 20	a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “about 2.98:1 to about 12.84:1” means in view of the specification and the context of the claims.
4	the provided water is an aqueous stream	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "aqueous stream" means in view of the specification and the context of the claims.
7, 22	the sodium hydroxide is about 1.82% to about 7.28%	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the phrase “the sodium hydroxide is about 1.82% to about 7.28%” means in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed “the sodium hydroxide is about 1.82% to about 7.28%.”

8	wherein step (d) is performed simultaneously with step (b)	Indefiniteness	There is a lack of antecedent basis for step (d) if performed prior to step (c).
9	allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the phrase "maximize the conversion of the hydrogen peroxide triacetin into peracetic acid" means in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed "allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid."

10	the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the terms "maximize the conversion of the hydrogen peroxide triacetin into peracetic acid" and "about 30 seconds to about five minutes" mean in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed "maximize the conversion of the hydrogen peroxide triacetin into peracetic acid."
11	the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid.	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid" means in view of the specification and the context of the claims.
12	the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the terms "the percent of triacetin that is converted into peracetic acid" and "about 40.9% to about 85.7%" mean in view of the specification and the context of the claims.

13, 23	the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1/ about 4.2:18:1	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “about 4.2:3.8:1/about 4.2:18:1” means in view of the specification and the context of the claims.
14	steps (a) through (e) are performed on a continuous basis	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “continuous basis” means in view of the specification and the context of the claims.
15	steps (a) through (e) are performed on an intermittent basis	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “intermittent basis” means in view of the specification and the context of the claims.
16	the peracetic acid solution is for immediate use	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “for immediate use” means in view of the specification and the context of the claims.
18	on a site having a point-of-use	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “on a site having a point-of-use” means in view of the specification and the context of the claims.

19	the liquid is triacetin defining a hydrogen peroxide-triacetin solution.	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "triacetin defining a hydrogen peroxide-triacetin solution" means in view of the specification and the context of the claims. Further, the specification lacks written description support for the scope of the claimed "triacetin defining a hydrogen peroxide-triacetin solution."
23	wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the term “about 4.2:18:1” means in view of the specification and the context of the claims. The specification lacks written description and enablement support for the claimed “mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1”
All claims	unbounded and unclaimed amounts of “water,” “hydrogen peroxide,” “triacetin,” and “aqueous source of an alkali metal or earth alkali metal hydroxide” for “generating non-equilibrium solution of peracetic acid”	Lack of written description and enablement	The specification lacks written description and enablement support for the full scope of the claims since they do not identify or recited the amount(s) of each of the constituents necessary for “generating non-equilibrium solution of peracetic acid”

U.S. 9,363,997			
Claim	Claim term	§112 Ground	Exemplary Description
1	generating non-equilibrium solution of peracetic acid	Indefiniteness; lack of written description; lack of enablement	A POSA would be unable to ascertain with reasonable certainty what the term “non-equilibrium solution” and the phrase “generating non-equilibrium solution of peracetic acid” means in view of the specification and the context of the claims. A POSA would not find that the inventors were in possession or had enabled claims regarding the full scope of the claimed generating non-equilibrium solution of peracetic acid.
1	c. mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture;	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "a mixture" means in view of the specification and the context of the claims.
1	d. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture;	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty the antecedent basis for "the mixture" if it is not otherwise limited to “a mixture” as set forth in claim element 1c. The specification also lacks written description and enablement support for the

			full scope of the claimed "aqueous source of an alkali metal or earth alkali metal hydroxide."
1	e. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the term “reaction medium” and the phrase “a reaction medium comprising a non-equilibrium solution of peracetic acid” mean in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed "reaction medium comprising a non-equilibrium solution of peracetic acid."
4	the provided water is an aqueous stream	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "aqueous stream" means in view of the specification and the context of the claims.
7, 22	the sodium hydroxide is about 1.82% to about 7.28%	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the phrase “the sodium hydroxide is about 1.82% to about 7.28%” means in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of

			the claimed "the sodium hydroxide is about 1.82% to about 7.28%."
8	wherein step (d) is performed simultaneously with step (b)	Indefiniteness	There is a lack of antecedent basis for step (d) if performed prior to step (c).
9	allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the phrase "maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid" means in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of the claimed "allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid."
10	the time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid is about 30 seconds to about five minutes	Indefiniteness; lack of written description and enablement	A POSA would be unable to ascertain with reasonable certainty what the terms "maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid" and "about 30 seconds to about five minutes" mean in view of the specification and the context of the claims. The specification lacks written description and enablement support for the full scope of

			the claimed “maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid.”
11	the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the terms “the percent of triacetin that is converted into peracetic acid” and “about 40.9% to about 85.7%” mean in view of the specification and the context of the claims.
12	the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “about 4.2:3.8:1” means in view of the specification and the context of the claims.
13	steps (a) through (e) are performed on a continuous basis	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “continuous basis” means in view of the specification and the context of the claims.
14	steps (a) through (e) are performed on an intermittent basis	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “intermittent basis” means in view of the specification and the context of the claims.
All claims	unbounded and unclaimed amounts of “water,” “hydrogen peroxide,” “triacetin,” and “aqueous	Lack of written description and enablement	The specification lacks written description and enablement support for the full scope of the claims since they do not

	source of an alkali metal or earth alkali metal hydroxide" for "generating non-equilibrium solution of peracetic acid"		identify or recited the amount(s) of each of the constituents necessary for "generating non-equilibrium solution of peracetic acid"

U.S. 9,730,443			
Claim	Claim term	§112 Ground	Exemplary Description
1	A non-equilibrium solution of peracetic acid	Indefiniteness; lack of written description; lack of enablement	A POSA would be unable to ascertain with reasonable certainty what the term "non-equilibrium solution of peracetic acid" means in view of the specification and the context of the claims. A POSA would not find that the inventors were in possession or had enabled claims regarding the full scope of the claimed non-equilibrium solution of peracetic acid.
1	e. an aqueous source of an alkali metal or earth alkaline metal hydroxide	Indefiniteness	A process step ingredient in a composition claim combines two statutory classes of invention.
2	a pH of about 11.2 to about 13.37.	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "a pH of about 11.2 to about 13.37" means in view of the specification and the context of the claims.

3	said peracetic acid is about 1% to about 7.1%	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "peracetic acid is about 1% to about 7.1%" means in view of the specification and the context of the claims.
All claims	unbounded and unclaimed amounts of "water," "hydrogen peroxide," "triacetin," and "aqueous source of an alkali metal or earth alkali metal hydroxide" for the claimed "non-equilibrium solution of peracetic acid"	Lack of written description and enablement	The specification lacks written description and enablement support for the full scope of the claims since they do not identify or recited the amount(s) of each of the constituents necessary for "generating non-equilibrium solution of peracetic acid"

U.S. 9,737,072			
Claim	Claim term	§112 Ground	Exemplary Description
1	A hydrogen peroxide-acetyl precursor *solution*	Indefiniteness; lack of written description support	A POSA would be unable to ascertain with reasonable certainty what the term "solution" means in view of the specification and the context of the claims. Further, the specification lacks written description support for the scope of the claimed "solution."
1	a. *aqueous* hydrogen peroxide;	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "aqueous hydrogen peroxide"

			means in view of the specification and the context of the claims.
1	c. a *trace amount* of peracetic acid	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "trace amount" means in view of the specification and the context of the claims.
1	unbounded and unclaimed amounts of “water,” “hydrogen peroxide,” “triacetin,” and “aqueous source of an alkali metal or earth alkali metal hydroxide” for the claimed " hydrogen peroxide-acetyl precursor solution"	Lack of written description and enablement	The specification lacks written description and enablement support for the full scope of the claims since they do not identify or recited the amount(s) of each of the constituents necessary for “generating non-equilibrium solution of peracetic acid”
2	said aqueous hydrogen peroxide is about 23% to about 40% and said triacetin is about 20% to about 53%,	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the terms “aqueous hydrogen peroxide,” “about 23% to about 40%,” and “about 20% to about 53%” mean in view of the specification and the context of the claims.
2	the mole ratio of said hydrogen peroxide to said triacetin is about 2.98:1 to about 12.84:1	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term “about 2.98:1 to about 12.84:1” means in view of the specification and the context of the claims.

3	said aqueous hydrogen peroxide is about 27% and said triacetin is about 46%,	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the terms "aqueous hydrogen peroxide," "about 27%," and "about 46%" mean in view of the specification and the context of the claims.
3	said mole ratio of said hydrogen peroxide to said triacetin is about 3.8:1	Indefiniteness	A POSA would be unable to ascertain with reasonable certainty what the term "about 3.8:1" means in view of the specification and the context of the claims.

B. Invalidity under 35 U.S.C. §§ 102 and 103

1. Identity of Each Prior Art Reference

Subject to Clean Chemistry's reservation of rights, Clean Chemistry identifies each item of prior art that anticipates or renders obvious one or more of the claims of the Asserted Patents in the attached Prior Art Index submitted herewith. (*See* **Appendix A**, *infra*.) To the extent that the references listed in **Appendix A** are not identified as items of prior art that anticipate and/or render obvious a claim of an Asserted Patent, Clean Chemistry intends to rely on these references as background, as evidence of the state of the art at the time of Enviro Tech's alleged invention, as demonstrating inherency in the prior art, for motivations to combine and/or reasonable expectations of success, or for any other purpose related to invalidity of the Asserted Patents. Clean Chemistry identifies that, consistent with the patent local rules, prior art references that Clean Chemistry intends to rely on for the above-stated purposes further include materials that either have been (1) identified in these Preliminary Invalidity Contentions (though not necessarily

in **Appendix A**) but not produced (*e.g.*, cited on the face of the Asserted Patents); (2) produced and identified in these Preliminary Invalidity Contentions (*e.g.*, by BATES range) but not in **Appendix A**; or (3) produced but not specifically identified in these Preliminary Invalidity Contentions.

Additionally, some of the prior art references may be related to patent applications and issued patents that contain substantially the same subject matter (e.g., published U.S. patent applications, and issued U.S. Patents, foreign applications and issued patents). Any citation to or quotation from any of these patent applications or patents, therefore, should be understood as encompassing any parallel citation to the same subject matter in other related applications or patents. Clean Chemistry also reserves the right to later rely upon all references or portions of references provided in **Appendix A** to supplement or amend its disclosures contained herein. Also, to the extent not expressly stated herein, Clean Chemistry incorporates by reference: (1) any and all prior art contained or identified in documents produced thus far by Enviro Tech to Clean Chemistry in this case, including references cited in or on the face of the Asserted Patents, their foreign counterparts or any associated official file history; and (2) any and all additional materials regarding invalidity that should have been produced to Clean Chemistry but have not been produced to date, to the extent that any exist.

Each disclosed item of prior art is evidence of a prior invention by another under 35 U.S.C. § 102(g), as evidenced by the named inventors, authors, organizations, and publishers involved with each such reference. Clean Chemistry further intends to rely on admissions of the named inventors concerning the prior art, including statements found in the Asserted Patents, their prosecution histories, related patents and/or patent applications, any testimony, and the papers filed and evidence submitted by Enviro Tech in conjunction with this litigation.

2. Criteria for Prior Art to Anticipate or Render Obvious the Claims of the Asserted Patents

Subject to Clean Chemistry's reservation of rights, Clean Chemistry lists **Exhibits A-1** to **A-3**, **B-1** to **B-3**, **C-1** to **C-3**, **D-1** to **D-2**, and **Bucket 1** through **Bucket 22** in **Appendix B** ("Prior Art Invalidity Charts") prior art references that anticipate the claims of the Asserted Patents under at least pre-AIA 35 U.S.C. §§ 102(a), (b), (e), and/or (g), either expressly or inherently, and/or render obvious the claims of the Asserted Patents under 35 U.S.C. § 103 either alone or in combination with other references. Each claim of the Asserted Patents is anticipated by, and/or obvious in view of, one or more items of prior art identified listed in Appendix B, alone or in combination. Tables identifying exemplary ways in which the prior art references cited herein anticipate and/or render obvious the claims of the Asserted Patents are provided in Section 6.a.iv below.

Much of the art identified in the attached Prior Art Invalidity Charts reflects common knowledge and the state of the art at the time of alleged priority date of the Asserted Patents. Clean Chemistry further relies on well-known principles in the art of peroxycarboxylic acids. Clean Chemistry may rely on additional citations, references, expert testimony, and other material to provide context or to aid in understanding the cited portions of the references and/or cited features of the systems. Clean Chemistry may also rely on expert testimony explaining relevant portions of references, relevant systems, relevant calculations and measurements, and other discovery regarding relevant subject matter. Additionally, Clean Chemistry may rely on other portions of any prior art reference for purposes of explaining the background and general technical subject area of the reference.

Where an individual reference is cited with respect to all elements of a claim of an Asserted

Patent, Clean Chemistry contends that the reference anticipates the claim under pre-AIA 35 U.S.C. §§ 102(a), (b), (e), and/or (g) and also renders obvious the claim under 35 U.S.C. § 103, both by itself in view of the knowledge of a person of ordinary skill in the art and in combination with the other cited references to the extent that the reference is not found to disclose one or more claim elements. A single prior art reference, for example, can establish obviousness where the differences between the disclosures within the reference and the claimed invention would have been obvious to one of ordinary skill in the art. For instance, "[c]ombining two embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness." *Boston Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009). To the extent that Enviro Tech contends that an embodiment within a particular item of prior art does not fully disclose all limitations of a claim, Clean Chemistry accordingly reserves its right to rely on other embodiments in that prior art reference, or other information, to show single reference obviousness under 35 U.S.C. § 103(a).

Where an individual reference is cited with respect to fewer than all elements of a claim of an Asserted Patent, Clean Chemistry contends that the reference renders obvious the claim under 35 U.S.C. § 103(a) in view of each other reference and combination of references that discloses the remaining claim element(s), as indicated in the Prior Art Invalidity Claim Charts submitted herewith and as more fully discussed below. "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007), quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966). Exemplary motivations to combine references are discussed below. Clean

Chemistry reserves the right to rely upon any references or assertions identified herein in connection with Clean Chemistry's contention that each claim of the Asserted Patents is invalid under 35 U.S.C. § 103 and to rely upon expert testimony addressing such references and assertions.

The fact that prior art is identified to anticipate the claims of the Asserted Patents presents no obstacle in also relying on that reference as a basis for invalidity based on obviousness. It is established that "a rejection for obviousness under § 103 can be based on a reference which happens to anticipate the claimed subject matter." *In re Meyer*, 599 F.2d 1026, 1031 (C.C.P.A. 1979). To the extent that any single prior art item listed in **Appendix A** may not fully disclose a limitation of a claim of an Asserted Patent or is alleged by Enviro Tech to lack disclosure of the limitation, such limitation is present and identified in another prior art item as shown in the attached Prior Art Invalidity Claim Charts in **Appendix B**.

Many of the references cited in the Prior Art Invalidity Claim Charts cite or relate to additional references and/or products, systems, or services. Clean Chemistry may rely upon such additional references and copies or exemplars of such products or systems. Clean Chemistry will produce or make available for inspection any such cited references that it intends to rely upon. Clean Chemistry may also rely upon the disclosures of the references cited and/or discussed during the prosecution of the Asserted Patents and/or the assertions presented regarding those references. Clean Chemistry reserves the right to further streamline and reduce the number of anticipation or obviousness references relied upon with respect to a given claim of an Asserted Patent and to exchange or otherwise modify the specific references relied upon for anticipation and within each obviousness combination for each claim of an Asserted Patent.

Each limitation of the claims of the Asserted Patents was well-known to those of ordinary skill in the art before the alleged priority dates of the Asserted Patents, as detailed below and

described in the accompanying Prior Art Invalidity Charts. As explained more fully below and throughout these Invalidity Contentions, the claims of the Asserted Patents are anticipated and/or obvious in view of the prior art references listed in **Appendix A**.

a. Obviousness and Motivation to Combine

Each prior art reference may be combined with one or more other prior art references to render obvious the claims of the Asserted Patents in combination, as explained in more detail below. The disclosures of these references also may be combined with information known to persons skilled in the art at the time of the alleged invention, and understood and supplemented in view of the common sense of persons skilled in the art at the time of alleged invention, including any statements in the intrinsic record of the Asserted Patents and related applications.

A person of ordinary skill in the art would have been motivated to combine the prior art references in **Appendix A** based on the nature of the problem to be solved, the teachings of the prior art, and/or the knowledge of persons of ordinary skill in the art at the time of the alleged invention. The identified prior art references, including portions cited in the Prior Art Invalidity Charts submitted herewith, address the same or similar technical issues and suggest the same or similar solutions to those issues as the claims of the Asserted Patents. On an element-by-element basis, Clean Chemistry expressly intends to combine one or more prior art items identified in **Appendix A** with each other to address any contentions from Enviro Tech that a particular prior art item supposedly lacks one or more elements of a claim of an Asserted Patent. In other words, Clean Chemistry contends that each charted prior art item can be combined with other charted prior art items when a particular prior art item lacks or does not explicitly disclose an element or feature of a claim of an Asserted Patent. The suggested obviousness combinations described below are not to be construed to suggest that any reference included in the combinations is not

anticipatory. Further, to the extent Enviro Tech contends that any of the anticipatory prior art fails to disclose one or more limitations of the claims of the Asserted Patents, Clean Chemistry reserves the right to identify other prior art references that, when combined with the anticipatory prior art, would render the claims obvious despite an allegedly missing limitation. Clean Chemistry will further specify the motivations to combine the prior art, including through reliance on expert testimony, at the appropriate later stage of this litigation.

A person of ordinary skill in the art at the time of the alleged invention would have been motivated to combine the prior art items identified in **Appendix A** and/or described in the Prior Art Invalidity Charts in **Appendix B**. As the Supreme Court held in *KSR International Company v. Teleflex, Inc.*: "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. at 416. The Supreme Court further held that, "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 417.

Moreover, "in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 420. It is sufficient that a combination of elements was "obvious to try" holding that, "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill

and common sense." *Id.* at 421. "In that instance the fact that a combination was obvious to try might show that it was obvious under § 103." *Id.* Finally, the Supreme Court recognized that "[g]ranting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility." *Id.* at 419. All of the following rationales recognized in *KSR* support a finding of obviousness:

1) Combining prior art elements according to known methods to yield predictable results;
2) Simple substitution of one known element for another to obtain predictable results;
3) Use of known techniques to improve similar devices (methods or products) in the same way;
4) Applying a known technique to a known device (method or product) ready for improvement to yield predictable results;
5) "Obvious to try"—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
6) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; and
7) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Certain of these rationales are discussed more specifically below. The fact that others are not discussed more specifically should not be interpreted as an admission or concession that it does not apply. To the contrary, the discussion below simply provides more explanation of these specific rationales.

Clean Chemistry further contends that the prior art identified in these Preliminary Invalidity Contentions is evidence of simultaneous or near-simultaneous independent invention by others of the alleged invention as recited in one or more of the claims of the Asserted Patents. Clean Chemistry reserves its right to rely on the simultaneous or near-simultaneous independent invention by others as further evidence of the obviousness of the claims of the Asserted Patents.

Each limitation of the claims of the Asserted Patents was well-known to those of ordinary skill in the art before the alleged priority date of the Asserted Patents, as detailed below and in the attached Prior Art Invalidity Charts in **Appendix B**. The elements recited in the claims of the Asserted Patents are mere combinations and modifications of these well-known elements. A person of ordinary skill in the art would have been able and motivated to improve the existing technology in the same or similar manner by combining or modifying the individual elements that were already known in the art to yield predictable results.

Subject to the foregoing, Clean Chemistry identifies the following exemplary reasons that skilled artisans would have combined elements of the prior art to render obvious the claims of the Asserted Patents. The fact that others are not discussed more specifically should not be interpreted as an admission or concession that they do not apply. To the contrary, the discussion below simply provides more explanation of these specific rationales.

i. Motivations Identified During Prosecution

Clean Chemistry hereby expressly incorporates by reference any statements and reasons

set forth by the Examiner during prosecution of the Asserted Patents and related patent applications as to why it would have been obvious to modify or combine references to achieve the limitations of the claims of the Asserted Patents.

ii. Combinations of References through Citations

Numerous prior art references cite to, discuss, or build upon other references. Where one reference cites or discusses another reference, a person of ordinary skill in the art would have been motivated to consider their teachings in combination, as they would be understood to provide related teachings in a similar field.

In some instances, multiple prior art publications and/or physical references discuss or address the same or substantially similar underlying system or other project, such as commercial products and successive versions thereof, or multiple publications discussing the same subject matter. Where multiple references discuss or relate to the same or related underlying projects, systems, or other subject matter, it was obvious to combine the discussions and disclosures of the references as they would be understood to describe features or potential features of the underlying project, system, technique, or other subject matter. Similarly, where one reference cites or discusses other references or their teachings, or references have one or more authors in common and a related area of subject matter, it would have been obvious to consider the teachings of the references in combination with each other due to the express relationships and commonalities between the references.

Further, for each set of references that together refer to or describe the same system and/or potential improvements to the same system, it would have been obvious to combine such references. In particular, to the extent that the items are commonly owned, they would be within

the knowledge of the same company, and the company would be motivated to use elements from one reference to improve another seeking to solve the same or similar problems.

iii. Obviousness Combination Groups and Further Motivations to Combine

In addition to combinations of references and motivations to combine identified elsewhere herein, including within claim charts, Clean Chemistry identifies combinations and motivations to combine based on references grouped by subject matter, in the manner approved by district courts regarding invalidity contentions. *See, e.g.*, *Avago Techs. Gen IP PTE Ltd. v. Elan Microelectonics Corp.*, No. C04-05385 JW (HRL), 2007 WL 951818, at *3-4 (N.D. Cal. Mar. 28, 2007) (organizing prior art references into "groups" and identifying combinations as a set of references "and/or" another set of references); *Keithley v. Homestore.com, Inc.*, 553 F. Supp. 2d 1148, 1150 (N.D. Cal. 2008) (following *Avago* – "Apple's grouping method is permissible under the Local Rules"); *see also Multimedia Patent Tr. v. Apple Inc.*, Case No. 3:10-cv-02618-H (KSC), 2012 WL 12868250 (S.D. Cal. Nov. 5, 2012); *High Point Sarl v. Sprint Nextel Corp.*, No. 09-2269-CM-DJW, 2011 WL 4526770, at *8-9 (D. Kan. Sept. 28, 2011).

Clean Chemistry identifies references in groups below, based on common subject matter relevant to the claims of the Asserted Patents, for the purpose of disclosing obviousness combinations and further disclosing motivations to combine.

The absence of a particular reference from a group is not an admission or suggestion that the reference does not disclose or suggest any particular claim limitations. In some instances, a reference may fully disclose and/or suggest the obviousness of a claim limitation but not be identified within the applicable group of references, for purposes of disclosing obviousness combinations for these contentions.

iv. Anticipation Prior Art and Obviousness Combinations

Clean Chemistry discloses the anticipatory prior art and combinations of references for obviousness in the below chart based on references identified in **Appendix A** and the Prior Art Invalidity Claim Charts submitted herewith in **Appendix B**. As demonstrated above, a skilled artisan would have had ample motivation to combine the references in the manner described herein, and would have had a reasonable expectation that such combinations would have been successful.

3. Claim Charts

Subject to Clean Chemistry's reservation of rights, attached hereto in **Appendix B**, including Exhibits A-1 to A-3, B-1 to B-3, C-1 to C-3, D-1 to D-2 and Buckets 1-22 thereto, all of which are incorporated by reference, are claim charts providing a limitation-by-limitation analysis of where specifically in each prior art reference each limitation of the claims of the Asserted Patents is found. Any reference to a figure in a cited text incorporates by reference the figure itself, and any citation to a figure incorporates by reference any description of that figure in a reference.

As noted above, these claim charts are based on Clean Chemistry's understanding of the claim terms as construed by Enviro Tech in its Preliminary Infringement Contentions, even though Clean Chemistry does not necessarily agree with those constructions and reserves the right to dispute them, and/or are based on Clean Chemistry's potential constructions. Clean Chemistry reserves the right to supplement or modify these Preliminary Invalidity Contentions in conjunction with the Court's rulings on claim construction. To the extent that any limitation is deemed not met exactly by an item of prior art, Clean Chemistry contends that the difference would have been obvious to a person of ordinary skill in the art and within the knowledge of one skilled in the art at the time of the alleged invention, so that the claimed invention would have been obvious both

in light of the single reference alone and/or in light of combined references. Clean Chemistry does not admit or concede that a claim element is not expressly or inherently disclosed by the reference at issue.

As a general matter, all portions of each prior art item are relied upon to support the disclosure of each patent claim limitation, as all portions provide general support. Supporting citations are nevertheless provided, but do not necessarily represent every location where a particular claim term may be found in the prior art item. Clean Chemistry reserves the right to rely on additional, or different, portions of the prior art items other than those specifically cited in these claim charts, and to supplement and/or amend these charts.

4. Secondary Considerations

Enviro Tech bears the burden of establishing the existence of secondary considerations and the requisite nexus to the invention as claimed. To the extent that Enviro Tech subsequently discloses any contention that any secondary considerations support a conclusion that any of the claims of the Asserted Patents are not obvious, Clean Chemistry reserves the right to respond, including to amend and/or supplement these Preliminary Invalidity Contentions. Moreover, as these Preliminary Invalidity Contentions demonstrate, none of the claims of the Asserted Patents address any need that was either long felt or unmet, nor were their results unexpected.

To the contrary, the extensive invalidating prior art listed above and in the claim charts show that before the patents-in-suit, the prior art techniques, designs, and systems were widely accepted, understood, and available. Several cited references, including Okano (JP 2006-045147) demonstrate prior invention that anticipates or, at a minimum, serves as objective indicia of obviousness. Finally, although secondary considerations may be relevant to the obviousness

analysis, secondary considerations of nonobviousness cannot overcome the strong *prima facie* cases of obviousness set forth in these Preliminary Invalidity Contentions.

5. Inequitable Conduct

On March 4, 2014, a European Search Report issued (the "EP Search Report"), followed by an Office Action on March 19, 2024, in EP 2688399 (the “EPO Office Action”). Two of the references cited in the EP Search Report, JP 2004-230323A and U.S. 6,221,341, were new prior art. Neither of these references (nor any counterparts thereof) were cited subsequently in any of the U.S. divisional applications that claim priority back to the parent application that gave rise to U.S. 8,546,449, even though at least one of these references was, upon information and belief, used by the EPO examiner to reject claims in the EPO application that were substantially identical to the claims of issued patent U.S. 8,546,449. Similar claims were presented in U.S. Application No. 14/681,938, filed on April 8, 2015, and issued as U.S. 9,363,997 (one of the Asserted Patents). When applying the JP reference, the EP Office Action stated that the reference was directed to a sterilizing agent for hard surfaces, and referred to a disclosure of triacetin, hydrogen peroxide, and sodium hydroxide in paragraph 0057. However, JP *publication* number 2004-230323A is directed to a Garbage Drying Apparatus and only has 39 paragraphs, and thus there was clearly a mistake in the EP Search Report citation. JP *application* number 2004-230323 has *publication* number JP 2006-045147 A, which publication is directed to a sterilizing agent for hard surfaces, and has a disclosure of triacetin, hydrogen peroxide, and sodium hydroxide in its paragraph 0057. It was this disclosure the EPO examiner was clearly relying upon to support the rejection of claims in the EPO Office Action. Upon information and belief, neither the EPO Office Action nor the new references it cited were cross-cited or otherwise brought to the attention of any examiner of any of the Asserted Patents during their prosecution at the USPTO.

In view of the foregoing, upon information and belief, it appears prosecution conduct in violation of 37 C.F.R. § 1.56 may have occurred, affecting the validity of at least one, and possibly all, of the Asserted Patents. *Therasense, Inc. v. Becton, Dickinson and Co.* 649 F.3d 1276 (Fed. Cir. 2011) sets forth the requirements for inequitable conduct, which are specific intent to deceive the PTO (*Id.* at 1290) and but-for materiality (*Id.* at 1291). *Therasense* refers to the materiality and withholding of "a reference," but as *Dayco Prod., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003), makes clear, examiner decisions in related cases, which typically are embodied in Office Actions, are relevant:

> We hold that a contrary decision of another examiner reviewing a substantially similar claim meets the *Akron Polymer* "reasonable examiner" threshold materiality test of "*any* information that a reasonable examiner would substantially likely consider important in deciding whether to allow an application to issue as a patent." *Akron Polymer Container Corp. v. Exxel Container, Inc.*, 148 F.3d 1380, 1382 (Fed.Cir.1998) (emphasis in original).

IV. Other Prior Art

In addition to the prior art references that Clean Chemistry has specifically discussed in these Invalidity Contentions, Clean Chemistry provides notice to Enviro Tech of each reference produced in the accompanying document production of the same date. To the extent not specifically cited and relied upon as invalidating references with respect to the elements of the claims of the Asserted Patents, Clean Chemistry reserves the right to rely on these references at least as illustrating background knowledge in the field prior to the alleged inventions of the claims of the Asserted Patents and for other relevant purposes as may be disclosed pursuant to Clean Chemistry's continuing research and analysis of the claims of the Asserted Patents, accused instrumentalities, and the prior art.

IV. Document Production Accompanying Invalidity Contentions

All of the documents listed in **Appendix A** are being provided to the Plaintiff in a document production.

DATED: May 13, 2025

Respectfully submitted,
PHELPS DUNBAR LLP

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CERTIFICATE OF SERVICE

I hereby certify that I have served a true and correct copy of these Preliminary Invalidity Contentions and accompanying Appendices and exhibits thereto, on Plaintiff through its counsel of record via email on this 13th day of May, 2025.

Signed: /*Lindsay Calhoun*/

Name: Lindsay Calhoun

APPENDIX A

Short Name	Prior Art Reference	Earliest Priority Date	BATES Range
Cornthwaite	U.S. 2,448,252	August 2, 1946	CCI_00000354-00000355
Oringer	U.S. 3,432,546	Nov. 3, 1964	CCI_00000356-00000361
Hardy	EP 0563460	April 3, 1992	CCI_00000086-00000092
Montgomery	U.S. 6,221,341	Nov. 19, 1997	CCI_00000362-00000371
Merk et al.	U.S. 6,387,238	Aug. 8, 1999	CCI_00000372-00000392
Withenshaw	WO 2001/046519	Dec. 22, 1999	CCI_00000562-00000578
Tucker	U.S. 7,271,137	Oct. 1, 2001	CCI_00000407-00000417
Hirota	JP 2004-230323	Jan. 31, 2003	CCI_00000120-00000127
Hirota	Machine translation of JP 2004-230323	Jan. 31, 2003	CCI_00000101-00000119
Tucker	U.S. 7,276,468	Feb. 10, 2003	CCI_00000418-00000426
Kao	U.S. 7,919,122	April 2, 2003	CCI_00000535-00000581
Man et al.	U.S. 2005/0163896	Jan. 9, 2004	CCI_00000243-00000280

Short Name	Prior Art Reference	Earliest Priority Date	BATES Range
Vineyard	U.S. 7,012,154	July 28, 2004	CCI_00000393-00000406
Okano et al.	JP 2006-045146	August 6, 2004	CCI_00000148-00000160
Okano et al.	Machine translation of JP 2006-045146	August 6, 2004	CCI_00000128-00000147
Okano	JP 2006-045147	August 6, 2004	CCI_00000191-00000207
Okano	English translation of JP 2006-045147	August 6, 2004	CCI_00000161-00000190
DiCosimo	U.S. 2007/0082832	Oct. 6, 2005	CCI_00000281-00000310
DiCosimo 2	U.S. 7,723,083	Dec. 12, 2006[1]	CCI_00000427-00000534
Buschmann	U.S. 2009/0175956	January 8, 2008	CCI_00000311-00000317
Buschmann 2	U.S. 2009/0314652	March 19, 2008	CCI_00000318-00000344
Green Supplement	AWT Analyst, Green Supplement, 2008, 8-13.	2008	CCI_00000001-00000006
Ames et al.	U.S. 2010/227000	March 5, 2009	CCI_00000345-00000353
Stauffer	WO 2011/017095	July 27, 2009	CCI_00000579-00000661

Short Name	Prior Art Reference	Earliest Priority Date	BATES Range
Li et al.	WO 2012/090124	Dec. 29, 2010	CCI_00000662-00000749
EP Search Report	Search Report in EP 2688399	March 4, 2014[1]	CCI_00000099-00000100
EP Office Action	Office Action in EP 2688399	March 19, 2014[1]	CCI_00000093-00000098
EPA BluOX17 website			CCI_00000007-00000053
- BluOX17 Label 1	BluOX 17 Label and Operating Manual	May 10, 2017[1]	
- BluOX17 Label 2	BluOX 17 Label and Operating Manual	June 8, 2017[1]	
- BluOX17 Label 3	BluOX 17 Label and Operating Manual	February 20, 2019[1]	
EPA BluOX35 website			CCI_00000054-00000085
- BluOX35 Label 1	BluOX 35 Label and Operating Manual	May 10, 2017[1]	
- BluOX35 Label 2	BluOX 35 Label and Operating Manual	June 8, 2017[1]	

[1] Publication or availability date.

APPENDIX B

General Remarks

Where possible and unless specifically noted otherwise, the claim charts in this **Appendix B** apply the apparent constructions of claim terms as used by Enviro Tech in its preliminary infringement contentions; such use, however, does not imply that Clean Chemistry adopts or agrees with Envirotech's apparent constructions in any way.

To the extent that a charted reference is held not to explicitly or inherently disclose any particular element of a claim, such claim element was obvious for the reasons stated below and in Clean Chemistry's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Clean Chemistry is investigating this prior art and has not yet completed discovery from third parties who may have information concerning the prior art. Clean Chemistry reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds.

To the extent that any charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Clean Chemistry's Preliminary Invalidity Contentions, which are incorporated herein by reference.

The excerpts cited herein are exemplary. For any claim limitation, Clean Chemistry may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein.

The accompanying Exhibits A-1 through A-3, B-1 through B-3, C-1 through C-3, D-1 and D-2 are summarized as follows:

U.S. 8,546,449 (**'449** Patent)	
Exhibit No.	**Charted Prior Art Reference (alone or in combination with bucket references)**
A-1	JP 2006-045147 (Okano)
A-2	U.S. 7,919,122 (Kao)
A-3	U.S. 7,271,137 (Tucker)

U.S. 9,363,997 (**'997** Patent)	
Exhibit No.	**Charted Prior Art Reference (alone or in combination with bucket references)**
B-1	JP 2006-045147 (Okano)
B-2	U.S. 7,919,122 (Kao)
B-3	U.S. 7,271,137 (Tucker)

U.S. 9,730,443 (**'443** Patent)	
Exhibit No.	**Charted Prior Art Reference (alone or in combination with bucket references)**
C-1	U.S. 2009/0175956 (Buschmann)
C-2	U.S. 7,919,122 (Kao)
C-3	JP 2006-045147 (Okano)

U.S. 9,737,072 (**'072** Patent)	
Exhibit No.	**Charted Prior Art Reference (alone or in combination with bucket references)**
D-1	WO 2011/017095 (Stauffer)
D-2	JP 2006-045147 (Okano)

Defendant further identifies references in groups or "buckets" below, based on common subject matter relevant to the claims of the Asserted Patents, for the purpose of disclosing obviousness combinations and further disclosing motivations to combine. The absence of a particular reference from a group is not an admission or suggestion that the reference does not disclose or suggest any particular claim limitations. In some instances, a reference may fully disclose and/or suggest the obviousness of a claim limitation but not be identified within the applicable group for the purposes of defining groups of references for purposes of disclosing obviousness combinations for these contentions.

Each reference qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

Bucketed References	
Bucket No.	**Teaching**
Bucket 1	Combining Reagents in Different Ways Including Creating a Hydrogen Peroxide-Triacetin Solution
Bucket 2	Molar Ratios of Hydrogen Peroxide to Triacetin or Sodium Hydroxide to Hydrogen Peroxide to Triacetin
Bucket 3	Methods for Combining Reagents to Generate PAA
Bucket 4	Maximize the Conversion of Hydrogen Peroxide and Triacetin to PAA
Bucket 5	PAA is Prepared for a Point-of-Use
Bucket 6	Non-equilibrium Solution of Peracetic Acid
Bucket 7	Peracetic Acid Present in the Peracetic Acid Solution
Bucket 8	Hydrogen Peroxide in the Peracetic Acid Solution
Bucket 9	Triacetin in the Peracetic Acid Solution
Bucket 10	1,2,3 Propanetriol in the Peracetic Acid Solution

Bucket 11	Alkali Metal or Earth Alkali Metal Hydroxide Source in Peracetic Acid Solution
Bucket 12	Water as part of the Peracetic Acid Solution
Bucket 13	Peracetic Acid Solution pH
Bucket 14	Peracetic Acid Concentration in Peracetic Acid Solution
Bucket 15	Hydrogen Peroxide Acetyl Precursor Solution
Bucket 16	Hydrogen Peroxide in Hydrogen Peroxide Acetyl Precursor Solution
Bucket 17	Triacetin in Hydrogen Peroxide Acetyl Precursor Solution
Bucket 18	Trace Amount of Peracetic Acid
Bucket 19	Water as part of the Hydrogen Peroxide Acetyl Precursor Solution
Bucket 20	Hydrogen Peroxide Concentration in Hydrogen Peroxide Acetyl Precursor Solution
Bucket 21	Triacetin Concentration in Hydrogen Peroxide Acetyl Precursor Solution
Bucket 22	Mole Ratios of Hydrogen Peroxide to Triacetin in Hydrogen Peroxide Acetyl Precursor Solution

Exhibits A-1 to A-3: Claim Charts Against U.S. Patent No. 8,546,449 ("'449 Patent")

[Note: Plaintiff provided preliminary infringement contentions for the '449 patent Claims 1-2, 4-6, 9-11, 14-16, 18-19 and 21 *only*.]

Exhibit A-1

Charted Reference: Japanese Patent Pub. JP 2006-045147 to Okano et al. ("Okano")

Okano published on February 16, 2006 from a Japanese application filed on August 6, 2004. Okano qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '449 patent are anticipated and/or obvious over Okano, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[1]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

[1] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims of the '449 Patent	**Okano**
Claim 1	
1[p]. A method of generating non-equilibrium solution of peracetic acid, comprising:	To the extent that the preamble is limiting, it is disclosed or suggested by Okano. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Okano, ¶ 8 The present invention also relates to a method for producing a sterilizing cleaner composition for hard surfaces, having steps for reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, and (B1) hydrogen peroxide in a molar ratio of (A)/(B1) = 1/10 to 20/1 in water at a pH of 8 to 12, and then adjusting the pH of the reaction system to 1 or higher but less than 7. Okano, ¶ 9 <Component (A)> An ester between a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, of a component (A) reacts with hydrogen peroxide to produce an organic peracid…Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these, triacetin is preferable.

Asserted Claims of the '449 Patent	**Okano**
	Okano, ¶¶ 11–14 Hereinafter, the inorganic peroxide that releases hydrogen peroxide in water (B2) will be referred to as component (B2), and the components (B1) and (B2) will be collectively described as component (B)…<Component (B)> In the component (B), the inorganic peroxide that releases hydrogen peroxide in the water of the component (B2) is preferably hydrogen peroxide when the composition for producing sterilizing cleaner is liquid, preferably percarbonate, perborate, and the like when the composition is granular, powdery, or the like, and particularly sodium percarbonate, sodium perborate, and the like when the composition is solid. Okano, ¶¶ 31–33 The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into

Asserted Claims of the '449 Patent	**Okano**
	consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium

Asserted Claims of the '449 Patent	**Okano**
	hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 Third Composition for Producing Sterilizing Cleaner The third composition for producing sterilizing cleaner of the present invention is obtained by blending component (A) and component (B) of the present invention, and similar to the second composition for producing sterilizing cleaner, the molar ratio of component (A) and component (B1) derived from component (B) is (A)/(B1) = 1/10 to 20/1, and after the pH is 8 to 12, it is used as an aqueous solution prepared with a pH of 1

Asserted Claims of the '449 Patent	**Okano**
	or more but less than 7. The specific compounds of component (A) and component (B) and the preferred molar ratio of component (A)/(B1) are also similar to those of the second composition for producing sterilizing cleaner. Furthermore, the third composition for producing sterilizing cleaner may also contain the aforementioned surfactant, inorganic or organic salts, chelating agents, perfumes, pigments, dyes, and the like, and the packaging form may be the same. Okano, ¶ 45. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent the preamble is limiting and is not fully disclosed or suggested by Okano, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Okano discloses providing water. For example:

Asserted Claims of the '449 Patent	**Okano**
	The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent the preamble is limiting and is not fully disclosed or suggested by Okano, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Asserted Claims of the '449 Patent	**Okano**
1[b]. introducing a hydrogen peroxide-triacetin solution to the water;	Okano discloses introducing a hydrogen peroxide-triacetin solution to the water. For example: <Component (A)> An ester between a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, of a component (A) reacts with hydrogen peroxide to produce an organic peracid…Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these, triacetin is preferable. Okano, ¶¶ 11–14 Hereinafter, the inorganic peroxide that releases hydrogen peroxide in water (B2) will be referred to as component (B2), and the components (B1) and (B2) will be collectively described as component (B)…<Component (B)> In the component (B), the inorganic peroxide that releases hydrogen peroxide in the water of the component (B2) is preferably hydrogen peroxide when the composition for producing sterilizing cleaner is liquid, preferably percarbonate, perborate, and the like when the composition is granular, powdery, or the like, and particularly sodium percarbonate, sodium perborate, and the like when the composition is solid. Okano, ¶¶ 31–33 <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the

Asserted Claims of the '449 Patent	**Okano**
	composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the

Asserted Claims of the '449 Patent	**Okano**
	organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but

Asserted Claims of the '449 Patent	**Okano**
	preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting

Asserted Claims of the '449 Patent	**Okano**
	agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the hydrogen peroxide-triacetin solution and the water to form a mixture;	Okano discloses mixing the hydrogen peroxide-triacetin solution and the water to form a mixture. For example: <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per

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	ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner.

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	Okano, ¶ 39. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Okano discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by

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	setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package

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	(I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Okano discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric

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	alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Okano, ¶ 8 A sterilizing cleaner kit suitable for obtaining the sterilizing cleaner composition for hard surfaces of the present invention is configured to contain the composition for producing sterilizing cleaner of the present invention, a reaction initiator (hereinafter referred to as component (C)) that initiates the reaction of component (A) and component (B1) brought about by the composition, and a pH adjusting agent (hereinafter referred to as component (D)). Furthermore, the sterilizing cleaner kit may also be configured to include component (A), component (B), component (C), and component (D). Okano, ¶ 46 The component (A) and the component (B1) react under alkaline conditions (water temperature 5 to 50 is suitable) in water to generate an organic peroxy acid, and therefore, a component that gives such a pH may be used as the component (C). Specifically, examples include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides, alkali metal silicate salts such as sodium silicate and potassium silicate, alkali metal phosphate salts that exhibit alkalinity, such as trisodium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate, which were given as examples of alkaline pH adjusting agents; however, from the perspective of alkalinity or water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphate salts such as trisodium phosphate and tripotassium

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	carbonate and alkali metal carbonate salts such as sodium carbonate and potassium carbonate are preferable. Okano, ¶ 48 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 2	
2. The method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a	Okano discloses the method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution.

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solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution.	*See* claim 1. For example: <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in

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	water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by

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	setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package

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	(I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to	Okano discloses the method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.

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triacetin of about 2.98:1 to about 12.84:1.	*See* claim 1. For example: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1,

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	2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Okano discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is	Okano discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.

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contained in a mixing tank or other vessel.	*See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Okano discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a

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	range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and

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	water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by

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	Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Okano discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%. *See* claim 6. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many

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	moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a

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	multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm.

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	Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 8	
8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Okano discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A),

Asserted Claims of the '449 Patent	**Okano**
	more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the

Asserted Claims of the '449 Patent	**Okano**
	pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. There are many facilities where a hygienic environment is desired, such as food production plants, pharmaceutical production plants, hospitals, nursing homes, kitchens,

Asserted Claims of the '449 Patent	**Okano**
	bathrooms, and the like. In such cases, careful sterilization of floors, walls, and equipment used and the like is essential in order to maintain a hygienic environment. Okano, ¶ 2 Cleaners, sterilizing agents, and sterilizing cleaners for liquids or powders that contain surfactants, sterilizing agents, and the like are mainly used to sterilize and clean such hard surfaces. Furthermore, when a sterilization and cleaning process is incorporated into an industrial production process, steps such as supplying, mixing, and applying (painting, spraying, and the like) the active ingredient are often automated. Okano, ¶ 3 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid.	Okano discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid. *See* claim 1. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and

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	even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	

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10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes.	Okano discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the

Asserted Claims of the '449 Patent	**Okano**
	organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	
11. The method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid.	Okano discloses the method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid. *See* claim 10. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35.

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	<Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion exchanged water and approximately 1 mL of a hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated using a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100; T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL); W: Collected amount of the sterilizing cleaner composition (g) Okano, ¶ 59 To the extent the preamble is limiting and is not fully disclosed or suggested by Okano, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket

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	1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.	Okano the method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%. *See* claim 9. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was

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	immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion exchanged water and approximately 1 mL of a hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated using a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100; T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL); W: Collected amount of the sterilizing cleaner composition (g) Okano, ¶ 59 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Okano discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 7. For example:

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	The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 14	

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14. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Okano discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. There are many facilities where a hygienic environment is desired, such as food production plants, pharmaceutical production plants, hospitals, nursing homes, kitchens, bathrooms, and the like. In such cases, careful sterilization of floors, walls, and equipment used and the like is essential in order to maintain a hygienic environment. Okano, ¶ 2 Cleaners, sterilizing agents, and sterilizing cleaners for liquids or powders that contain surfactants, sterilizing agents, and the like are mainly used to sterilize and clean such hard surfaces. Furthermore, when a sterilization and cleaning process is incorporated into an

Asserted Claims of the '449 Patent	**Okano**
	industrial production process, steps such as supplying, mixing, and applying (painting, spraying, and the like) the active ingredient are often automated. Okano, ¶ 3 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 15	
15. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Okano discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57.

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	To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 16	
16. The method of claim 1, wherein the peracetic acid solution is for immediate use.	Okano discloses the method of claim 1, wherein the peracetic acid solution is for immediate use. *See* claim 1. For example: > In addition, the amount of water in the sterilizing cleaner composition for hard surfaces of the present invention is preferably 50 wt% or more but less than 100 wt%, more preferably 60 wt% or more but less than 100 wt%, and particularly preferably 70 wt% or more but less than 100 wt%. Furthermore, the sterilizing cleaner composition for hard surfaces of the present invention is an aqueous solution containing an organic peracid, and the concentration of the organic peracid in the composition is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In addition, in terms of sterilizing effect, it is preferable that the hydrogen peroxide content of the sterilizing cleaner composition for hard surfaces of the present invention is 0.5 wt% or less, more preferably 0.3 wt% or less, and even more preferably 0.2 wt% or less. This hydrogen peroxide content is preferably achieved immediately after preparation of the composition, and even more so at the time of use. Okano, ¶ 23 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 17	

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17. The method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day.	Okano discloses the method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day. *See* claim 1. For example: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15 (2) A composition for composition for producing sterilizing cleaner, containing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group, and (B1) hydrogen peroxide or (B2) an inorganic peroxide which releases hydrogen peroxide in water, with the molar ratio of (B1) produced from (A) and (B1) or (A) and (B2) being (A)/(B1) = 1/10 to 20/1, said composition for producing a sterilizing cleaner being used as an aqueous solution prepared by adjusting the pH to 8 to 12 and then adjusting the pH to 1 or more but less than 7 (hereinafter referred to as the second composition for producing sterilizing cleaner). (3) A composition for producing sterilizing cleaner obtained by mixing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group, and (B1) hydrogen peroxide or (B2) an inorganic peroxide that releases hydrogen peroxide in water, in a molar ratio of (A)/(B1) = 1/10 to 20/1 of (B1) produced

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	from (A) and (B1) or (A) and (B2), said composition for producing sterilizing cleaner being used as an aqueous solution prepared by adjusting the pH to 8 to 12 and then adjusting the pH to 1 or more and less than 7 (hereinafter referred to as the third composition for producing sterilizing cleaner). Okano, ¶¶ 29–30 When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. …Furthermore, examples of acidic pH adjusting agents include inorganic acids such as hydrochloric acid, sulfuric acid, and phosphoric acid and organic acids such as formic acid, acetic acid, citric acid, succinic acid, and gluconic acid, but from the perspective of acidity and water solubility, liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable. These may be used alone or in combination of two or more types. Okano, ¶¶ 39–40 The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be

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	made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶ 43 Third Composition for Producing Sterilizing Cleaner The third composition for producing sterilizing cleaner of the present invention is obtained by blending component (A) and component (B) of the present invention, and similar to the second composition for producing sterilizing cleaner, the molar ratio of component (A) and component (B1) derived from component (B) is (A)/(B1) = 1/10 to 20/1, and after the pH is 8 to 12, it is used as an aqueous solution prepared with a pH of 1 or more but less than 7. The specific compounds of component (A) and component (B) and the preferred molar ratio of component (A)/(B1) are also similar to those of the second composition for producing sterilizing cleaner. Furthermore, the third composition for producing sterilizing cleaner may also contain the aforementioned surfactant, inorganic or organic salts, chelating agents, perfumes, pigments, dyes, and the like, and the packaging form may be the same.

Asserted Claims of the '449 Patent	**Okano**
	Okano, ¶ 45. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 18	
18. The method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use.	Okano discloses the method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use. *See* claim 1. For example: In addition, the amount of water in the sterilizing cleaner composition for hard surfaces of the present invention is preferably 50 wt% or more but less than 100 wt%, more preferably 60 wt% or more but less than 100 wt%, and particularly preferably 70 wt% or more but less than 100 wt%. Furthermore, the sterilizing cleaner composition for hard

Asserted Claims of the '449 Patent	**Okano**
	surfaces of the present invention is an aqueous solution containing an organic peracid, and the concentration of the organic peracid in the composition is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In addition, in terms of sterilizing effect, it is preferable that the hydrogen peroxide content of the sterilizing cleaner composition for hard surfaces of the present invention is 0.5 wt% or less, more preferably 0.3 wt% or less, and even more preferably 0.2 wt% or less. This hydrogen peroxide content is preferably achieved immediately after preparation of the composition, and even more so at the time of use. Okano, ¶ 23 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 19	
19. The method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution.	Okano discloses the method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution. *See* claim 1[b] and claim 2. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 20	
20. The method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to	Okano discloses the method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.

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triacetin of about 2.98:1 to about 12.84:1.	*See* claim 3. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 21	
21. The method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Okano discloses the method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 6. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 22	
22. The method of claim 21, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Okano discloses the method of claim 21, wherein the sodium hydroxide is about 1.82%to about 7.28%. *See* claim 7. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 23	
23. The method of claim 22, wherein the mole ratio of the sodium hydroxide to the	Okano discloses the method of claim 22, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1.

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hydrogen peroxide to the triacetin is about 4.2:18:1.	*See* claim 22. For example: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the

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	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibit A-2

Charted Reference: U.S. Patent No. 7,919,122 to Okano et al. and assigned to Kao Corporation ("Kao")

Kao issued on April 5, 2011 from a PCT patent application filed on April 1, 2004. Kao qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '449 patent are anticipated and/or obvious over Kao, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[2]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

[2] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '449 Patent	**Kao**
Claim 1	
1[p]. A method of generating non-equilibrium solution of peracetic acid, comprising:	• To the extent that the preamble is limiting, it is disclosed or suggested by Kao. For example: The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 <Component (A)>

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	As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16 <Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or

Asserted Claims of the '449 Patent	**Kao**
	powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide.

Asserted Claims of the '449 Patent	**Kao**
	Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used.

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	The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and

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	polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the

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	aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention.

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	<Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the

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	method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for

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	sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. • To the extent the preamble is limiting and is not fully disclosed or suggested by Kao, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Kao discloses providing water. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the

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	component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10.

Asserted Claims of the '449 Patent	**Kao**
	Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. • To the extent the preamble is limiting and is not fully disclosed or suggested by Kao, it would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '449 Patent	**Kao**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[b]. introducing a hydrogen peroxide-triacetin solution to the water;	Kao discloses introducing a hydrogen peroxide-triacetin solution to the water. For example: <Component (A)> As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16

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	<Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester

Asserted Claims of the '449 Patent	**Kao**
	group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is

Asserted Claims of the '449 Patent	**Kao**
	used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention.

Asserted Claims of the '449 Patent	**Kao**
	The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof.

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	The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000

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	ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10,

Asserted Claims of the '449 Patent	**Kao**
	followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the

Asserted Claims of the '449 Patent	**Kao**
	organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the hydrogen peroxide-triacetin solution and the water to form a mixture;	Kao discloses mixing the hydrogen peroxide-triacetin solution and the water to form a mixture. For example: <Component (A)> As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid,

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	maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16 <Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight.

Asserted Claims of the '449 Patent	**Kao**
	The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted

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	hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of

Asserted Claims of the '449 Patent	**Kao**
	acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of

Asserted Claims of the '449 Patent	**Kao**
	preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a

Asserted Claims of the '449 Patent	**Kao**
	powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned

Asserted Claims of the '449 Patent	**Kao**
	surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

Asserted Claims of the '449 Patent	**Kao**
	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Kao discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example:

Asserted Claims of the '449 Patent	**Kao**
	<First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a

Asserted Claims of the '449 Patent	**Kao**
	range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates

Asserted Claims of the '449 Patent	**Kao**
	such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate,

Asserted Claims of the '449 Patent	**Kao**
	POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and

Asserted Claims of the '449 Patent	**Kao**
	(B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B),

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	that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the

Asserted Claims of the '449 Patent	**Kao**
	objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.

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	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Kao discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example: The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 <First Composition for Production of a Sterilizer>

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	The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect,

Asserted Claims of the '449 Patent	**Kao**
	the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of

Asserted Claims of the '449 Patent	**Kao**
	alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18)

Asserted Claims of the '449 Patent	**Kao**
	dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition

Asserted Claims of the '449 Patent	**Kao**
	containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than

Asserted Claims of the '449 Patent	**Kao**
	7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10.

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	Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

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Claim 2	
2. The method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution.	Kao discloses the method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution. *See* claim 1. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester

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	group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is

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	used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention.

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	The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof.

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	The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000

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	ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10,

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	followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the

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	organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.	Kao discloses the method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1. *See* claim 1. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic

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	peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous

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	solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Kao discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization

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	test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.

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	Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.	Kao discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the

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	objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.

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	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Kao discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight.

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	The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also

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	be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates

Asserted Claims of the '449 Patent	**Kao**
	such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7.

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	The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH

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	adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid

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	concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Kao discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%. *See* claim 6. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the

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	component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids

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	such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The

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	amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component

Asserted Claims of the '449 Patent	**Kao**
	(B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar

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	ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10.

Asserted Claims of the '449 Patent	**Kao**
	EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 8	

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8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Kao discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be

Asserted Claims of the '449 Patent	**Kao**
	a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-

Asserted Claims of the '449 Patent	**Kao**
	based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof.

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	The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2

Asserted Claims of the '449 Patent	**Kao**
	wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous

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	solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but

Asserted Claims of the '449 Patent	**Kao**
	in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid.	Kao discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid. *See* claim 1. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer,

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	the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the

Asserted Claims of the '449 Patent	**Kao**
	objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.

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	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	
10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes.	Kao discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester

Asserted Claims of the '449 Patent	**Kao**
	group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10.

Asserted Claims of the '449 Patent	**Kao**
	EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	

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11. The method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid.	• Kao discloses the method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid. *See* claim 10. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide.

Asserted Claims of the '449 Patent	**Kao**
	Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture

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	to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. (1) Method of Measuring the Concentration of an Organic Peracid (1-1) Quantification of Hydrogen Peroxide w_1 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 200 mL conical beaker, and 10 mL of 20% aqueous sulfuric acid solution and 2 to 3 ice pieces were added thereto to cool the solution, and after 1 to 2 drops of an aqueous saturated manganese sulfate solution were added thereto as a catalyst, the solution was titrated with 0.1 mol/L (½ N) aqueous potassium permanganate solution. The point in time when the solution assumed a pale pink color for 1 to 10 seconds was regarded as end point. The hydrogen peroxide concentration is calculated from the following equation (1-

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	1) Hydrogen peroxide concentration(wt %)=(0.85×T_1 ×F_1)/w_1 (1-1) T_1: amount (mL) of 0.1 mol/L aqueous potassium permanganate solution required in titration F_1: factor of 0.1 mol/L aqueous potassium permanganate solution w_1: weight (g) of the sterilizer composition (1-2) Quantification of an Organic Peracid w_2 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 300 mL Erlenmeyer flask equipped with a cap, and after 10 mL of 20% aqueous sulfuric acid solution, 20 mL purified water and 2 mL aqueous saturated potassium iodide solution were added thereto, the flask was capped and then gently shaken. The solution was left in a cool and dark place for 5 minutes and then titrated with 0.2 mol/L (⅕ N) aqueous sodium thiosulfate solution. When the solution assumed a pale yellow color, the titration was continued by adding a few drops of 2% aqueous starch solution. The point in time when the bluish violet color of the solution disappeared was regarded as end point. The organic peracid concentration is calculated from the following equation (1-2): Organic peracid concentration(wt %)=(molecular weight of organic peracid×[{T_2 ×F_2}/{100×w_2 }−H/34])/number of percarboxyl groups in one molecule (1-2) T_2: amount (mL) of 0.2 mol/L aqueous sodium thiosulfate solution required in titration F_2: factor of 0.2 mol/L aqueous sodium thiosulfate solution H: hydrogen peroxide concentration (wt %) determined by formula (1-1) w_2: weight (g) of the sterilizer composition Kao, 14:5-49 To the extent the preamble is limiting and is not fully disclosed or suggested by Kao, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket

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	1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.	Kao the method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%. *See* claim 9. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the

Asserted Claims of the '449 Patent	**Kao**
	viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

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	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. (1) Method of Measuring the Concentration of an Organic Peracid (1-1) Quantification of Hydrogen Peroxide w_1 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 200 mL conical beaker, and 10 mL of 20% aqueous sulfuric acid solution and 2 to 3 ice pieces were added thereto to cool the solution, and after 1 to 2 drops of an aqueous saturated manganese sulfate solution were added thereto as a catalyst, the solution was

Asserted Claims of the '449 Patent	**Kao**
	titrated with 0.1 mol/L (½ N) aqueous potassium permanganate solution. The point in time when the solution assumed a pale pink color for 1 to 10 seconds was regarded as end point. The hydrogen peroxide concentration is calculated from the following equation (1-1) Hydrogen peroxide concentration(wt %)=$(0.85\times T_1\times F_1)/w_1$ (1-1) T_1: amount (mL) of 0.1 mol/L aqueous potassium permanganate solution required in titration F_1: factor of 0.1 mol/L aqueous potassium permanganate solution w_1: weight (g) of the sterilizer composition (1-2) Quantification of an Organic Peracid w_2 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 300 mL Erlenmeyer flask equipped with a cap, and after 10 mL of 20% aqueous sulfuric acid solution, 20 mL purified water and 2 mL aqueous saturated potassium iodide solution were added thereto, the flask was capped and then gently shaken. The solution was left in a cool and dark place for 5 minutes and then titrated with 0.2 mol/L (⅕ N) aqueous sodium thiosulfate solution. When the solution assumed a pale yellow color, the titration was continued by adding a few drops of 2% aqueous starch solution. The point in time when the bluish violet color of the solution disappeared was regarded as end point. The organic peracid concentration is calculated from the following equation (1-2): Organic peracid concentration(wt %)=(molecular weight of organic peracid×[$\{T_2\times F_2\}/\{100\times w_2\}-H/34$])/number of percarboxyl groups in one molecule (1-2) T_2: amount (mL) of 0.2 mol/L aqueous sodium thiosulfate solution required in titration F_2: factor of 0.2 mol/L aqueous sodium thiosulfate solution H: hydrogen peroxide concentration (wt %) determined by formula (1-1) w_2: weight (g) of the sterilizer composition Kao, 14:5-49

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	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Kao discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 7. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester

Asserted Claims of the '449 Patent	**Kao**
	group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Asserted Claims of the '449 Patent	**Kao**
Claim 14	
14. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Kao discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10.

Asserted Claims of the '449 Patent	**Kao**
	EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 15	

Asserted Claims of the '449 Patent	**Kao**
15. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Kao discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

Asserted Claims of the '449 Patent	**Kao**
	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 16	
16. The method of claim 1, wherein the peracetic acid solution is for immediate use.	Kao discloses the method of claim 1, wherein the peracetic acid solution is for immediate use.

Asserted Claims of the '449 Patent	**Kao**
	See claim 1. For example: <First Sterilizer Composition> The first sterilizer composition of the present invention contains water and an organic peracid obtained by reacting the component (A) with the component (B1) in an (A)/(B1) molar ratio of 1/10 to 20/1 in water at pH 8 to 12, the sterilizer composition having a pH value of 1 to less than 7 at, 25° C. As described above, the first sterilizer composition of the present invention is prepared by reacting the components (A) and (B1) in a specific molar ratio in water at pH 8 to 12, and subsequent adjustment to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer according to the present invention. The first sterilizer composition can also contain the surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye described above. The amount of water in the composition is preferably 50 wt % to less than 100 wt %, more preferably 60 wt % to less than 100 wt %, still more preferably 70 wt % to less than 100 wt %. Similar to the aqueous solution obtained from the composition for production of a sterilizer according to the present invention, the first sterilizer composition of the present invention is an aqueous solution containing an organic peracid, and the concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the first sterilizer composition of the present invention is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. This hydrogen peroxide content is achieved preferably just after preparation of the composition, more preferably at use. Kao, 7:41-8:5

Asserted Claims of the '449 Patent	**Kao**
	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 17	
17. The method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day.	Kao discloses the method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day. *See* claim 1. For example: The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer).

Asserted Claims of the '449 Patent	**Kao**
	Kao, 1:65-2:21 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer>

Asserted Claims of the '449 Patent	**Kao**
	The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal

Asserted Claims of the '449 Patent	**Kao**
	carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl

Asserted Claims of the '449 Patent	**Kao**
	phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc.

Asserted Claims of the '449 Patent	**Kao**
	The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer>

Asserted Claims of the '449 Patent	**Kao**
	The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores

Asserted Claims of the '449 Patent	**Kao**
	in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.

Asserted Claims of the '449 Patent	**Kao**
	Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 18	
18. The method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use.	Kao discloses the method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use. *See* claim 1. For example: <First Sterilizer Composition> The first sterilizer composition of the present invention contains water and an organic peracid obtained by reacting the component (A) with the component (B1) in an (A)/(B1) molar ratio of 1/10 to 20/1 in water at pH 8 to 12, the sterilizer composition having a pH value of 1 to less than 7 at, 25° C. As described above, the first sterilizer composition of the present invention is prepared by reacting the components (A) and (B1) in a specific molar ratio in water at pH 8 to 12, and subsequent adjustment to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer according to the present invention. The first sterilizer composition can also contain the surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye described above. The amount of water in the composition is preferably 50 wt % to less than 100 wt %, more preferably 60 wt % to less than 100 wt %, still more preferably 70 wt % to less than 100 wt %. Similar to the aqueous solution obtained from the composition for production of a sterilizer according to the present invention, the first sterilizer composition of the present invention is an aqueous solution containing an organic peracid, and the concentration of an organic

Asserted Claims of the '449 Patent	**Kao**
	peracid in the aqueous solution is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the first sterilizer composition of the present invention is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. This hydrogen peroxide content is achieved preferably just after preparation of the composition, more preferably at use. Kao, 7:41-8:5 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 19	
19. The method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution.	Kao discloses the method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution. *See* claim 1[b] and claim 2. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 20	
20. The method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.	Kao discloses the method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1. *See* claim 3.

Asserted Claims of the '449 Patent	**Kao**
	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 21	
21. The method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Kao discloses the method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 6. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 22	
22. The method of claim 21, wherein the sodium hydroxide is about 1.82%to about 7.28%.	Kao discloses the method of claim 21, wherein the sodium hydroxide is about 1.82%to about 7.28%. *See* claim 7. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 23	
23. The method of claim 22, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1.	Kao discloses the method of claim 22, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1. *See* claim 22. For example:

Asserted Claims of the '449 Patent	**Kao**
	<First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to

Asserted Claims of the '449 Patent	**Kao**
	(B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibit A-3

Charted Reference: U.S. Patent No. 7,271,137 to Tucker ("Tucker")

Tucker issued on September 18, 2007 from a U.S. utility patent application filed on January 27, 2004. Tucker claims priority to a provisional application filed on October 1, 2001. Tucker qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '449 patent are anticipated and/or obvious over Tucker, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[3]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '449 Patent	**Tucker**
Claim 1	
1[p]. A method of generating non-equilibrium solution of peracetic acid, comprising:	To the extent that the preamble is limiting, it is disclosed or suggested by Tucker. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises:

[3] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims of the '449 Patent	**Tucker**
	a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate,

Asserted Claims of the '449 Patent	**Tucker**
	sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a

Asserted Claims of the '449 Patent	**Tucker**
	common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '449 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '449 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '449 Patent	**Tucker**
	In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 • To the extent the preamble is limiting and is not fully disclosed or suggested by Tucker, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Tucker discloses providing water. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator;

Asserted Claims of the '449 Patent	**Tucker**
	an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '449 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '449 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '449 Patent	**Tucker**
	• To the extent the preamble is limiting and is not fully disclosed or suggested by Tucker, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[b]. introducing a hydrogen peroxide-triacetin solution to the water;	Tucker discloses introducing a hydrogen peroxide-triacetin solution to the water. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A

Asserted Claims of the '449 Patent	**Tucker**
	preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution

Asserted Claims of the '449 Patent	**Tucker**
	o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride

Asserted Claims of the '449 Patent	**Tucker**
	o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water

Asserted Claims of the '449 Patent	**Tucker**
	Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise

Asserted Claims of the '449 Patent	**Tucker**
	propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the hydrogen peroxide-triacetin solution and the water to form a mixture;	Tucker discloses mixing the hydrogen peroxide-triacetin solution and the water to form a mixture. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42

Asserted Claims of the '449 Patent	**Tucker**
	Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate

Asserted Claims of the '449 Patent	**Tucker**
	o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B.

Asserted Claims of the '449 Patent	**Tucker**
	A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent

Asserted Claims of the '449 Patent	**Tucker**
	• 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Tucker discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting

Asserted Claims of the '449 Patent	**Tucker**
	of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38

Asserted Claims of the '449 Patent	**Tucker**
	In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for

Asserted Claims of the '449 Patent	**Tucker**
	drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may

Asserted Claims of the '449 Patent	**Tucker**
	comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Tucker discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Tucker, ¶ 8 A sterilizing cleaner kit suitable for obtaining the sterilizing cleaner composition for hard surfaces of the present invention is configured to contain the composition for producing sterilizing cleaner of the present invention, a reaction initiator (hereinafter referred to as component (C)) that initiates the reaction of component (A) and component (B1) brought about by the composition, and a pH adjusting agent (hereinafter referred to as component (D)). Furthermore, the sterilizing cleaner kit may also be configured to include component (A), component (B), component (C), and component (D).

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, ¶ 46 The component (A) and the component (B1) react under alkaline conditions (water temperature 5 to 50 is suitable) in water to generate an organic peroxy acid, and therefore, a component that gives such a pH may be used as the component (C). Specifically, examples include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides, alkali metal silicate salts such as sodium silicate and potassium silicate, alkali metal phosphate salts that exhibit alkalinity, such as trisodium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate, which were given as examples of alkaline pH adjusting agents; however, from the perspective of alkalinity or water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphate salts such as trisodium phosphate and tripotassium carbonate and alkali metal carbonate salts such as sodium carbonate and potassium carbonate are preferable. Tucker, ¶ 48 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 2	
2. The method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution.	Tucker discloses the method of claim 1, further comprising, prior to step (b), a step of providing the hydrogen peroxide-triacetin solution comprising: introducing triacetin to a solution of aqueous hydrogen peroxide; and allowing the triacetin and the solution of aqueous hydrogen peroxide to mix to form the hydrogen peroxide-triacetin solution. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49

Asserted Claims of the '449 Patent	**Tucker**
	Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a

Asserted Claims of the '449 Patent	**Tucker**
	very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams):

Asserted Claims of the '449 Patent	**Tucker**
	Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '449 Patent	**Tucker**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.	Tucker discloses the method of claim 1, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol

Asserted Claims of the '449 Patent	**Tucker**
	o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B.

Asserted Claims of the '449 Patent	**Tucker**
	A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent

Asserted Claims of the '449 Patent	**Tucker**
	• 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Tucker discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example:

Asserted Claims of the '449 Patent	**Tucker**
	A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30

Asserted Claims of the '449 Patent	**Tucker**
	Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water

Asserted Claims of the '449 Patent	**Tucker**
	o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base

Asserted Claims of the '449 Patent	**Tucker**
	• water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise

Asserted Claims of the '449 Patent	**Tucker**
	benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.	Tucker discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and

Asserted Claims of the '449 Patent	**Tucker**
	water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '449 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '449 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '449 Patent	**Tucker**
	To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Tucker discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: > Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '449 Patent	**Tucker**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Tucker discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%. *See* claim 6. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate,

Asserted Claims of the '449 Patent	**Tucker**
	ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water

Asserted Claims of the '449 Patent	**Tucker**
	The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below:

Asserted Claims of the '449 Patent	**Tucker**
	Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base

Asserted Claims of the '449 Patent	**Tucker**
	o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 8	
8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Tucker discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises:

Asserted Claims of the '449 Patent	**Tucker**
	a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate,

Asserted Claims of the '449 Patent	**Tucker**
	sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a

Asserted Claims of the '449 Patent	**Tucker**
	common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '449 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '449 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '449 Patent	**Tucker**
	In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid.	Tucker discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting

Asserted Claims of the '449 Patent	**Tucker**
	of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate

Asserted Claims of the '449 Patent	**Tucker**
	o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for

Asserted Claims of the '449 Patent	**Tucker**
	drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may

Asserted Claims of the '449 Patent	**Tucker**
	comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	
10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes.	Tucker discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3

Asserted Claims of the '449 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '449 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '449 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	

Asserted Claims of the '449 Patent	**Tucker**
11. The method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid.	• Tucker discloses the method of claim 10, further comprising, after step (e), a step of sampling the reaction medium to determine the time required to maximize the amount of hydrogen peroxide triacetin that are converted into peracetic acid. *See* claim 10. For example: In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 To the extent the preamble is limiting and is not fully disclosed or suggested by Tucker, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.	Tucker the method of claim 9, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%. *See* claim 9. For example:

Asserted Claims of the '449 Patent	**Tucker**
	In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Tucker discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 7. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting

Asserted Claims of the '449 Patent	**Tucker**
	of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate

Asserted Claims of the '449 Patent	**Tucker**
	o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '449 Patent	**Tucker**
	The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for

Asserted Claims of the '449 Patent	**Tucker**
	drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may

Asserted Claims of the '449 Patent	**Tucker**
	comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 14	
14. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Tucker discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3

Asserted Claims of the '449 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '449 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '449 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 15	

Asserted Claims of the '449 Patent	**Tucker**
15. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Tucker discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water

Asserted Claims of the '449 Patent	**Tucker**
	The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below:

Asserted Claims of the '449 Patent	**Tucker**
	Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base

Asserted Claims of the '449 Patent	**Tucker**
	o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 16	
16. The method of claim 1, wherein the peracetic acid solution is for immediate use.	Tucker discloses the method of claim 1, wherein the peracetic acid solution is for immediate use. *See* claim 1. For example: The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '449 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '449 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 17	

Asserted Claims of the '449 Patent	**Tucker**
17. The method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day.	Tucker discloses the method of claim 1, further comprising, after step (e), a step of adding a source of acid to stabilize the non-equilibrium solution of peracetic acid for storing and using throughout a working day. *See* claim 1. For example: > In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 18	
18. The method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use.	Tucker discloses the method of claim 1, wherein the peracetic acid solution is prepared on a site having a point-of-use. *See* claim 1. For example: > The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '449 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '449 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 4, and 5 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 19	

Asserted Claims of the '449 Patent	**Tucker**
19. The method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution.	Tucker discloses the method of claim 2, wherein the liquid is triacetin defining a hydrogen peroxide-triacetin solution. *See* claim 1[b] and claim 2. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 20	
20. The method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1.	Tucker discloses the method of claim 19, wherein the hydrogen peroxide-triacetin solution has a mole ratio of hydrogen peroxide to triacetin of about 2.98:1 to about 12.84:1. *See* claim 3. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 21	
21. The method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Tucker discloses the method of claim 19, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 6. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 22	

Asserted Claims of the '449 Patent	**Tucker**
22. The method of claim 21, wherein the sodium hydroxide is about 1.82%to about 7.28%.	Tucker discloses the method of claim 21, wherein the sodium hydroxide is about 1.82%to about 7.28%. *See* claim 7. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 23	
23. The method of claim 22, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1.	Tucker discloses the method of claim 22, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:18:1. *See* claim 22. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '449 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3

Asserted Claims of the '449 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '449 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '449 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibits B-1 to B-3: Claim Charts Against U.S. Patent No. 9,363,997 ("'997 Patent")

[Note: Plaintiff provided preliminary infringement contentions for the '997 patent for Claims 1, 3-4, 6, 9-10, and 13-14 only.]

Exhibit B-1

Charted Reference: Japanese Patent Pub. JP 2006-045147 to Okano et al. ("Okano")

Okano published on February 16, 2006 from a Japanese application filed on August 6, 2004. Okano qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '997 patent are anticipated and/or obvious over Okano, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[4]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

[4] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims of the '997 Patent	**Okano**
Claim 1	
1[p]. A method of generating a non-equilibrium solution of peracetic acid, comprising:	• To the extent that the preamble is limiting, it is disclosed or suggested by Okano. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Okano, ¶ 8 The present invention also relates to a method for producing a sterilizing cleaner composition for hard surfaces, having steps for reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, and (B1) hydrogen peroxide in a molar ratio of (A)/(B1) = 1/10 to 20/1 in water at a pH of 8 to 12, and then adjusting the pH of the reaction system to 1 or higher but less than 7. Okano, ¶ 9 <Component (A)> An ester between a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, of a component (A) reacts with hydrogen peroxide to produce an organic peracid…Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these, triacetin is preferable.

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	Okano, ¶¶ 11–14 Hereinafter, the inorganic peroxide that releases hydrogen peroxide in water (B2) will be referred to as component (B2), and the components (B1) and (B2) will be collectively described as component (B)…<Component (B)> In the component (B), the inorganic peroxide that releases hydrogen peroxide in the water of the component (B2) is preferably hydrogen peroxide when the composition for producing sterilizing cleaner is liquid, preferably percarbonate, perborate, and the like when the composition is granular, powdery, or the like, and particularly sodium percarbonate, sodium perborate, and the like when the composition is solid. Okano, ¶¶ 31–33 The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into

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	consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium

Asserted Claims of the '997 Patent	**Okano**
	hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 Third Composition for Producing Sterilizing Cleaner The third composition for producing sterilizing cleaner of the present invention is obtained by blending component (A) and component (B) of the present invention, and similar to the second composition for producing sterilizing cleaner, the molar ratio of component (A) and component (B1) derived from component (B) is (A)/(B1) = 1/10 to 20/1, and after the pH is 8 to 12, it is used as an aqueous solution prepared with a pH of 1

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	or more but less than 7. The specific compounds of component (A) and component (B) and the preferred molar ratio of component (A)/(B1) are also similar to those of the second composition for producing sterilizing cleaner. Furthermore, the third composition for producing sterilizing cleaner may also contain the aforementioned surfactant, inorganic or organic salts, chelating agents, perfumes, pigments, dyes, and the like, and the packaging form may be the same. Okano, ¶ 45. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. • To the extent the preamble is limiting and is not fully disclosed or suggested by Okano, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Okano discloses providing water. For example:

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	The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. • To the extent the preamble is limiting and is not fully disclosed or suggested by Okano, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Asserted Claims of the '997 Patent	**Okano**
1[b]. introducing triacetin and aqueous hydrogen peroxide to the water;	Okano discloses introducing triacetin and aqueous hydrogen peroxide to the water. For example: <Component (A)> An ester between a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, of a component (A) reacts with hydrogen peroxide to produce an organic peracid…Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these, triacetin is preferable. Okano, ¶¶ 11–14 Hereinafter, the inorganic peroxide that releases hydrogen peroxide in water (B2) will be referred to as component (B2), and the components (B1) and (B2) will be collectively described as component (B)…<Component (B)> In the component (B), the inorganic peroxide that releases hydrogen peroxide in the water of the component (B2) is preferably hydrogen peroxide when the composition for producing sterilizing cleaner is liquid, preferably percarbonate, perborate, and the like when the composition is granular, powdery, or the like, and particularly sodium percarbonate, sodium perborate, and the like when the composition is solid. Okano, ¶¶ 31–33 <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the

Asserted Claims of the '997 Patent	**Okano**
	composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the

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	organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but

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	preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting

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	agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture;	Okano discloses mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture. For example: <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per

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	ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner.

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	Okano, ¶ 39. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Okano discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by

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	setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package

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	(I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Okano discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric

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	alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Okano, ¶ 8 A sterilizing cleaner kit suitable for obtaining the sterilizing cleaner composition for hard surfaces of the present invention is configured to contain the composition for producing sterilizing cleaner of the present invention, a reaction initiator (hereinafter referred to as component (C)) that initiates the reaction of component (A) and component (B1) brought about by the composition, and a pH adjusting agent (hereinafter referred to as component (D)). Furthermore, the sterilizing cleaner kit may also be configured to include component (A), component (B), component (C), and component (D). Okano, ¶ 46 The component (A) and the component (B1) react under alkaline conditions (water temperature 5 to 50 is suitable) in water to generate an organic peroxy acid, and therefore, a component that gives such a pH may be used as the component (C). Specifically, examples include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides, alkali metal silicate salts such as sodium silicate and potassium silicate, alkali metal phosphate salts that exhibit alkalinity, such as trisodium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate, which were given as examples of alkaline pH adjusting agents; however, from the perspective of alkalinity or water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphate salts such as trisodium phosphate and tripotassium

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	carbonate and alkali metal carbonate salts such as sodium carbonate and potassium carbonate are preferable. Okano, ¶ 48 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 2	
2. The method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced simultaneously.	Okano discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced simultaneously. *See* claim 1.

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	For example: <First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner

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	composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In

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	the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting

Asserted Claims of the '997 Patent	**Okano**
	agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first.	Okano discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first. *See* claim 1. For example:

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	<First Composition for Producing Sterilizing Cleaner> The first composition for producing sterilizing cleaner of the present invention contains component (A) and component (B1), and in order to suppress reaction between component (A) and component (B1) during storage and maintain the stability of the composition, the moisture content of the composition is 1 to 25 wt%, preferably 5 to 20 wt%, and particularly preferably 5 to 15 wt%. Okano, ¶ 34. The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then

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	adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but

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	preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting

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	agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Okano discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example:

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	<Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.	Okano discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel. *See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by

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	Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Okano discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many

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	moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a

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	multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm.

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	Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Okano discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%. *See* claim 6. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A),

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	more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the

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	pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

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Claim 8	
8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Okano discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: Second Composition for Producing sterilizing cleaner The second composition for producing sterilizing cleaner of the present invention contains component (A) and component (B), and it is preferable that the ratio of the two is in a range in which component (B1) and component (A) react efficiently, and taking into consideration the efficiency of organic peracid generation, bactericidal effect, formulation stability, and the like, the molar ratio of component (A) to component (B1) is (A)/(B1) = 1/10 to 20/1, preferably 1/10 to 10/1, and more preferably 1/5 to 10/1. From the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide, the molar ratio of component (B1) per ester group of component (A) is preferably 2 times as many moles or less, particularly preferably 0.3 to 2 times as many moles. When component (B2) is used, it is also preferable to compound such in an amount that generates component (B1) in the above range. Preferably, in addition to satisfying the molar ratio, the composition for producing the second sterilizing cleaner of the present invention contains 0.1 to 90 wt% component (A), more so 0.5 to 70 wt%, particularly 1 to 50 wt% component (B), and 0.1 to 50 wt% component (B1), preferably 0.1 to 30 wt%, and even more preferably 0.1 to 20 wt%. When using the second composition for producing sterilizing cleaner of the present invention, the aqueous solution that is the sterilizing cleaner composition is prepared by setting the pH to 8 to 12, preferably to 9 to 11 (first step), and then setting the pH to 1 or more and less than 7, preferably to 1 to 6, and more preferably to 1 to 5 (second step). In the first step, an alkaline pH adjusting agent is preferably used, and in the second step, an

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	acidic pH adjusting agent is preferably used. This pH may be at the time of use, but preferably satisfies the above pH at 25°C. Note that the first composition for producing sterilizing cleaner of the present invention described above may also be used in the same manner. Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable… The second composition for producing sterilizing cleaner of the present invention may package all of the blended components together, but from a perspective of stability, a multi-part form where component (A) and component (B) are packaged separately is preferable. For example, a three-part composition for producing sterilizing cleaner may be made from a package (1) of a composition containing component (A), a package (2) of a composition containing component (B), and a package (3) of a composition containing a pH adjusting agent (an acidic pH adjusting agent such as citric acid) for finally setting the pH to 1 or more and less than 7. In this case, it is preferable that an alkali agent is added to the package (2) and the mixture of the package (1) and the package (2) is adjusted so as to have a pH of 8 to 12. Furthermore, component (A) and component (B) may also be co-located in one package, particularly for a powder composition, and a two-part composition for producing sterilizing cleaner may be made from, for example, a package (I) of a composition containing component (A), component (B), and an alkali agent for adjusting the pH to 8 to 12, and a package (II) of a composition containing a pH adjusting

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	agent (an acidic pH adjusting agent such as citric acid) for finally making the pH to be 1 or more and less than 7. Okano, ¶¶ 37–43 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. There are many facilities where a hygienic environment is desired, such as food production plants, pharmaceutical production plants, hospitals, nursing homes, kitchens, bathrooms, and the like. In such cases, careful sterilization of floors, walls, and equipment used and the like is essential in order to maintain a hygienic environment. Okano, ¶ 2 Cleaners, sterilizing agents, and sterilizing cleaners for liquids or powders that contain surfactants, sterilizing agents, and the like are mainly used to sterilize and clean such hard surfaces. Furthermore, when a sterilization and cleaning process is incorporated into an

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	industrial production process, steps such as supplying, mixing, and applying (painting, spraying, and the like) the active ingredient are often automated. Okano, ¶ 3 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid.	Okano discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid. *See* claim 1. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35.

Asserted Claims of the '997 Patent	**Okano**
	<Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	
10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid is about 30 seconds to about five minutes.	Okano discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the

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	component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	
11. The method of claim 10, wherein and the percent of triacetin that is converted into	Okano the method of claim 10, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.

Asserted Claims of the '997 Patent	**Okano**
peracetic acid is about 40.9% to about 85.7%.	*See* claim 10. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57.

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	About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion exchanged water and approximately 1 mL of a hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated using a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100; T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL); W: Collected amount of the sterilizing cleaner composition (g) Okano, ¶ 59 To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 6, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Okano discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 6. For example: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then

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	adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Okano discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example:

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	<Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. There are many facilities where a hygienic environment is desired, such as food production plants, pharmaceutical production plants, hospitals, nursing homes, kitchens, bathrooms, and the like. In such cases, careful sterilization of floors, walls, and equipment used and the like is essential in order to maintain a hygienic environment. Okano, ¶ 2 Cleaners, sterilizing agents, and sterilizing cleaners for liquids or powders that contain surfactants, sterilizing agents, and the like are mainly used to sterilize and clean such hard surfaces. Furthermore, when a sterilization and cleaning process is incorporated into an industrial production process, steps such as supplying, mixing, and applying (painting, spraying, and the like) the active ingredient are often automated. Okano, ¶ 3

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	To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 14	
14. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Okano discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibit B-2

Charted Reference: U.S. Patent No. 7,919,122 to Okano et al. and assigned to Kao Corporation ("Kao")

Kao issued on April 5, 2011 from a PCT patent application filed on April 1, 2004. Kao qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '997 patent are anticipated and/or obvious over Kao, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[5]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

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Claim 1	

[5] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

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1[p]. A method of generating a non-equilibrium solution of peracetic acid, comprising:	To the extent that the preamble is limiting, it is disclosed or suggested by Kao. For example: The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 <Component (A)> As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin

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	and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16 <Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer>

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	The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect,

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	the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of

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	alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18)

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	dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition

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	containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than

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	7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10.

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	Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. • To the extent the preamble is limiting and is not fully disclosed or suggested by Kao, it would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '997 Patent	**Kao**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Kao discloses providing water. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide.

Asserted Claims of the '997 Patent	**Kao**
	Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture

Asserted Claims of the '997 Patent	**Kao**
	to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. • To the extent the preamble is limiting and is not fully disclosed or suggested by Kao, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[b]. introducing triacetin and aqueous hydrogen peroxide to the water;	Kao discloses introducing triacetin and aqueous hydrogen peroxide to the water. For example: <Component (A)>

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	As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16 <Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or

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	powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide.

Asserted Claims of the '997 Patent	**Kao**
	Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used.

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	The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and

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	polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the

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	aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention.

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	<Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the

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	method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for

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	sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture;	Kao discloses mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture. For example: <Component (A)> As the component (A), the ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group reacts with hydrogen peroxide to generate an organic peracid. The polyhydric alcohol for constituting the component (A) is preferably a C2 to C12 alcohol, and examples thereof include glycerin derivatives such as glycerin, diglycerin and triglycerin, and sugars such as glucose, sucrose, fructose, sorbitol, pentaerythritol, alkyl polyglycoside and alkyl furanoside. The organic acid for constituting the component (A) includes aliphatic monocarboxylic acids such as acetic acid, propionic acid, butyric acid, valeric acid, caproic acid and octanoic acid, aliphatic dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, maleic acid and fumaric acid, and hydroxycarboxylic acids such as citric acid, tartaric acid and malic acid, and is preferably a C1 to C8 saturated or unsaturated aliphatic mono- or dicarboxylic acid, more preferably a C1 to C8 saturated or unsaturated aliphatic

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	monocarboxylic acid, still more preferably a C1 to C8 fatty acid, furthermore preferably a C2 to C8 fatty acid. The degree of esterification of the component (A) is not limited. Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, 3:57-4:16 <Component (B)> The component (B) is (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water, and when the composition is a liquid form, hydrogen peroxide is preferable, and when the composition is in a solid form such as particles or powder, percarbonate or perborate is preferable, and sodium percarbonate or sodium perborate is particularly preferable. Kao, 4:17-24 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition

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	of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an

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	amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be

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	present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention.

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	The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and

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	(B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40

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	EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted

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	to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Kao discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to

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	25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the

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	viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble

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	organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a

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	polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by

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	incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned

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	surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

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	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Kao discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example:

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	The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight.

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	The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted

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	hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of

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	acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of

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	preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a

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	powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned

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	surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

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	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 2	
2. The method of claim 1, wherein the triacetin and the	Kao discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced simultaneously.

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aqueous hydrogen peroxide are introduced simultaneously.	*See* claim 1. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53

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	<Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium

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	hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic

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	surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the

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	aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention.

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	<Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the

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	method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for

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	sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first.	Kao discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first. *See* claim 1. For example: For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the

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	sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to

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	50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention.

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	The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid,

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	glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition

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	containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40

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	EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted

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	to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Kao discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture

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	to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes

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	after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.	Kao discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10,

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	followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the

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	organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Kao discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted

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	hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of

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	acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of

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	preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a

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	powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned

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	surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6

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	Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Kao discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.

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	See claim 6. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used.

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	The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and

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	polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention. The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the

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	aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and (B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention.

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	<Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the

Asserted Claims of the '997 Patent	**Kao**
	method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for

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	sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 8	
8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Kao discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: <Second Composition for Production of a Sterilizer> The second composition for production of a sterilizer according to the present invention contains the components (A) and (B), wherein the ratio of the two is preferably in such a range that the component (B1) reacts efficiently with the component (A), and in consideration of the efficiency of formation of an organic peracid, the sterilizing effect, the stability of the preparation, etc., the molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. When the component (B2) is used, it is compounded preferably in such an amount as to generate the component (B1) in the range described above. Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an

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	amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Preferably, an alkaline pH adjusting agent is used in the first step, and an acidic pH adjusting agent in the second step. This pH may be a pH value at use, but preferably satisfies the above pH at 25° C. The first composition for production of a sterilizer according to the present invention can also be similarly used. The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate, potassium silicate etc., alkali metal phosphates showing alkalinity, such as trisodium phosphate etc., and alkali metal carbonates such as sodium carbonate, potassium carbonate etc., among which alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphates such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate are preferable from the viewpoint of alkalinity and water solubility. The acidic pH adjusting agent includes inorganic acids such as hydrochloric acid, sulfuric acid, phosphoric acid etc., and organic acids such as formic acid, acetic acid, citric acid, succinic acid, gluconic acid etc., among which liquid inorganic acids such as sulfuric acid and phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable from the viewpoint of acidity and water solubility. These can be used singly or a mixture of two or more thereof. These pH adjusting agents may be present in the second composition for production of a sterilizer according to the present invention. These pH adjusting agents can also be

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	present in the above-described first composition for production of a sterilizer according to the present invention. The second composition for production of a sterilizer according to the present invention can contain a surfactant, inorganic or organic salts, a chelating agent, a perfume, a pigment, a dye etc. in addition to the components (A) and (B). These components can also be present in the above-described first composition for production of a sterilizer according to the present invention. The surfactant includes nonionic surfactants, anionic surfactants, cationic surfactants and amphoteric surfactants. The nonionic surfactants include monohydric alcohol derivative-based nonionic surfactants such as polyoxyethylene (referred to hereinafter as POE) alkyl ether, POE alkyl phenyl ether, polyoxypropylene/POE (block or random) alkyl ether, POE aryl phenyl ether, POE styrene phenyl ether, POE tribenzyl phenyl ether, etc., and polyhydric alcohol derivative-based nonionic surfactants such as (poly)glycerin fatty ester, sucrose fatty ester, sorbitan fatty ester, alkyl polyglycoside, etc. The anionic surfactants include lignin sulfonate, alkyl benzene sulfonate, alkyl sulfonate, POE alkyl sulfonate, POE alkyl phenyl ether sulfonate, POE alkyl phenyl ether phosphate, POE aryl phenyl ether sulfonate, POE aryl phenyl ether phosphate, naphthalene sulfonate, naphthalene sulfonic acid/formalin condensates, POE tribenzyl phenyl ether sulfonate, POE tribenzyl phenyl ether phosphate, etc. The cationic surfactants include mono-long chain alkyl (C8 to C18) trimethyl ammonium chloride, di-long chain alkyl (C8 to C18) dimethyl ammonium chloride, benzalkonium chloride, benzethonium chloride, etc. The amphoteric surfactants include alkyl aminotrimethyl glycine, alkyl dimethyl amine oxide, alkyl diaminoethyl glycine hydrochloride, etc. These can be used singly or as a mixture of two or more thereof. The surfactant is preferably a nonionic surfactant, more preferably a polyhydric alcohol-based nonionic surfactant. The surfactant is contained in an amount of preferably 0 to 20% by weight, more preferably 0 to 10% by weight, in the second composition for production of a sterilizer according to the present invention.

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	The salts not only serve as a pH adjusting agent, but are also used mainly for the purpose of stabilization of the sterilizer, and specific examples include organic salts such as metal salts of carboxylic acids such as succinic acid, malonic acid, citric acid, gluconic acid, glutaric acid etc., metallic salts of phosphoric acid compounds such as tripolyphosphoric acid, hexamethaphosphoric acid, phosphoric acid etc., and inorganic salts such as sulfates such as sodium sulfate, potassium sulfate etc. These can be used singly or as a mixture of two or more thereof. The chelating agent includes ethylenediaminetetraacetic acid, nitrotriacetic acid, tripolyphosphoric acid, polyhydroxyacrylic acid, organic phosphonic acid or salts thereof. The second composition for production of a sterilizer according to the present invention can have various forms, and in the case of a liquid form, the composition is preferably highly fluidic and may be in the form of fluidic slurry, gel, paste or the like besides the aqueous solution. When the composition is in a solid form, it may be in the form of particles, powder, granules, pellets etc. The second composition for production of a sterilizer according to the present invention may contain all compounding ingredients packaged together therein, but from the viewpoint of stability, is preferably a multi-pack type wherein the components (A) and (B) are separately packaged. The composition can be for example a composition of 3-pack type for production of a sterilizer, containing a package (1) of a composition containing the component (A), a package (2) of a composition containing the component (B) and a package (3) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. In this case, a mixture of the packages (1) and (2) is regulated preferably in the range of pH 8 to 12 by incorporation of an alkali into the package (2). Particularly when the composition is in a powdery form, the components (A) and (B) can be coexistent in one package, and the composition can be for example a composition of 2-pack type for production of a sterilizer, containing a package (I) of a composition containing the components (A) and

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	(B) and an alkali for adjustment to pH 8 to 12 and a package (II) of a composition containing a pH adjusting agent (acidic pH adjusting agent such as citric acid) for final adjustment to pH 1 to less than 7. The pH of the second composition for production of a sterilizer according to the present invention, when used, is regulated in the first and second steps, whereby an aqueous solution of a sterilizer composition containing an organic peracid is prepared. The concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm (ratio by weight; this hereinafter applies), more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the aqueous solution is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. These findings also apply to the first composition for production of a sterilizer according to the present invention. <Third Composition for Production of a Sterilizer> The third composition for production of a sterilizer according to the present invention is obtained by compounding the above-mentioned components (A) and (B) in the present invention wherein similarly to the second composition for production of a sterilizer, the molar ratio of the component (A) to the component (B1) derived from the component (B), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer. The third composition for production of a sterilizer can also contain the above-mentioned surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye, and the mode of packaging can also be the same as described above. Kao, 5:3-7:40

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	EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted

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	to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid.	Kao discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid. *See* claim 1. For example: <First Composition for Production of a Sterilizer>

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	The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker.

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	The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization

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	was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	
10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes.	Kao discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight.

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	The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide

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	concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for

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	sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	
11. The method of claim 10, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.	Kao the method of claim 10, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%. *See* claim 9. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30

Asserted Claims of the '997 Patent	**Kao**
	to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the

Asserted Claims of the '997 Patent	**Kao**
	objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.

Asserted Claims of the '997 Patent	**Kao**
	(1) Method of Measuring the Concentration of an Organic Peracid (1-1) Quantification of Hydrogen Peroxide w_1 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 200 mL conical beaker, and 10 mL of 20% aqueous sulfuric acid solution and 2 to 3 ice pieces were added thereto to cool the solution, and after 1 to 2 drops of an aqueous saturated manganese sulfate solution were added thereto as a catalyst, the solution was titrated with 0.1 mol/L (½ N) aqueous potassium permanganate solution. The point in time when the solution assumed a pale pink color for 1 to 10 seconds was regarded as end point. The hydrogen peroxide concentration is calculated from the following equation (1-1) Hydrogen peroxide concentration(wt %)=$(0.85\times T_1\times F_1)/w_1$ (1-1) T_1: amount (mL) of 0.1 mol/L aqueous potassium permanganate solution required in titration F_1: factor of 0.1 mol/L aqueous potassium permanganate solution w_1: weight (g) of the sterilizer composition (1-2) Quantification of an Organic Peracid w_2 g (for example, 1 to 50 g) of the sterilizer composition was accurately weighed out in a 300 mL Erlenmeyer flask equipped with a cap, and after 10 mL of 20% aqueous sulfuric acid solution, 20 mL purified water and 2 mL aqueous saturated potassium iodide solution were added thereto, the flask was capped and then gently shaken. The solution was left in a cool and dark place for 5 minutes and then titrated with 0.2 mol/L (⅕ N) aqueous sodium thiosulfate solution. When the solution assumed a pale yellow color, the titration was continued by adding a few drops of 2% aqueous starch solution. The point in time when the bluish violet color of the solution disappeared was regarded as end point. The organic peracid concentration is calculated from the following equation (1-2): Organic peracid concentration(wt %)=(molecular weight of organic peracid$\times[\{T_2\times F_2\}/\{100\times w_2\}-H/34]$)/number of percarboxyl groups in one molecule

Asserted Claims of the '997 Patent	**Kao**
	(1-2) T_2: amount (mL) of 0.2 mol/L aqueous sodium thiosulfate solution required in titration F_2: factor of 0.2 mol/L aqueous sodium thiosulfate solution H: hydrogen peroxide concentration (wt %) determined by formula (1-1) w_2: weight (g) of the sterilizer composition Kao, 14:5-49 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 6, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Kao discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 6. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition

Asserted Claims of the '997 Patent	**Kao**
	of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous

Asserted Claims of the '997 Patent	**Kao**
	solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21 To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Kao discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization

Asserted Claims of the '997 Patent	**Kao**
	test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.

Asserted Claims of the '997 Patent	**Kao**
	Kao, 47:40-49:40, Table 23. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 14	
14. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Kao discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the

Asserted Claims of the '997 Patent	**Kao**
	objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, 47:40-49:40, Table 23.

Asserted Claims of the '997 Patent	**Kao**
	To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibit B-3

Charted Reference: U.S. Patent No. 7,271,137 to Tucker ("Tucker")

Tucker issued on September 18, 2007 from a U.S. utility patent application filed on January 27, 2004. Tucker claims priority to a provisional application filed on October 1, 2001. Tucker qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all claims of the '997 patent are anticipated and/or obvious over Tucker, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[6]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Invalidity Contentions, which are incorporated herein by reference.

[6] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '997 Patent	**Tucker**
Claim 1	
1[p]. A method of generating a non-equilibrium solution of peracetic acid, comprising:	To the extent that the preamble is limiting, it is disclosed or suggested by Tucker. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of

Asserted Claims of the '997 Patent	**Tucker**
	pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate

Asserted Claims of the '997 Patent	**Tucker**
	(monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30

Asserted Claims of the '997 Patent	**Tucker**
	Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base

Asserted Claims of the '997 Patent	**Tucker**
	• water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise

Asserted Claims of the '997 Patent	**Tucker**
	benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 • To the extent the preamble is limiting and is not fully disclosed or suggested by Tucker, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[a]. providing water;	Tucker discloses providing water. For example:

Asserted Claims of the '997 Patent	**Tucker**
	A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2

Asserted Claims of the '997 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate

Asserted Claims of the '997 Patent	**Tucker**
	o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water

Asserted Claims of the '997 Patent	**Tucker**
	Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise

Asserted Claims of the '997 Patent	**Tucker**
	propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 • To the extent the preamble is limiting and is not fully disclosed or suggested by Tucker, it would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[b]. introducing triacetin and aqueous hydrogen peroxide to the water;	Tucker discloses introducing triacetin and aqueous hydrogen peroxide to the water. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42

Asserted Claims of the '997 Patent	**Tucker**
	Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below:

Asserted Claims of the '997 Patent	**Tucker**
	Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base

Asserted Claims of the '997 Patent	**Tucker**
	o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[c]. mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture;	Tucker discloses mixing the triacetin and the aqueous hydrogen peroxide with the water to form a mixture. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds;

Asserted Claims of the '997 Patent	**Tucker**
	a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 7:6-18 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3

Asserted Claims of the '997 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '997 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '997 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Asserted Claims of the '997 Patent	**Tucker**
1[d]. adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture; and	Tucker discloses adding an aqueous source of an alkali metal or earth alkali metal hydroxide to the mixture. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate,

Asserted Claims of the '997 Patent	**Tucker**
	magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30

Asserted Claims of the '997 Patent	**Tucker**
	Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base

Asserted Claims of the '997 Patent	**Tucker**
	• water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise

Asserted Claims of the '997 Patent	**Tucker**
	benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
1[e]. forming a reaction medium comprising a non-equilibrium solution of peracetic acid.	Tucker discloses forming a reaction medium comprising a non-equilibrium solution of peracetic acid. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as component (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Tucker, ¶ 8 A sterilizing cleaner kit suitable for obtaining the sterilizing cleaner composition for hard surfaces of the present invention is configured to contain the composition for producing sterilizing cleaner of the present invention, a reaction initiator (hereinafter referred to as component (C)) that initiates the reaction of component (A) and component (B1) brought about by the composition, and a pH adjusting agent (hereinafter referred to as component

Asserted Claims of the '997 Patent	**Tucker**
	(D)). Furthermore, the sterilizing cleaner kit may also be configured to include component (A), component (B), component (C), and component (D). Tucker, ¶ 46 The component (A) and the component (B1) react under alkaline conditions (water temperature 5 to 50 is suitable) in water to generate an organic peroxy acid, and therefore, a component that gives such a pH may be used as the component (C). Specifically, examples include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides, alkali metal silicate salts such as sodium silicate and potassium silicate, alkali metal phosphate salts that exhibit alkalinity, such as trisodium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate, which were given as examples of alkaline pH adjusting agents; however, from the perspective of alkalinity or water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphate salts such as trisodium phosphate and tripotassium carbonate and alkali metal carbonate salts such as sodium carbonate and potassium carbonate are preferable. Tucker, ¶ 48 <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the

Asserted Claims of the '997 Patent	**Tucker**
	organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Tucker, ¶ 57. To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 2	
2. The method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced simultaneously.	Tucker discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced simultaneously. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49

Asserted Claims of the '997 Patent	**Tucker**
	Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a

Asserted Claims of the '997 Patent	**Tucker**
	very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams):

Asserted Claims of the '997 Patent	**Tucker**
	Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '997 Patent	**Tucker**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 3	
3. The method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first.	Tucker discloses the method of claim 1, wherein the triacetin and the aqueous hydrogen peroxide are introduced sequentially with either one first. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol

Asserted Claims of the '997 Patent	**Tucker**
	o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '997 Patent	**Tucker**
	The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B.

Asserted Claims of the '997 Patent	**Tucker**
	A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent

Asserted Claims of the '997 Patent	**Tucker**
	• 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 4	
4. The method of claim 1, wherein the provided water is an aqueous stream.	Tucker discloses the method of claim 1, wherein the provided water is an aqueous stream. *See* claim 1. For example:

Asserted Claims of the '997 Patent	**Tucker**
	A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30

Asserted Claims of the '997 Patent	**Tucker**
	Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base

Asserted Claims of the '997 Patent	**Tucker**
	• water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise

Asserted Claims of the '997 Patent	**Tucker**
	benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 5	
5. The method of claim 1, wherein the provided water is contained in a mixing tank or other vessel.	Tucker discloses the method of claim 1, wherein the provided water is contained in a mixing tank or other vessel. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and

Asserted Claims of the '997 Patent	**Tucker**
	water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '997 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '997 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '997 Patent	**Tucker**
	To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 6	
6. The method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide.	Tucker discloses the method of claim 1, wherein the aqueous source of the alkali metal or earth alkali metal hydroxide is sodium hydroxide. *See* claim 1. For example: > Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the

Asserted Claims of the '997 Patent	**Tucker**
	Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 7	
7. The method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%.	Tucker discloses the method of claim 6, wherein the sodium hydroxide is about 1.82% to about 7.28%. *See* claim 6. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate, sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate,

Asserted Claims of the '997 Patent	**Tucker**
	ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below:

Asserted Claims of the '997 Patent	**Tucker**
	Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base

Asserted Claims of the '997 Patent	**Tucker**
	o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 8	
8. The method of claim 1, wherein step (d) is performed simultaneously with step (b).	Tucker discloses the method of claim 1, wherein step (d) is performed simultaneously with step (b). *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises:

Asserted Claims of the '997 Patent	**Tucker**
	a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Examples of suitable reactive compounds include: peroxide compounds, activated peroxide compounds (e.g., hydrogen peroxide+bicarbonate), hydrogen peroxide, urea hydrogen peroxide, hydroperoxycarbonate, sodium perborate, sodium percarbonate, sodium carbonate perhydrate, sodium peroxysilicate, sodium peroxypyrophosphate, sodium peroxysilicate, sodium peroxysilicatehydrogen, peroxide adducts of pyrophosphates, citrates, sodium sulfate, urea, sodium silicate, peracetic acid, oximates (e.g., butane-2,3-dione, monooximate ion, and benzohydroxamate), alkoxides (e.g., methoxide and ethoxide), aryloxides (e.g., aryl substituted benzenesulfonates), aldehydes (e.g., glutaraldehyde), peroxymonosulfate, Fenton's reagent (a mixture of iron and peroxide), sodium hypochlorite, and combinations thereof. Tucker, 5:51-59 Examples of suitable inorganic bases include: potassium carbonate, potassium bicarbonate, potassium hydroxide, potassium sulfate, potassium phosphate (dibasic or tribasic), potassium borate, potassium tetraborate, potassium acetate, sodium carbonate,

Asserted Claims of the '997 Patent	**Tucker**
	sodium bicarbonate, sodium hydroxide, sodium sulfate, sodium phosphate (dibasic or tribasic), sodium borate, sodium acetate, ammonium carbonate, ammonium bicarbonate, ammonium hydroxide, ammonium sulfate, ammonium phosphate (dibasic or tribasic), ammonium borate, ammonium acetate, calcium carbonate, calcium bicarbonate, calcium hydroxide, calcium sulfate, calcium phosphate (dibasic or tribasic), calcium borate, calcium acetate, magnesium carbonate, magnesium bicarbonate, magnesium hydroxide, magnesium sulfate, magnesium phosphate (dibasic or tribasic), magnesium borate, magnesium acetate, sodium percarbonate, ammonium hydrogen bicarbonate and lithium bicarbonate, and combinations thereof. Some of these inorganic bases, such as potassium acetate, potassium carbonate, potassium bicarbonate and potassium phosphate (dibasic or tribasic), can also serve as a buffer for controlling and optimizing the pH value of the made-up decontamination solution. Tucker, 6:17-38 Examples of suitable water-soluble bleaching activators, according to the present invention, include: short-chained organic compounds that contain an ester bond (e.g., ethylene glycol diacetate), propylene glycol monomethyl ether acetate, methyl acetate, dimethyl glutarate, diethylene glycol monoethyl ether acetate, glycerol acetate (monoacetin), glycerol diacetate (diacetin), glycerol triacetate (triacetin), acetylcholine chloride, 4-cyanobenzoic acid, propylene glycol diacetate, and combinations thereof. A preferred activator is diacetin (glycerol diacetate). Another preferred water-soluble bleaching activator is propylene glycol diacetate (PGDA), which is shown below. Tucker, 7:6-18 In general, for any embodiments of the present invention, an acid or base may be added to the made-up decontamination solution, or to one of the Part A or Part B components, in order to adjust or buffer the final pH of the solution. Acid or base compounds may include, for example: KOH, citric acid, and HCL. Alternatively, sodium bisulfate (a

Asserted Claims of the '997 Patent	**Tucker**
	common pool conditioning chemical), or other acid, can be used in place of citric acid to adjust the pH. Tucker, 9:31-38 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '997 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '997 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '997 Patent	**Tucker**
	In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 9	
9. The method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid.	Tucker discloses the method of claim 1, further comprising allowing the reaction medium sufficient time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting

Asserted Claims of the '997 Patent	**Tucker**
	of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate

Asserted Claims of the '997 Patent	**Tucker**
	o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol

Asserted Claims of the '997 Patent	**Tucker**
	The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for

Asserted Claims of the '997 Patent	**Tucker**
	drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may

Asserted Claims of the '997 Patent	**Tucker**
	comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 10	
10. The method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid is about 30 seconds to about five minutes.	Tucker discloses the method of claim 9, wherein the time to maximize the conversion of the hydrogen peroxide and the triacetin into peracetic acid is about 30 seconds to about five minutes. *See* claim 9. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3

Asserted Claims of the '997 Patent	**Tucker**
	o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents.

Asserted Claims of the '997 Patent	**Tucker**
	This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components)

Asserted Claims of the '997 Patent	**Tucker**
	• 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 11	

Asserted Claims of the '997 Patent	**Tucker**
11. The method of claim 10, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%.	Tucker the method of claim 10, wherein and the percent of triacetin that is converted into peracetic acid is about 40.9% to about 85.7%. *See* claim 10. For example: > In order to assess the stability of the individual parts in these two-part kit systems, the solution containing hydrogen peroxide and potassium acetate (i.e., Part B in the two-part DF-200 formulation) was tested for the presence of hydrolysis by-products, peracetate formation, and peroxide stability. The tests were conducted at both room temperature (˜23° C.) and at an elevated temperature (˜80° C.). There were no hydrolysis by-products detected in the solution, which was verified by several testing methodologies. No peracetate formation or degradation of the peroxide was detected, either. The addition of the potassium acetate to the peroxide/water blend has no apparent effect in destabilizing the H_2O_2 solution (Part B) above what is seen in a solution of commercially-available stabilized H_2O_2+H_2O. In fact, potassium acetate is used by some companies as a stabilizer of peroxide (albeit at much lower concentrations). Tucker, 16:63-17:11 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 12	
12. The method of claim 6, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1.	Tucker discloses the method of claim 7, wherein the mole ratio of the sodium hydroxide to the hydrogen peroxide to the triacetin is about 4.2:3.8:1. *See* claim 6. For example:

Asserted Claims of the '997 Patent	**Tucker**
	A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30

Asserted Claims of the '997 Patent	**Tucker**
	Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water

Asserted Claims of the '997 Patent	**Tucker**
	o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base

Asserted Claims of the '997 Patent	**Tucker**
	• water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise

Asserted Claims of the '997 Patent	**Tucker**
	benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 13	
13. The method of claim 1, wherein steps (a) through (e) are performed on a continuous basis.	Tucker discloses the method of claim 1, wherein steps (a) through (e) are performed on a continuous basis. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and

Asserted Claims of the '997 Patent	**Tucker**
	water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Asserted Claims of the '997 Patent	**Tucker**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47

Asserted Claims of the '997 Patent	**Tucker**
	The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate.

Asserted Claims of the '997 Patent	**Tucker**
	A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35

Asserted Claims of the '997 Patent	**Tucker**
	To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.
Claim 14	
14. The method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis.	Tucker discloses the method of claim 1, wherein steps (a) through (e) are performed on an intermittent basis. *See* claim 1. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution

Asserted Claims of the '997 Patent	**Tucker**
	o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride

Asserted Claims of the '997 Patent	**Tucker**
	o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must

Asserted Claims of the '997 Patent	**Tucker**
	add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope

Asserted Claims of the '997 Patent	**Tucker**
	• 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35 To the extent that this limitation is not fully disclosed or suggested by Tucker, this limitation would have been obvious to a person of ordinary skill in the art in combination with any of the Bucket 1, 2, 3, and 4 references identified in the Invalidity Contentions, which also identify rationale for the combination.

Exhibits C1-C3: Claim Charts Against U.S. Patent No. 9,730,443 ('443 Patent)

[Note: Plaintiff provided preliminary infringement contentions for the '443 patent for Claims 1 and 2 only.]

Exhibit C-1

Charted Reference: U.S. Patent Pub. U.S. 2009/0175956 to Buschmann et al. ("Buschmann")

Buschmann, published on July 9, 2009, based on an application filed on January 8, 2009, that claimed priority to a U.S. provisional patent application filed on January 8, 2008. Buschmann qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all of the claims of the Asserted '443 Patent are anticipated and/or obvious over Buschmann, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[7]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.
.

[7] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims in of the '443 Patent	**Buschmann**
1[p]. A non-equilibrium solution of peracetic acid, comprising:	To the extent this preamble is limiting, it is disclosed or suggested by Buschmann. For example: > Composition and method for production of peroxycarboxylic acid solutions for various disinfection and cleaning compositions that utilizes non-equilibrium peroxycarboxylic acid. More specifically compositions comprise peracetic acid (PAA) and methods for making non-equilibrium PAA are provided. Frozen compositions useful as antimicrobial ice are provided. Buschmann, abstract. To the extent that the preamble is considered limiting and is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or any of the **BUCKET 6** references identified in the Preliminary Invalidity Contentions.
1[a]. peracetic acid;	This limitation is disclosed or suggested by Buschmann. For example: > 0030 In a specific embodiment, the hydrogen peroxide employed in making non-equilibrium PAA can be produced on-site electrochemically. This embodiment of the invention is particularly well suited for the production of antimicrobial ice. For example, alkaline hydrogen peroxide can be produced electrochemically on-site and then mixed with triacetin or other acetyl donor to produce an alkaline mixture of non-equilibrium PAA, hydrogen peroxide, triacetin, and glycerol. Optionally, the pH of this alkaline mixture can be reduced by the addition of acid or by further treatment in the electrochemical cell. Buschmann, paragraph 0030. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 7** references identified in the Preliminary Invalidity Contentions.

Asserted Claims in of the '443 Patent	**Buschmann**
1[b]. hydrogen peroxide;	This limitation is disclosed or suggested by Buschmann. For example: Buschmann, paragraph 0030, *supra*. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 8** references identified in the Preliminary Invalidity Contentions.
1[c]. triacetin;	This limitation is disclosed or suggested by Buschmann. For example: Buschmann, paragraph 0030, *supra*. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 9** references identified in the Preliminary Invalidity Contentions.
1[d]. 1,2,3-propanetriol;	This limitation is disclosed or suggested by Buschmann. For example: Buschmann, paragraph 0030, *supra*. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 10** references identified in the Preliminary Invalidity Contentions.
1[e]. an aqueous source of an alkali	This limitation is disclosed or suggested by Buschmann. For example: 0033 In the present invention non-equilibrium peroxycarboxylic acid solutions, particularly those of PAA, are chemically produced by an irreversible, non-equilibrium reaction of hydrogen peroxide with an acyl donor, particularly an acetyl donor, in a solvent such as, but not limited to, water. One typical

Asserted Claims in of the '443 Patent	**Buschmann**
metal or earth alkali metal hydroxide; and	example of this reaction using acetylsalicylic acid as the acetyl donor is given in the equation below. Caustic pH (pH>10) is used to accelerate the reaction since the hydrogen peroxide anion is a much better nucleophile than hydrogen peroxide. The reaction pH can be adjusted with an appropriate base (proton acceptors such as hydroxide or amines for example). Buschmann, paragraph 0033. 0034 Both the hydrogen peroxide anion and hydroxide anion compete in the reaction with the acyl donor, the former producing a peroxycarboxylic acid and the latter producing carboxylic acid. When an acetyl donor is employed the hydrogen peroxide anion and hydroxide anion compete in the reaction with the acetyl donor, the former producing a peracetic acid and the latter producing acetic acid. The percent conversion of the acyl donor to peroxycarboxylic acid is maximized by maximizing the hydrogen peroxide to hydroxide ratio. An example of a non-equilibrium reaction solution illustrated in Equation (3) is combining 1.1 g/L hydrogen peroxide adjusted to pH 12.0 with sodium hydroxide and reacted with 10 g/L acetylsalicylic acid. The product solution contains 0.32 g/L hydrogen peroxide and 1.9 g/L peracetic acid with 85% conversion of the acetylsalicylic acid. This product has a non-equilibrium hydrogen peroxide to peracetic acid ratio of 10 0.17, more than ten times lower than for merchant equilibrium products. Buschmann, paragraph 0034. Exemplary non-equilibrium PAA reaction solution employing acetylsalicylic acid as the acetyl donor is made by combining 1.1 g/L hydrogen peroxide adjusted to pH 12.0 with sodium hydroxide with 10 g/L acetylsalicylic acid. The product solution contains 0.32 g/L hydrogen peroxide and 1.9 g/L peracetic acid with 85% conversion of the acetylsalicylic acid. This product solution has a non-

Asserted Claims in of the '443 Patent	**Buschmann**
	equilibrium hydrogen peroxide to peracetic acid ratio of 0.17, more than ten times lower than for merchant equilibrium products. Buschmann, paragraph 0041. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 11** references identified in the Preliminary Invalidity Contentions.
1[f]. water.	This limitation is disclosed or suggested by Buschmann. For example: Buschmann, paragraph 0033, *supra*. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 12** references identified in the Preliminary Invalidity Contentions.
2. The solution of claim 1, wherein said solution has a pH of about 11.2 to about 13.37.	This limitation is disclosed or suggested by Buschmann. For example: 0027 Generally in the present invention non-equilibrium PAA is produced by reacting a properly chosen acyl donor with hydrogen peroxide under alkaline conditions (pH greater than about 10) to produce non-equilibrium peroxycarboxylic acid. More specifically, in the present invention non-equilibrium peracetic acid (PAA) is produced by reacting a properly chosen acetyl donor with hydrogen peroxide under alkaline conditions (pH greater than about 10) to produce non-equilibrium PAA. "Acyl donor" refers to a material which supplies an acyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes a peroxycarboxylic acid. In a specific embodiment, an "acyl donor" refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes peracetic acid. "Acetyl donor" refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or

Asserted Claims in of the '443 Patent	**Buschmann**
	peroxide ions to form a solution which includes a peroxycarboxylic acid. In a specific embodiment, an acetyl donor refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes peracetic acid. The composition of the acetyl donor source for use in a commercial reactor system may be composed of an acetyl donor compound, optionally containing more than one type of acetyl donor compound, optionally containing an electrolyte salt, optionally containing a peroxide stabilizer, optionally containing a base, optionally containing an acid, optionally containing a solvent (water, alcohols, organic). The acyl or acetyl donor is chosen so that that the reverse reaction is not possible or has a very slow rate. Thus, acetic acid (or other carboxylic acid) itself is not a preferred acetyl donor. Examples of acetyl donors include, but are not limited to, O-acetyl donors (—O—C(O)CH_3), such asacetin, diacetin, triacetin, acetylsalicylic acid, (β)-D-glucose pentaacetate, cellulose (mono and tri) acetate, D-mannitol hexaacetate, sucrose octaacetate, and acetic anhydride. N-acetyl donors (—N—C(O)CH3) may also be used, such as N,N,N′N′- tetraacetylethylenediamine (TAED), N-acetyl glycine, N-acetyl-5 DL-methionine, 6-acetamidohexanoic acid, N-acetyl-L-cysteine, 4-acetamidophenol, and N-acetyl-Lglutamine. Buschmann, paragraph 0027. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 13** references identified in the Preliminary Invalidity Contentions.
3. The solution of claim 1, wherein said peracetic acid is about 1% to about 7.1%.	This limitation is disclosed or suggested by Buschmann. For example: 0028 A particular advantage of the use of non-equilibrium peroxycarboxylic acid is that solutions having concentrations of less than about 10 g/l peroxycarboxylic acid can be economically produced, this is particularly the case with non-equilibrium PAA. For example, making dilute solutions (<10 g/l) of equilibrium PAA is not cost-effective because in dilute solutions equilibrium favors the formation of hydrogen peroxide and acetic acid over PAA requiring high ratios of feed chemicals to obtain the

Asserted Claims in of the '443 Patent	**Buschmann**
	desired PAA product at low concentration. Therefore, the cost of feed chemicals is much lower for non-equilibrium PAA relative to equilibrium PAA at low concentrations of PAA. Buschmann, paragraph 0028. To the extent that this limitation is not fully disclosed or suggested by Buschmann, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 14** references identified in the Preliminary Invalidity Contentions.

Exhibit C-2

Charted Reference: Japanese Patent Pub. JP 2006-045147 to Okano et al. ("Okano")

Okano is based on an application filed on August 6, 2004, was published on February 16, 2006, and qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all of the claims of the Asserted '443 Patent are anticipated and/or obvious over Okano, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[8]

[8] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '443 Patent	**Okano**
1[pre]. A non-equilibrium solution of peracetic acid, comprising:	To the extent this preamble is limiting, it is disclosed or suggested by Okano. For example: 0059 <Measurement of Organic Peracid Concentration> About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion-exchanged water and approximately 1 mL of hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated with a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100 T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL) W: Collected amount of the sterilizing cleaner composition (g) Okano, paragraph 0059. To the extent that the preamble is considered limiting and is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general

Asserted Claims of the '443 Patent	**Okano**
	knowledge in the field, common sense, and/or any of the **BUCKET 6** references identified in the Preliminary Invalidity Contentions.
1[a]. peracetic acid;	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0059, *supra*. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 7** references identified in the Preliminary Invalidity Contentions.
1[b]. hydrogen peroxide;	This limitation is disclosed or suggested by Okano. For example: 0057<Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare a sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, paragraph 0057. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 8** references identified in the Preliminary Invalidity Contentions.

Asserted Claims of the '443 Patent	**Okano**
1[c]. triacetin;	This limitation is disclosed or suggested by Okano. For example: 0014 Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these triacetin is preferable. Okano, paragraph 0014. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 9** references identified in the Preliminary Invalidity Contentions.
1[d]. 1,2,3-propanetriol;	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0057, *supra*. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 10** references identified in the Preliminary Invalidity Contentions.
1[e]. an aqueous source of an alkali metal or earth alkali metal hydroxide; and	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0057, *supra*. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 11** references identified in the Preliminary Invalidity Contentions.
1[f]. water.	This limitation is disclosed or suggested by Okano. For example:

Asserted Claims of the '443 Patent	**Okano**
	Okano, paragraph 0057, *supra*. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 12** references identified in the Preliminary Invalidity Contentions.
2. The solution of claim 1, wherein said solution has a pH of about 11.2 to about 13.37.	This limitation is disclosed or suggested by Okano. For example: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Okano, paragraph 0008. The present invention also relates to a method for producing a sterilizing cleaner composition for hard surfaces, having steps for reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group, which may have a hydroxyl group, and (B1) hydrogen peroxide in a molar of (A)/(B1)=1/10 to 20/1 in water at a pH of 8 to 12, and then adjusting the pH of the reaction system to 1 or higher but less than 7. Okano, paragraph 0009. The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of

Asserted Claims of the '443 Patent	**Okano**
	(A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio and at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, more preferably 1 to 5. Okano, paragraph 0015. (2) A composition for composition for producing sterilizing cleaner, containing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group, and (B1) hydrogen peroxide or (B2) an inorganic peroxide that releases hydrogen peroxide in water, with the molar ratio of (B1) produced from (A) and (B1) or (A) and (B2) bring (A)/(B1) = 1/10 to 20/1, said composition for producing a sterilizing cleaner being used as an aqueous solution prepared by adjusting the pH to 8 to 12 and then adjusting the pH to 1 or more but less than 7 (hereinafter referred to as the second composition for producing sterilizing cleaner). Okano, paragraph 0029. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 13** references identified in the Preliminary Invalidity Contentions.
3. The solution of claim 1, wherein said peracetic acid is	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0057, *supra*.

Asserted Claims of the '443 Patent	**Okano**
about 1% to about 7.1%.	To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 14** references identified in the Preliminary Invalidity Contentions.

Exhibit C-3

Charted Reference: U.S. Patent No. 7,919,122 to Okano et al. ("Kao")[9]

Kao was filed on July 10, 2006, issued on April 15, 2011, and published on November 29, 2007, as U.S. 2007/0274857. Kao is a National Stage entry of a PCT application filed on April 1, 2004, which in turn claims a priority date of April 2, 2003. The PCT application was published as WO 2004/08089 on October 21, 2004. Kao qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all of the claims of the Asserted '443 Patent are anticipated and/or obvious over Kao, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[10]

[9] This reference is referred to by its assignee to avoid confusion with JP 2006-045147 because Tetsuya Okano is the first-named inventor in both references.

[10] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '443 Patent	**Kao**
1[pre]. A non-equilibrium solution of peracetic acid, comprising:	To the extent this preamble is limiting, it is disclosed or suggested by Kao. For example: Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the

Asserted Claims of the '443 Patent	**Kao**
	temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, Example 3. To the extent that the preamble is considered limiting and is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or any of the **BUCKET 6** references identified in the Preliminary Invalidity Contentions.
1[a]. peracetic acid;	This limitation is disclosed or suggested by Kao. For example: Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid

Asserted Claims of the '443 Patent	**Kao**
	concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used. Kao, Examples, e.g., Example 6; Example 3, *supra*. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 7** references identified in the Preliminary Invalidity Contentions.
1[b]. hydrogen peroxide;	This limitation is disclosed or suggested by Kao. For example: According to the process of the present invention, the organic peracid can be obtained in an aqueous solution, and the concentration of remaining hydrogen peroxide in the aqueous solution is preferably 60 wt % or less, more preferably… Kao, column 12, lines 42-45. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 8** references identified in the Preliminary Invalidity Contentions.

Asserted Claims of the '443 Patent	**Kao**
1[c]. triacetin;	This limitation is disclosed or suggested by Kao. For example: Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin. Kao, column 4, lines 14-16. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 9** references identified in the Preliminary Invalidity Contentions.
1[d]. 1,2,3-propanetriol;	This limitation is disclosed or suggested by Kao. For example: Kao, Examples, e.g., Examples 3 and 6, *supra*. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 10** references identified in the Preliminary Invalidity Contentions.
1[e]. an aqueous source of an alkali metal or earth alkali metal hydroxide; and	This limitation is disclosed or suggested by Kao. For example: The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides

Asserted Claims of the '443 Patent	**Kao**
	such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., alkali metal silicates such as sodium silicate,… Kao, column 5, lines 39-42. These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. Kao, column 5, lines 61-64. ... a component giving such pH can be used as the component (C). Specific examples include the alkaline pH adjusting agents illustrated above, that is, alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc., … Kao, column 9, lines 39-44. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 11** references identified in the Preliminary Invalidity Contentions.
1[f]. water.	This limitation is disclosed or suggested by Kao. For example:

Asserted Claims of the '443 Patent	**Kao**
	The first sterilizer composition of the present invention contains water and an organic peracid. Kao, column 7, lines 42-43. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 12** references identified in the Preliminary Invalidity Contentions.
2. The solution of claim 1, wherein said solution has a pH of about 11.2 to about 13.37.	This limitation is disclosed or suggested by Kao. For example: Kao, Examples 3 and 6, *supra*. To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 13** references identified in the Preliminary Invalidity Contentions.
3. The solution of claim 1, wherein said peracetic acid is about 1% to about 7.1%.	This limitation is disclosed or suggested by Kao. For example:

Asserted Claims of the '443 Patent	**Kao**

Table 10

			Product of the invention									
			3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8	3-9	3-10
Compounding components	(A)	Ethylene glycol diacetate	5g (0.0342)	5g (0.0342)								
		Triacetin			5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)		
		Pentaacetyl-β-D-glucose									5g (0.0128)	5g (0.0128)
	(B)	Aqueous hydrogen peroxide (35 wt%)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)
	Chelating agent (net content)	Organic phosphonic acid	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g
	Alkaline pH adjusting agent (net content)	Soium hydroxide	2g		2g			2g			2g	
		Sodium carbonate				6g			6g			
		Trisodim phosphate		4g			4g			4g		4g
	Acidic pH adjusting agent	Sulfuric acid (purity 98%)	2.1g	2.1g	—	—	—	2.1g	2.1g	2.1g	2.1g	2.1g
		Phosphoric acid (purity 85%)	0.5g	0.5g	5.0g	5.0g	5.0g	0.5g	0.5g	0.5g	0.5g	0.5g
(A)/(B) molar ratio			0.77	0.77	0.52	0.52	0.52	0.52	0.52	0.52	0.29	0.29
Organic peracid concentration (ppm) just after preparation			25,000	24,000	27,000	22,000	26,000	27,000	22,000	26,000	30,000	29,500
Hydrogen peroxide concentration(ppm) just after preparation			1,500	1,650	1,050	1,900	1,350	1,050	1,850	1,300	900	950
pH of aqueous solution for sterilization (25°C)			3.5	2.8	3.7	1.5	3.0	3.5	1.2	2.8	3.5	2.8
Number of remaining microorganisms (CFU/mL)		*Bacillus cereus* IFO13494	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
		Bacillus subtilis var. *niger*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Asserted Claims of the '443 Patent	**Kao**

Table 23

			Example									
			6-1	6-2	6-3	6-4	6-5	6-6	6-7	6-8	6-9	6-10
Compounding ingredients	(A)	Ethylene glycol diacetate	5g (0.0342)	5g (0.0342)								
		Triacetin			5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)		
		Pentaacetyl-β-D-glucose									5g (0.0128)	5g (0.0128)
	(B)	Aqueous hydrogen peroxide (35 wt%)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)
	Chelating agent (net content)	Organic phosphonic acid	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g
	Alkaline pH adjusting agent (net content)	Sodium hydroxide	2g		2g			2g			2g	
		Sodium carbonate				6g			6g			
		Trisodium phosphoate		4g			4g			4g		4g
	Acidic pH adjusting agent	Sulfuric acid (purity 98%)	2.1g	2.1g	—	—	—	2.1g	2.1g	2.1g	2.1g	2.1g
		Phosphoric acid (purity 85%)	0.5g	0.5g	5.0g	5.0g	5.0g	0.5g	0.5g	0.5g	0.5g	0.5g
(A)/(B) molar ratio			0.77	0.77	0.52	0.52	0.52	0.52	0.52	0.52	0.29	0.29
Organic peracid concentration (ppm)		Just after preparation	25,000	24,000	27,000	22,000	26,000	27,000	22,000	26,000	30,000	29,500
		30 minutes later	25,000	23,500	26,500	20,000	25,500	26,000	20,000	25,500	28,000	28,000
		60 minutes later	24,500	23,000	26,500	19,000	25,000	25,500	19,000	24,000	27,000	27,000
		120 minutes later	24,000	22,000	25,000	18,000	24,000	25,000	18,000	23,500	25,500	25,500
Hydrogen peroxide concentration (ppm) just after preparation			1,500	1,650	1,050	1,900	1,350	1,050	1,850	1,300	900	950
pH of aqueous solution for sterilization (25°C)			3.5	2.8	3.7	1.5	3.0	3.5	1.2	2.8	3.5	2.8
Number of remaining microorganisms (CFU/mL)		*Bacillus cereus* IFO13494	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
		Bacillus subtilis var. *niger*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Kao, Tables 10 and 23. (These Tables are from the counterpart EP 1618786 because they are easier to read.)

To the extent that this limitation is not fully disclosed or suggested by Kao, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 14** references identified in the Preliminary Invalidity Contentions.

Exhibits D1-D2: Claim Charts Against U.S. Patent No. 9,737,072 ('072 Patent)

[Note: Plaintiff provided preliminary infringement contentions for '072 patent Claim 1 only.]

Exhibit D-1

Charted Reference: International Patent Pub. WO 2011/017095 to Stauffer et al. ("Stauffer")

Stauffer was published from a PCT application filed on July 27, 2010, that published on October 2, 2011, claiming priority to U.S. provisional patent applications filed on July 27, 2009, and it qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

As set forth in the chart below, all of the claims of the Asserted '072 Patent are anticipated and/or obvious over Stauffer, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[11]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

[11] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims of the '072 Patent	**Stauffer**
1[pre]. A hydrogen peroxide-acetyl precursor solution, comprising:	To the extent this preamble is limiting, it is disclosed or suggested by Stauffer. For example: This Example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of polyvinyl alcohol. The reaction was performed using a perhydrolase enzyme isolated from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of DI water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the Netherlands), 0.95 mL of triacetin (90 mM) and 6.0 g of Elvanol® 51-04 (20% aqueous solution, DuPont, Wilmington, DE, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30 wt% hydrogen peroxide (89 mM) was added, followed immediately by 125 μL of 20 mg/mL *T. neapolitana* perhydrolase enzyme in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were monitored over time using the cerium sulfate/sodium thiosulfate titration analysis (Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061-1063, 1948). Control reactions were performed with (12.3 mL 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 mL 30% hydrogen peroxide, 100 mM; 36.2 mL DI water; 41.7 mg Turpinal® SL; 0.95 mL triacetin, 0.1 M; 125 μL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt% protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in the presence of polyvinyl alcohol produced 456 ppm within 1 minute and increased to 1976 ppm over 30

Asserted Claims of the '072 Patent	**Stauffer**
	minutes. Table 1 shows the concentrations of PAA produced from in situ enzymatic production of PAA in the presence of a film-former. Stauffer, Example 4 (Pages 63-64). To the extent that the preamble is considered limiting and is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or any of the **BUCKET 15** references identified in the Preliminary Invalidity Contentions.
1[a]. aqueous hydrogen peroxide;	This limitation is disclosed or suggested by Stauffer. For example: This example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of a film-forming composition with additional performance-enhancing additives. The reaction was performed using the perhydrolase enzyme from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of deionized water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the Netherlands), 0.95 mL of triacetin (89 mM), 6.0 g of Elvanol® 51-04 (20 wt% aqueous solution, DuPont, Wilmington, DE, USA), 0.5 g of PEG-300 (Dow, Midland, MI, USA) and 0.25 g Silwet® L-77 (Setre Chemical Company, Memphis, TN, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30% hydrogen peroxide (88 mM) was added, followed immediately by 125 μL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were monitored over time using the cerium sulfate/sodium thiosulfate titration test (Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061-1063, 1948). Control reactions

Asserted Claims of the '072 Patent	**Stauffer**
	were performed with (12.3 mL 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 mL 30% hydrogen peroxide, 100 mM; 36.2 mL DI (deionized water) water; 41.7 mg Turpinal® SL; 0.95 mL triacetin, 0.1 M; 125 μL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in a film-forming composition produced 342 ppm within 1 minute and increased to 1900 ppm over 30 minutes. Table 2 shows the concentrations of PAA produced from *in situ* enzymatic production of PAA in the presence of a film-forming composition with additional performance-enhancing additives. Stauffer, Example 5 (Pages 64-65); Example 4, *supra*. To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 16** references identified in the Preliminary Invalidity Contentions.
1[b]. triacetin;	This limitation is disclosed or suggested by Stauffer. For example, see Examples 4 and 5 of Stauffer, reproduced above. To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field,

<table>
<tr><th>Asserted Claims of the '072 Patent</th><th>Stauffer</th></tr>
<tr><td></td><td>common sense, and/or with any of the BUCKET 17 references identified in the Preliminary Invalidity Contentions.</td></tr>
<tr><td>1[c]. a trace amount of peracetic acid; and</td><td>This limitation is disclosed or suggested by Stauffer. For example:

<u>TABLE 1</u>
Enzymatic production of PAA in the presence of polyvinyl alcohol
<table><tr><th></th><th>1 min (ppm)</th><th>5 min (ppm)</th><th>30 min (ppm)</th></tr><tr><td>Control (no enzyme)</td><td>114</td><td>114</td><td>114</td></tr><tr><td>Control (with enzyme)</td><td>380</td><td>1178</td><td>2280</td></tr><tr><td>Elvanol® 51-04</td><td>456</td><td>798</td><td>1976</td></tr></table>
<u>TABLE 2</u>
Enzymatic production of PAA in a film-forming composition
<table><tr><th></th><th>1 min (ppm)</th><th>5 min (ppm)</th><th>30 min (ppm)</th></tr><tr><td>Control (no enzyme)</td><td>114</td><td>114</td><td>114</td></tr><tr><td>Control (with enzyme)</td><td>380</td><td>1178</td><td>2280</td></tr><tr><td>Elvanol® 51-04/PEG-300/Silwet® L-77</td><td>342</td><td>1102</td><td>1900</td></tr></table>
Stauffer, Tables 1 and 2 (Pages 64 and 65).
To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field,</td></tr>
</table>

Asserted Claims of the '072 Patent	**Stauffer**
	common sense, and/or with any of the **BUCKET 18** references identified in the Preliminary Invalidity Contentions.
1[d]. water.	This limitation is disclosed or suggested by Stauffer. For example, see Examples 4 and 5 of Stauffer, *supra*. To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 19** references identified in the Preliminary Invalidity Contentions.
2. The solution of claim 1, wherein said aqueous hydrogen peroxide is about 23% to about 40% and	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 20** references identified in the Preliminary Invalidity Contentions.
2[b]. said triacetin is about 20% to about 53%, and further wherein	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 21** references identified in the Preliminary Invalidity Contentions.
2[c]. the mole ratio of said hydrogen peroxide to said triacetin is about	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 22** references identified in the Preliminary Invalidity Contentions.

Asserted Claims of the '072 Patent	**Stauffer**
2.98:1 to about 12.84:1.	
3. The solution of claim 2, wherein said aqueous hydrogen peroxide is about 27% and	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 20** references identified in the Preliminary Invalidity Contentions.
3[a]. said triacetin is about 46%, and further wherein	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 21** references identified in the Preliminary Invalidity Contentions.
3[b]. said mole ratio of said hydrogen peroxide to said triacetin is about 3.8:1.	To the extent that this limitation is not fully disclosed or suggested by Stauffer, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 22** references identified in the Preliminary Invalidity Contentions.

Exhibit D-2

Charted Reference: Japanese Patent Pub. JP 2006-045147 to Okano et al. ("Okano")

Okano, filed on August 6, 2004, was published on February 16, 2006, and qualifies as prior art under at least pre-AIA 35 U.S.C. § 102(a) and/or 102(b).

As set forth in the chart below, all of the claims of the Asserted '072 Patent are anticipated and/or obvious over Okano, alone or in combination with other references and the knowledge of a person of ordinary skill in the art.[12]

Except where specifically noted otherwise, this chart applies the apparent constructions of claim terms as used by Plaintiff in its infringement contentions; such use, however, does not imply that Defendant adopts or agrees with Plaintiff's constructions in any way.

To the extent the charted reference is held not to explicitly or inherently disclose any particular element below, such limitations were obvious for the reasons stated below and in Defendant's Preliminary Invalidity Contentions, which are incorporated herein by reference.

Defendant is investigating this prior art and has not yet completed discovery from third parties who may have information concerning it. Defendant reserves the right to modify, amend and/or supplement these contentions as information becomes available, and as discovery proceeds in accordance with the Local Patent Rules adopted in this case.

Asserted Claims of the '072 Patent	**Okano**
1[pre]. A hydrogen peroxide-acetyl	To the extent this preamble is limiting, it is disclosed or suggested by Okano. For example:

[12] The excerpts cited herein are exemplary. For any claim limitation, Defendant may rely on excerpts cited for any other limitation and/or additional excerpts not set forth fully herein to the extent necessary to provide a more comprehensive explanation for a reference's disclosure of a limitation. The excerpted and cited disclosures in this chart are collectively incorporated by reference for each claim limitation. Where an excerpt refers to or discusses a figure or figure items, that figure and any additional descriptions of that figure should be understood to be incorporated by reference as if set forth fully therein. Emphasis added throughout unless otherwise noted.

Asserted Claims of the '072 Patent	**Okano**
precursor solution, comprising:	Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these triacetin is preferable. Okano, paragraph 0014. The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio and at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, more preferably 1 to 5. Okano, paragraph 0015. To the extent that the preamble is considered limiting and is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or any of the **BUCKET 15** references identified in the Preliminary Invalidity Contentions.
1[a]. aqueous hydrogen peroxide;	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0014, *supra*. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field,

Asserted Claims of the '072 Patent	**Okano**
	common sense, and/or with any of the **BUCKET 16** references identified in the Preliminary Invalidity Contentions.
1[b]. triacetin;	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0014, *supra.* To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 17** references identified in the Preliminary Invalidity Contentions.
1[c]. a trace amount of peracetic acid; and	This limitation is disclosed or suggested by Okano. For example: <Measurement of Organic Peroxy Acid Concentration> About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion-exchanged water and approximately 1 mL of hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated with a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100 T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL) W: Collected amount of the sterilizing cleaner composition (g)

Asserted Claims of the '072 Patent	**Okano**
	Okano, paragraph 0059. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 18** references identified in the Preliminary Invalidity Contentions.
1[d]. water.	This limitation is disclosed or suggested by Okano. For example: <Preparation of Sterilizling Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare a sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, paragraph 0057. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 19** references identified in the Preliminary Invalidity Contentions.

Asserted Claims of the '072 Patent	**Okano**
2. The solution of claim 1, wherein said aqueous hydrogen peroxide is about 23% to about 40% and	This limitation is disclosed or suggested by Okano. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, paragraph 0035. To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 20** references identified in the Preliminary Invalidity Contentions.
2[a]. said triacetin is about 20% to about	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0035, *supra.*

Asserted Claims of the '072 Patent	**Okano**
53%, and further wherein	To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 21** references identified in the Preliminary Invalidity Contentions.
2[b]. the mole ratio of said hydrogen peroxide to said triacetin is about 2.98:1 to about 12.84:1.	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0015, *supra.* To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 22** references identified in the Preliminary Invalidity Contentions.
3. The solution of claim 2, wherein said aqueous hydrogen peroxide is about 27% and	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0035, *supra.* To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 20** references identified in the Preliminary Invalidity Contentions.
3[a]. said triacetin is about 46%, and further wherein	This limitation is disclosed or suggested by Okano. For example:

Asserted Claims of the '072 Patent	**Okano**
	Okano, paragraph 0035, *supra.* To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 21** references identified in the Preliminary Invalidity Contentions.
3[b]. said mole ratio of said hydrogen peroxide to said triacetin is about 3.8:1.	This limitation is disclosed or suggested by Okano. For example: Okano, paragraph 0015, *supra.* To the extent that this limitation is not fully disclosed or suggested by Okano, this limitation would have been obvious to a person of ordinary skill in the art in combination with the general knowledge in the field, common sense, and/or with any of the **BUCKET 22** references identified in the Preliminary Invalidity Contentions.

Appendix B - EXHIBITS BUCKET 1 through BUCKET 22

Defendant identifies references in groups below, based on common subject matter relevant to the Asserted Claims, for the purpose of disclosing obviousness combinations and further disclosing motivations to combine.

The absence of a particular reference from a group is not an admission or suggestion that the reference does not disclose or suggest any particular claim limitations. In some instances, a reference may fully disclose and/or suggest the obviousness of a claim limitation but not be identified within the applicable group for the purposes of defining groups of references for purposes of disclosing obviousness combinations for these contentions.

Each reference qualifies as prior art under at least 35 U.S.C. § 102 (a) and/or (b) (pre-AIA).

BUCKET 1 (Hydrogen Peroxide-Triacetin Solution References) - Combining Reagents in Different Ways Including Creating a Hydrogen Peroxide-Triacetin Solution

Bucket 1 Reference	**Disclosure**
US 2010/0227000 (Ames et al.) Published September 9, 2010	Ames et al. discloses combining reagents in different sequences including creating a hydrogen peroxide-triacetin solution as claimed in the Asserted Claims. For example: Accordingly, the present invention provides a multi-part kit system, for example, a two- or three-part kit system comprising a solid part A which comprises at least one acetyl donor, a liquid part B in the form of an aqueous composition which comprises 3 to 35 wt. % (weight-%), preferably 5 to 10 wt. % of hydrogen peroxide (hereinafter for brevity purposes also called "liquid part B") and, optionally, one or more parts C, wherein (a) the solid part A or the optional part(s) C or (b) the solid part A and the optional part(s) C, comprise at least one surfactant selected from the group consisting of anionic surfactants, amphoteric (zwitterionic) surfactants and nonionic surfactants, wherein the composition of the parts of the multi-part kit system is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8.

Bucket 1 Reference	**Disclosure**
	Ames at ¶ 7 It is preferred that the at least one acetyl donor is a solid compound. Examples of acetyl donors include tetraacetyl ethylene diamine (TAED), acetyl salicylic acid, pentaacetylglucose, tetraacetylglycoluril, N-acetyl caprolactam, diacetin, triacetin, acetyl triethyl citrate and 1,5-diacetyl-2,4-dioxo-hexahydro-1,3,5-triazine. TAED is preferred as acetyl donor. In a preferred embodiment part A comprises 30 to 60 wt. % of TAED, wherein it is especially preferred that the TAED is the only acetyl donor. Ames at ¶ 17 The solid part A comprises 0 to 20 wt. %, preferably 2 to 10 wt. % of one or more solid inorganic bases. Examples of such inorganic bases include sodium bicarbonate, potassium carbonate, sodium hydroxide, potassium hydroxide and, in particular, sodium carbonate. Ames at ¶ 22 Apart from the at least one acetyl donor and the at least one surfactant, the solid part A may comprise one or more of the following optional constituents: solid inorganic dispersants, solid water-soluble inorganic fillers, solid inorganic bases, biocidal compounds other than biocidal peroxide compounds and further additives. Ames at ¶ 19 A particularly preferred solid part A of the two-part kit system of the present invention has a composition as follows: o 30 to 60 wt. % TAED, o 1 to 15 wt. % polyethoxylated alcohol, preferably polyethoxylated fatty alcohol, o 1 to 5 wt. % silica, o 40 to 68 wt. % of water-soluble solid inorganic filler, preferably sodium acetate or sodium sulfate,

Bucket 1 Reference	**Disclosure**
	o 0 to 10 wt. % of solid inorganic base, preferably sodium carbonate, o 0 to 25 wt. %, preferably 5 to 10 wt. % of quaternary ammonium chloride, and o 0 to 5 wt. % of one or more further additives selected from the group consisting of buffers, dyes and peroxide decomposition stabilizers, wherein the sum of the wt. % totals 100 wt. %. Ames at ¶¶ 41-48 Alternatively, parts A and B may be mixed together with a small amount of water to form a concentrate with a peracetic acid content of, for, example, 1 to 5 wt. %. Such concentrate may be diluted with water to form a ready-to-use peracetic acid disinfectant which can then be used for disinfection purposes. For example, the concentrate may be applied by proportioning equipment, which dilutes the concentrate to the required peracetic acid concentration. Examples of such proportioning equipment include chemical injectors and Dosatron® technologies. Ames at ¶ 67 The liquid part B may be commercially available aqueous hydrogen peroxide of pH 3.5 or it can be prepared by adjusting the pH value of an aqueous solution of hydrogen peroxide to the desired value; i.e., to a pH value of above 3.5 to 8, preferably of 6.5 to 7.5, by adding an appropriate amount of at least one inorganic base and, optionally, by dilution to the desired hydrogen peroxide concentration with water, preferably deionized or distilled water. Adjustment of the pH value can be controlled making use of a conventional pH meter. Ames at ¶ 51 Examples of inorganic bases that can be used for the pH adjustment are alkali metal carbonates and alkali metal hydroxides such as lithium hydroxide, sodium hydroxide and potassium hydroxide. It is preferred to use aqueous solutions of the bases. It is preferred to use an alkali metal hydroxide. If a dilution to the desired hydrogen peroxide concentration with water is carried out, this can be performed prior to, during or after the pH adjustment.

Bucket 1 Reference	**Disclosure**
	Ames at ¶ 53 • A preferred liquid part B has a composition as follows: o 3 to 35 wt. %, preferably 5 to 10 wt. % of hydrogen peroxide, o 0.05 to 0.5 wt. % of alkali hydroxide, o 0.005 to 1 wt. % of at least one transition metal sequestering agent, o 0 to 10 wt. %, preferably 0 wt. %, of at least one further additive selected from the group consisting of surfactants, hard water sequestrants and corrosion inhibitors; and the wt. % proportion remaining is water to make 100 wt. %. Ames at ¶¶ 55-57 The present invention is also directed to a process for the preparation of a peracetic acid disinfectant by mixing all parts of the two- or multi-part kit system, in particular parts A and B of the two-part kit system, and water in the specified ratio. Ames at ¶ 63 In case of the two-part kit system of the present invention it is preferred that the specified mixing ratio between parts A and B corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in solid part A and the hydrogen peroxide in liquid part B of 4:1 to 1:10, in particular 2:1 to 1:2. The preparation of the peracetic acid disinfectant can easily be performed by mixing parts A and B and water in the specified mixing ratio, for example, mixing parts A and B and water and, if necessary, diluting the aqueous mixture with water to the desired concentration. Ames at ¶ 65 It is possible to mix parts A and B into water to obtain the ready-to-use (RTU) peracetic acid disinfectant with the desired concentration dependent on the specific disinfection task to be performed; i.e., with the desired peracetic acid content in the range of, for example 0.04 to 0.7 wt. %.

Bucket 1 Reference	**Disclosure**
	Ames at ¶ 66 The two-part systems of Examples 1 to 5 were prepared by weighing out Parts A and B into separate glass beakers. The beakers were then placed in a 10° C. water bath. When the temperature of the contents of both beakers had reached 10° C., the beaker containing part B was poured into the beaker containing part A. The pH of the solution after mixing was recorded. Ames at ¶ 82
WO 2011/017095 (Stauffer) Published: Feb. 10, 2011	Stauffer discloses combining reagents in different sequences including creating a hydrogen peroxide-triacetin solution as claimed in the Asserted Claims. For example: EXAMPLE 4 *IN SITU* GENERATION OF PERACETIC ACID IN THE PRESENCE OF POLYVINYL ALCOHOL WITH AN ENZYME HAVING PERHYDROLASE ACTIVITY This Example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of polyvinyl alcohol. The reaction was performed using a perhydrolase enzyme isolated from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of Dl water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the Netherlands), 0.95 mL of triacetin (90 mM) and 6.0 g of Elvanol® 51-04 (20% aqueous solution, DuPont, Wilmington, DE, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30 wt% hydrogen peroxide (89 mM) was added, followed immediately by 125 μL of 20 mg/mL *T. neapolitana* perhydrolase enzyme in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were

Bucket 1 Reference	Disclosure
	monitored over time using the cerium sulfate/sodium thiosulfate titration analysis (Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061 -1063, 1948). Control reactions were performed with (12.3 mL 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 mL 30% hydrogen peroxide, 100 mM; 36.2 mL Dl water; 41.7 mg Turpinal® SL; 0.95 mL triacetin, 0.1 M; 125 μL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt% protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in the presence of polyvinyl alcoholproduced 456 ppm within 1 minute and increased to 1976 ppm over 30 minutes. Table 1 shows the concentrations of PAA produced from in situ enzymatic production of PAA in the presence of a film-former. Stauffer, 62-64 (Example 4). EXAMPLE 5 *IN SITU* GENERATION OF PERACETIC ACID IN A FILM- FORMING COMPOSITION WITH AN ENZYME HAVING PERHYDROLASE ACTIVITY This example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of a film-forming composition with additional performance-enhancing additives. The reaction was performed using the perhydrolase enzyme from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of deionized water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the

Bucket 1 Reference	Disclosure
	Netherlands), 0.95 mL of thacetin (89 mM), 6.0 g of Elvanol® 51 -04 (20 wt% aqueous solution, DuPont, Wilmington, DE, USA), 0.5 g of PEG-300 (Dow, Midland, Ml, USA) and 0.25 g Silwet® L-77 (Setre Chemical Company, Memphis, TN, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30% hydrogen peroxide (88 mM) was added, followed immediately by 125 μL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were monitored over time using the cerium sulfate/sodium thiosulfate titration test(Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061 -1063, 1948). Control reactions were performed with (12.3 ml_ 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 ml_ 30% hydrogen peroxide, 100 mM; 36.2 ml_ Dl (deionized water) water; 41.7 mg Turpinal® SL; 0.95 ml_ thacetin, 0.1 M; 125 μl_ of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in a film-forming composition produced 342 ppm within 1 minute and increased to 1900 ppm over 30 minutes. Table 2 shows the concentrations of PAA produced from *in situ* enzymatic production of PAA in the presence of a film-forming composition with additional performance-enhancing additives. Stauffer, Example 5 (Pages 64-65).

BUCKET 2 (Molar Ratio References) – Molar Ratios of Hydrogen Peroxide to Triacetin or Sodium Hydroxide to Hydrogen Peroxide to Triacetin

Bucket 2 Reference	**Disclosure**
US 2010/0227000 (Ames et al.) Published September 9, 2010	Ames et al. discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example: > It is preferred that the two-part kit system is supplied to the user in the form of two separate receptacles one of which containing the solid part A and the other containing the liquid part B, wherein the specified ratio between parts A and B and water not only ensures that the pH of the mixture of parts A and B and water directly after mixing is in the range of 5.5 to 8 but also corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in part A and the hydrogen peroxide in part B of 4:1 to 1:10, in particular 2:1 to 1:2. Therefore, in a preferred embodiment, the present invention provides a two-part kit system consisting of (i) a solid part A comprising 2 to 90 wt. % of at least one acetyl donor and 1 to 30 wt. % of at least one surfactant selected from the group consisting of anionic surfactants, amphoteric surfactants and nonionic surfactants and (ii) a liquid part B in the form of an aqueous composition comprising 3 to 35 wt. %, preferably 5 to 10 wt. % of hydrogen peroxide, wherein the composition of parts A and B is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8, and wherein the specified ratio between parts A and B corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in solid part A and the hydrogen peroxide in liquid part B of 4:1 to 1:10, in particular 2:1 to 1:2. Ames at ¶ 13 > Accordingly, the present invention provides a multi-part kit system, for example, a two- or three-part kit system comprising a solid part A which comprises at least one acetyl donor, a liquid part B in the form of an aqueous composition which comprises 3 to 35 wt. % (weight-%), preferably 5 to 10 wt. % of hydrogen peroxide (hereinafter for brevity purposes also called "liquid part B") and, optionally, one or more parts C, wherein (a) the solid part A or the optional part(s) C or (b) the solid part A and the optional part(s) C, comprise at least one surfactant selected from the group consisting of anionic surfactants, amphoteric (zwitterionic) surfactants and nonionic surfactants, wherein the composition of

Bucket 2 Reference	Disclosure
	the parts of the multi-part kit system is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8. Ames at ¶ 7 It is preferred that the at least one acetyl donor is a solid compound. Examples of acetyl donors include tetraacetyl ethylene diamine (TAED), acetyl salicylic acid, pentaacetylglucose, tetraacetylglycoluril, N-acetyl caprolactam, diacetin, triacetin, acetyl triethyl citrate and 1,5-diacetyl-2,4-dioxo-hexahydro-1,3,5-triazine. TAED is preferred as acetyl donor. In a preferred embodiment part A comprises 30 to 60 wt. % of TAED, wherein it is especially preferred that the TAED is the only acetyl donor. Ames at ¶ 17 The solid part A comprises 0 to 20 wt. %, preferably 2 to 10 wt. % of one or more solid inorganic bases. Examples of such inorganic bases include sodium bicarbonate, potassium carbonate, sodium hydroxide, potassium hydroxide and, in particular, sodium carbonate. Ames at ¶ 22 Apart from the at least one acetyl donor and the at least one surfactant, the solid part A may comprise one or more of the following optional constituents: solid inorganic dispersants, solid water-soluble inorganic fillers, solid inorganic bases, biocidal compounds other than biocidal peroxide compounds and further additives. Ames at ¶ 19 A particularly preferred solid part A of the two-part kit system of the present invention has a composition as follows: o 30 to 60 wt. % TAED, o 1 to 15 wt. % polyethoxylated alcohol, preferably polyethoxylated fatty alcohol,

Bucket 2 Reference	**Disclosure**
	o 1 to 5 wt. % silica, o 40 to 68 wt. % of water-soluble solid inorganic filler, preferably sodium acetate or sodium sulfate, o 0 to 10 wt. % of solid inorganic base, preferably sodium carbonate, o 0 to 25 wt. %, preferably 5 to 10 wt. % of quaternary ammonium chloride, and o 0 to 5 wt. % of one or more further additives selected from the group consisting of buffers, dyes and peroxide decomposition stabilizers, wherein the sum of the wt. % totals 100 wt. %. Ames at ¶¶ 41-48 Alternatively, parts A and B may be mixed together with a small amount of water to form a concentrate with a peracetic acid content of, for, example, 1 to 5 wt. %. Such concentrate may be diluted with water to form a ready-to-use peracetic acid disinfectant which can then be used for disinfection purposes. For example, the concentrate may be applied by proportioning equipment, which dilutes the concentrate to the required peracetic acid concentration. Examples of such proportioning equipment include chemical injectors and Dosatron® technologies. Ames at ¶ 67 The liquid part B may be commercially available aqueous hydrogen peroxide of pH 3.5 or it can be prepared by adjusting the pH value of an aqueous solution of hydrogen peroxide to the desired value; i.e., to a pH value of above 3.5 to 8, preferably of 6.5 to 7.5, by adding an appropriate amount of at least one inorganic base and, optionally, by dilution to the desired hydrogen peroxide concentration with water, preferably deionized or distilled water. Adjustment of the pH value can be controlled making use of a conventional pH meter. Ames at ¶ 51

Bucket 2 Reference	**Disclosure**
	It is possible to mix parts A and B into water to obtain the ready-to-use (RTU) peracetic acid disinfectant with the desired concentration dependent on the specific disinfection task to be performed; i.e., with the desired peracetic acid content in the range of, for example 0.04 to 0.7 wt. %. Ames at ¶ 66 The two-part systems of Examples 1 to 5 were prepared by weighing out Parts A and B into separate glass beakers. The beakers were then placed in a 10° C. water bath. When the temperature of the contents of both beakers had reached 10° C., the beaker containing part B was poured into the beaker containing part A. The pH of the solution after mixing was recorded. Ames at ¶ 82
JP 2006-045147 (Okano) Published February 16,2006	Okano discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, and more preferably 1 to 5. Okano, ¶ 15; *see also* ¶¶ 29–30 The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and

Bucket 2 Reference	**Disclosure**
	even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35.
U.S. 7,919,122 (Kao) Published November 29, 2007	Kao discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5

Bucket 2 Reference	**Disclosure**
	to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53. The present invention also relates to a composition for production of a sterilizer, which contains (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the second composition for production of a sterilizer). Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide or (B2) an inorganic peroxide releasing hydrogen peroxide in water wherein the molar ratio of (A) to (B1) or the molar ratio of (A) to (B1) generated from (B2), that is, (A)/(B1) is 1/10 to 20/1, the composition for production of a sterilizer being used as an aqueous solution prepared by adjustment to pH 8 to 12 and then to pH 1 to less than 7 (referred to hereinafter as the third composition for production of a sterilizer). Kao, 1:65-2:21.
U.S. 7,271,137 (Tucker) Published May 26, 2005	Tucker discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example:

Bucket 2 Reference	**Disclosure**
	A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Bucket 2 Reference	**Disclosure**
	Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part

Bucket 2 Reference	Disclosure
	B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2

Bucket 2 Reference	**Disclosure**
	o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35
U.S. 3,432, 546 (Oringer) Issued March 11, 1969	Oringer discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example: The acetic anhyride and hydrogen peroxide reactants are used in the reaction of this invention in a molar ratio of the former to the latter of about 1.0 to 1.16 to 1, and preferably about 1.08 to 1. This ratio of reactants permits the obtaining of high yields without either forming excessive diacetyl

Bucket 2 Reference	**Disclosure**
	peroxide, which occurs at too high acetic anhydride concentrations, or wasting of hydrogen peroxide, which occurs when excessive amounts of hydrogen peroxide are used. The hydrogen peroxide is used at a concentration of about 0.8 to 12.0 volumes (0.24 to 3.64% by weight) in the aqueous reaction mixture. This concentration of hydrogen peroxide provides peracetic acid solution directly useful in bleaching fibers, an operation which desirably employs aqueous peracetic acid having an active oxygen volume concentration of 0.7 to 10.3 (0.5 to 7.0 weight percent). The herein process produces peracetic acid having a concentration of up to about 7 weight percent, which if necessary is readily dilutable with water to useful concentrations. The hydrogen peroxide obviously can be replaced in part or in whole by sodium peroxide, which in solution acts the same as an equivalent mixture of hydrogen peroxide and sodium hydroxide. When sodium peroxide is used, its alkalinity must be taken into account. Oringer at 4:25-48
WO 2012/090124 (Li) Published: July 5, 2012	Li discloses various molar ratios of sodium hydroxide to hydrogen peroxide to triacetin and hydrogen peroxide to triacetin as claimed in the Asserted Claims. For example: EXAMPLE 1 For this test, 1.89 grams of hydrogen peroxide was mixed in a beaker with 0.62 grams of triacetin, 15 grams of distilled water, and 7.75 grams of a 10% solution of sodium hydroxide (NaOH). The beaker was fitted with a pH probe. After the sodium hydroxide was added the pH went up to about 12 immediately, and remained relatively stable while the sampling was performed. The peroxycarboxylic acid concentration was measured by removing a sample aliquot of the test solution, acidifying it with acetic acid, and titrating using an iodometric method. Both the peroxycarboxylic acid concentration and the hydrogen peroxide concentrations were measured over time. The above procedure was then repeated using an additional 11.71 grams of a 10% sodium hydroxide solution. This raised the pH to about 13 initially. Li at 51.

BUCKET 3 (Processes to Generate PAA References) – Methods for Combining Reagents to Generate PAA

Bucket 3 Reference	**Disclosure**
WO 2001/046519 (Withenshaw) Published June 28, 2001	Withenshaw discloses various methods for combing reagents to generate PAA. For example: The present invention provides a peroxyacid delivery process for the continuous generation of peroxyacid from hydrogen peroxide solution and bleach activator characterised in that the pH of a mixture of hydrogen peroxide solution and bleach activator is adjusted by the addition or injection of an alkaline material selected from the group consisting of sodium hydroxide, potassium hydroxide and magnesium oxide under vigorous mixing conditions provided by an in-line mixer within which the Froude number is at least 1 , or by another mixer or combination of mixers providing an equivalent speed and intimacy of mixing. Where magnesium oxide is mentioned, this encompasses the hydrated product, irrespective of whether this is defined as magnesium oxide or magnesium hydroxide. Withenshaw at 3:6-15 The reaction mixture is preferably pumped along a reaction pipe downstream of the vigorous mixer(s) with a residence time of between 4 and 25 min. The premixing of the bleach activator and the hydrogen peroxide solution can be done in any suitable continuous or semi-batch operation. Agglomeration of the activator facilitates accurate dosing and also allows for easy recovery from accidental spillage. The bleach activator may be any one or mixtures of more than one acetyl donor. The process is particularly suitable for use with agglomerated TAED. Withenshaw at 4:27-5:1-5 Although a tank may be used to provide at least part of the reaction capacity downstream of the vigorous or in-line mixer if desired, the use of a reaction pipe may have advantages over a tank. As with the use of an in-line mixer, because the system is then enclosed, exposure of an operator to peracetic anion solution is reduced.

Bucket 3 Reference	**Disclosure**
	Withenshaw at 7:14-22 An advantage of a continuous peroxyacid generating system is that it eliminates the need for a specific acid addition step that previous batch systems have required to lower the pH of the solution in the batch tank. Nevertheless, if the necessity should ever arise, it is possible to add acid to the pulp bleaching tank. A further advantage of generating the peroxyacid continuously is that it may easily be controlled because it is operating as a steady state reaction. Withenshaw at 8:1-9 Figure 1 is a schematic of a continuous peroxyacid generating system. Figure 1 shows a batch make-up tank 1. The tank is fed with water along delivery pipe 2. Sequestrant is dosed from tank 3 along sequestrant supply pipe 4. Hydrogen peroxide is dosed from tank 5 along peroxide supply pipe 6. Valves 7, 8 and 9 control the water, sequestrant and peroxide supplies respectively. Agglomerated TAED is held in a hopper 10 and fed to the tank 1 via a screw feeder 1 1. The contents of tank 1 are kept in suspension and mixed using an agitator 12. The outlet from tank 1 is fed by pump 13 to in-line mixer 14. The in-line mixer is also fed through pump 15 with caustic soda solution from tank 16. A control unit 17 controls valves 7, 8 and 9, screw feeder 1 1 , and pumps 13 and 15. The output from the in-line mixer 14 enters a reaction pipe 18 which may be made up of a series of pipes, some of which may be coiled to allow for them to be put into a secondary container 19 which may have a cooling system 20. The reaction pipe 18 is connected into the bleaching process at its end 21. The continuous process operates as follows: the control unit 17 opens valve 7 to allow approximately 100 kg of water to enter the batch make-up tank 1 along supply pipe 2. At the same time 0.2kg of sequestrant is dosed along pipe 4 by opening valve 8 and agglomerated TAED also enters tank 1 from

Bucket 3 Reference	**Disclosure**
	hopper 10 by operation of the screw feeder 11. This takes about 1 minute. Throughout the fill cycle the agitator 12 is in continuous operation. Towards the end of the cycle the hydrogen peroxide is dosed along line 6 when the controller 17 opens valve 9. At the end of this fill cycle the level in tank 1 is at its maximum. Pump 13 empties tank 1 continuously and at a defined lower level of liquid in tank 1, or a defined period of time, the fill cycle starts again. Alternatively in a modification continuous metering pumps deliver all the components on a continuous basis. In a more automated process for variable flow rates, the flow rate is sensed, for example near the output 21, and is used to control the continuous metering pumps. The homogeneous mixture or suspension of TAED, hydrogen peroxide, water and sequestrant is continuously dosed by pump 13 through the in-line mixer 14 where sodium hydroxide is also dosed continuously via pump 15 in sufficient quantity to give the required pH at the end of the reaction, e.g. at or near the end 21 of pipe 18. Once an empirical relationship has been determined the controller 17 controls the sodium hydroxide delivery by controlling pump 15 according to the setting of pump 13 which in turn is set by the overall flow requirement. In an alternative process, pH is determined, for example at or near an end 21 of pipe 18, and is used to control pump 15. The reaction requires at least 4 minutes after the in-line mixer to achieve greater than 85% TAED to peracetate anion conversion. This reaction time is achieved by pumping the mixture through reaction pipe 18. The length of the reaction pipe 18 is dependent on flow rate and pipe volume (pipe bore) and the required retention time. The in-line mixer 14 creates turbulent flow, causing intimate mixing of the sodium hydroxide and the TAED/peroxide mixture which leads to the reaction progressing rapidly, no solids being visible immediately down stream of the in-line mixer. This contrasts sharply with the build up of solids that occurs in that area if the mixing element of the in-line mixer 14 is removed. Withenshaw at 8:14-9:28; Fig. 1
U.S. 3,432, 546 (Oringer)	Oringer discloses various methods for combing reagents to generate PAA. For example:

Bucket 3 Reference	**Disclosure**
Issued March 11, 1969	A method for the production of an aqueous peracetic acid solution by the reaction of hydrogen peroxide with acetic anhydride in the presence of an alkaline catalyst comprising continuously introducing the reactants into a tubular reaction zone at a rate to produce a turbulent flow designated by a Reynolds number of 5,000 to 30,000 and a residence time in the reaction zone of 30 seconds to 5 minutes at a temperature of 80 to 140 F. Oringer at Abstract The herein process involves continuously introducing into a tubular reaction zone at a temperature of about 80° to 140 F., and preferably about 110° to 130° F., and under an even pressure and at a rate to provide a turbulent flow of reactants expressed as a Reynolds number value of about 5,000 to 30,000, the following reactants in the following amounts: (a) an aqueous hydrogen per oxide source to provide in the reaction mixture an active oxygen concentration of 0.8 to 12.0 volumes, (b) acetic anhydride in an amount to provide an acetic anhydride to hydrogen peroxide (calculated as 100%) molar ratio of 1.0 to 1.16 to 1, and preferably about 1.08 to 1, and (c) an alkaline catalyst compatible with active oxygen in an amount to provide a pH in the reaction mixture of 5.4 to 7.0, and preferably 5.5 to 6.0, and continuously withdrawing an aqueous peracetic acid reaction product at a concentration of about 0.5 to 7% by weight at a rate to provide in the reaction a residence time of about 30 seconds to 5 minutes, and preferably 1 to 2 minutes. The pressure at which the reactants are introduced is dependent upon the desired residence time and Reynolds number, and normally is about 10 to 250 p.s.i.g. By carrying out the reaction in this manner under the conditions specified, build-up of and maintenance of diacetyl peroxide in the reaction mixture is held to a minimum so that the product is substantially free of explosive hazard both in preparation and in use. Safety is augmented by the fact that the process is conducted on a demand basis, with reaticants being fed into one end of the apparatus and product discharging in as little as one-half minute from the other end, ready for use. Storage of peracid solution is therefore not necessary, and dangerously large quantities of peracetic acid and diacetyl peroxide are not built up. Furthermore, dilute peracid solutions are not very stable (typically, 20% or more of the peracid active oxygen may be lost at 80' F. for 8 hours), so that the ability of the process to deliver peracid for immediate use is extremely valuable.

Bucket 3 Reference	**Disclosure**
	Oringer at 2:35-72 The combination of use of a tubular reaction zone and a turbulent flow of reactants therethrough results in quite rapid and efficient production of a peracetic acid solution without undue build-up of diacetyl peroxide. Under these conditions, the reaction to peracetic acid proceeds to very satisfactory yields in as little as about 30 seconds to one minute, although residence times of as much as 5 minutes can be tolerated safely due to the advantages of this method. Oringer at 4:16-24 The invention will now be described with reference to the single drawing attached, which shows the apparatus of this invention which is particularly useful in carrying out the herein process. In the drawing, which is a schematic diagram, there is provided a tubular coiled reaction zone 10, placed within a tank 12 of water or other suitable liquid 14 which serves as a means for absorbing any possible explosive force created by detonation of the reactants or reaction products. Reactants are fed to this reaction zone from three feed tanks; 16 containing hydrogen peroxide, 18 containing acetic anhydride and 20 containing aqueous alkaline catalyst solution. Hydrogen peroxide is fed from tank 16 through line 22 and metering pump head 24; acetic anhydride is fed from tank 18 through line 26 and metering pump head 28; and aqueous alkaline solution is fed from tank 20 through line 30 and metering pump head 32, all to mixer 34, suitably a mixing cross, where they are blended for passage into reaction zone 10. The metering, diaphragm pump heads are driven by a common motor 38 to maintain a predetermined ratio of feed of reactants. A magnetic clutch 40 between the aqueous ammonia feed head 32 and the other two feed heads 24 and 28 engages the drive shaft from the motor 38, and is so designed as to be disengaged upon start-up and shut-down of the apparatus for a predetermined time, which permits the aqueous ammonia feed to be introduced alone to the reactor coil 10, thereby flushing the system and destroying any potentially hazardous residual diacetyl peroxide. Surge dampeners 42 in each of lines 22, 26 and 30 regulate the flow to a steady condition, where a piston, diaphragm or other pump 38 which creates pulsating flow is used. These dampeners function by

Bucket 3 Reference	Disclosure
	exposing the process fluid to a suitably sized flexible diaphragm which separates the fluid from a sealed gas chamber in which the pressure of the gas is adjustable. The diaphragm acts like a spring to dampen oscillations in flow pressure. The tank 12 of liquid 14 is provided with a water or steam inlet 44 and outlet 46; this makes it possible to regulate the temperature of the reaction by controlling the liquid temperature. The reaction is exothermic, but atmospheric cooling sometimes more than compensates for the heat given off by the reaction, and some heating with steam or ,hot water is desirable to maintain the required reaction temperature. Peracetic acid product from reaction zone is passed from line 48 to a bleaching range or other end use site for the peracid, or to storage. Oringer at 5:21-70; Fig. 1 Example 1 A coil 10 having 40 turns on 0.9" centers and having a coil diameter of 28.5 inches, was formed of a /2 OD. 304 stainless steel tube 300 feet long having a wall thick ness of 0.02 inch, and inside diameter of 0.46 inch. This coil was immersed centrally in a cylindrical steel tank 12, 6 feet high and 6.4 feet in diameter, and the tank was filled with water 14. The coil was fitted at the bottom with a mixing cross 34, to which three stainless steel lines 22, 26 and 30 were attached for feeding 50% aqueous hydrogen peroxide, acetic anhydride and 1.38% aqueous ammonium hydroxide solutions. These materials were introduced through metering pump heads 24, 28 and 32 run by motor 38. Surges in feed created by pump action were smooth by surge dampeners 42. Product peracetic acid solution was removed via line 48. The reaction to form peracetic acid was carried out by feeding the acetic anhydride, hydrogen peroxide and aqueous ammonium hydroxide solutions at the following rates. Ingredient: Gallons per hour Hydrogen peroxide 5.9 Acetic anhydride 10.5 Aqueous ammonia (1.38% as NH 167.7

Bucket 3 Reference	**Disclosure**
	This provided a pH of 6.0 and a molar ratio of acetic anhydride to hydrogen peroxide of 1.08 to 1 on a hydrogen peroxide basis. The rate of introduction of ingredients was such that a turbulent flow, measured as a Reynolds number of 20,000, was created and the reaction mixture was in the reaction zone for 60 seconds, and the reaction temperature was F. Analysis for diacetyl peroxide, conducted one minute after introduction of reaction ingredients into the tube (as they issued from the reactor) showed the presence of 0.035% (by weight of total reaction mixture) of diacetyl peroxide. The product contained 3.57% by weight of peracetic acid, a conversion of 85.5% based on the hydrogen peroxide introduced. Oringer at 5:71-8:35 (Example 1)
JP 2006-045147 (Okano) Published February 16,2006	Okano discloses methods for combining reagents to generate PAA as claimed in the Asserted Claims. For example: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57.

Bucket 3 Reference	**Disclosure**
	There are many facilities where a hygienic environment is desired, such as food production plants, pharmaceutical production plants, hospitals, nursing homes, kitchens, bathrooms, and the like. In such cases, careful sterilization of floors, walls, and equipment used and the like is essential in order to maintain a hygienic environment. Okano, ¶ 2 Cleaners, sterilizing agents, and sterilizing cleaners for liquids or powders that contain surfactants, sterilizing agents, and the like are mainly used to sterilize and clean such hard surfaces. Furthermore, when a sterilization and cleaning process is incorporated into an industrial production process, steps such as supplying, mixing, and applying (painting, spraying, and the like) the active ingredient are often automated. Okano, ¶ 3
U.S. 7,919,122 (Kao) Published November 29, 2007	Kao discloses methods for combining reagents to generate PAA as claimed in the Asserted Claims. For example: EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect

Bucket 3 Reference	Disclosure
	was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.

Bucket 3 Reference	**Disclosure**
	Kao, 47:40-49:40, Table 23.
US 2010/0227000 (Ames et al.) Published September 9, 2010	Ames et al. discloses methods for combining reagents to generate PAA as claimed in the Asserted Claims. For example: > The process of the present invention can be performed at the user's premises in particular. It is a considerable advantage that the mixing can successfully be performed even at low temperatures of, for example 5 to 10° C., temperatures as may prevail in a farm environment in winter, for example. In other words, even at such low temperatures the activation time is short, for example, 5 to 15 minutes until sufficient peracetic acid is formed for biocidal activity; i.e., until the peracetic acid disinfectant can be used to perform a disinfection task. Ames at ¶ 64.
U.S. 7,012,154 (Vineyard) Published February 2, 2006	Vineyard discloses methods for combining reagents to generate PAA as claimed in the Asserted Claims. For example: > In the illustrated embodiments, aqueous peracetic acid is produced from the acid catalyzed reaction between acetic acid (HOAc), and hydrogen peroxide in water in a Suitable reaction vessel, distilled off, and applied as either a condensed aqueous Solution or as a vapor finished product. The finished product is fed proportionally and directly into the end-use applications as it is produced. The initial phase of the process involves continuously adding the reactants in Specific ratios together to produce PAA (also represented as HOOAc) at any concentration, up to and including a steady State concentration. The rate of PAA formation is proportional to the concentration of acid catalyst, the concentration of each reactant, the temperature of the reaction, and the temperature and pressure of distillation. The Overall process chemistry, with Sulfuric acid as the acid catalyst, is expressed in Table 1… Vineyard at 5:35-50; Table 1

Bucket 3 Reference	**Disclosure**
	In the Pipe-Line (PL) reactor depicted in FIG. 1, hydrogen peroxide, acetic acid, sulfuric acid catalyst and water (which are typically added entirely with the hydrogen peroxide and/or acetic acid) are fed to the reactor together with recirculating reaction mixture from the base of the distillation column. Heat for the reaction is provided by a jacket on the PL reactor, which is operated under sufficient pressure (controlled by a back-pressure control valve in the reactor discharge line) to prevent vaporization within the reactor. When the reaction mixture discharges from the reactor into the base of the distillation column, which operates at a lower temperature and pressure, flashing takes place. The vapor rises through the distillation column where it is rectified to give the desired PAA concentration with minimal levels of residual hydrogen peroxide and acetic acid. The liquid recirculates to the PL reactor. The operation of the reactor and associated equipment is modulated to produce sufficient PAA to meet the demands of each application. The continuous pot (CP) reactor depicted in FIG. 2 is similar to the PL reactor except that the reactants are typically charged to the pot reactor at the base of the distillation column and distillation takes place as a result of heat added by the jacket on the pot reactor using hot water or other heating medium. Reflux is returned to the column to give the desired rectification, while the balance of the vapor is condensed and fed to the application or it is fed directly to the application as a vapor. Pipe Line Reactor FIG. 1 illustrates a Pipe-Line (PL) reactor according to a preferred embodiment of the invention. The PL reactor [**11**] depicted in FIG. 1 operates with greatly reduced volumes of reactants within the reactor than is the case with the CP reactor (FIG. 2), so it is intrinsically safer and particularly well-suited for larger scale operations, though it may be employed for any scale of operation. The raw materials, including acetic acid [**1**], hydrogen peroxide [**2**], sulfuric acid [**3**], and deionized water [**4**], which is usually or primarily charged with acetic acid and hydrogen peroxide, are charged to the PL reactor [**11**], which is jacketed [**10**] and preceded by an in-line mixer [**9**]. The raw materials are charged at a rate corresponding to the desired production rate. The PL reactor [**11**] operates at higher temperatures than have heretofore been employed in the production of aqueous peracetic acid and at pressures

Bucket 3 Reference	Disclosure
	sufficient to prevent vaporization within the reactor. When the reaction mixture exits the PL reactor [**11**] through a back-pressure valve [**12**], it discharges into the base of the distillation column [**5**], where it flashes at the lower pressure within the column. The vapor rises through the column [**14**], where it is rectified to give the desired distillate concentration. The constant composition reaction mixture in the base of the column [**5**] after flashing is re-circulated to the PL reactor [**11**] where it is combined with fresh reactants. To increase production, the feed rates of all reactants are increased proportionately. Some reduction in purge rate from the base of the column may be needed to increase the catalyst concentration in the reaction mixture to achieve increased production rates and/or the temperature may need to be increased. The residence time in the PL reactor [**11**] typically ranges from 1 to 30 minutes, preferably 1 to 10 minutes. The reaction temperature within the PL reactor [**11**] will typically be in the range of 60–80° C. and the pressure will typically be in the range of 500–1500 mm Hg abs. Vineyard at 8:9-9:5, FIG. 1, FIG. 2; *see also* 9:6-11:21

BUCKET 4 (Maximizing Conversion References) – Maximize the Conversion of Hydrogen Peroxide and Triacetin to PAA

Bucket 4 Reference	Disclosure
JP 2006-045147 (Okano) Published February 16,2006	Okano discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably 10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more

Bucket 4 Reference	**Disclosure**
	preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a actor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide. Okano, ¶ 35. <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare the sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm. Okano, ¶ 57.
U.S. 7,919,122 (Kao) Published November 29, 2007	Kao discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: <First Composition for Production of a Sterilizer> The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water

Bucket 4 Reference	Disclosure
	content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. The first composition for production of a sterilizer according to the present invention is a liquid composition of one-pack type containing the components for giving an organic peracid, and is thus preferable for example in production of the first sterilizer composition of the invention described later or an aqueous solution for sterilization used in the sterilizing method of the invention. In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1. The molar ratio of the component (B1) to one ester group of the component (A) is preferably 2 or less, more preferably 0.3 to 2, from the viewpoint of efficient formation of an organic peracid and reduction of unreacted hydrogen peroxide. Kao, 4:25-53 EXAMPLE 3 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid

Bucket 4 Reference	Disclosure
	concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10. Kao, 29:26-31:22, Table 10. EXAMPLE 6 Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.

Bucket 4 Reference	**Disclosure**
	Kao, 47:40-49:40, Table 23.
U.S. 7,271,137 (Tucker) Published May 26, 2005	Tucker discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: A minimum set of ingredients for an aqueous decontamination solution for disinfection and sterilization applications, according to the present invention, comprises: a reactive compound selected from the group consisting of nucleophilic compounds and oxidizing compounds; a bleaching activator; an inorganic base; and water. Tucker, 5:35-42 Formulation #1 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 6 g Ethanol o 7 g Potassium Carbonate o 29 g Deionized Water The pH of this formulation is 9.60. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%.

Bucket 4 Reference	**Disclosure**
	Tucker, 12:20-30 Formulation #2 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 7 g Potassium Carbonate o 35 g Deionized Water The initial pH of this formulation was 9.23. Potassium Hydroxide was added to bring the pH to 9.53. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 12:39-49 Formulation #3 o 50 g of 8% Hydrogen Peroxide Solution o 8 g Diacetin o 20 g Potassium Acetate o 4 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.82. The total amount is 100 grams. No pH adjustment was made. The hydrogen peroxide concentration in this formulation is 4%.

Bucket 4 Reference	**Disclosure**
	Tucker, 13:16-27 Formulation #4 o 50 g of 8% Hydrogen Peroxide Solution o 6 g Deionized Water o 4 g Diacetin o 20 g Potassium Acetate o 2 g Benzalkonium Chloride o 18 g Propylene Glycol The initial pH of this formulation was 7.54. No pH adjustment was made. The total amount is 100 grams. The hydrogen peroxide concentration in this formulation is 4%. Tucker, 13:35-47 The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below:

Bucket 4 Reference	**Disclosure**
	Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer

Bucket 4 Reference	**Disclosure**
	• 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35
WO 2001/046519 (Withenshaw) Published June 28, 2001	Withenshaw discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: The present invention provides a peroxyacid delivery process for the continuous generation of peroxyacid from hydrogen peroxide solution and bleach activator characterised in that the pH of a mixture of hydrogen peroxide solution and bleach activator is adjusted by the addition or injection of an alkaline material selected from the group consisting of sodium hydroxide, potassium hydroxide and magnesium oxide under vigorous mixing conditions provided by an in-line mixer within which the Froude number is at least 1 , or by another mixer or combination of mixers providing an equivalent speed and intimacy of mixing. Where magnesium oxide is mentioned, this encompasses the hydrated product, irrespective of whether this is defined as magnesium oxide or magnesium hydroxide.

Bucket 4 Reference	**Disclosure**
	Withenshaw at 3:6-15 The reaction mixture is preferably pumped along a reaction pipe downstream of the vigorous mixer(s) with a residence time of between 4 and 25 min. The premixing of the bleach activator and the hydrogen peroxide solution can be done in any suitable continuous or semi-batch operation. Agglomeration of the activator facilitates accurate dosing and also allows for easy recovery from accidental spillage. The bleach activator may be any one or mixtures of more than one acetyl donor. The process is particularly suitable for use with agglomerated TAED. Withenshaw at 4:27-5:1-5 Although a tank may be used to provide at least part of the reaction capacity downstream of the vigorous or in-line mixer if desired, the use of a reaction pipe may have advantages over a tank. As with the use of an in-line mixer, because the system is then enclosed, exposure of an operator to peracetic anion solution is reduced. Withenshaw at 7:14-22 An advantage of a continuous peroxyacid generating system is that it eliminates the need for a specific acid addition step that previous batch systems have required to lower the pH of the solution in the batch tank. Nevertheless, if the necessity should ever arise, it is possible to add acid to the pulp bleaching tank. A further advantage of generating the peroxyacid continuously is that it may easily be controlled because it is operating as a steady state reaction. Withenshaw at 8:1-9 Figure 1 is a schematic of a continuous peroxyacid generating system.

Bucket 4 Reference	Disclosure
	Figure 1 shows a batch make-up tank 1. The tank is fed with water along delivery pipe 2. Sequestrant is dosed from tank 3 along sequestrant supply pipe 4. Hydrogen peroxide is dosed from tank 5 along peroxide supply pipe 6. Valves 7, 8 and 9 control the water, sequestrant and peroxide supplies respectively. Agglomerated TAED is held in a hopper 10 and fed to the tank 1 via a screw feeder 1 1. The contents of tank 1 are kept in suspension and mixed using an agitator 12. The outlet from tank 1 is fed by pump 13 to in-line mixer 14. The in-line mixer is also fed through pump 15 with caustic soda solution from tank 16. A control unit 17 controls valves 7, 8 and 9, screw feeder 1 1 , and pumps 13 and 15. The output from the in-line mixer 14 enters a reaction pipe 18 which may be made up of a series of pipes, some of which may be coiled to allow for them to be put into a secondary container 19 which may have a cooling system 20. The reaction pipe 18 is connected into the bleaching process at its end 21. The continuous process operates as follows: the control unit 17 opens valve 7 to allow approximately 100 kg of water to enter the batch make-up tank 1 along supply pipe 2. At the same time 0.2kg of sequestrant is dosed along pipe 4 by opening valve 8 and agglomerated TAED also enters tank 1 from hopper 10 by operation of the screw feeder 11. This takes about 1 minute. Throughout the fill cycle the agitator 12 is in continuous operation. Towards the end of the cycle the hydrogen peroxide is dosed along line 6 when the controller 17 opens valve 9. At the end of this fill cycle the level in tank 1 is at its maximum. Pump 13 empties tank 1 continuously and at a defined lower level of liquid in tank 1, or a defined period of time, the fill cycle starts again. Alternatively in a modification continuous metering pumps deliver all the components on a continuous basis. In a more automated process for variable flow rates, the flow rate is sensed, for example near the output 21, and is used to control the continuous metering pumps. The homogeneous mixture or suspension of TAED, hydrogen peroxide, water and sequestrant is continuously dosed by pump 13 through the in-line mixer 14 where sodium hydroxide is also dosed continuously via pump 15 in sufficient quantity to give the required pH at the end of the reaction, e.g. at or near the end 21 of pipe 18. Once an empirical relationship has been determined the controller 17 controls the sodium hydroxide delivery by controlling pump 15 according to the setting of pump 13

Bucket 4 Reference	**Disclosure**
	which in turn is set by the overall flow requirement. In an alternative process, pH is determined, for example at or near an end 21 of pipe 18, and is used to control pump 15. The reaction requires at least 4 minutes after the in-line mixer to achieve greater than 85% TAED to peracetate anion conversion. This reaction time is achieved by pumping the mixture through reaction pipe 18. The length of the reaction pipe 18 is dependent on flow rate and pipe volume (pipe bore) and the required retention time. The in-line mixer 14 creates turbulent flow, causing intimate mixing of the sodium hydroxide and the TAED/peroxide mixture which leads to the reaction progressing rapidly, no solids being visible immediately down stream of the in-line mixer. This contrasts sharply with the build up of solids that occurs in that area if the mixing element of the in-line mixer 14 is removed. Withenshaw at 8:14-9:28; Fig. 1
U.S. 3,432, 546 (Oringer) Issued March 11, 1969	Oringer discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: A method for the production of an aqueous peracetic acid solution by the reaction of hydrogen peroxide with acetic anhydride in the presence of an alkaline catalyst comprising continuously introducing the reactants into a tubular reaction zone at a rate to produce a turbulent flow designated by a Reynolds number of 5,000 to 30,000 and a residence time in the reaction zone of 30 seconds to 5 minutes at a temperature of 80 to 140 F. Oringer at Abstract The herein process involves continuously introducing into a tubular reaction zone at a temperature of about 80° to 140 F., and preferably about 110° to 130° F., and under an even pressure and at a rate to provide a turbulent flow of reactants expressed as a Reynolds number value of about 5,000 to 30,000,

Bucket 4 Reference	**Disclosure**
	the following reactants in the following amounts: (a) an aqueous hydrogen per oxide source to provide in the reaction mixture an active oxygen concentration of 0.8 to 12.0 volumes, (b) acetic anhydride in an amount to provide an acetic anhydride to hydrogen peroxide (calculated as 100%) molar ratio of 1.0 to 1.16 to 1, and preferably about 1.08 to 1, and (c) an alkaline catalyst compatible with active oxygen in an amount to provide a pH in the reaction mixture of 5.4 to 7.0, and preferably 5.5 to 6.0, and continuously withdrawing an aqueous peracetic acid reaction product at a concentration of about 0.5 to 7% by weight at a rate to provide in the reaction a residence time of about 30 seconds to 5 minutes, and preferably 1 to 2 minutes. The pressure at which the reactants are introduced is dependent upon the desired residence time and Reynolds number, and normally is about 10 to 250 p.s.i.g. By carrying out the reaction in this manner under the conditions specified, build-up of and maintenance of diacetyl peroxide in the reaction mixture is held to a minimum so that the product is substantially free of explosive hazard both in preparation and in use. Safety is augmented by the fact that the process is conducted on a demand basis, with reaticants being fed into one end of the apparatus and product discharging in as little as one-half minute from the other end, ready for use. Storage of peracid solution is therefore not necessary, and dangerously large quantities of peracetic acid and diacetyl peroxide are not built up. Furthermore, dilute peracid solutions are not very stable (typically, 20% or more of the peracid active oxygen may be lost at 80' F. for 8 hours), so that the ability of the process to deliver peracid for immediate use is extremely valuable. Oringer at 2:35-72 The combination of use of a tubular reaction zone and a turbulent flow of reactants therethrough results in quite rapid and efficient production of a peracetic acid solution without undue build-up of diacetyl peroxide. Under these conditions, the reaction to peracetic acid proceeds to very satisfactory yields in as little as about 30 seconds to one minute, although residence times of as much as 5 minutes can be tolerated safely due to the advantages of this method. Oringer at 4:16-24

Bucket 4 Reference	**Disclosure**
	The invention will now be described with reference to the single drawing attached, which shows the apparatus of this invention which is particularly useful in carrying out the herein process. In the drawing, which is a schematic diagram, there is provided a tubular coiled reaction zone 10, placed within a tank 12 of water or other suitable liquid 14 which serves as a means for absorbing any possible explosive force created by detonation of the reactants or reaction products. Reactants are fed to this reaction zone from three feed tanks; 16 containing hydrogen peroxide, 18 containing acetic anhydride and 20 containing aqueous alkaline catalyst solution. Hydrogen peroxide is fed from tank 16 through line 22 and metering pump head 24; acetic anhydride is fed from tank 18 through line 26 and metering pump head 28; and aqueous alkaline solution is fed from tank 20 through line 30 and metering pump head 32, all to mixer 34, suitably a mixing cross, where they are blended for passage into reaction zone 10. The metering, diaphragm pump heads are driven by a common motor 38 to maintain a predetermined ratio of feed of reactants. A magnetic clutch 40 between the aqueous ammonia feed head 32 and the other two feed heads 24 and 28 engages the drive shaft from the motor 38, and is so designed as to be disengaged upon start-up and shut-down of the apparatus for a predetermined time, which permits the aqueous ammonia feed to be introduced alone to the reactor coil 10, thereby flushing the system and destroying any potentially hazardous residual diacetyl peroxide. Surge dampeners 42 in each of lines 22, 26 and 30 regulate the flow to a steady condition, where a piston, diaphragm or other pump 38 which creates pulsating flow is used. These dampeners function by exposing the process fluid to a suitably sized flexible diaphragm which separates the fluid from a sealed gas chamber in which the pressure of the gas is adjustable. The diaphragm acts like a spring to dampen oscillations in flow pressure. The tank 12 of liquid 14 is provided with a water or steam inlet 44 and outlet 46; this makes it possible to regulate the temperature of the reaction by controlling the liquid temperature. The reaction is exothermic, but atmospheric cooling sometimes more than compensates for the heat given off by the reaction, and some heating with steam or ,hot water is desirable to maintain the required reaction temperature. Peracetic acid product from reaction zone is passed from line 48 to a bleaching range or other end use site for the peracid, or to storage.

Bucket 4 Reference	**Disclosure**
	Oringer at 5:21-70; Fig. 1 Example 1 A coil 10 having 40 turns on 0.9" centers and having a coil diameter of 28.5 inches, was formed of a /2 OD. 304 stainless steel tube 300 feet long having a wall thick ness of 0.02 inch, and inside diameter of 0.46 inch. This coil was immersed centrally in a cylindrical steel tank 12, 6 feet high and 6.4 feet in diameter, and the tank was filled with water 14. The coil was fitted at the bottom with a mixing cross 34, to which three stainless steel lines 22, 26 and 30 were attached for feeding 50% aqueous hydrogen peroxide, acetic anhydride and 1.38% aqueous ammonium hydroxide solutions. These materials were introduced through metering pump heads 24, 28 and 32 run by motor 38. Surges in feed created by pump action were smooth by surge dampeners 42. Product peracetic acid solution was removed via line 48. The reaction to form peracetic acid was carried out by feeding the acetic anhydride, hydrogen peroxide and aqueous ammonium hydroxide solutions at the following rates. Ingredient: Gallons per hour Hydrogen peroxide 5.9 Acetic anhydride 10.5 Aqueous ammonia (1.38% as NH 167.7 This provided a pH of 6.0 and a molar ratio of acetic anhydride to hydrogen peroxide of 1.08 to 1 on a hydrogen peroxide basis. The rate of introduction of ingredients was such that a turbulent flow, measured as a Reynolds number of 20,000, was created and the reaction mixture was in the reaction zone for 60 seconds, and the reaction temperature was F. Analysis for diacetyl peroxide, conducted one minute after introduction of reaction ingredients into the tube (as they issued from the reactor) showed the presence of 0.035% (by weight of total reaction mixture) of diacetyl peroxide. The product contained 3.57% by weight of peracetic acid, a conversion of 85.5% based on the hydrogen peroxide introduced.

Bucket 4 Reference	**Disclosure**
	Oringer at 5:71-8:35 (Example 1)
US 2010/0227000 (Ames et al.) Published September 9, 2010	Ames et al. discloses maximizing the conversion of hydrogen peroxide and triacetin to PAA claimed in the Asserted Claims. For example: > Accordingly, the present invention provides a multi-part kit system, for example, a two- or three-part kit system comprising a solid part A which comprises at least one acetyl donor, a liquid part B in the form of an aqueous composition which comprises 3 to 35 wt. % (weight-%), preferably 5 to 10 wt. % of hydrogen peroxide (hereinafter for brevity purposes also called "liquid part B") and, optionally, one or more parts C, wherein (a) the solid part A or the optional part(s) C or (b) the solid part A and the optional part(s) C, comprise at least one surfactant selected from the group consisting of anionic surfactants, amphoteric (zwitterionic) surfactants and nonionic surfactants, wherein the composition of the parts of the multi-part kit system is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8. Ames at ¶ 7 > It is preferred that the at least one acetyl donor is a solid compound. Examples of acetyl donors include tetraacetyl ethylene diamine (TAED), acetyl salicylic acid, pentaacetylglucose, tetraacetylglycoluril, N-acetyl caprolactam, diacetin, triacetin, acetyl triethyl citrate and 1,5-diacetyl-2,4-dioxo-hexahydro-1,3,5-triazine. TAED is preferred as acetyl donor. In a preferred embodiment part A comprises 30 to 60 wt. % of TAED, wherein it is especially preferred that the TAED is the only acetyl donor. Ames at ¶ 17 > The solid part A comprises 0 to 20 wt. %, preferably 2 to 10 wt. % of one or more solid inorganic bases. Examples of such inorganic bases include sodium bicarbonate, potassium carbonate, sodium hydroxide, potassium hydroxide and, in particular, sodium carbonate.

Bucket 4 Reference	**Disclosure**
	Ames at ¶ 22 Apart from the at least one acetyl donor and the at least one surfactant, the solid part A may comprise one or more of the following optional constituents: solid inorganic dispersants, solid water-soluble inorganic fillers, solid inorganic bases, biocidal compounds other than biocidal peroxide compounds and further additives. Ames at ¶ 19 A particularly preferred solid part A of the two-part kit system of the present invention has a composition as follows: o 30 to 60 wt. % TAED, o 1 to 15 wt. % polyethoxylated alcohol, preferably polyethoxylated fatty alcohol, o 1 to 5 wt. % silica, o 40 to 68 wt. % of water-soluble solid inorganic filler, preferably sodium acetate or sodium sulfate, o 0 to 10 wt. % of solid inorganic base, preferably sodium carbonate, o 0 to 25 wt. %, preferably 5 to 10 wt. % of quaternary ammonium chloride, and o 0 to 5 wt. % of one or more further additives selected from the group consisting of buffers, dyes and peroxide decomposition stabilizers, wherein the sum of the wt. % totals 100 wt. %. Ames at ¶¶ 41-48 Alternatively, parts A and B may be mixed together with a small amount of water to form a concentrate with a peracetic acid content of, for, example, 1 to 5 wt. %. Such concentrate may be diluted with water to form a ready-to-use peracetic acid disinfectant which can then be used for disinfection purposes. For example, the concentrate may be applied by proportioning equipment, which dilutes the concentrate to

Bucket 4 Reference	Disclosure
	the required peracetic acid concentration. Examples of such proportioning equipment include chemical injectors and Dosatron® technologies. Ames at ¶ 67 The liquid part B may be commercially available aqueous hydrogen peroxide of pH 3.5 or it can be prepared by adjusting the pH value of an aqueous solution of hydrogen peroxide to the desired value; i.e., to a pH value of above 3.5 to 8, preferably of 6.5 to 7.5, by adding an appropriate amount of at least one inorganic base and, optionally, by dilution to the desired hydrogen peroxide concentration with water, preferably deionized or distilled water. Adjustment of the pH value can be controlled making use of a conventional pH meter. Ames at ¶ 51 Examples of inorganic bases that can be used for the pH adjustment are alkali metal carbonates and alkali metal hydroxides such as lithium hydroxide, sodium hydroxide and potassium hydroxide. It is preferred to use aqueous solutions of the bases. It is preferred to use an alkali metal hydroxide. If a dilution to the desired hydrogen peroxide concentration with water is carried out, this can be performed prior to, during or after the pH adjustment. Ames at ¶ 53 • A preferred liquid part B has a composition as follows: o 3 to 35 wt. %, preferably 5 to 10 wt. % of hydrogen peroxide, o 0.05 to 0.5 wt. % of alkali hydroxide, o 0.005 to 1 wt. % of at least one transition metal sequestering agent, o 0 to 10 wt. %, preferably 0 wt. %, of at least one further additive selected from the group consisting of surfactants, hard water sequestrants and corrosion inhibitors; and the wt. % proportion remaining is water to make 100 wt. %. Ames at ¶¶ 55-57

Bucket 4 Reference	**Disclosure**
	The present invention is also directed to a process for the preparation of a peracetic acid disinfectant by mixing all parts of the two- or multi-part kit system, in particular parts A and B of the two-part kit system, and water in the specified ratio. Ames at ¶ 63 In case of the two-part kit system of the present invention it is preferred that the specified mixing ratio between parts A and B corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in solid part A and the hydrogen peroxide in liquid part B of 4:1 to 1:10, in particular 2:1 to 1:2. The preparation of the peracetic acid disinfectant can easily be performed by mixing parts A and B and water in the specified mixing ratio, for example, mixing parts A and B and water and, if necessary, diluting the aqueous mixture with water to the desired concentration. Ames at ¶ 65

BUCKET 5 (Point-Of-Use References) – PAA is Prepared for a Point-of-Use

Bucket 5 Reference	**Disclosure**
JP 2006-045147 (Okano) Published February 16,2006	Okano discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: In addition, the amount of water in the sterilizing cleaner composition for hard surfaces of the present invention is preferably 50 wt% or more but less than 100 wt%, more preferably 60 wt% or more but less than 100 wt%, and particularly preferably 70 wt% or more but less than 100 wt%. Furthermore, the sterilizing cleaner composition for hard surfaces of the present invention is an aqueous solution containing an organic peracid, and the concentration of the organic peracid in the composition is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In addition, in terms of sterilizing effect, it is preferable that the hydrogen peroxide content of the sterilizing cleaner composition for hard

Bucket 5 Reference	**Disclosure**
	surfaces of the present invention is 0.5 wt% or less, more preferably 0.3 wt% or less, and even more preferably 0.2 wt% or less. This hydrogen peroxide content is preferably achieved immediately after preparation of the composition, and even more so at the time of use. Okano, ¶ 23
U.S. 7,919,122 (Kao) Published November 29, 2007	Kao discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: <First Sterilizer Composition> The first sterilizer composition of the present invention contains water and an organic peracid obtained by reacting the component (A) with the component (B1) in an (A)/(B1) molar ratio of 1/10 to 20/1 in water at pH 8 to 12, the sterilizer composition having a pH value of 1 to less than 7 at, 25° C. As described above, the first sterilizer composition of the present invention is prepared by reacting the components (A) and (B1) in a specific molar ratio in water at pH 8 to 12, and subsequent adjustment to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5. Specific compounds of the components (A) and (B) and the preferable (A)/(B1) molar ratio are the same as in the second composition for production of a sterilizer according to the present invention. The first sterilizer composition can also contain the surfactant, inorganic or organic salts, chelating agent, perfume, pigment and dye described above. The amount of water in the composition is preferably 50 wt % to less than 100 wt %, more preferably 60 wt % to less than 100 wt %, still more preferably 70 wt % to less than 100 wt %. Similar to the aqueous solution obtained from the composition for production of a sterilizer according to the present invention, the first sterilizer composition of the present invention is an aqueous solution containing an organic peracid, and the concentration of an organic peracid in the aqueous solution is preferably 10 to 20,000 ppm, more preferably 10 to 10,000 ppm. In respect of the sterilizing effect, the content of hydrogen peroxide in the first sterilizer composition of the present invention is preferably 0.5 wt % or less, more preferably 0.3 wt % or less, still more preferably 0.2 wt % or less. This hydrogen peroxide content is achieved preferably just after preparation of the composition, more preferably at use.

Bucket 5 Reference	**Disclosure**
	Kao, 7:41-8:5
U.S. 7,271,137 (Tucker) Published May 26, 2005	Tucker discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: The decontamination formulations of the present invention may be packaged as a two-part kit system (i.e., Part A and Part B) kit system. When all of the water is "pre-packaged" in either of Part A or Part B, the mixing of the formulation for use can be accomplished in a very short time since it only consists of two parts. Therefore, it could be deployed very easily and rapidly at the scene of an incident involving biological pathogens or agents. This configuration is ideal for use the civilian first responder (firefighter, HazMat units, police officers, and others who would be the first to arrive at the location of a CBW attack). However, it is heavier to store and carry than other kit configurations that must add water in the field. Although it is not required, all of the organic ingredients may be placed in Part A, and all of the inorganic ingredients may be placed in Part B. A first example of a two-part kit system is shown below: Two-Part Kit System, Example #1 o Part A (organic components) • bleaching activator o Part B (inorganic components) • reactive compound • inorganic base • water Optionally, Part A may additionally comprise: solubilizing compounds, cationic surfactants, cationic hydrotropes, solvents, fatty alcohols, freeze-point depressants, water-soluble polymers, foam stabilizers, pH buffers, corrosion inhibitors, sorbent additives for drying out liquid components, and

Bucket 5 Reference	Disclosure
	combinations thereof. Optionally, Part B may comprise pH buffers and sorbent additives. The inorganic base may comprise potassium acetate or potassium tetraborate. A second example of a two-part kit system is shown below (wherein the total amount of solution when Parts A and B are mixed together equals 100 grams): Two-Part Kit System, Example #2 o Part A (organic components) • 1-10 grams of a bleaching activator • 0-4 grams of a cationic surfactant • 0-2 grams of a cationic hydrotrope • 0-20 grams of a freeze-point depressant • 0-0.6 grams of a fatty alcohol • 0-2 grams of a solvent • 0-6 grams of a water-soluble polymer • 0-6 grams of an organic base o Part B (inorganic components) • 3-70 grams of 8% hydrogen peroxide solution • 5-20 grams of an inorganic base • sufficient water to make up 100 grams of made-up solution. In this second example of a two-part kit system, the bleaching activator may comprise glycerol diacetate or propylene glycol diacetate; the cationic surfactant may comprise benzalkonium chloride; the inorganic base may comprise potassium acetate (which serves as a base/buffer and antifreeze agent); the freeze-point depressant may comprise propylene glycol; the fatty alcohol may comprise 1-dodecanol; the solvent may comprise diethylene glycol monobutyl ether and isobutanol; the water-

Bucket 5 Reference	**Disclosure**
	soluble polymer may comprise poly-ethoxylated glycerine; the organic base may comprise triethanolamine; and the inorganic base may comprise potassium acetate. Tucker, 14:34-15:35
WO 2001/046519 (Withenshaw) Published June 28, 2001	Withenshaw discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: The present invention provides a peroxyacid delivery process for the continuous generation of peroxyacid from hydrogen peroxide solution and bleach activator characterised in that the pH of a mixture of hydrogen peroxide solution and bleach activator is adjusted by the addition or injection of an alkaline material selected from the group consisting of sodium hydroxide, potassium hydroxide and magnesium oxide under vigorous mixing conditions provided by an in-line mixer within which the Froude number is at least 1 , or by another mixer or combination of mixers providing an equivalent speed and intimacy of mixing. Where magnesium oxide is mentioned, this encompasses the hydrated product, irrespective of whether this is defined as magnesium oxide or magnesium hydroxide. Withenshaw at 3:6-15 The reaction mixture is preferably pumped along a reaction pipe downstream of the vigorous mixer(s) with a residence time of between 4 and 25 min. The premixing of the bleach activator and the hydrogen peroxide solution can be done in any suitable continuous or semi-batch operation. Agglomeration of the activator facilitates accurate dosing and also allows for easy recovery from accidental spillage. The bleach activator may be any one or mixtures of more than one acetyl donor. The process is particularly suitable for use with agglomerated TAED. Withenshaw at 4:27-5:1-5

Bucket 5 Reference	**Disclosure**
	Although a tank may be used to provide at least part of the reaction capacity downstream of the vigorous or in-line mixer if desired, the use of a reaction pipe may have advantages over a tank. As with the use of an in-line mixer, because the system is then enclosed, exposure of an operator to peracetic anion solution is reduced. Withenshaw at 7:14-22 An advantage of a continuous peroxyacid generating system is that it eliminates the need for a specific acid addition step that previous batch systems have required to lower the pH of the solution in the batch tank. Nevertheless, if the necessity should ever arise, it is possible to add acid to the pulp bleaching tank. A further advantage of generating the peroxyacid continuously is that it may easily be controlled because it is operating as a steady state reaction. Withenshaw at 8:1-9 Figure 1 is a schematic of a continuous peroxyacid generating system. Figure 1 shows a batch make-up tank 1. The tank is fed with water along delivery pipe 2. Sequestrant is dosed from tank 3 along sequestrant supply pipe 4. Hydrogen peroxide is dosed from tank 5 along peroxide supply pipe 6. Valves 7, 8 and 9 control the water, sequestrant and peroxide supplies respectively. Agglomerated TAED is held in a hopper 10 and fed to the tank 1 via a screw feeder 1 1. The contents of tank 1 are kept in suspension and mixed using an agitator 12. The outlet from tank 1 is fed by pump 13 to in-line mixer 14. The in-line mixer is also fed through pump 15 with caustic soda solution from tank 16. A control unit 17 controls valves 7, 8 and 9, screw feeder 1 1 , and pumps 13 and 15. The output from the in-line mixer 14 enters a reaction pipe 18 which may be made up of a series of pipes, some of which may be coiled to allow for them to be put into a secondary container 19 which may have a cooling system 20. The reaction pipe 18 is connected into the bleaching process at its end 21.

Bucket 5 Reference	**Disclosure**
	The continuous process operates as follows: the control unit 17 opens valve 7 to allow approximately 100 kg of water to enter the batch make-up tank 1 along supply pipe 2. At the same time 0.2kg of sequestrant is dosed along pipe 4 by opening valve 8 and agglomerated TAED also enters tank 1 from hopper 10 by operation of the screw feeder 11. This takes about 1 minute. Throughout the fill cycle the agitator 12 is in continuous operation. Towards the end of the cycle the hydrogen peroxide is dosed along line 6 when the controller 17 opens valve 9. At the end of this fill cycle the level in tank 1 is at its maximum. Pump 13 empties tank 1 continuously and at a defined lower level of liquid in tank 1, or a defined period of time, the fill cycle starts again. Alternatively in a modification continuous metering pumps deliver all the components on a continuous basis. In a more automated process for variable flow rates, the flow rate is sensed, for example near the output 21, and is used to control the continuous metering pumps. The homogeneous mixture or suspension of TAED, hydrogen peroxide, water and sequestrant is continuously dosed by pump 13 through the in-line mixer 14 where sodium hydroxide is also dosed continuously via pump 15 in sufficient quantity to give the required pH at the end of the reaction, e.g. at or near the end 21 of pipe 18. Once an empirical relationship has been determined the controller 17 controls the sodium hydroxide delivery by controlling pump 15 according to the setting of pump 13 which in turn is set by the overall flow requirement. In an alternative process, pH is determined, for example at or near an end 21 of pipe 18, and is used to control pump 15. The reaction requires at least 4 minutes after the in-line mixer to achieve greater than 85% TAED to peracetate anion conversion. This reaction time is achieved by pumping the mixture through reaction pipe 18. The length of the reaction pipe 18 is dependent on flow rate and pipe volume (pipe bore) and the required retention time. The in-line mixer 14 creates turbulent flow, causing intimate mixing of the sodium hydroxide and the TAED/peroxide mixture which leads to the reaction progressing rapidly, no solids being visible immediately down stream of the in-line mixer. This contrasts sharply with the build up of solids that occurs in that area if the mixing element of the in-line mixer 14 is removed.

Bucket 5 Reference	**Disclosure**
	Withenshaw at 8:14-9:28; Fig. 1
U.S. 3,432,546 (Oringer) Issued March 11, 1969	Oringer discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: A method for the production of an aqueous peracetic acid solution by the reaction of hydrogen peroxide with acetic anhydride in the presence of an alkaline catalyst comprising continuously introducing the reactants into a tubular reaction zone at a rate to produce a turbulent flow designated by a Reynolds number of 5,000 to 30,000 and a residence time in the reaction zone of 30 seconds to 5 minutes at a temperature of 80 to 140 F. Oringer at Abstract The herein process involves continuously introducing into a tubular reaction zone at a temperature of about 80° to 140 F., and preferably about 110° to 130° F., and under an even pressure and at a rate to provide a turbulent flow of reactants expressed as a Reynolds number value of about 5,000 to 30,000, the following reactants in the following amounts: (a) an aqueous hydrogen per oxide source to provide in the reaction mixture an active oxygen concentration of 0.8 to 12.0 volumes, (b) acetic anhydride in an amount to provide an acetic anhydride to hydrogen peroxide (calculated as 100%) molar ratio of 1.0 to 1.16 to 1, and preferably about 1.08 to 1, and (c) an alkaline catalyst compatible with active oxygen in an amount to provide a pH in the reaction mixture of 5.4 to 7.0, and preferably 5.5 to 6.0, and continuously withdrawing an aqueous peracetic acid reaction product at a concentration of about 0.5 to 7% by weight at a rate to provide in the reaction a residence time of about 30 seconds to 5 minutes, and preferably 1 to 2 minutes. The pressure at which the reactants are introduced is dependent upon the desired residence time and Reynolds number, and normally is about 10 to 250 p.s.i.g. By carrying out the reaction in this manner under the conditions specified, build-up of and maintenance of diacetyl peroxide in the reaction mixture is held to a minimum so that the product is substantially free of explosive hazard both in preparation and in use. Safety is augmented by the fact that the process

Bucket 5 Reference	Disclosure
	is conducted on a demand basis, with reaticants being fed into one end of the apparatus and product discharging in as little as one-half minute from the other end, ready for use. Storage of peracid solution is therefore not necessary, and dangerously large quantities of peracetic acid and diacetyl peroxide are not built up. Furthermore, dilute peracid solutions are not very stable (typically, 20% or more of the peracid active oxygen may be lost at 80' F. for 8 hours), so that the ability of the process to deliver peracid for immediate use is extremely valuable. Oringer at 2:35-72 The combination of use of a tubular reaction zone and a turbulent flow of reactants therethrough results in quite rapid and efficient production of a peracetic acid solution without undue build-up of diacetyl peroxide. Under these conditions, the reaction to peracetic acid proceeds to very satisfactory yields in as little as about 30 seconds to one minute, although residence times of as much as 5 minutes can be tolerated safely due to the advantages of this method. Oringer at 4:16-24 The invention will now be described with reference to the single drawing attached, which shows the apparatus of this invention which is particularly useful in carrying out the herein process. In the drawing, which is a schematic diagram, there is provided a tubular coiled reaction zone 10, placed within a tank 12 of water or other suitable liquid 14 which serves as a means for absorbing any possible explosive force created by detonation of the reactants or reaction products. Reactants are fed to this reaction zone from three feed tanks; 16 containing hydrogen peroxide, 18 containing acetic anhydride and 20 containing aqueous alkaline catalyst solution. Hydrogen peroxide is fed from tank 16 through line 22 and metering pump head 24; acetic anhydride is fed from tank 18 through line 26 and metering pump head 28; and aqueous alkaline solution is fed from tank 20 through line 30 and metering pump head 32, all to mixer 34, suitably a mixing cross, where they are blended for passage into reaction zone 10. The metering, diaphragm pump heads are driven by a common motor 38 to maintain a predetermined ratio of feed of reactants. A magnetic clutch 40 between the

Bucket 5 Reference	Disclosure
	aqueous ammonia feed head 32 and the other two feed heads 24 and 28 engages the drive shaft from the motor 38, and is so designed as to be disengaged upon start-up and shut-down of the apparatus for a predetermined time, which permits the aqueous ammonia feed to be introduced alone to the reactor coil 10, thereby flushing the system and destroying any potentially hazardous residual diacetyl peroxide. Surge dampeners 42 in each of lines 22, 26 and 30 regulate the flow to a steady condition, where a piston, diaphragm or other pump 38 which creates pulsating flow is used. These dampeners function by exposing the process fluid to a suitably sized flexible diaphragm which separates the fluid from a sealed gas chamber in which the pressure of the gas is adjustable. The diaphragm acts like a spring to dampen oscillations in flow pressure. The tank 12 of liquid 14 is provided with a water or steam inlet 44 and outlet 46; this makes it possible to regulate the temperature of the reaction by controlling the liquid temperature. The reaction is exothermic, but atmospheric cooling sometimes more than compensates for the heat given off by the reaction, and some heating with steam or ,hot water is desirable to maintain the required reaction temperature. Peracetic acid product from reaction zone is passed from line 48 to a bleaching range or other end use site for the peracid, or to storage. Oringer at 5:21-70; Fig. 1 Example 1 A coil 10 having 40 turns on 0.9" centers and having a coil diameter of 28.5 inches, was formed of a /2 OD. 304 stainless steel tube 300 feet long having a wall thick ness of 0.02 inch, and inside diameter of 0.46 inch. This coil was immersed centrally in a cylindrical steel tank 12, 6 feet high and 6.4 feet in diameter, and the tank was filled with water 14. The coil was fitted at the bottom with a mixing cross 34, to which three stainless steel lines 22, 26 and 30 were attached for feeding 50% aqueous hydrogen peroxide, acetic anhydride and 1.38% aqueous ammonium hydroxide solutions. These materials were introduced through metering pump heads 24, 28 and 32 run by motor 38. Surges in feed created by pump action were smooth by surge dampeners 42. Product peracetic acid solution was removed via line 48.

Bucket 5 Reference	**Disclosure**
	The reaction to form peracetic acid was carried out by feeding the acetic anhydride, hydrogen peroxide and aqueous ammonium hydroxide solutions at the following rates. Ingredient: Gallons per hour Hydrogen peroxide 5.9 Acetic anhydride 10.5 Aqueous ammonia (1.38% as NH 167.7 This provided a pH of 6.0 and a molar ratio of acetic anhydride to hydrogen peroxide of 1.08 to 1 on a hydrogen peroxide basis. The rate of introduction of ingredients was such that a turbulent flow, measured as a Reynolds number of 20,000, was created and the reaction mixture was in the reaction zone for 60 seconds, and the reaction temperature was F. Analysis for diacetyl peroxide, conducted one minute after introduction of reaction ingredients into the tube (as they issued from the reactor) showed the presence of 0.035% (by weight of total reaction mixture) of diacetyl peroxide. The product contained 3.57% by weight of peracetic acid, a conversion of 85.5% based on the hydrogen peroxide introduced. Oringer at 5:71-8:35 (Example 1)
US 2010/0227000 (Ames et al.) Published September 9, 2010	Ames et al. discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: The process of the present invention can be performed at the user's premises in particular. It is a considerable advantage that the mixing can successfully be performed even at low temperatures of, for example 5 to 10° C., temperatures as may prevail in a farm environment in winter, for example. In other words, even at such low temperatures the activation time is short, for example, 5 to 15 minutes until sufficient peracetic acid is formed for biocidal activity; i.e., until the peracetic acid disinfectant can be used to perform a disinfection task. Ames at ¶ 64.

Bucket 5 Reference	**Disclosure**
Green Supplement Published 2008	Green Supplement discloses that PAA is prepared for a point-of-use as claimed in the Asserted Claims. For example: On-Site PAA Delivery System Eltron Water Systems LLC is in the pilot-scale development phase of a system that produces PAA on-site via a proprietary process that uses water, air and a readily available GRAS feedstock. This green, emerging technology for water treatment and membrane cleaning enables point-of-use delivery of PAA. The system integrates with existing water treatment infrastructure and can operate continuously or in batch mode. Furthermore, the system is scalable, both up and down, and the concentration of the PAA can be varied, which allows PAA production at a volume and concentration to compensate for changing conditions within the cooling tower. Because the PAA is delivered at point-of-use concentrations, dilution may be unnecessary and operator safety improved. Green Supplement at 12.

BUCKET 6 (Non-equilibrium Solution of Peracetic Acid References)

Bucket 6 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0065: In case of the two-part kit system of the present invention it is preferred that the specified mixing ratio between parts A and B corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in solid part A and the hydrogen peroxide in liquid part B of 4:1 to 1:10, in particular 2:1 to 1:2. The preparation of the peracetic acid disinfectant can easily be performed by mixing parts A and B and water in the specified mixing ratio, for example, mixing parts A and B and water and, if necessary, diluting the aqueous mixture with water to the desired concentration. Paragraph 0066: It is possible to mix parts A and B into water to obtain the ready-to-use (RTU) peracetic acid disinfectant with the desired concentration dependent on the specific disinfection task to be performed; i.e., with the desired peracetic acid content in the range of, for example 0.04 to 0.7 wt. %. Paragraph 0067: Alternatively, parts A and B may be mixed together with a small amount of water to form a concentrate with a peracetic acid content of, for, example, 1 to 5 wt. %. Such concentrate may be diluted with water to form a ready-to-use peracetic acid disinfectant which can then be used for disinfection purposes. For example, the concentrate may be applied by proportioning equipment, which dilutes the concentrate to the required peracetic acid concentration. Examples of such proportioning equipment include chemical injectors and Dosatron® technologies.
U.S. 7,919,122 (Kao)	Column 29, lines 30-34: Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent

Bucket 6 Reference	**Disclosure**
Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0008: The present invention relates to a sterilizing cleaner composition for hard surfaces, containing water and an organic peracid obtained by reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group that may have a hydroxyl group (herein referred to as component (A)) and (B1) hydrogen peroxide (herein referred to as (B1)) in water at a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and which has a pH of 1 or more to 7 or less at 25°C. Paragraph 0048: The component (A) and the component (B1) react under alkaline conditions (water temperature 5 to 50 is suitable) in water to generate an organic peroxy acid, and therefore, a component that gives such a pH may be used as the component (C). Specifically, examples include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides, alkali metal silicate salts such as sodium silicate and potassium silicate, alkali metal phosphate salts that exhibit alkalinity, such as trisodium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate, which were given as examples of alkaline pH adjusting agents; however, form the perspective of alkalinity or water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal phosphate salts such as trisodium phosphate and tripotassium carbonate and alkali metal carbonate salts such as sodium carbonate and potassium carbonate are preferable.

Bucket 6 Reference	**Disclosure**
	Paragraph 0059: <Measurement of Organic Peroxy Acid Concentration> About 1 g of the sterilizing cleaner composition (I) or (II) prepared in a 100 mL beaker was weighed precisely, and approximately 50 mL of ion-exchanged water and approximately 1 mL of hydrogen peroxide decomposer (product name: Asksuper G, Mitsubishi Gas Chemical Co., Ltd.) were poured and stirred well to decompose only hydrogen peroxide in the composition. Afterward, 5 mL of 20% sulfuric acid and 5 mL of a 10% potassium iodide aqueous solution were poured, stirred, titrated with a 0.1 mol/L sodium thiosulfate aqueous solution, and an organic peroxy acid concentration (as peracetic acid concentration) was found using the following formula. Organic peroxy acid (peracetic acid) concentration (%) = T × 38/W/100 T: Amount require for titration of 0.1 mol/L sodium thiosulfate aqueous solution (mL) W: Collected amount of the sterilizing cleaner composition (g)
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Abstract: Composition and method for production of peroxycarboxylic acid solutions for various disinfection and cleaning compositions that utilizes non-equilibrium peroxycarboxylic acid. More specifically compositions comprise peracetic acid (PAA) and methods for making non-equilibrium PAA are provided. Frozen compositions useful as antimicrobial ice are provided.

BUCKET 7 (Peracetic Acid Present in the Peracetic Acid Solution)

Bucket 7 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0065, 0066, and 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Example 3: Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 10, to adjust the total weight of the mixture to 100 g. This mixture was mixed with stirring for about 10 minutes in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 10, followed by adding deionized water to adjust the total amount to 110 g. At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and about 30 minutes after the stirring, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 1. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 2, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus subtilis* var. *niger* were used. The results are shown in Table 10.

Bucket 7 Reference	**Disclosure**
	Example 6: Deionized water was added to the components (A) and (B), organic phosphonic acid (trade name: Dequest 2010, manufactured by Solutia Japan Ltd.) and an alkaline pH adjusting agent in the amounts shown in Table 23, to adjust the total weight of the mixture to 100 g (first step). This mixture was mixed for about 10 minutes with stirring in a 200 mL beaker. The pH in this step was 8 to 12. Thereafter, the mixture was rapidly adjusted to the objective pH by using an acidic pH adjusting agent in a weight shown in Table 21, followed by adding deionized water to adjust the total amount to 110 g (second step). At this point in time (just after preparation), the mixture was measured for organic peracid concentration and hydrogen peroxide concentration, and a change in the organic peracid concentration with time (just after preparation, 30 minutes, 60 minutes and 120 minutes after preparation) was measured. After 120 minutes, the aqueous solution for sterilization was adjusted to an organic peracid concentration of 3000 ppm, and its sterilizing effect was confirmed. The method of measuring the hydrogen peroxide concentration and the organic peracid concentration was conducted according to the method of measuring the organic peracid concentration in Example 5. The sterilization test method was in accordance with measurement of sterilizing effect of bacterial spores in Example 5a, but in this example, the temperature and time for contacting the aqueous solution for sterilization with bacteria were 60° C. and 20 seconds respectively, and as the objective bacteria, *Bacillus cereus* IFO13494 and *Bacillus circulans* IFO3967 were used.
JP 2006-045147 A (Okano) Priority date: August 6, 2004	Paragraph 0059; see above.

Bucket 7 Reference	**Disclosure**
Publication date: Feb. 16, 2006	
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0030: 0030 In a specific embodiment, the hydrogen peroxide employed in making non-equilibrium PAA can be produced on-site electrochemically. This embodiment of the invention is particularly well suited for the production of antimicrobial ice. For example, alkaline hydrogen peroxide can be produced electrochemically on-site and then mixed with triacetin or other acetyl donor to produce an alkaline mixture of non-equilibrium PAA, hydrogen peroxide, triacetin, and glycerol. Optionally, the pH of this alkaline mixture can be reduced by the addition of acid or by further treatment in the electrochemical cell.

BUCKET 8 (Hydrogen Peroxide in the Peracetic Acid Solution)

Bucket 8 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0007: Accordingly, the present invention provides a multi-part kit system, for example, a two- or three-part kit system comprising a solid part A which comprises at least one acetyl donor, a liquid part B in the form of an aqueous composition which comprises 3 to 35 wt. % (weight-%), preferably 5 to 10 wt. % of hydrogen peroxide (hereinafter for brevity purposes also called "liquid part B") and, optionally, one or more parts C, wherein (a) the solid part A or the optional part(s) C or (b) the solid part A and the optional part(s) C, comprise at least one surfactant selected from the group consisting of anionic surfactants, amphoteric (zwitterionic) surfactants and nonionic surfactants, wherein the composition of the parts of the multi-part kit system is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8.

Bucket 8 Reference	**Disclosure**
	Paragraph 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Column 2, lines 39-44: Furthermore, the present invention relates to a process for producing an organic peracid, which includes a step of reacting (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group with (B1) hydrogen peroxide in an (A)/(B1) molar ratio of 1/10 to 20/1 in water at pH 8 to 12. Column 12, lines 42-47: According to the process of the present invention, the organic peracid can be obtained in an aqueous solution, and the concentration of remaining hydrogen peroxide in the aqueous solution is preferably 60 wt % or less, more preferably 50 wt % or less and still more preferably 0.1 to 50 wt % of the amount of initially charged hydrogen peroxide.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0008; see above. Paragraph 0057: <Preparation of Sterilizing Cleaner Composition (I)> (A) 50 g of triacetin (made by Cognis Japan, active ingredient 100%) and (B) 25 g of hydrogen peroxide (made by Ube Chemira, active ingredient 60%) were mixed with 850 g of ion exchanged water, 75 g of an alkaline aqueous solution containing 27% sodium hydroxide and 1.3% of organic phosphonic acid (product name: Dequest 2010, made by Solucia) was poured in, and this was then mixed and stirred for 5 minutes. Afterward, 75 g of a mixed acid solution containing 30% sulfuric acid and 6% phosphoric acid was immediately added to prepare a

Bucket 8 Reference	**Disclosure**
	sterilizing cleaner composition (I) containing the organic peroxy acid. The pH (25°C) of the composition (I) was about 2, and the hydrogen peroxide content was about 1500 ppm.
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0030; see above.

BUCKET 9 (Triacetin in the Peracetic Acid Solution)

Bucket 9 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0017: 0017 It is preferred that the at least one acetyl donor is a solid compound. Examples of acetyl donors include tetraacetyl ethylene diamine (TAED), acetyl salicylic acid, pentaacetylglucose, tetraacetylglycoluril, N-acetyl caprolactam, diacetin, triacetin, acetyl triethyl citrate and 1,5-diacetyl-2,4-dioxo-hexahydro-1,3,5-triazine. TAED is preferred as acetyl donor. In a preferred embodiment part A comprises 30 to 60 wt. % of TAED, wherein it is especially preferred that the TAED is the only acetyl donor.
U.S. 7,919,122	Column 4, lines 14-16:

Bucket 9 Reference	**Disclosure**
(Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Specifically, the component (A) is preferably an ester of glycerin and a C1 to C8 aliphatic monocarboxylic acid, more preferably triacetin.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0008; see above. Paragraph 0014: Specifically, the component (A) is preferably an ester of glycerin and an aliphatic monocarboxylic acid having 1 to 8 carbon atoms, and among these triacetin is preferable.
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0030; see above.

BUCKET 10 (1,2,3 Propanetriol in the Peracetic Acid Solution)

Bucket 10 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0007, 0065, 0066, and 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Examples 3 and 6; see above.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date:	Paragraphs 0008 and 0057; see above.

Bucket 10 Reference	**Disclosure**
Feb. 16, 2006	
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0030; see above.

BUCKET 11 (Alkali Metal or Earth Alkali Metal Hydroxide Source in Peracetic Acid Solution)

Bucket 11 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0053: Examples of inorganic bases that can be used for the pH adjustment are alkali metal carbonates and alkali metal hydroxides such as lithium hydroxide, sodium hydroxide and potassium hydroxide. It is preferred to use aqueous solutions of the bases. It is preferred to use an alkali metal hydroxide. If a dilution to the desired hydrogen peroxide concentration with water is carried out, this can be performed prior to, during or after the pH adjustment.
U.S. 7,919,122 (Kao)	Column 5, lines 39-42:

Bucket 11 Reference	**Disclosure**
Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	The alkaline pH adjusting agent includes alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc. Column 5, 61-64: These pH adjusting agents can also be present in the above-described first composition for production of a sterilizer according to the present invention. Column 9, lines 39-44: a component giving such pH can be used as the component (C). Specific examples include the alkaline pH adjusting agents illustrated above, that is, alkali metal hydroxides or alkaline earth metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, barium hydroxide etc.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0040: Examples of alkaline pH adjusting agents include alkali metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide, and barium hydroxide, alkaline earth metal hydroxides such as sodium silicate, alkali metal silicate such as potassium silicate, alkaline alkali metal salts such as trisodium phosphate, and alkali metal carbonates such as sodium carbonate and potassium carbonate, but from the perspective of alkalinity and water solubility, alkali metal hydroxides such as sodium hydroxide and potassium hydroxide, alkali metal salts such as trisodium phosphate and tripotassium phosphate, and alkali metal carbonate salts such as sodium carbonate and potassium carbonate and the like are preferable. Furthermore, examples of acidic pH adjusting agents include inorganic acids such as hydrochloric acid, sulfuric acid, and phosphoric acid and organic acids such as formic acid, acetic acid, citric acid, succinic acid, and gluconic acid, but from the perspective of acidity and water solubility, liquid inorganic acids such as sulfuric acid and

Bucket 11 Reference	**Disclosure**
	phosphoric acid and highly water-soluble organic acids such as citric acid and acetic acid are preferable. These may be used alone or in combination of two or more types. Furthermore, these pH adjusting agents may remain present in the second composition for producing sterilizing cleaner of the present invention. Note that these pH adjusting agents may also be present in the first composition for producing sterilizing cleaner of the present invention described above. Paragraph 0057; see above.
U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0033: In the present invention non-equilibrium peroxycarboxylic acid solutions, particularly those of PAA, are chemically produced by an irreversible, non-equilibrium reaction of hydrogen peroxide with an acyl donor, particularly an acetyl donor, in a solvent such as, but not limited to, water. One typical example of this reaction using acetylsalicylic acid as the acetyl donor is given in the equation below. Caustic pH (pH>10) is used to accelerate the reaction since the hydrogen peroxide anion is a much better nucleophile than hydrogen peroxide. The reaction pH can be adjusted with an appropriate base (proton acceptors such as hydroxide or amines for example). Paragraph 0034: Both the hydrogen peroxide anion and hydroxide anion compete in the reaction with the acyl donor, the former producing a peroxycarboxylic acid and the latter producing carboxylic acid. When an acetyl donor is employed the hydrogen peroxide anion and hydroxide anion compete in the reaction with the acetyl donor, the former producing a peracetic acid and the latter producing acetic acid. The percent conversion of the acyl donor to peroxycarboxylic acid is maximized by maximizing the hydrogen peroxide to hydroxide ratio. An example of a non-equilibrium reaction solution illustrated in Equation (3) is combining 1.1 g/L hydrogen peroxide

Bucket 11 Reference	**Disclosure**
	adjusted to pH 12.0 with sodium hydroxide and reacted with 10 g/L acetylsalicylic acid. The product solution contains 0.32 g/L hydrogen peroxide and 1.9 g/L peracetic acid with 85% conversion of the acetylsalicylic acid. This product has a non-equilibrium hydrogen peroxide to peracetic acid ratio of 10 0.17, more than ten times lower than for merchant equilibrium products. Paragraph 0041: Exemplary non-equilibrium PAA reaction solution employing acetylsalicylic acid as the acetyl donor is made by combining 1.1 g/L hydrogen peroxide adjusted to pH 12.0 with sodium hydroxide with 10 g/L acetylsalicylic acid. The product solution contains 0.32 g/L hydrogen peroxide and 1.9 g/L peracetic acid with 85% conversion of the acetylsalicylic acid. This product solution has a non-equilibrium hydrogen peroxide to peracetic acid ratio of 0.17, more than ten times lower than for merchant equilibrium products.
WO 2012/090124 (Li) Priority: Dec. 29, 2010 Published: July 5, 2012	Page 24, lines 15-18: In some embodiments, the compositions of the invention further include a solvent. In some embodiments, the solvent is water. The water may be provided by the use of aqueous reagents, viz. oxidizing agent, alkalinity source. In other embodiments, an additional amount of water is added to the compositions.

BUCKET 12 (Water as part of the Peracetic Acid Solution)

Bucket 12 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0007, 0065, 0066, and 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Column 7, lines 42-43: The first sterilizer composition of the present invention contains water and an organic peracid.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraphs 0008 and 0057; see above.
U.S. 2009/0175956	Paragraph 0033; see above.

Bucket 12 Reference	**Disclosure**
(Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	

Bucket 13 (Peracetic Acid Solution pH References)

Bucket 13 Reference	**Disclosure**
U.S. 2009/0314652 (Buschmann 2) Priority: March 19, 2008 Published: Dec. 24, 2009	Example 7 (paragraph 0132): For all three exemplary data sets below, PAA solutions are prepared by dissolving the appropriate volume of H_2O_2 (30%), along with 3.55 g of anhydrous sodium sulfate (0.05M) in 500 mL of deionized water. The pH is adjusted to 11.4 with sodium hydroxide pellets. Triacetin is then added via volumetric pipette. The solution is stirred for 15 minutes and the PAA concentration determined by titration with sodium thiosulfate to give the initial yields shown in Table 1. The pH of the solution is then adjusted by circulation through the central chamber of the electrolytic cell run at 3.0 A. Once the pH turns acidic, a final yield of PAA is determined by titration.
JP 2006-045147 A (Okano) Priority date:	Paragraph 0008; see above. Paragraph 0009, 0015, and 0029: The present invention also relates to a method for producing a sterilizing cleaner composition for hard surfaces, having steps for reacting (A) an ester of a polyhydric alcohol

Bucket 13 Reference	**Disclosure**
August 6, 2004 Publication date: Feb. 16, 2006	and an organic acid having a hydrocarbon group, which may have a hydroxyl group, and (B1) hydrogen peroxide in a molar of (A)/(B1)=1/10 to 20/1 in water at a pH of 8 to 12, and then adjusting the pH of the reaction system to 1 or higher but less than 7. Paragraph 0015: The sterilizing cleaner composition for hard surfaces of the present invention contains water and an organic peracid obtained by reacting component (A) and component (B1) in water in a molar ratio of (A)/(B1) = 1/10 to 20/1 and at a pH of 8 to 12, and has a pH of 1 or more and less than 7 at 25°C. That is, as described above, the sterilizing cleaner composition for hard surfaces of the present invention is prepared by reacting component (A) and component (B1) in water in a specific molar ratio and at a pH of 8 to 12, and then adjusting the pH to 1 or more and less than 7, preferably 1 to 6, more preferably 1 to 5. Paragraph 0029: (2) A composition for composition for producing sterilizing cleaner, containing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group, and (B1) hydrogen peroxide or (B2) an inorganic peroxide that releases hydrogen peroxide in water, with the molar ratio of (B1) produced from (A) and (B1) or (A) and (B2) bring (A)/(B1) = 1/10 to 20/1, said composition for producing a sterilizing cleaner being used as an aqueous solution prepared by adjusting the pH to 8 to 12 and then adjusting the pH to 1 or more but less than 7 (hereinafter referred to as the second composition for producing sterilizing cleaner).
U.S. 7,919,122 (Kao)	Column 2, lines 39-44, and Examples 3 and 6; see above.

Bucket 13 Reference	**Disclosure**
Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Column 5, lines 28-33: The second composition for production of a sterilizer according to the present invention, when used, is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step), to prepare an aqueous solution of a sterilizer composition. Column 12, lines 21-25: In the present invention, the component (A) is mixed with the component (B), and then the reaction system is adjusted to pH 8 to 12, preferably pH 9 to 11 (first step) and then to pH 1 to less than 7, preferably pH 1 to 6, more preferably pH 1 to 5 (second step).
WO 2012/090124 (Li) Priority: Dec. 29, 2010 Published: July 5, 2012	Example 1 (Page 51): A study was run to determine the ability to form peroxycarboxylic acids in situ from ester starting materials at alkaline pH levels. For this study, two different peroxycarboxylic acid forming compositions were each studied at two different pH levels. First, a peracetic acid (POAA) forming composition was tested at pH 12 and pH 13. For this test, 1.89grams of hydrogen peroxide was mixed in a beaker with 0.62 grams of triacetin, 15 grams of distilled water, and 7.75grams of a 10% solution of sodium hydroxide (NaOH). The beaker was fitted with a pH probe. After the sodium hydroxide was added the pH went up to about 12 immediately, and remained relatively stable while the sampling was performed. The peroxycarboxylic acid concentration was measured by removing a sample aliquot of the test solution, acidifying it with acetic acid, and titrating using an iodometric method. Both the peroxycarboxylic acid concentration and the hydrogen peroxide concentrations were measured over time. The above procedure was then repeated using an additional 11.71 grams of a 10% sodium hydroxide solution. This raised the pH to about 13 initially.
U.S. 2009/0175956	Paragraph 0027:

Bucket 13 Reference	**Disclosure**
(Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Generally in the present invention non-equilibrium PAA is produced by reacting a properly chosen acyl donor with hydrogen peroxide under alkaline conditions (pH greater than about 10) to produce non-equilibrium peroxycarboxylic acid. More specifically, in the present invention non-equilibrium peracetic acid (PAA) is produced by reacting a properly chosen acetyl donor with hydrogen peroxide under alkaline conditions (pH greater than about 10) to produce non-equilibrium PAA. "Acyl donor" refers to a material which supplies an acyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes a peroxycarboxylic acid. In a specific embodiment, an "acyl donor" refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes peracetic acid. "Acetyl donor" refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes a peroxycarboxylic acid. In a specific embodiment, an acetyl donor refers to a material which supplies an acetyl donor for reacting with the hydrogen peroxide or peroxide ions to form a solution which includes peracetic acid. The composition of the acetyl donor source for use in a commercial reactor system may be composed of an acetyl donor compound, optionally containing more than one type of acetyl donor compound, optionally containing an electrolyte salt, optionally containing a peroxide stabilizer, optionally containing a base, optionally containing an acid, optionally containing a solvent (water, alcohols, organic). The acyl or acetyl donor is chosen so that that the reverse reaction is not possible or has a very slow rate. Thus, acetic acid (or other carboxylic acid) itself is not a preferred acetyl donor. Examples of acetyl donors include, but are not limited to, O-acetyl donors (—O—C(O)CH_3), such asacetin, diacetin, triacetin, acetylsalicylic acid, (β)-D-glucose pentaacetate, cellulose (mono and tri) acetate, D-mannitol hexaacetate, sucrose octaacetate, and acetic anhydride. N-acetyl donors (—N—C(O)CH3) may also be used, such as N,N,N'N'- tetraacetylethylenediamine (TAED), N-acetyl glycine, N-acetyl-5 DL-methionine, 6-acetamidohexanoic acid, N-acetyl-L-cysteine, 4-acetamidophenol, and N-acetyl-Lglutamine.

Bucket 13 Reference	**Disclosure**
	Paragraph 0034; see above.

Bucket 14 (Peracetic Acid Concentration in Peracetic Acid Solution References)

Bucket 14 Reference	**Disclosure**
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0065 and 0067; see above.
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0057; see above.
U.S. 7,919,122	Tables 10 and 23:

Bucket 14 Reference	**Disclosure**
(Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Table 10

			Product of the invention									
			3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8	3-9	3-10
Compounding components	(A)	Ethylene glycol diaceatate	5g (0.0342)	5g (0.0342)								
		Triacetin			5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)		
		Pentaacetyl-β-D-glucose									5g (0.0128)	5g (0.0128)
	(B)	Aqueous hydrogen peroxide (35 wt%)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)
	Chelating agent (net content)	Organic phosphonic acid	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g
	Alkaline pH adjusting agent (net content)	Soium hydroxide	2g		2g			2g			2g	
		Sodium carbonate				6g			6g			
		Trisodim phosphate		4g			4g			4g		4g
	Acidic pH adjusting agent	Sulfuric acid (purity 98%)	2.1g	2.1g	—	—	—	2.1g	2.1g	2.1g	2.1g	2.1g
		Phosphoric acid (purity 85%)	0.5g	0.5g	5.0g	5.0g	5.0g	0.5g	0.5g	0.5g	0.5g	0.5g
(A)/(B) molar ratio			0.77	0.77	0.52	0.52	0.52	0.52	0.52	0.52	0.29	0.29
Organic peracid concentration (ppm) just after preparation			25,000	24,000	27,000	22,000	26,000	27,000	22,000	26,000	30,000	29,500
Hydrogen peroxide concentration(ppm) just after preparation			1,500	1,650	1,050	1,900	1,350	1,050	1,850	1,300	900	950
pH of aqueous solution for sterilization (25℃)			3.5	2.8	3.7	1.5	3.0	3.5	1.2	2.8	3.5	2.8
Number of remaining microorganisms (CFU/mL)		*Bacillus cereus* IFO13494	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
		Bacillus subtilis var. *niger*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Bucket 14 Reference	**Disclosure**
	Table 23

			Example									
			6-1	6-2	6-3	6-4	6-5	6-6	6-7	6-8	6-9	6-10
Compounding ingredients	(A)	Ethylene glycol diacetate	5g (0.0342)	5g (0.0342)								
		Triacetin			5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)	5g (0.0229)		
		Pentaacetyl-β-D-glucose									5g (0.0128)	5g (0.0128)
	(B)	Aqueous hydrogen peroxide (35 wt%)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)	4.3g (0.0443)
	Chelating agent (net content)	Organic phosphonic acid	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g	0.1g
	Alkaline pH adjusting agent (net content)	Sodium hydroxide	2g		2g			2g			2g	
		Sodium carbonate				6g			6g			
		Trisodium phosphoate		4g			4g			4g		4g
	Acidic pH adjusting agent	Sulfuric acid (purity 98%)	2.1g	2.1g	—	—	—	2.1g	2.1g	2.1g	2.1g	2.1g
		Phosphoric acid (purity 85%)	0.5g	0.5g	5.0g	5.0g	5.0g	0.5g	0.5g	0.5g	0.5g	0.5g
(A)/(B) molar ratio			0.77	0.77	0.52	0.52	0.52	0.52	0.52	0.52	0.29	0.29
Organic peracid concentration (ppm)		Just after preparation	25,000	24,000	27,000	22,000	26,000	27,000	22,000	26,000	30,000	29,500
		30 minutes later	25,000	23,500	26,500	20,000	25,500	26,000	20,000	25,500	28,000	28,000
		60 minutes later	24,500	23,000	26,500	19,000	25,000	25,500	19,000	24,000	27,000	27,000
		120 minutes later	24,000	22,000	25,000	18,000	24,000	25,000	18,000	23,500	25,500	25,500
Hydrogen peroxide concentration (ppm) just after preparation			1,500	1,650	1,050	1,900	1,350	1,050	1,850	1,300	900	950
pH of aqueous solution for sterilization (25°C)			3.5	2.8	3.7	1.5	3.0	3.5	1.2	2.8	3.5	2.8
Number of remaining microorganisms (CFU/mL)		*Bacillus cereus* IFO13494	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
		Bacillus subtilis var. *niger*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

U.S. 2009/0175956 (Buschmann) Priority date: January 8, 2008 Publication date: July 9, 2009	Paragraph 0028: A particular advantage of the use of non-equilibrium peroxycarboxylic acid is that solutions having concentrations of less than about 10 g/l peroxycarboxylic acid can be economically produced, this is particularly the case with non-equilibrium PAA. For example, making dilute solutions (<10 g/l) of equilibrium PAA is not cost-effective because in dilute solutions equilibrium favors the formation of hydrogen peroxide and acetic acid over PAA requiring high ratios of feed chemicals to obtain the desired PAA product at low concentration. Therefore,

Bucket 14 Reference	**Disclosure**
	the cost of feed chemicals is much lower for non-equilibrium PAA relative to equilibrium PAA at low concentrations of PAA.

BUCKET 15 (Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 15 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraphs 0008, 0014, and 0015; see above.
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0066 and 0067; see above.
U.S. 7,919,122	Column 1, lines 58-64:

Bucket 15 Reference	**Disclosure**
(Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	The present invention relates to a composition for production of a sterilizer, having a water content of 1 to 25% by weight and containing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide (referred to hereinafter as the first composition for production of a sterilizer). Column 2, lines 10-14: Further, the present invention relates to a composition for production of a sterilizer, obtained by compounding (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group and (B1) hydrogen peroxide.
WO 2011/017095 (Stauffer) Priority: July 27, 2009 Published: Feb. 10, 2011	Example 4: This Example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of polyvinyl alcohol. The reaction was performed using a perhydrolase enzyme isolated from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of Dl water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the Netherlands), 0.95 mL of triacetin (90 mM) and 6.0 g of Elvanol® 51-04 (20% aqueous solution, DuPont, Wilmington, DE, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30 wt% hydrogen peroxide (89 mM) was added, followed immediately by 125 µL of 20 mg/mL *T. neapolitana* perhydrolase enzyme in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were monitored over time using the cerium sulfate/sodium thiosulfate titration analysis (Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061 -1063, 1948). Control reactions were performed with (12.3 mL 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 mL 30% hydrogen peroxide, 100 mM; 36.2 mL Dl water; 41.7 mg Turpinal® SL; 0.95 mL triacetin, 0.1 M; 125 µL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt% protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above

Bucket 15 Reference	**Disclosure**
	control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in the presence of polyvinyl alcohol produced 456 ppm within 1 minute and increased to 1976 ppm over 30 minutes. Table 1 shows the concentrations of PAA produced from in situ enzymatic production of PAA in the presence of a film-former.
EP 0563460 (Hardy) Priority: April 3, 1992 Published: Oct. 6, 1993	Page. 2, lines 39-41: The compositions according to the present invention are clear aqueous bleaching compositions comprising hydrogen peroxide as well as an organic peracid precursor, characterized in that the compositions have a pH in the range of from about 3.5 to about 6.
WO 2012/090124 (Li) Priority: Dec. 29, 2010 Published: July 5, 2012	Page 3, lines 6-13: In other aspects, the present disclosure relates a peroxycarboxylic acid forming composition comprising a first reagent premix comprising at least one ester of a polyhydric alcohol and a C1 to C18 carboxylic acid, an oxidizing agent and a dispersing agent; wherein the dispersing agent is sufficient to create a physically meta-stable solution upon reaction with a source of alkalinity and the subsequent acidification; and a second reagent source comprising a source of alkalinity; wherein said composition is not at equilibrium, has a pH greater than about 12, and is substantially free of a stabilizing agent. Page 4, lines 3-12:

Bucket 15 Reference	**Disclosure**
	In other aspects, the present disclosure provides a method for forming an antimicrobial composition, comprising: (a) providing a peroxycarboxylic acid composition having active peroxycarboxylic acid content from about 0.25% to about 20% comprising: (i) a first reagent premix comprising at least one ester of a polyhydric alcohol and a C1 to C18 carboxylic acid, and one or more agents selected from the group consisting of an oxidizing agent, a dispersing agent, a solvent, water and mixtures thereof; wherein the solvent is an organic solvent to solubilize the ester; wherein the dispersing agent is sufficient to create a physically meta-stable solution upon reaction with a source of alkalinity; and (ii) a second reagent source comprising a source of alkalinity; wherein said composition has a pH greater than 12 and is not at equilibrium. Page 29, lines 5-9: Premix formulations suitable for use according to the invention may comprise, consist of and/or consist essentially of at least one ester, an oxidizing agent and mixtures thereof. Premix formulations suitable for use according to the invention may comprise, consist of and/or consist essentially of at least one ester, an oxidizing agent, a solvent and mixtures thereof.

BUCKET 16 (Hydrogen Peroxide in Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 16 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004	Paragraphs 0014 and 0009; see above.

Bucket 16 Reference	**Disclosure**
Publication date: Feb. 16, 2006	
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0007 and 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	For column 1, lines 58-64, and column 2, lines 10-14, see above. Column 4, lines 40-49: In the first composition for production of a sterilizer, the content of the component (A) is preferably 20 to 90% by weight, more preferably 30 to 90% by weight, still more preferably 40 to 80% by weight, and the content of the component (B1) is preferably 1 to 30% by weight, more preferably 5 to 25% by weight, still more preferably 10 to 25% by weight. The molar ratio of the component (A) to the component (B1), that is, (A)/(B1) is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, still more preferably 1/5 to 10/1.
WO 2011/017095 (Stauffer) Priority: July 27, 2009	Example 4; see above. Example 5: This example illustrates the *in situ* generation of peracetic acid with an enzyme having perhydrolase activity in the presence of a film-forming composition with additional performance-enhancing additives. The reaction was performed using the perhydrolase

Bucket 16 Reference	**Disclosure**
Published: Feb. 10, 2011	enzyme from *T. neapolitana*. Into a 75 mL glass bottle equipped with a magnetic stir bar, was placed 12.3 mL of 0.2 M sodium bicarbonate buffer (pH 7.2; 44 mM), 36.2 mL of deionized water, 41.7 mg of Turpinal® SL (Thermphos, Vlissingen, the Netherlands), 0.95 mL of thacetin (89 mM), 6.0 g of Elvanol® 51 -04 (20 wt% aqueous solution, DuPont, Wilmington, DE, USA), 0.5 g of PEG-300 (Dow, Midland, Ml, USA) and 0.25 g Silwet® L-77 (Setre Chemical Company, Memphis, TN, USA) and stirred at room temperature until the sample was homogeneous. At this time, 0.51 mL of 30% hydrogen peroxide (88 mM) was added, followed immediately by 125 µL of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer (pH 7.2). The hydrogen peroxide and peracetic acid concentrations were monitored over time using the cerium sulfate/sodium thiosulfate titration test(Greenspan, F. P.; MacKeller, D. G. *Anal. Chem.*, 20: 1061 -1063, 1948). Control reactions were performed with (12.3 ml_ 0.2 M sodium bicarbonate buffer, pH 7.2, 50 mM; 0.51 ml_ 30% hydrogen peroxide, 100 mM; 36.2 ml_ Dl (deionized water) water; 41.7 mg Turpinal® SL; 0.95 ml_ thacetin, 0.1 M; 125 µl_ of 20 mg/mL of *T. neapolitana* perhydrolase enzyme (based on wt % protein in enzyme powder) in 50 mM sodium bicarbonate buffer, pH 7.2) and without added enzyme (identical to above control conditions without enzyme). Over a 30 minute time period, the control reaction performed with triacetin and hydrogen peroxide with no added enzyme produced 114 ppm peracetic acid from the chemical reaction of triacetin and hydrogen peroxide. The control reaction performed with triacetin and hydrogen peroxide with added enzyme produced 380 ppm peracetic acid within 1 minute and increased over 30 minutes to 2280 ppm. The *in situ* enzymatic production of PAA in a film-forming composition produced 342 ppm within 1 minute and increased to 1900 ppm over 30 minutes. Table 2 shows the concentrations of PAA produced from *in situ* enzymatic production of PAA in the presence of a film-forming composition with additional performance-enhancing additives.

Bucket 17 (Triacetin in Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 17 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraphs 0009 and 0014; see above.
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0017; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	Column 4, lines 14-16; see above.

Bucket 17 Reference	**Disclosure**
WO 2011/017095 (Stauffer) Priority: July 27, 2009 Published: Feb. 10, 2011	Examples 4 and 5; see above.

BUCKET 18 (Trace Amount of Peracetic Acid References)

Bucket 18 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0059; see above.
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009	Paragraph 0066; see above.

Bucket 18 Reference	**Disclosure**
Publication date: September 9, 2010	
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	For column 1, lines 58-64, see above.
WO 2011/017095 (Stauffer) Priority: July 27, 2009 Published: Feb. 10, 2011	Examples 4 and 5; see above.

BUCKET 19 (Water as part of the Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 19 Reference	**Disclosure**
JP 2006-045147 A (Okano)	Paragraphs 0009, 0057; see above.

Bucket 19 Reference	**Disclosure**
Priority date: August 6, 2004 Publication date: Feb. 16, 2006	
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraphs 0007, 0065, 0066, and 0067; see above.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	For column 1, lines 58-64, see above. Column 4, lines 26-33: The first composition for production of a sterilizer according to the present invention contains the components (A) and (B1), and from the viewpoint of maintaining the stability of the composition by suppressing the reaction of the component (A) with the component (B1) during storage, the water content of the composition is preferably 1 to 25% by weight, more preferably 5 to 20% by weight, still more preferably 5 to 15% by weight. Column 11, lines 49-51: In the process of the present invention, a liquid composition with a water content of 1 to 25% by weight containing the components (A) and (B1) is preferably used.

Bucket 19 Reference	**Disclosure**
WO 2011/017095 (Stauffer) Priority: July 27, 2009 Published: Feb. 10, 2011	Examples 4 and 5; see above.
WO 2012/090124 (Li) Priority: Dec. 29, 2010 Published: July 5, 2012	Page 24, lines 15-18; see above.

BUCKET 20 (Hydrogen Peroxide Concentration in Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 20 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004	Paragraph 0035: The first composition for producing sterilizing cleaner of the present invention is a single-liquid liquid composition containing components for obtaining an organic peracid. The amount of component (A) in the composition for producing sterilizing cleaner is preferably 20 to 90 wt%, further 30 to 90 wt%, and even more preferably 40 to 80 wt%, and the amount of component (B1) is preferably 1 to 30 wt%, more so 5 to 25 wt%, and even more preferably

Bucket 20 Reference	**Disclosure**
Publication date: Feb. 16, 2006	10 to 25 wt%. The molar ratio of the component (A) to the component (B1), (A)/(B1), is preferably 1/10 to 20/1, more preferably 1/10 to 10/1, and even more preferably 1/5 to 10/1. Furthermore, the molar ratio of the component (B1) per ester group of the component (A) is preferably mole increased by a factor of 2 or less, and particularly preferably mole increased by a factor of 0.3 to 2, from the viewpoints of efficiently generating an organic peracid and reducing unreacted hydrogen peroxide.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	For column 4, lines 40-49, see above. Column 5, lines 20-27: Preferably, the second composition for production of a sterilizer according to the present invention not only satisfies this molar ratio, but also contains the component (A) in an amount of 0.1 to 90% by weight, preferably 0.5 to 70% by weight, more preferably 1 to 50% by weight and the component (B) as the component (B1) in an amount of 0.1 to 50% by weight, preferably 0.1 to 30% by weight, more preferably 0.1 to 20% by weight. Column 11, lines 42-48: Preferably, the composition not only satisfies the above molar ratio or weight ratio, but is also charged with the component (A) in an amount of 0.1 to 90% by weight, more preferably 0.5 to 70% by weight, still more preferably 1 to 50% by weight, and the component (B1) in an amount of 0.1 to 50% by weight, more preferably 0.1 to 30% by weight, still more preferably 0.1 to 20% by weight, in the reaction system.
WO 2012/090124 (Li) Priority:	Page 2, lines 20-24: The compositions comprise about 0.01 wt-% to about 95 wt-% of at least one ester of a polyhydric alcohol and a C1 to C18 carboxylic acid, about 0.001 wt-% to about 25 wt-% of a source of

Bucket 20 Reference	**Disclosure**
Dec. 29, 2010 Published: July 5, 2012	alkalinity, and about 0.001 wt-% to about 50 wt-% of an oxidizing agent. The compositions are not at equilibrium, and have a pH greater than about 12.
EP 0563460 (Hardy) Priority: April 3, 1992 Published: Oct. 6, 1993	Page 3, lines 18-20: Preferably, the compositions according to the present invention comprise from about 0.5 % to about 20 % by weight of the total composition of hydrogen peroxide, more preferably from about 2 % to about 15 %, most preferably from about 4 % to about 9%.

BUCKET 21 (Triacetin Concentration in Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 21 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraph 0035; see above.
U.S. 7,919,122	For column 4, lines 40-49; column 5, lines 20-27; and column 11, lines 42-48, see above.

Bucket 21 Reference	**Disclosure**
(Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	
WO 2012/090124 (Li) Priority: Dec. 29, 2010 Published: July 5, 2012	Page 2, lines 20-24; see above.
EP 0563460 (Hardy) Priority: April 3, 1992 Published: Oct. 6, 1993	Page 4, lines 2-3: The compositions according to the present invention typically comprise from about 1 % to about 15 % by weight of the total composition of such an organic peracid precursor, or mixtures thereof.

BUCKET 22 (Mole Ratios of Hydrogen Peroxide to Triacetin in Hydrogen Peroxide Acetyl Precursor Solution References)

Bucket 22 Reference	**Disclosure**
JP 2006-045147 A (Okano) Priority date: August 6, 2004 Publication date: Feb. 16, 2006	Paragraphs 0015, 0029, and 0035; see above. Paragraph 0030: (3) A composition for producing sterilizing cleaner obtained by mixing (A) an ester of a polyhydric alcohol and an organic acid having a hydrocarbon group which may have a hydroxyl group, and (B1) hydrogen peroxide or (B2) an inorganic peroxide that releases hydrogen peroxide in water, in a molar ratio of (A)/(B1) = 1/10 to 20/1 of (B1) produced from (A) and (B1) or (A) and (B2) said composition for producing sterilizing cleaner being used as an aqueous solution prepared by adjusting the pH to 8 to 12 and then adjusting the pH to 1 or more and less than 7 (hereinafter referred to as the third composition for producing sterilizing cleaner).
U.S. 2010/227000 (Ames et al.) Priority date: March 5, 2009 Publication date: September 9, 2010	Paragraph 0065; see above. Paragraph 0013: It is preferred that the two-part kit system is supplied to the user in the form of two separate receptacles one of which containing the solid part A and the other containing the liquid part B, wherein the specified ratio between parts A and B and water not only ensures that the pH of the mixture of parts A and B and water directly after mixing is in the range of 5.5 to 8 but also corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in part A and the hydrogen peroxide in part B of 4:1 to 1:10, in particular 2:1 to 1:2. Therefore, in a preferred embodiment, the present invention provides a two-part kit system consisting of (i) a solid part A comprising 2 to 90 wt. % of at least one acetyl donor and 1 to 30 wt. % of at least one surfactant selected from the group consisting of anionic surfactants, amphoteric surfactants and nonionic surfactants and (ii) a liquid part B in the form of an aqueous composition comprising 3 to 35 wt. %, preferably 5 to 10 wt. % of hydrogen peroxide, wherein the composition of parts A and B is such, that directly after being mixed with each other and water in a specified ratio the pH of the mixture is in the range of 5.5 to 8, and wherein the specified ratio between parts A and B

Bucket 22 Reference	**Disclosure**
	corresponds to a molar ratio between the acetyl groups of the at least one acetyl donor in solid part A and the hydrogen peroxide in liquid part B of 4:1 to 1:10, in particular 2:1 to 1:2.
U.S. 7,919,122 (Kao) Priority date: April 2, 2003 Publication date: Nov. 29, 2007 (as U.S. 2007/274857)	For column 2, lines 39-44, column 4, lines 40-49, column 5, lines 20-27, and column 11, lines 30-34, see above. Column 7, lines 42-45: The first sterilizer composition of the present invention contains water and an organic peracid obtained by reacting the component (A) with the component (B1) in an (A)/(B1) molar ratio of 1/10 to 20/1 in water at pH 8 to 12.
EP 0563460 (Hardy) Priority: April 3, 1992 Published: Oct. 6, 1993	Page 4, lines 5-6: Accordingly, the compositions according to the present invention preferably comprise from about 0.1 to about 2 moles of organic peracid precursor per mole of hydrogen peroxide. Examples (Pages 4-5):

Bucket 22 Reference	**Disclosure**
	Examples The following compositions are made by mixing together the listed ingredients in the listed proportions. Ingredients: % by weight: I II III IV Hydrogen peroxide 6.0 6.0 6.0 6.0 Na alkyl sulphate 2.8 2.8 2.8 2.8 Triacetin 4.0 5.0 4.0 4.0 Citric acid 1.0 1.0 1.0 1.0 Na Stannate 0.0015 0.0010 0.0015 0.0015 Na hydroxide pH 4 pH 4 pH 3.5 pH 5 pH 4 Water & minors up to 100 %

Bucket 22 Reference	**Disclosure**

Ingredients:	% by weight:			
	V	VI	VII	VIII
Hydrogen peroxide	6.0	8.0	3.5	5.0
Na alkyl sulphate	2.8	2.0	4.0	3.5
Triacetin	-	3.0	5.0	-
Ethylene glycol diacetate	4.0	-	-	5.0
Citric acid	1.0	1.0	1.0	1.0
Na stannate	0.0015	0.0015	0.0010	0.0015
Na hydroxide	pH 4	pH 4	pH 4	pH 4
Water & minors			up to 100 %	