

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASCEND ELEMENTS, INC.,
Petitioner,

v.

DUESENFELD GMBH,
Patent Owner.

PGR2025-00037
Patent 12,119,463 B2

Before GRACE KARAFFA OBERMANN, CHRISTOPHER M. KAISER,
and KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

DECISION
Denying Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

Ascend Elements, Inc. (“Petitioner”) filed a Petition requesting a post-grant review of claims 1–14 (“the challenged claims”) of U.S. Patent No. 12,119,463 B2 (Ex. 1001, “the ’463 patent”). Paper 2 (“Pet.”). Duesenfeld GmbH (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”).

Institution of a post-grant review is authorized by statute when “the information presented in the petition filed under [35 U.S.C. §] 321 . . . demonstrates that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324(a). For the reasons set forth below, we determine that Petitioner has failed to demonstrate that it is more likely than not that at least one of claims 1–14 of the ’463 patent is unpatentable. Accordingly, we deny institution of a post-grant review of claims 1–14 based on the grounds set forth in the Petition.

A. Real Parties-in-Interest

Petitioner identifies Ascend Elements, Inc. as the real party-in-interest. Pet. 60. Patent Owner identifies Duesenfeld GmbH as the real party-in-interest. Paper 3, 1.

B. Related Matters

The parties identify the following related court proceeding: *Duesenfeld GmbH v. Ascend Elements, Inc.*, Case No. 1-23-cv-01194 (D. Del.). Pet. 3; Paper 3, 1. In addition, the parties note that another patent involving similar subject matter—U.S. Patent No. 11,050,097 B2 (“the ’097 patent”)—is also being challenged in IPR2024-00887 and IPR2024-00948. Pet. 2; Paper 3, 1.

C. The '463 patent (Ex. 1001)

The '463 patent is titled “Recycling Method for Treating Used Batteries, in Particular Rechargeable Batteries, and Battery Processing Installation” and issued on Oct. 15, 2024. Ex. 1001, codes (45), (54). It is directed to “[a] method . . . for the treating used lithium batteries.” *Id.* at code (57).¹

The '463 patent describes several prior-art methods of processing used batteries and discusses the disadvantages of each method. *Id.* at 1:19–57. “The invention [of the '463 patent] aims to reduce” these disadvantages. *Id.* at 1:57–58. To do so, the '463 patent explains

The invention solves the problem by way of a method according to the preamble in which the drying is conducted at a maximum pressure of 300 hPa, preferably at least in part at 50 hPa, and at a maximum of 80° C. In particular, the deactivation is conducted at least also by drying the comminuted material.

Id. at 1:60–65.

By doing this, “the amount of electrolyte that can be obtained from the comminuted material . . . is such that an electrochemical reaction is no longer possible, or only to a negligibly small extent.” *Id.* at 2:5–8. “In addition, no flammable or explosive gas phase forms above the battery fragments, as the organic carbonates of the electrolyte . . . have been

¹ We note that the '463 patent shares a fair amount of common disclosure with the '097 patent, but they are not related. The '463 patent issued from the U.S. national phase of a European PCT application—PCT/EP2017/076113, which ultimately claims priority to a German priority document—DE 10 2016 120 046.8, filed Oct. 20, 2016. *See* Ex. 1001, codes (30), (97). The '097 patent is the national phase of a different European PCT application—PCT/EP2016/059526, which ultimately claims priority to a different German priority document—DE 10 2015 207 843.4, filed Apr. 28, 2015. Ex. 1016, codes (30), (97).

removed.” *Id.* at 2:8–12. This renders the comminuted material “largely inert,” so that it “can be transported, especially if it is packed under vacuum.” *Id.* at 2:12–14. The ’463 patent asserts that an advantage of this process is “that no additional material has to be added to deactivate the comminuted material,” which “decreases the complexity of the battery processing, reduce the weight of the deactivated comminuted material and increases the purity in the subsequent separation and recycling steps.” *Id.* at 2:15–19.

The ’463 patent states that

The comminution unit should be understood especially to mean a device which, when operating, comminutes the batteries. For example, the comminution unit (i) is a pressure comminution unit whereby the batteries are crushed between two tool surfaces, (ii) a striking comminution unit whereby the batteries lie on a tool surface and are smashed by striking them with a second moveable tool, (iii) a cropping comminution unit whereby the batteries are comminuted by two tool surfaces that move in opposite directions, (iv) a cutting comminution unit whereby the batteries are cut into two parts by means of two blades and/or (v) an impact comminution whereby the batteries are thrown against a wall, impact against a moving tool or two particles collide. Of course, the comminution unit may also work by way of two or more of the named comminution mechanisms.

Id. at 2:62–3:9.

D. Illustrative Claim

Independent claim 1 of the ’463 patent is illustrative and is reproduced below (bracketing added).

1. [1[pre]] A method for treating used lithium batteries, comprising:

[1[a]] receiving, into a comminuting device, used lithium batteries that include a cathode, anode, separator, and

electrolyte comprising a fluorine salt and a solvent, the solvent including an organic carbonate;

[1[b]] comminuting the used lithium batteries, by the comminuting device, and obtaining comminuted material as a result; and

[1[c]] inactivating the comminuted material and obtaining inactivated comminuted material as a result,

[1[d]] wherein the inactivating includes a drying process, comprising drying the comminuted material by removal of organic carbonate from the electrolyte by vaporizing the organic carbonate at a pressure-temperature above a boiling point of the organic carbonate,

[1[e]] the pressure being not more than 300 hPa, and the temperature being not more than 80° C. and lower than a decomposition temperature of the fluorine salt.

Ex. 1001, 17:16–35.

Dependent claims 7 and 10 are also independently challenged, so we also reproduce them below.

7. The method according to claim 6, further comprising:
vacuum sucking away of gases created from vaporized organic carbonate during the drying process and/or
wherein the batteries comprise current collector foils having a coating material and movement using the agitator is conducted such that at least 50% by weight of the coating material of comminuted material is sucked away.

Id. at 18:9–16.

10. The method according to claim 1, wherein comminuting of the used lithium batteries is configured such that the comminuted material includes components of comminuted material, and at least 90% by weight of the components of the comminuted material have a sieve size that is not more than 50 mm.

Id. at 18:25–29.

E. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–14 of the '463 patent on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 8, 10–12	103	Tomioka ²
4	103	Tomioka, Yosuke ³
5, 9	103	Tomioka, Hayashi ⁴
6, 7	103	Tomioka, LithoRec ⁵
13, 14	103	Tomioka, LithoRec, Perry ⁶
1–3, 5, 9–12	103	Hanisch ⁷ , Hayashi
4	103	Hanisch, Hayashi, Yosuke
6	103	Hanisch, Hayashi, LithoRec
7, 13, 14	103	Hanisch, Hayashi, LithoRec, Perry
1–14	112(b)	Indefiniteness

Pet. 6. Petitioner also relies on the Declaration of Marc Juzkow (Ex. 1003) to support its assertions. Patent Owner relies on the Declaration of Vani Dantam (Ex. 2011).

² Japanese Patent App. Pub. JP H10-255861, published Sept. 25, 1998 (Ex. 1004). Petitioner relies on a certified English translation of Tomioka. *See* Ex. 1005. All citations are to this certified English translation.

³ Japanese Patent App. Pub. JP 2016-0808284A, published May 16, 2016 (Ex. 1007). Petitioner relies on a certified English translation of Yosuke. *See* Ex. 1008. All citations are to this certified English translation.

⁴ US 9,843,077 B2, issued Dec. 12, 2017 (Ex. 1010).

⁵ Arno Kwade et al., “LithoRec Recycling of Lithium-Ion Batteries,” Culliver Verlag (2012) (Ex. 1004, English translation submitted as Ex. 1016). All citations are to this English translation.

⁶ “Perry’s Chemical Engineers’ Handbook 7th Edition.” New York: McGraw-Hill, 1997 (Ex. 1006).

⁷ US 2014/0290438 A1, published Oct. 2, 2014 (Ex. 1021).

F. Eligibility for Post-Grant Review

The AIA’s post-grant review provisions apply to patents that “contain[] or contained at any time . . . a claim to a claimed invention that has an effective filing date . . . that is on or after [March 16, 2013].” Leahy-Smith America Invents Act (AIA) §§ 3(n)(1), 6(f)(2)(A) (2011). In addition, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be).” 35 U.S.C. § 321(c) (2012); *see* 37 C.F.R. § 42.202(a) (2019).

Here, there is no dispute that the ’463 patent is eligible for post-grant review. Petitioner filed the Petition within nine months of the ’463 patent’s issue date and the effective filing date of the ’463 patent is after March 16, 2013 (the effective date for the first inventor to file provisions of the Leahy-Smith America Invents Act). Ex. 1001, code (45) (showing an issue date of Oct. 15, 2024), code (22) (showing a filing date of Oct. 12, 2017), code (30) (showing a foreign priority date of Oct. 20, 2016); Paper 5 (Notice of Filing Date Accorded, showing Mar. 7, 2025 filing date); Pet. 4. Thus, the ’463 patent is eligible for post-grant review.

II. ANALYSIS

A. Person of Ordinary Skill in the Art (“POSITA”)

The level of ordinary skill in the pertinent art at the time of the invention is a factor in how we construe patent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It is also one of the factors we consider when determining whether a patent claim is obvious over the prior art. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.*

Petitioner contends that one of ordinary skill in the art “would have had at least a Bachelor’s degree in electrical engineering, material science, chemical engineering, or an equivalent field, as well as at least 2 to 3 years of academic or industry experience in the recycling or processing of lithium-ion batteries. Additional formal education focusing on processing of lithium batteries may substitute for practical experience and additional practical experience can substitute for less education.” Pet. 10–11. Patent Owner does not contest this definition of a person of skill in the art. *See* Prelim. Resp. 11.

For purposes of this Decision, we adopt Petitioner’s assessment of the level of ordinary skill in the art, as, on the present record, it appears consistent with the ’463 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

B. Claim Construction

In this post-grant review, we construe the claims of the ’463 patent “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R.

§ 42.200(b) (2019). Under that standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips*, 415 F.3d at 1312–13.

Petitioner offers constructions for “drying” and “inactivat[e]/[ed]/[ing]/[tion].” Pet. 11–12. For “drying,” Petitioner notes that the ’463 patent expressly defines “drying” to mean “the removal of at least one solvent of the conducting salt.” *Id.* at 11. For “inactivat[e]/[ed]/[ing]/[tion],” Petitioner contends that the term, as used in the challenged claims, “is indefinite for failing to provide reasonable certainty to a POSITA as to when used battery material is considered ‘inactivated.’” *Id.* Petitioner adopts, for purposes of applying the prior art, Patent Owner’s proposed construction of “the endpoint of drying.” *Id.* at 11–12.

Patent Owner disagrees with Petitioner’s arguments regarding indefiniteness, and does not construe any claim terms. *See* Prelim. Resp. 11–13. Patent Owner does not object to Petitioner’s definition of “drying.” *Id.* at 11. Patent Owner does note that there is a distinction “inactivating” and “drying,” but otherwise argues that “inactivating” should receive its plain and ordinary meaning, which Patent Owner argues is “rendered safe for transport.” *Id.* at 11–13.

As explained in detail below, based on the record before us, we are not persuaded by Petitioner’s indefiniteness arguments, and determine that none of the claim terms require an explicit construction to determine whether to institute post-grant review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need

only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Claims 1–3, 8, and 10–12: Alleged Obviousness over Tomioka (Ex. 1004)

Petitioner contends claims 1–3, 8, and 10–12 are unpatentable as obvious in view of Tomioka. *See* Pet. 32–45. Patent Owner opposes. Prelim. Resp. 14–37. After reviewing the parties’ arguments and supporting evidence with respect to claims 1–3, 8, and 10–12, we determine that Petitioner has not shown it is more likely than not that claims 1–3, 8, and 10–12 would have been obvious in view of Tomioka. We begin with a review of the relevant references and then address the parties’ contentions.

1. Prior Art

a) Overview of Tomioka (Ex. 1004)

Tomioka, Japanese Published Patent Application No. H10 (1998)-255861, published Sept. 25, 1998, describes a method for processing used lithium-ion batteries. Ex. 1005, code (57), ¶ 1. Tomioka discloses steps including “dismantling the collected batteries” and “a step of heating the cleaned dismantled parts.” *Id.* ¶ 11. Figure 19 of Tomioka, which is reproduced below, shows “an example of one embodiment for the removal and recovery of the solvent constituting the electrolyte.” *Id.* ¶¶ 90, 92.

【図19】

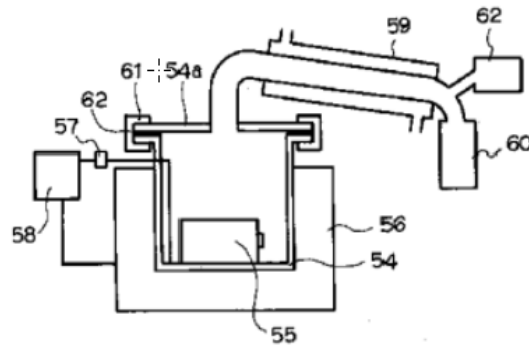


Figure 19, reproduced above, schematically illustrates an embodiment of Tomioka. *Id.* ¶ 90.⁸ In Figure 19, 54 is the container body that houses recovered battery 55; 54a is the lid; 56 is a heater for heating container body 54; 57 is a temperature measuring device for measuring and detecting the temperature inside container body 54; 58 is a controller that controls and adjusts the heating by heater 56 based on the information from temperature measuring device 57; 59 is a condenser that cools and condenses the generated and evaporated gas; and 60 is a container for recovering the condensed components. In addition, 61 is a sealing seal, and 62 is a fixture that secures the lid 54a to the container body 54. *Id.* Recovered battery 55 is housed in container body 54. *Id.* ¶ 91. Once recovered battery 55 is inside container body 54, lid 54a is positioned via sealing seal 61, fixed and sealed using fixture 62, and then temperature controller 58 controls heater 56. *Id.*

⁸ Paragraph 90 of Tomioka specifically discusses the embodiment of Figure 18, but as Tomioka explains, Figure 19 is a modified version of Figure 18, so most of the description of Figure 18 also applies to Figure 19. *See Ex. 1005* ¶ 92.

Tomioka explains that “[t]hrough this heating treatment, the safety valve opens under high pressure inside the aforementioned recovered battery 55, allowing the vaporized solvent within the recovered battery to disperse towards the condenser 59 side, where it is condensed and liquefied, and collected in the recovery container 60.” *Id.* Tomioka states that “in Fig. 19, a form is adopted where a vacuum pump 62 is attached to the recovery container 60 side, and when the interior of the container body 54 is reduced to about 100 mmHg, the efficiency of removing and recovering the solvent inside the battery can be increased.” *Id.* ¶ 92. Tomioka further explains that “when a portion of the recovered battery is opened by cutting, and the liquid inside the battery is vaporized for condensation and recovery.” *Id.* ¶ 93.

2. Parties’ Contentions

Petitioner relies on Tomioka for all the limitations of claim 1. *See* Pet. 32–39. Patent Owner argues that Tomioka fails to teach limitations 1[a] and 1[b] because Tomioka fails to teach or suggest “comminuting” the “used lithium batteries that include . . . electrolyte.” Prelim. Resp. 23–31. Because we find this argument dispositive, we focus our analysis on these limitations.

3. Analysis

a) Claim 1

Limitation 1[a] recites “receiving, into a *comminuting device*, used lithium batteries that include a cathode, anode, separator, and electrolyte comprising a fluoride salt and a solvent, the solvent including an organic carbonate.” Limitation 1[b] recites “*comminuting* the used lithium batteries, by the comminuting device, and obtaining comminuted material as a result.” Petitioner argues that Tomioka renders both these limitations obvious. Pet. 32–35. In particular, Petitioner argues that “Tomioka discloses

dismantling batteries, where ‘dismantling means cutting the outer casing of the individual battery or the battery pack to extract the electrode element components . . . and, if necessary, cutting them into strip-like pieces.’” *Id.* at 33 (citing Ex. 1005 ¶¶ 12, 93). Petitioner asserts that “Figures 19 and 20 [of Tomioka] depict an embodiment of the invention in which the battery is comminuted.” *Id.*

In the alternative, Petitioner asserts that “Tomioka also discloses that, in one embodiment, a battery pack may be passed between ‘several rolls that have different rotational speeds,’ such that ‘shear forces and twisting actions are simultaneously applied by the rotating rollers to break and peel off the resin package, thereby separating the enclosed battery body.’” *Id.* at 34 (citing Ex. 1005 ¶¶ 25–30). Petitioner contends that “[t]o the extent that [Patent Owner] argues that Tomioka’s disclosures of ‘dismantling’ the batteries by ‘cutting’ them does not disclose this limitation, it would have been obvious to a POSITA to look to Tomioka’s other disclosures of comminuting the used batteries, including by receiving the used batteries into the comminuting device disclosed by Tomioka with rotating rollers.” *Id.* at 34–35 (citing Ex. 1005 ¶¶ 25–30; Ex. 1003 ¶¶ 39–66, 123–24). For limitation 1[b], Petitioner relies on the arguments presented above for limitation 1[a]. *See* Pet. 35.

We agree with Patent Owner that Petitioner has failed to show that it is more likely than not that Tomioka teaches or suggests limitations 1[a] and 1[b]. *See* Prelim. Resp. 23–33. As described above, Petitioner presents two theories for how Tomioka accounts for these limitations. First, Petitioner contends that Tomioka’s “dismantling” process teaches the claimed “comminution.” Pet. 33–34. However, Petitioner fails to explain sufficiently how Tomioka’s “dismantling” teaches the claimed

“comminution.” As Patent Owner notes, the ’463 patent distinguishes between “dismantling” and “comminution.” *See* Prelim. Resp. 24. The ’463 patent explains that “dismantling” is a separate step before comminution where “larger battery systems are dismantled into their smaller subcomponents, the modules or stacks.” Ex. 1001, 4:3–8. The ’463 patent describes comminution as where batteries are “crushed,” “smashed,” or “cut into two parts by means of two blades.” *Id.* at 2:62–3:9. The ’463 patent gives examples of “mechanically comminuted” as “cutting, cropping, impact, cutting and/or crushing” *Id.* at 3:35–36. Thus, instead of describing “comminution,” Tomioka’s description of the relied-upon “dismantling”—“cutting the outer casing of the individual battery or battery pack to extract the electrode element components such as the positive electrode, negative electrode, and separator, and if necessary, cutting them into strip-like pieces,” Ex. 1005 ¶ 12—is most consistent with the ’463 patent’s description of “dismantling,” not the ’463 patent’s description of “comminution.”

The ’463 patent’s description of “comminution” is consistent with the plain and ordinary meaning of that term. Patent Owner offers definitions “comminuted,” “comminute,” or “comminution” as “broken into several pieces,” “to reduce to minute particles,” “reduction of materials by grinding, cutting, shredding, chopping, etc.” or “breaking up or grinding into small fragments, [a]lso known as pulverization.” Ex. 2002 (collecting dictionary definitions). The prior art of record further supports this understanding. For example, LithoRec describes a process where “dismantling of the battery system follows the primary goal of freeing the cells for further processing,” and then that “[t]his is followed by mechanical comminution and separation of the cell and preparation of the active material.” Ex. 1012, 239.

Against this evidence suggesting that the “dismantling” of batteries is distinct from “comminute[ion],” Petitioner offers only the testimony of its expert, Mr. Juzkow, who equates Tomioka’s “cutting” with “comminute[ion].” *See* Ex. 1003 ¶ 121. However, Mr. Juzkow provides insufficient reasoning to support his conclusion, particularly given the intrinsic and extrinsic evidence discussed above. In contrast, Patent Owner’s expert, Mr. Dantam, provides extensive reasoning, supported by citations to other evidence, to support his conclusion that Tomioka’s “dismantling” is not the claimed “comminution.” Thus, we give more weight to Mr. Dantam’s testimony than Mr. Juzkow’s testimony. Weighing this evidence all together, we find that Petitioner has failed to show that it is more likely than not that Tomioka’s teaches the claimed comminution under Petitioner’s first theory.

Second, Petitioner contends that Tomioka renders “comminution” obvious. Pet. 34–35. However, we agree with Patent Owner that Petitioner has also failed to show that it is more likely than not that Tomioka renders this limitation obvious. *See* Prelim. Resp. 28–31. To begin with, Petitioner’s contentions lack sufficient reasoning explaining why a person of ordinary skill would have modified Tomioka in the manner proposed. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Petitioner merely asserts that a person of ordinary skill in the art could use the roller system in place of the dismantling disclosed for the embodiments in Figures 19 and 20. On this record, we find this bare contention insufficient.

The need for articulated reasoning is important here because of the actual disclosure of Tomioka. The rollers in Tomioka are used to separate the “battery body” from the “resin package enclosing the battery body,” and Tomioka specifically discloses that this technique is designed to “avoid damaging the battery body.” Ex. 1005 ¶¶ 25, 26, 29; Ex. 2011 ¶¶ 72–73. Thus, there is a significant difference between what Tomioka teaches and what Petitioner proposes to use the roller system to do. In addition, as Patent Owner points out, Tomioka specifically discloses there are risks associated with mechanically crushing battery packs, such as “risk of sparking due to residual voltage if the battery units are damaged in the process.” Ex. 1005 ¶ 5. Although we do not agree with Patent Owner that this amounts to a “teaching away,” *see In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994), we do believe that this teaching suggests a trade off that should be weighed in determining whether to make the modification, *see Medichem S.A. v. Rolabo S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006). However, Petitioner has failed to account adequately, if at all, for this trade off. Thus, we find that Petitioner has failed to show that it is more likely than not that Tomioka accounts for the claimed “comminuting.”

Because Petitioner has failed to show that Tomioka accounts for all the limitations of claim 1, we find that Petitioner has failed to show that it is more likely than not that claim 1 would have been unpatentable as obvious over Tomioka.

b) Claim 2, 3, 8, and 10–12

Petitioner contends claims 2, 3, 8, and 10–12 are unpatentable as obvious in view of Tomioka. Pet. 39–45. These claims also all contain the “comminution” limitations discussed above in relation to claim 1. Petitioner relies on the same analysis to account for these limitations that we

found deficient with respect to claim 1. Nothing in Petitioner's analysis of these claims cures the deficiencies discussed above regarding Petitioner's analysis of claim 1. Therefore, for the same reasons discussed above for independent claim 1, we determine Petitioner has failed to show it is more likely than not that claims 2, 3, 8, and 10–12 would have been obvious in view of Tomioka.

4. Summary

In sum, we determine that Petitioner has not shown it is more likely than not that claims 1–3, 8, and 10–12 would have been obvious over Tomioka.

D. Remaining Tomioka Based Grounds

Petitioner also contends that claim 4 would have been unpatentable as obvious over the combination of Tomioka and Yosuke; that claims 5 and 9 would have been unpatentable as obvious over the combination of Tomioka and Hayashi; that claims 6 and 7 would have been unpatentable as obvious over the combination of Tomioka and LithoRec; and that claims 13 and 14 would have been unpatentable as obvious over the combination of Tomioka, LithoRec, and Perry. Pet. 6. All of these additional grounds based on Tomioka rely on the same analysis that was found to be deficient above to account for the “commintion” limitations found in all these claims. Thus, for the same reasons provided for claim 1 above, we also find that Petitioner has failed to show that it is more likely than not that these claims would have been unpatentable based on these grounds.

E. Claims 1–3, 5, 9–12: Alleged Obviousness over Hanisch (Ex. 1021) and Hayashi (Ex. 1010)

Petitioner contends claims 1–3, 5, and 9–12 are unpatentable as obvious in view of Hanisch and Hayashi. See Pet. 56–67. Patent Owner

opposes. Prelim. Resp. 54. After reviewing the parties' arguments and supporting evidence with respect to claims 1–3, 5, and 9–12, we determine that Petitioner has not shown it is more likely than not that claims 1–3, 5, and 9–12 would have been obvious in view of Hanisch and Hayashi. We begin with a review of the relevant reference and then address the parties' contentions.

1. Prior Art

a) Overview of Hanisch (Ex. 1021)

Hanisch is a U.S. patent publication titled “Method for Reclaiming Active Material from a Galvanic Cell, and an Active Material Separation Installation, Particularly an Active Metal Separation Installation,” that issued on October 2, 2014. Ex. 1021, codes (43), (54). It relates to “a method for retrieving active material, in particular lithium or lithium compounds, from a galvanic cell.” *Id.* ¶ 1. The method includes the steps of “(a) crushing the cells, in particular under inert gas, so that solid cell fragments are also formed, (b) heating the solid cell fragments up to the decomposition temperature, which is high enough to make the binder decompose and/or evaporate, such that heat treated cell fragments are formed, and (c) classifying the heat treated cell fragments.” *Id.* “The heating of cell fragments up to the decomposition temperature is preferably carried out under inert gas or in a vacuum.” *Id.* ¶ 26.

The method of Hanisch additionally “preferably comprises the step that, before heating the cell fragments up to the decomposition temperature, the cell fragments are dried at a drying temperature, so that dry cell fragments and drying vapours are formed, whereby the drying vapours are at least partly condensed.” *Id.* ¶ 25. Hanisch teaches that “[t]his has the

advantage that the electrolyte solvent can be retrieved. It is therefore advantageous for the drying temperature to be below 100° C., in particular below 80° C.” *Id.*

b) Overview of Hayashi (Ex. 1010)

Hayashi is a U.S. patent titled “Method for Processing Fluorine-Containing Electrolyte Solution,” that issued on December 12, 2017. Ex. 1010, codes (45), (54). It “relates to a safe method for processing a nonaqueous electrolyte solution which is used in a lithium ion battery or the like.” *Id.* at 1:7–9. In particular, Hayashi teaches processing electrolyte solutions that include “lithium hexafluorophosphate,” “dimethyl carbonate,” and “ethyl methyl carbonate.” *Id.* at 4:12–17. “[I]n order to take the electrolyte solution out of the lithium ion battery safely,” Hayashi teaches that “[t]he volatile component of the electrolyte solution is gasified by heating the battery under reduced pressure.” *Id.* at 4:24–34. As one example of temperatures and pressures to be used, Hayashi discloses that “the inside of the battery is depressurized to be 5 kPa and is heated at 80° C. to 150° C.,” which allows the dimethyl carbonate, ethyl methyl carbonate, “and the thermally decomposed fluorine compound . . . to be volatilized.” *Id.* at 4:60–67. Hayashi also discloses heating to the same temperature range at a “reduced pressure of less than or equal to 1 kPa.” *Id.* at 3:20–25.

2. Parties’ Contentions

The Petition contends that the “first stage pre-dryer” of Hanisch discloses the requirement of “inactivating the comminuted material” and “obtaining inactivated material as a result,” “wherein the inactivating includes a drying process.” Pet. 59–60. In particular, Petitioner argues that “Hanisch discloses the use of a first-stage pre-dryer that heats the comminuted material to a ‘drying temperature, so that dry cell fragments and

drying vapours are formed....” *Id.* at 59 (citing Ex. 1021 ¶ 25). Petitioner asserts that “[w]hile Hanisch does not disclose a specific amount of time to dry material in this stage, Hanisch discloses the desired end result—the formation of ‘dry’ cell fragments and ‘drying vapours.’” *Id.* (citing Ex. 1003 ¶ 192). Petitioner argues that “under PO’s construction of ‘inactivated’ as the ‘endpoint of drying,’ Hanisch discloses this limitation.” *Id.*

Petitioner submits that “[l]ikewise, because ‘dry’ cell fragments inherently means there is little to no liquid remaining (i.e., substantially all the EMC and DMC were removed as ‘drying vapours’), a POSITA would have thus understood Hanisch’s pre-dryer results in ‘the removal of sufficient amounts of dimethyl carbonate and/or ethyl methyl carbonate from the comminuted material to make an electrochemical reaction either no longer possible or only possible to a negligibly small extent.” *Id.* (citing Ex. 1003 ¶ 192). Thus, Petitioner argues that “Hanisch’s pre-dryer produces inactivated comminuted material under any understanding of ‘inactivat[ion].” *Id.* (citing Ex. 1003 ¶ 192).

Patent Owner responds that a person of ordinary skill in the art would have recognized “that the pre-dry step taught by Hanisch is **not** intended to inactivate the comminuted material.” Prelim. Resp. 43 (citing Ex. 2011 ¶ 127). Instead, Patent Owner argues that focus of Hanisch is on electrolyte recovery. *Id.* Patent Owner asserts that inactivation requires a substantial amount of time and energy to achieve. *Id.* at 44 (citing Ex. 2011 ¶¶ 149–150). In contrast, Patent Owner contends that “Hanisch, at its pre-dry step, is primarily concerned with speed, and particularly with maintaining a high throughput in extracting electrolyte and separating the active material from the support.” *Id.* (citing Ex. 2011 ¶¶ 127–131). Patent Owner notes that Hanisch’s process is preferably performed as a continuous manner. *Id.*

at 44–45 (citing Ex. 1021 ¶ 20, Fig. 1; Ex. 2011 ¶¶ 88, 128–141). Patent Owner further notes that “Hanisch refers to the device 28 not as a ‘dryer,’ but as a ‘*pre*-dryer,’ which, by its plain language, would have indicated to a POSITA that it was not intended to thoroughly dry the comminuted material so as to inactivate it, but rather only to perform a short processing step prior to decomposition, intended to recover some amount of electrolyte solvent before that solvent was destroyed during decomposition as described further below.” *Id.* at 45–46 (citing Ex. 2011 ¶¶ 130–131).

3. *Analysis*

a) *Claim 1*

On the present record, we agree with Patent Owner that Petitioner has failed to show that it is more likely than not Hanisch accounts for the “inactivating” requirement of limitations 1[c] and 1[d]. As the parties agree, Hanisch does not expressly state that product of the pre-dryer is “inactivated.” *See* Pet. 59; Prelim. Resp. 43. Petitioner relies on the testimony of its expert, Mr. Juzkow to explain why the pre-dryer would “inactivate” the comminuted battery material that is fed into it. However, Mr. Juzkow merely repeats Petitioner’s assertions without any further reasoning or °Csupport. *See* Ex. 1003 ¶ 192.

Patent Owner provides evidence and reasoning that casts doubt on Mr. Juzkow’s bare assertions. *See* Prelim. Resp. 43–47. For example, Patent Owner reasonably asserts, supported by the testimony of Mr. Dantam, that Hanisch illustrates the pre-dryer as having a conveyor belt on which comminuted material is moved through the pre-dryer continuously at high throughput. *Id.* at 44–45; Ex. 2011 ¶¶ 127–141. Patent Owner also points out that Hanisch transfers the material to a 350 °C decomposition oven where all the solvents would be vaporized. *Id.* at 46 (citing Ex. 2011 ¶ 131).

Mr. Dantam also offers persuasive testimony that the rate of electrolyte extraction is inversely proportional to the volume of electrolyte extracted, such as that as more electrolyte is extracted in the pre-drying process, it takes longer and longer to extract additional electrolyte. Ex. 2011 ¶ 134. Given that the Hanisch describes the primary purpose of Hanisch's pre-dryer is solvent recovery, *see* Ex. 1021 ¶ 25; Ex. 2011 ¶¶ 83, 85, Patent Owner notes there would be no reason to remove enough solvent to "inactivate" the comminuted material. Mr. Juzkow provides no reasoning that would counter these points. Thus, we find Mr. Juzkow's testimony entitled to little weight. Weighing the evidence before at this stage, we find that Petitioner has failed to meet its burden of showing that it is more likely than not that Hanisch teaches the "inactivating" step recited in claim 1.

For all of the foregoing reasons, we determine Petitioner has not shown it is more likely than not that claim 1 would have been obvious over Hanisch and Hayashi.

b) Claim 2–3, 5, and 9–12

Petitioner contends claims 2–3, 5, and 9–12 are unpatentable as obvious in view of Hanisch and Hayashi. Pet. 56. These claims also all contain the "inactivating" limitations discussed above in relation to claim 1. Petitioner relies on the same analysis to account for these limitations that we found deficient with respect to claim 1. Nothing in Petitioner's analysis of these claims cures the deficiencies discussed above regarding Petitioner's analysis of claim 1. Therefore, for the same reasons discussed above for independent claim 1, we determine Petitioner has failed to show it is more likely than not that claims 2–3, 5, and 9–12 would have been obvious in view of Hanisch and Hayashi.

4. *Summary*

In sum, we determine that Petitioner has not shown it is more likely than not that claims 1–3, 5, and 9–12 would have been obvious over Hanisch and Hayashi.

F. Remaining Hanisch-Based Grounds

Petitioner also contends that claim 4 would have been unpatentable as obvious over the combination of Hanisch, Hayashi, and Yosuke; that claim 6 would have been unpatentable as obvious over the combination of Hanisch, Hayashi, and LithoRec; and that claims 7, 13, and 14 would have been unpatentable as obvious over the combination of Hanisch, Hayashi, LithoRec, and/or Perry. Pet. 6. All of these additional grounds based on Hanisch rely on the same analysis that was found to be deficient above to account for the “inactivating” limitations found in all these claims. Thus, for the same reasons provided for claim 1 above, we also find that Petitioner has failed to show that it is more likely than not that these claims would have been unpatentable based on these grounds.

G. Claims 1–14: Alleged Indefiniteness

Petitioner argues that the challenged claims are indefinite under 35 U.S.C § 112(b) for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. Pet. 71–76. In particular, Petitioner contends that (1) the term “inactivating” found in all the challenged claims indefinite; (2) the term “the agitator” found in claim 7 is definite; and (3) the term “components of the comminuted material” found in claim 10 is indefinite. *Id.* Patent Owner opposes. Prelim. Resp. 55–67.

1. *All Challenged Claims—“inactivating”*

a) *The Parties’ Contentions*

Petitioner argues that the meaning of the limitation 1[c]—“inactivating the comminuted material and obtaining inactivated comminuted material as a result”—“is not reasonably clear because a POSITA would not understand from the ’463 Patent when comminuted material is considered ‘inactivated.’” Pet. 71. Petitioner submits that although the claim explains that “inactivating” includes “drying,” it is not limited to the drying process. *Id.* Petitioner argues that “it is unclear whether ‘inactivat[ion]’ can simply be the end result of drying or if it requires some unidentified metric.” *Id.* at 72. Petitioner asserts that the Specification “further muddies this apparent distinction (between ‘drying’ and ‘inactivating’) by teaching how long to dry comminuted material but not how a POSITA would know that comminuted material has reached the point of inactivation.” *Id.* (Ex. 1001, 7:21–29, 7:30–34, 7:39–42, 7:7–31). Petitioner also points to Patent Owner’s statements in the related *inter partes* reviews involving the ’097 patent, which Petitioner argues are inconsistent with each other. *Id.* Petitioner contends that Patent Owner has identified a number of metrics by which to measure whether drying is complete, but none of these various metrics indicate whether the dried material is activated. *Id.* at 73. Petitioner asserts that Patent Owner “argues that the measure of inactivation should be ‘the endpoint result of drying,’ but . . . the endpoint of drying can be very different depending on the goal and the particular threshold sought to be reached for the dried material.” *Id.*

Patent Owner responds that the term “inactivating” is not indefinite. Prelim. Resp. 58. Patent Owner has submitted that term should receive its plain and ordinary meaning, which Patent Owner submits is “rendered safe

for transport.” *Id.* at 11–12. Patent Owner contends that the ’463 patent distinguishes between the terms “drying” and “inactivation.” *Id.* at 12. Thus, Patent Owner argues that “inactivating” should not be equated with “some amount of ‘drying.’” *Id.* at 13.

Instead, Patent Owner asserts that the Specification “makes clear that drying the means (a process) by which inactivation (a result) is achieved.” *Id.* at 58 (citing Ex. 1001, 13:56–58; Ex. 2012). Patent Owner argues that the Specification discloses various metrics for determining if the comminuted material has been sufficiently dried to become inactivated. *Id.* at 59–60 (citing Ex. 1001, 6:51–7:42). Patent Owner contends that these metrics teach a person of ordinary skill “parameter that may be observed to determine if comminuted material has been rendered inactivated through the drying process,” but that “[t]hese metrics are not mandatory, and they are not limiting on claim scope.” *Id.* at 60 (citing Ex. 2011 ¶¶ 149–151).

b) Analysis

To satisfy the definiteness requirement under 35 U.S.C. § 112(b), the specification must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor . . . regards as the invention.” In *Nautilus, Inc. v. Biosig Instruments, Inc.*, the Supreme Court held that “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.” 572 U.S. 898, 901 (2014).

Here, Petitioner argues that Patent Owner’s interpretation of “inactivating”—“the means (a process) by which inactivation (a result) is achieved”—is not specific to the particular metric of drying that must be reached, and therefore renders the claims indefinite. Pet. 71–73; *see* Prelim.

Resp. 58. This argument is bolstered by the fact that there are several different endpoints described in the '463 patent's Specification. Ex. 1001, 2:12–14 (defining endpoint of drying in terms of safety of transportation), 6:51–7:6 (endpoint reached when “no flammable or explosive gas mixture can form above the comminuted material” or when a “flammable or explosive gas mixture can[not] emerge in the transport container or during the subsequent processing”), 2:5–8 (endpoint reached when “the amount of electrolyte that can be obtained from the comminuted material through drying is such that an electrochemical reaction is no longer possible, or only to a negligibly small extent”), 7:7–20 (“comminuted material is preferably dried until an electrolyte content in the comminuted material is so low that an electrochemical reaction is impossible. . .”); 7:21–29 (endpoint reached when “the build-up of heat is so low that a thermal runaway, i.e., a thermally induced chain reaction, is ruled out for at least two months,” or when “any build-up of gas is also so low that after two weeks, no excess pressure occurs if a negative pressure of 500 hPa is present to begin with”), 7:30–42 (endpoint reached when “the electrolyte content of organic components that are volatile at 50° C. has a maximum value of 3% by weight,” “the accumulated content of organic carbonates from the electrolyte that are volatile at 80° C. falls short of 3% by volume in the atmosphere above the comminuted material,” or “the dimethyl carbonate content is lower than 4% by volume . . . and/or the cyclohexylbenzene content is lower than 1% by volume”). But “[j]ust because a term is susceptible to more than one meaning does not render it indefinite.” *ClearOne, Inc. v. Shure Acquisition Holdings, Inc.*, 35 F.4th 1345, 1351 (Fed. Cir. 2022). Thus, merely because reaching various different endpoints of the drying process could satisfy the

claims' requirement for inactivating under differing circumstances does not make the claims indefinite.

Petitioner's argument for indefiniteness is further undermined by the fact that Petitioner's expert testified that certain disclosures in the prior art fell within the scope of inactivation, suggesting that a person of ordinary skill in the art was capable of determining the scope of that term. For example, Mr. Juzkow testified that "[b]ecause Tomioka discloses that the solvent is evaporated and recovered at a rate of 99% in Tomioka's vacuum drying embodiments, a POSITA would have understood that Tomioka's vacuum drying renders obvious inactivating the comminuted material because it is 'the endpoint of drying.'" Ex. 1003 ¶ 129. Use of a term by an expert "provide[s] evidence that a skilled artisan did understand the scope of th[e] invention with reasonable certainty." *Sonix Tech. Co., Ltd. v. Publications Int'l, Ltd.*, 844 F.3d 1370, 1380 (Fed. Cir. 2017).

Instead, we see the term "inactivating" as similar to a term of degree. Just as the use of the phrase "substantial increase" in the claims in *In re Marosi* gave rise to the question "How much is a substantial increase?" the use of the term "inactivating" here gives rise to the question "How dry is material that has been dried to the point of inactivation?" 710 F.2d 799, 802–03 (Fed. Cir. 1983). If the specification "provides 'a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims],'" then "the claims are not indefinite." *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010) (quoting *Marosi*, 710 F.2d at 803) (alteration in original). Here, as in *Enzo Biochem*, there is a general guideline regarding the scope of "inactivating": it means drying to the endpoint of the drying process. And there are many examples of such endpoints that might be used

in different contexts. Ex. 1001, 2:5–14, 6:51–7:6, 7:7–20, 7:21–29, 7:30–34, 7:35–38, 7:39–42.

Accordingly, we agree with Patent Owner that “drying” and “inactivation” are not synonymous or equivalent in scope. We disagree with Patent Owner’s argument, however, that the endpoint of the drying process is necessarily the point when the comminuted material has been rendered safe for transport. Only some of the endpoints identified in the specification of the ’463 patent relate to the safety of transport; others do not. *See, e.g.*, Ex. 1001, 2:9–14 (noting “[t]he comminuted material is therefore largely inert and can be safely transported or processed further. . . .”); 6:51–58 (a “flammable or explosive gas mixture can[not] emerge . . . during the subsequent processing”), 10:23–25 (“electrolyte content is so low that an electrochemical reaction is impossible”), 4:30–42 (defining drying as complete when the content of certain compounds is below a particular value). Instead, we conclude more generally that the comminuted material is inactivated once it has been dried sufficiently to reach the endpoint of the drying process. Thus, we determine that Petitioner has failed to show that it is more likely than not that the claims are not indefinite for use of the term “inactivating.”

2. Claim 7

Claim 7 depends from claim 6 (which depends from claim 1) and recites “wherein...movement using *the agitator* is conducted such that at least 50% by weight of the coating material of comminuted material is sucked away.” Ex. 1001, 18:9–16 (emphasis added). Petitioner argues that [n]either claim 1 nor claim 6 recites an ‘agitator’ and thus claim 7 lacks antecedent basis.” Pet. 74. Petitioner notes that “[w]hile claims 13 and 14

recite ‘an agitator,’ claim 6 does not.” *Id.* Petitioner submits that “claim 6 was amended during prosecution to remove the recitation of an agitator because the Examiner found claim 6 indefinite as drafted.” *Id.* (citing Ex. 1002, 221, 203).

Petitioner argues that “it is unclear whether claim 7 was intended to introduce a new recitation of an agitator (without explanation for what is being agitated), or whether claim 7 was intended to depend from either of claims 13 or 14 (added later in prosecution)—all of which would give the claims vastly differing scopes.” *Id.* Petitioner notes that claim 13’s agitator is used “over a duration of the drying” to move “not yet inactivated” material or a mixture of inactivated and not yet inactivated material, indicating that the agitator is used within the drying device. *Id.* Petitioner submits that “[o]n the other hand, claim 14 includes an agitator that is used ‘when removing the inactivated comminuted material from the drying device,’ which includes an agitator sitting external to the drying device that agitates only inactivated material after the drying.” *Id.* Petitioner that “[b]ecause claim 7 includes no such limitations, it is unclear whether the agitator is within the drying device; at the edge the drying device; or someplace else entirely.” *Id.* at 74–75.

Patent Owner responds that Petitioner applies the wrong legal standard, and that the lack of antecedent basis does not necessarily render a claim indefinite, and, further, that the Specification provides sufficient explanation. Prelim. Resp. 62–63 (citing *In re Downing*, 754 F. App’x 988, 996 (Fed. Cir. 2018); Ex. 1001, 7:54–10:13; Ex. 2011 ¶¶ 152–153).

On the current record, we agree with Patent Owner that Petitioner has failed to show that it is more likely than not that claim 7 is indefinite. We agree with Patent Owner that the mere lack of an antecedent basis does not,

by itself, render a claim indefinite. *See* MPEP § 2173.05(e) (“The mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite.”). Moreover, we agree with Patent Owner that the Specification provides sufficient context to inform a person of ordinary skill with reasonable certainty of the scope the invention. As Patent Owner identifies, the Specification has a detailed description of how an agitator is used in the preferred embodiment, its structure, and attributes. *See* Ex. 1001, 7:54–10:13, 13:51–55, 15:5–28, Figs. 1, 4. Given this detail, we find that a person of ordinary skill would be reasonably apprised of the scope of claim 7. *See Nautilus*, 572 U.S. at 901. Thus, Petitioner has failed to show that it is more likely than not that claim 7 is indefinite.

3. *Claim 10*

Claim 10 recites “[t]he method according to claim 1, wherein comminuting of the used lithium batteries is configured such that the comminuted material includes components of comminuted material, and at least 90% by weight of the components of the comminuted material have a sieve size that is not more than 50 mm.” Ex. 1001, 18:25–29. Petitioner argues that claim 10 is indefinite because a person of ordinary skill in the art “would not have known with reasonable certainty what ‘components of comminuted material’ means relative to ‘comminuted material’ and therefore would not have known what denominator to use in calculating the ‘90% by weight’ limitation.” Pet. 75. Petitioner asserts that “[t]he only example in the ’463 specification that mentions this limitation merely restates the claim language.” *Id.* (citing Ex. 1001, 4:61–65). Petitioner submits that “[a]lthough the specification suggests that the claim ‘should be understood to mean that 90% by weight of the components fall through a

sieve which has a mesh width of 50 mm (or the respective given width),’ this definition fails to explain what differentiates the ‘components’ of comminuted material from the entirety of ‘comminuted material.’” *Id.* Petitioner contends it is “unclear how a POSITA would calculate this percentage—i.e., whether it requires measuring 90% by weight of all the comminuted material (rendering ‘components of comminuted material’ superfluous) or whether it requires measuring 90% by weight of some undescribed subset of material.” *Id.* at 76 (citing Ex. 1003 ¶ 223).

Patent Owner responds that the “plain text of the claim makes clear that, in this permutation of the invention of the ’463 patent, the comminuted material (shredded batteries) is made up of components (fragments of crushed batteries) that are different sizes, and, by weight, 90% of those fragments of crushed batteries have a sieve size of 50mm or less.” Prelim. Resp. 66–67 (citing Ex. 1001, 4:61–5:3, 2:62–3:9, 2:8–14). Patent Owner argues that a person of ordinary skill in the art would “readily understand that a ‘component’ of comminuted material is simply a fragment of crushed battery among a larger amount of crushed battery.” *Id.* (citing Ex. 2011 ¶¶ 154, 155).

We find that Petitioner has failed to show that it is more likely than not that claim 10 is indefinite. As Patent Owner argues and Petitioner acknowledges, the natural reading of claim 10 in view of the Specification is “the claim ‘should be understood to mean that 90% by weight of the components fall through a sieve which has a mesh width of 50 mm (or the respective given width).’” Pet. 75. Petitioner attempts to avoid this natural reading, by relying on the principle that different terms in the claim should be given different meanings to avoid rendering terms superfluous. *See* Pet. 75–76. However, “simply noting the difference in the use of claim

language does not end the matter. Different terms or phrases in separate claims may be construed to cover the same subject matter.” *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1330 (Fed. Cir. 2009) (quoting *Nystrom v. TREX Co.*, 424 F.3d 1136, 1143 (Fed. Cir. 2005)).

Here, we agree with Patent Owner that the better reading of claim 10 is that the comminuted material (e.g., shredded batteries) is made up of components (fragments of batteries) that are different sizes and, by weight, 90% of those fragments of crushed batteries have a sieve size of 50mm or less. *See* Ex. 1001, 4:61–5:3 (explaining that “this should be understood to mean that 90% by weight of the components fall through a sieve which has a mesh width of 50 mm”); 2:8-14 (describing comminuted material as “battery fragments”); Ex 2011 ¶ 155. Thus, we agree with Patent Owner that Petitioner has failed to show that it is more likely than not that claim 10 is indefinite. *See Nautilus*, 572 U.S. at 901.

4. Summary

For all of the foregoing reasons, we determine Petitioner has not demonstrated it is more likely than not that the challenged claims are indefinite.

III. CONCLUSION

For all of the foregoing reasons, we deny institution of a post-grant review of claims 1–14 of the ’463 patent.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied* and no trial is instituted.

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Patent 12,119,463 B2

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