

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PIONEER PET PRODUCTS, LLC,
Petitioner,

v.

OIL-DRI CORPORATION OF AMERICA,
Patent Owner.

IPR2022-00691
Patent 9,439,393 B1

Before MICHAEL L. WOODS, RICHARD H. MARSCHALL, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Pioneer Pet Products, LLC (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–17 (the “challenged claims”) of U.S. Patent No. 9,439,393 B1 (Ex. 1001, “the ’393 patent”). Paper 1 (“Pet.”). Oil-Dri Corporation of America (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 8, “Reply”), and Patent Owner filed a Preliminary Sur-reply (Paper 9, “Sur-reply”).

We have authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2021). *Inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the evidence and arguments in the record, we institute *inter partes* review of the ’393 patent on all challenges set forth in the Petition.

BACKGROUND

A. Related Proceedings

The parties identify the following proceedings involving the ’393 patent: *Oil-Dri Corporation of America v. AMCOL International Corp.*, No. 1:21-cv-00991 (N.D. Ill.); *AMCOL International Corp. v. Oil-Dri Corp.*, IPR2022-00206 (PTAB). Pet. 1; Paper 5, 1.

B. The ’393 Patent

The ’393 patent relates to “cat litter products” and, in particular, litter products using “[s]welling clay made of sodium bentonite” and various fillers. Ex. 1001, code (57), 1:25–29. The ’393 patent also states that clumping cat litter products made of sodium bentonite have “the

disadvantage of being relatively expensive” (*id.* at 1:25–29), but litter products made of sodium bentonite and fillers retain “substantially the same clumpability properties as a composition consisting of only the sodium bentonite” (*id.* at code (57)). According to the ’393 patent, based on a number of test results set forth in the specification, the key to achieving removably clumpable litter compositions involves including a specific amount of sodium bentonite in the litter blend—a minimum of 47% of the total external surface area of all particles in the litter must originate from the sodium bentonite. *See id.* at 45:31–60.

The ’393 patent describes a litter composition’s ability to clump in considerable detail. In the “Definitions” section, the ’393 patent defines “removably clumpable” as wetted litter that “forms one or more clumps having a firmness of sufficient structural integrity and hardness to withstand mechanical separation from unwetted litter.” Ex. 1001, 5:24–28. That same section of the ’393 patent states that a “litter that is removably clumpable, i.e., has a clump strength of ≤ 1.33 using the Standard Drop Method Test, has a clump strength that is substantially the same as a litter comprised of only the sodium bentonite of the litter.” *Id.* at 5:33–36.

The ’393 patent also describes the clump strength test using the Standard Drop Method Test. *See* Ex. 1001, 10:52–11:56, Figs. 4–5 (depicting dropping device used in Standard Drop Method Test). The clump strength test involves removing a clump of wetted litter after a specified time period and placing it on a swinging platform 12 inches above an aluminum pan. *Id.* at 10:55–11:1. After dropping the clump from the platform into the pan, “the clump is visually examined for breakage and assigned a rating on a scale from 1 to 3,” with the scale being: (1) “clump intact, no breakage;” (2)

“slight breakage (clumps break into 2 pieces);” and (3) “moderate breakage (clump breaks into more than 2 pieces).” *Id.* at 11:1–5, Fig. 6 (depicting three types of clump breakage used in rating system). After repeating the test using additional clumps, an average clump strength rating is reported. *Id.* at 11:5–7. The ’393 patent provides forty-nine examples of clump strength results by testing various litter compositions at various time intervals after applying a wetting agent to the litter. *See id.* at 15:33–46:20.

C. Challenged Claims

Petitioner challenges claims 1–17 of the ’393 patent, of which claims 1 and 10 are independent. Independent claim 1 is reproduced below:

1. A composition comprising:
a mixture comprising sodium bentonite and one or more granular filler materials,
wherein the one or more granular filler materials comprise one or more cellulose-containing materials,
wherein sodium bentonite comprises at least 47% of the total external surface area of the mixture,
wherein the one or more granular filler materials comprise 5% to 53% of the total external surface area of the mixture, and
wherein the mixture is removably clumpable.

Ex. 1001, 49:42–50:4.

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 1–17 on the following grounds (Pet. 2):

Claims Challenged	35 U.S.C. §	References/Basis
1–17	103	Hughes, ¹ Winkleman ²

¹ US 5,503,111, issued April 2, 1996 (“Hughes,” Ex. 1002).

² WO 2010/056321 A1, published May 20, 2010 (“Winkleman,” Ex. 1003).

Claims Challenged	35 U.S.C. §	References/Basis
1–17	103	House, ³ Winkleman
1–17	103	Goss, ⁴ Winkleman, House

Petitioner supports its challenges with a declaration from Marvin L. Raymond. Ex. 1006.

ANALYSIS

A. Discretion Under 35 U.S.C. § 325(d)

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 325(d). *See* Prelim. Resp. 41–48.

1. Legal Framework

Section 325(d) provides that, in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework in determining whether to exercise its discretion under § 325(d): (1) determining whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB

³ US 5,188,064, issued Feb. 23, 1993 (“House,” Ex. 1004).

⁴ US 5,975,019, issued Nov. 2, 1999 (“Goss,” Ex. 1005).

Feb. 13, 2020) (precedential). In applying this framework, we consider several non-exclusive factors, including:

(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph). If, after review of factors (a), (b), and (d), we determine that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics*, Paper 6 at 10.

2. Discussion

Patent Owner argues that “the Examiner considered the same prior art during original prosecution that the Petition now relies on.” Prelim. Resp. 41. Patent Owner argues that Hughes, House, and Goss were presented to the Examiner because Patent Owner identified the references on an Information Disclosure Statement (“IDS”), and that the Examiner signed the IDS, indicating that the references were considered. *Id.* at 43–44 (citing Pet. 33, 48 n.34, 58 n.35; Ex. 1007, 163–164, 168). Patent Owner also argues

that “[a]lthough Winkleman was not presented to the Examiner during prosecution, the addition of Winkleman does not change the overall consideration of Hughes, House, or Goss.” *Id.* at 45. Patent Owner further contends that “it is unclear exactly why Petitioner adds Winkleman to the mix” and that “adding Winkleman does not materially change the patentability analysis.” *Id.* Petitioner acknowledges that Hughes, House, and Goss were before the Examiner during prosecution, but argues that (1) the references should be considered in a new light due to the additional information provided in the Petition and (2) the challenges are not cumulative of the Examiner’s review of the prior art. *See* Pet. 33–34, 48 n.34, 58 n.35. As to Winkleman, Petitioner argues that it “was not previously considered by the Examiner.” *Id.* at 34.

The parties appear to agree and the record makes clear that Hughes, House, and Goss were before the Examiner during prosecution, but Winkleman was not. *See* Ex. 1001, code (56) (references cited). Petitioner relies on Winkleman as part of every asserted ground, and argues that Winkleman discloses several limitations in the challenged claims, including the cellulose-containing filler limitation in the independent claims. *See* Pet. 35, 41–42, 50–51, 59–60. Petitioner also relies on Winkleman as the only prior art to disclose certain dependent claim limitations. *See, e.g., id.* at 48 (arguing that Winkleman alone in ground 1 discloses the limitations of claims 8–9 and 16–17), 55–57 (arguing that Winkleman alone in ground 2 discloses the limitations in claims 2, 9, 11, and 17), 68 (arguing that Winkleman alone in ground 3 discloses the limitations in claims 9 and 17). Petitioner’s exclusive reliance on Winkleman strongly suggests that each of the three grounds in the Petition presents issues that were not substantially

the same as those before the Examiner because Winkleman was never considered by the Examiner.

Patent Owner's brief arguments addressing Winkleman do not support a conclusion that the addition of Winkleman presents the same arguments already considered during prosecution. For example, Patent Owner argues that "the addition of Winkleman does not change the overall consideration of Hughes, House, or Goss" and "adding Winkleman does not materially change the patentability analysis," but these arguments fail to acknowledge that Petitioner relies exclusively on Winkleman as disclosing several limitations in dependent claims. Prelim. Resp. 45. At least as to these claims, Winkleman does change the patentability analysis. To the extent that Patent Owner argues that Winkleman does not change the patentability of the independent claims, the record lacks support for that argument as well. In ground 3, for example, the primary reference Goss does not disclose a cellulose-containing filler, and Petitioner relies on Winkleman as disclosing that filler material. *See* Pet. 59. Petitioner also relies on Winkleman as disclosing the advantages of its cellulose-containing filler because it "reduces the density and/or weight of the litter" compared to a litter lacking the filler material. *Id.* at 28 (citing Ex. 1003 ¶¶ 22, 26). Patent Owner makes no effort to explain why these teachings are merely cumulative of the prior art of record. *See* Prelim. Resp. 45. Based on our review of the record, Winkleman discloses relevant teachings not cumulative of the other prior art in the Petition.

Under these circumstances, we find the first part of the *Advanced Bionics* framework is not satisfied because the Petition sets forth prior art and arguments that are not the same or substantially the same as that

considered by the Examiner during prosecution. Accordingly, we decline to exercise our discretion to deny institution pursuant to 35 U.S.C. §325(d).

B. The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.*

Petitioner contends that a person having ordinary skill in the art (“PHOSITA”) “would have at least a bachelor of science degree in chemistry, mineralogy, geological science, material science, chemical engineering, or mining engineering with at least two to five years of work experience relating to designing specific chemical mixtures including clay or other minerals, particularly absorbents.” Pet. 33 (citing Ex. 1006 ¶ 38).

Patent Owner does not dispute Petitioner’s proposed definition of the level of ordinary skill in the art, which appears consistent with the record, including the prior art. *See* Prelim. Resp. 11; *In re GPAC Inc.*, 57 F.3d at 1579. We adopt the definition of the level of ordinary skill in the art proposed by Petitioner.

C. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.100(b). Under that standard, we generally give a claim term its ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. See *Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing a claim term under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. See *id.* at 1317–19.

Petitioner proposes constructions for the claim terms “blend,” “cellulose-containing material,” “granular,” “mixture,” and “removably clumpable.” Pet. 31–32. As to “removably clumpable,” which appears in both independent claims 1 and 10, Petitioner quotes a portion of the “Definitions” section from the ’393 patent and asserts that we should construe the limitation to mean “a litter that, when exposed to a wetting agent forms one or more clumps having a firmness of sufficient structural integrity and hardness to withstand mechanical separation from unwetted litter for disposal.” *Id.* at 32 (quoting Ex. 1001, 5:24–28). Patent Owner does not dispute Petitioner’s constructions for the first four terms, but disputes Petitioner’s construction of “removably clumpable.” Prelim. Resp. 17–21. We need only construe “removably clumpable” to determine whether to institute an *inter partes* review, and we do not reach the other claim constructions proposed by Petitioner. See *Nidec Motor Corp. v.*

Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we 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))).

Patent Owner argues that the “Definitions” section of the specification expressly defines “removably clumpable” in the following paragraph:

For purposes of the present invention, the term “removably clumpable” refers to a litter that, when exposed to a wetting agent forms one or more clumps having a firmness of sufficient structural integrity and hardness to withstand mechanical separation from unwetted litter for disposal. ***A litter material having a clump strength of ≤ 1.33 using the Standard Drop Method Test*** (described below) 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours or 72 hours after the clump is formed by exposure to a liquid ***is removably clumpable. A litter that is removably clumpable, i.e., has a clump strength of ≤ 1.33 using the Standard Drop Method Test***, has a clump strength that is substantially the same as a litter comprised of only the sodium bentonite of the litter.

Prelim. Resp. 17–18 (quoting Ex. 1001, 5:24–36). Patent Owner contends that this passage makes clear that it “defined the term ‘removably clumpable’ to mean a litter having a clump strength of ≤ 1.33 using the Standard Drop Method Test at various times after the clump has formed.” *Id.* at 18 (citing Ex. 1001, 5:24–36, 11:5–7). Patent Owner further contends that the use of “i.e.” in the passage signals an “intent to define” the limitation “as a litter having an average clump strength of ≤ 1.33 using the Standard Drop Method.” *Id.* at 18–19 (citing Ex. 1001, 5:24–36 and case law for support). Patent Owner also argues that we addressed construction of the same limitation in IPR2022-00206 and found in favor of Patent

Owner. *Id.* at 17, 19 (citing *AMCOL*, IPR2022-00206, Paper 9, at 9–10, 13).⁵

Based on our review of the record and the parties’ arguments, we determine that “removably clumpable” in independent claims 1 and 10 refers to a mixture having “a clump strength of ≤ 1.33 using the Standard Drop Method Test” in addition to the other aspects of the “removably clumpable” definition provided in the specification. *See* Ex. 1001, 5:24–36. This is the same conclusion we reached in IPR2022-00206, which addresses the same issues raised here. *See AMCOL*, IPR2022-00206, Paper 9, at 9–13. As we noted in that Decision, the paragraph containing the phrase “a clump strength ≤ 1.33 using the Standard Drop Method Test” appears within the “Definitions” section of the specification, and the use of the term “i.e.” just prior to the phrase signals an intent to define the limitation. *See id.* at 9–10; Ex. 1001, 3:63, 5:24–36.⁶ We also pointed out that the ’393 patent’s

⁵ Patent Owner further argues that Petitioner expressly acknowledges the correct definition of “removably clumpable,” but fails to apply it in its proposed construction or apply it to the prior art. Prelim. Resp. 19–21; Sur-reply 1–3. Petitioner argues that it properly incorporated the narrower definition in its analysis. *See* Reply 1–3. We address Petitioner’s challenges as to the “removably clumpable” limitation in our discussion of the merits below.

⁶ Relevant case law supports this interpretation of “i.e.” in the specification. *See Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d, 1322–1334 (Fed. Cir. 2009) (“As the court correctly reasoned, the specification’s use of ‘i.e.’ signals an intent to define the word to which it refers, . . . and that definition was not limited to the embodiment being discussed.”); *Abbott Labs. v. Novopharm Ltd.*, 323 F.3d 1324, 1327–28, 1330 (Fed. Cir. 2003) (holding that the specification’s use of “i.e.” defined the limitation); *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1201 (Fed. Cir. 2013) (finding that reading “beads (i.e., two-dimensions)” as definitional comports with the plain language of the specification as a whole and the inventors clearly expressed

Example 26, which discloses a clump strength of ≤ 1.33 at the 24-hour mark but clump strengths above 1.33 at the three other time periods, still falls within the scope of the definition of “removably clumpable.” *AMCOL*, IPR2022-00206, Paper 9 at 11–12. The “definitional paragraph” relied on by Patent Owner notes that “[a] litter material having a clump strength of ≤ 1.33 using the Standard Drop Method Test (described below) [at] 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours *or* 72 hours after the clump is formed by exposure to a liquid *is removably clumpable*.” Ex. 1001, 5:28–33 (emphasis added); Prelim. Resp. 17–18 (referring to “definitional paragraph” that includes this language). Use of the disjunctive “or” in that sentence indicates that a litter having the required clump strength at any of the listed time intervals falls within the scope of “removably clumpable.”

Based on the foregoing, we again conclude that “removably clumpable” in independent claims 1 and 10 requires, at a minimum, a mixture having “a clump strength of ≤ 1.33 using the Standard Drop Method Test . . . 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours *or* 72 hours after the clump is formed.” Ex. 1001, 5:28–32 (emphasis added).

D. Obviousness Challenge Based on Goss, Winkleman, and House
Petitioner argues that the combination of Goss, Winkleman, and House renders claims 1–17 obvious. Pet. 2, 57–68. Patent Owner raises several arguments against this challenge. See Prelim. Resp. 27–33, 38–40.

intent to differentiate the use of beads from three dimensional culturing”); see also *Rembrandt Wireless Techs., LP v. Samsung Elecs. Co., Ltd.*, 853 F.3d 1370, 1376–77 (Fed. Cir. 2017) (finding the use of “i.e.” definitional in the context of prosecution history statements).

We first provide a brief overview of the prior art, and then address the parties' arguments.

1. Overview of Goss, Winkleman, and House

Goss discloses a “clumping animal litter” containing up to 60% sodium bentonite and a non-swelling clay filler. Ex. 1005, code (57). Patent Owner is the assignee of Goss, and Goss shares some similar approaches as the '393 patent. *See id.* at code (73). For example, Goss not only emphasizes the weight percents of sodium bentonite and filler material, but also the “judicious selection of particle size distribution” of each material. *Id.* at code (57), 4:64–5:33 (particle size analysis of sodium bentonite). Goss also discloses examples containing sodium bentonite and a non-swelling clay in various ratios and various particle size distributions. *Id.* at 6:39–65. For each example, Goss discloses a clump strength rating based on a scale of 1 to 5 after conducting a drop test, with 1 indicating a clump that remained substantially intact after the test. *Id.* at 6:6–38. Several test results show that a successful clump strength of 1 or 1.3 at 30 seconds and 24 hours after wetting the litter. *See id.*

Winkleman discloses a litter containing a mixture of particles coated with a swelling clay, such as bentonite and a filler material. Ex. 1003 ¶¶ 11, 21. Winkleman further discloses various materials as preferred fillers, including “biological materials including wood pellets, . . . cellulose, byproducts of wheat (e.g., wheat hulls), byproducts of barley (e.g., barley hulls), byproducts of soy, paper, etc.” *Id.* ¶ 26. According to Winkleman, use of such filler materials helps reduce the weight and density of the resulting litter. *Id.* ¶¶ 22, 26.

House relates to a clumping cat litter comprising certain mixtures of clay and cellulose material. Ex. 1004, code (57), 2:51–54. House states that it seeks “to provide a clumping sorbent having superior sorption capacity and sufficient cohesiveness when wetted with an aqueous liquid, such as urine, to be easily separated from the nonwetted sorbent particles.” *Id.* at 2:66–3:2. According to House, its invention provides sorbents that, “when wetted with urine forms a mass of sorbed, wetted sorbent that can be scooped out or otherwise removed from the litter box.” *Id.* at 6:43–46. House discloses using between 5% and 70% “cellulosic material” in its litter mixture. *Id.* at 4:54–5:13, 8:1–9.

2. Discussion

Petitioner argues that Goss discloses the majority of limitations in independent claims 1 and 10 and that Winkleman and House disclose the cellulose-containing filler materials. *See* Pet. 57–63. For example, as to the limitation requiring a mixture comprising sodium bentonite and one or more granular filter materials, Petitioner argues that Goss discloses a mixture containing up to 60% sodium bentonite and 40% non-swelling clay material that should be treated as a filler material because Goss uses it to decrease the weight of the litter. *Id.* at 58–59 (citing Ex. 1005, 2:34–44, 3:6–4:63; Ex. 1006 ¶¶ 131–133). Petitioner also contends that Goss discloses calcium bentonite as one of the filler materials. *See id.* (citing Ex. 1005, 3:38–4:5; Ex. 1006 ¶¶ 131–133). For the limitations requiring a filler comprising “one or more cellulose-containing materials” (claims 1 and 10) and particular types of filler materials such as paper, seeds, barley, rice, etc. (claim 10), Petitioner argues that one of ordinary skill in the art “would have understood that granular filler materials comprised of cellulose-containing material” can

be used “in place of the non-swelling granular clay filler material in the litter mixture of Goss.” *Id.* at 59 (citing Ex. 1006 ¶ 135). Petitioner then argues that both Winkleman and House disclose a clumping litter that includes sodium bentonite and a number of cellulose-containing fillers for use in conjunction with the sodium bentonite. *Id.* at 59–60 (citing Ex. 1003 ¶¶ 20–21, 26; Ex. 1004, 2:52–62; 4:20–28; 4:54–5:13; Ex. 1006 ¶¶ 56, 134–137). As to the limitations requiring “sodium bentonite comprises at least 47% of the total external surface area of the mixture,” Petitioner argues that the combination of Goss in view of Winkleman or House would meet the limitation for a number of reasons, and that the resulting litter would meet the “removably clumpable” limitation based on Goss’s favorable clump test results. *Id.* at 60–63 (Ex. 1006 ¶¶ 139, 141–144, 149, 151).

For each limitation, Petitioner points to specific portions of the references that support its position, and declarant testimony addressing each limitation. *See id.* at 57–68 (citing Ex. 1006). Patent Owner raises several arguments that apply to this ground, which we address in turn below.

a. Motivation to Combine

Patent Owner argues that Petitioner fails to support its obviousness argument with a reason to combine based on rational underpinnings. Prelim. Resp. 38–40. In the context of the challenge based on Hughes and Winkleman, Patent Owner argues that “the Petition does not explain why a PHOSITA would turn to Winkleman for the teaching of a particular element” and then argues that this “same failure infects the obviousness combinations” in this ground based on Goss, Winkleman, and House. *Id.* at 39. Patent Owner also argues that Petitioner fails to articulate a sufficient rationale for combining Goss and Winkleman, and at best assumes that a

PHOSITA could modify Goss in view of Winkleman without adequately explaining why a PHOSITA would make the modifications or which modifications would be made. *Id.* at 39–40.

Based on our review of the current record, Petitioner establishes adequately, for purposes of institution, that one of ordinary skill in the art would have had a reason to modify Goss by replacing Goss’s clay filler with Winkleman’s (or House’s) cellulose-containing filler material. *See* Pet. 28, 59–60; Ex. 1006 ¶¶ 33, 135–137, 146–147. Petitioner argues, with declarant support, that one of ordinary skill in the art “would have understood that granular filler materials comprised of cellulose-containing material,” such as those Winkleman and House disclose, can be used “in place of the non-swelling granular clay filler material in the litter mixture of Goss.” Pet. 59 (citing Ex. 1006 ¶ 135). Winkleman and House themselves support this modification by showing successful use of cellulose-containing fillers in combination with sodium bentonite. *See id.* at 28–29 (citing Ex. 1003, code (57), claims 1, 4, 8, 9, 33, 36, 40, 41, 67, ¶¶ 11, 20–21, 26, 34, 39–40, 42–43, 52, 55; Ex. 1004, 2:51–54, 4:25–28, 4:54–68, 5:1–13, 8:1–9). In addition, Petitioner notes that Winkleman discloses advantages of its cellulose-containing filler materials, including a reduction in “density and/or weight of the litter.” *See id.* at 28 (citing Ex. 1003 ¶¶ 22, 26). Further, in the section proposing replacement of Goss’s clay filler with Winkleman’s cellulose-containing filler, Petitioner cites to Winkleman’s paragraph 26, which discloses a number of potential advantages of the cellulose-containing filler. These advantages provide express motivations for using the cellulose-containing filler such that Winkleman generally supports Petitioner’s arguments. *See id.* at 59 (citing Ex. 1003 ¶¶ 20–21, 26); Ex.

1003 ¶ 26 (“The addition of a biological [cellulose-containing] material as a filler particle in the litters provides additional functionality to the litter, including odor absorption, fragrance release, moisture absorption, and density reduction. As with biodegradable polymers, the biological materials are useful for altering the appearance, density, and odor of the litters and permit may permit the litter to be disposed of in a more environmental[ly] friendly manner.”).

Petitioner’s un rebutted declarant testimony and Winkleman’s suggestion to use cellulose-containing fillers due to a number of advantages both support Petitioner’s proposed combination and provide a reason to combine Goss with both Winkleman and House. At this stage of the proceeding, Petitioner has persuaded us that person having ordinary skill in the art would have combined the teachings of Goss, Winkleman, and House as Petitioner proposes. During trial, the parties may address this issue further.

b. “sodium bentonite comprises at least 47% of the total external surface area of the mixture”

Petitioner argues that its proposed combination of Goss’s sodium bentonite with the cellulose-containing filler satisfies the “47% of the total external surface area of the mixture” limitation. Pet. 60–62. Petitioner argues that given that the cellulose filler “has a bulk density about the same as that of calcium bentonite,” “a PHOSITA would have clearly understood that the sodium bentonite would comprise at least 47% of the total surface area of such a mixture of about 40% by weight [of] these cellulosic filler materials and about 60% sodium bentonite by weight, as disclosed in Goss.” *Id.* at 60 (citing Ex. 1006 ¶ 139). Petitioner also argues that a comparison of Goss’s examples with very similar examples from the ’393 patent show that

the 47% surface area limitation would be met. *Id.* at 60–61. Petitioner contends that these results using the same materials, particle sizes, and weight ratios “are so similar that the surface areas should likewise be similar” and the same positive clump test results “could be achieved.” *Id.* at 61–62; *see also* Ex. 1006 ¶ 139 (referring to same analysis of Goss).

Patent Owner argues that Petitioner’s analysis lacks support because none of the prior art references expressly discloses the total surface area of sodium bentonite and that Petitioner’s reliance on the weight percent of sodium bentonite fails to establish the surface area of that component. Prelim. Resp. 28–30. According to Patent Owner, the total surface area “cannot be determined simply from the weight percentage and particle size range of sodium bentonite” because that calculation must use “particle size distributions and weight percentages for both sodium bentonite and the cellulose-containing filler material.” *Id.* at 30 (citing Ex. 1001, 16:8–11; 16:19–26) (emphasis omitted); *see also id.* at 32–33 (same). As to Goss, Patent Owner argues that Petitioner’s reliance on the similarity between the examples of Goss and the examples ’393 patent lacks objective evidence or rational inference for support. *Id.* at 32.

Based on the current record, Petitioner establishes adequately that Goss, when combined with the cellulose-containing filler of either Winkleman or House, discloses a mixture where “sodium bentonite comprises at least 47% of the total external surface area of the mixture.” Petitioner, with currently unrebutted declarant support, relies on the similarity in density of Goss’s filler and various cellulose-containing fillers and the similarity between the examples in Goss and example 6 of the ’393 patent, and contends that using Goss’s 60%-40% weight ratio of sodium

bentonite to filler with a cellulose-containing filler meets the limitation. *See* Pet. 60–62; Ex. 1006 ¶ 139. Although Petitioner’s analysis may have been more persuasive if it also included representative calculations of the relative surface areas, based on the current record, Petitioner’s argument and evidence carry its burden at this stage of the proceeding. As noted above, the parties can explore these issues further at trial.

c. “removably clumpable”

Petitioner argues that because Goss’s test samples using a 50%-50% weight mixture of sodium bentonite to filler pass the ’393 patent’s clump strength drop test, Goss’s teaching of a 60%-40% mixture would also pass the required clump strength test when using the cellulose-containing filler. Pet. 62–63. Petitioner contends that the similar bulk densities between Goss’s filler and the cellulose-containing filler support this conclusion, along with the increased percentage of clumping agent. *Id.* at 63 (citing Ex. 1005, 4:50–56; Ex. 1006 ¶¶ 142–144).

Patent Owner contends that Petitioner did not adequately consider the possibility that the Board would construe the “removably clumpable” limitation in accordance with the definition provided in the ’393 patent specification. Prelim. Resp. 20–21; Sur-reply 3. At least as to this challenge that relies on Goss as disclosing the required clump strength, we disagree. The Petition acknowledges that the ’393 patent specification states that “to meet the requirements of the claims and achieve a mixture that is ‘removably clumpable,’ it must have, ‘a clump strength of ≤ 1.33 using the Standard Drop Method Test . . . 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours or 72 hours after the clump is formed by exposure to a liquid.” Pet. 4–5 (alteration in original) (quoting Ex. 1001, 5:24–33) (citing Ex. 1001,

10:52–11:56; Ex. 1006 ¶ 41). Petitioner also argues that Goss discloses examples having a clump strength of ≤ 1.33 which is determined by a drop test method and clump strength rating system that is nearly identical to the test the '393 patent describes. *Id.* at 30. We determine that Petitioner's "removably clumpable" arguments as to Goss address adequately the proper construction of "removably clumpable."

Patent Owner also argues that Petitioner improperly relies on Goss's clump strength data because those samples did not include cellulose-containing filler material, and that Petitioner's implicit argument that the cellulose-containing filler would perform the same as Goss's samples lacks objective support. Prelim. Resp. 27. Patent Owner contends that the "Petition does not address differences in clumping properties when a cellulose-containing material is used in place of calcium bentonite." *Id.* at 27–28. We also disagree with this argument, based on the current record, because Petitioner expressly acknowledges the differences in filler material and argues, with currently unrebutted declarant support, that the bulk densities of Goss's filler and the cellulose-containing filler are similar and that one of ordinary skill in the art would expect Goss's mixture with 60% by weight of sodium bentonite to perform even better on the clump strength tests than the 50% by weight sodium bentonite test sample in Goss. *See* Pet. 63 (citing Ex. 1005, 4:50–56; Ex. 1006 ¶¶ 142–144). Petitioner's arguments and evidence adequately support its positions at this stage of the proceeding.

d. Conclusion

Based on the foregoing, we determine that Petitioner establishes adequately that one of ordinary skill in the art would have had a reason to combine the teachings of Goss with Winkleman and House, and that the

resulting litter mixture would disclose the “47% of the total external surface area” and “removably clumpable” limitations. We have also reviewed Petitioner’s arguments and evidence as to the remaining limitations of claims 1 and 10. Based on our review, Petitioner establishes sufficiently, based on the current record, that the combination of Goss with Winkleman and House discloses all of the limitations of claims 1 and 10, and that one of ordinary skill in the art would have been motivated to combine the references as Petitioner proposes. Accordingly, Petitioner establishes a reasonable likelihood that independent claims 1 and 10 would have been obvious based on Goss, Winkleman, and House.

We have also reviewed Petitioner’s arguments and evidence as to dependent claims 2–9 and 11–17. *See* Pet. 62–68. Patent Owner does not separately address the dependent claims. Prelim. Resp. 21–40. Because we institute *inter partes* review as to the claims 1 and 10, we also institute *inter partes* review as to dependent claims 2–9 and 11–17. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

E. Remaining Obviousness Challenge

Petitioner also challenges claims 1–17 based on Hughes and Winkleman as well as House and Winkleman. *See* Pet. 2, 33–57. The Petition fails to establish, however, a reasonable likelihood that Petitioner would prevail with respect to these other challenges. Nevertheless, because we institute *inter partes* review as to the claims 1 and 10, we also institute *inter partes* review as to these challenges. *See SAS*, 138 S. Ct. at 1359–60. We provide the following brief analysis of the parties’ arguments to guide the parties during trial.

We first address the “removably clumpable” limitation in the context of these challenges. For these challenges, Petitioner relies on Hughes, Winkleman, and House as disclosing the “removably clumpable” limitation. *See* Pet. 42, 52. Patent Owner argues that none of the references to a “clumping” cat litter in these references ties the clumping ability to the Standard Drop Method Test required under our construction of “removably clumpable.” Prelim. Resp. 23–24.

We agree with Patent Owner that Petitioner fails to establish, based on the current record, that any of Hughes, Winkleman, or House discloses the “removably clumpable” limitation when using the claim construction that we adopt above. That construction requires “a clump strength of ≤ 1.33 using the Standard Drop Method Test . . . 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours or 72 hours after the clump is formed,” but Petitioner provides no argument or evidence to support any conclusion that the references disclose a mixture having such a clump strength. Instead, Petitioner appears to assume that its broader claim construction of “removably clumpable” applies, and does not attempt to show that the references disclose the limitation using a narrower construction such as the construction we adopt here. For example, Patent Owner correctly points out that such a showing fails to establish that House discloses a “removably clumpable” mixture as the claims require because a “litter that clumps does not necessarily mean it is ‘removably clumpable’” under the proper construction. *See* Prelim. Resp. 26. Although the issue may be explored further at trial, Petitioner will need to supply additional evidence and argument in order to establish that any of these references disclose the “removably clumpable” limitation as properly construed.

As to the “47% of the total external surface area” limitation, the parties dispute (1) whether Patent Owner properly distinguished Hughes by relying in part on this limitation during prosecution, (2) whether the limitation meets the definition of a result effective variable, and (3) whether the specification of the ’393 patent overstates the relevance of the 47% figure due to a number of inaccuracies and omissions in the specification. *See* Pet. 3–25, 36–41, 51; Prelim. Resp. 33–38. These arguments present close factual issues that are best addressed after full development of the record during trial.

While we do not resolve the merits of these disputes at this time, the parties should bear in mind in any further briefing that the “removably clumpable” claim requirement can be met with a clump strength of ≤ 1.33 using the Standard Drop Method Test at any interval of 30 seconds, 1 hour, 12 hours, 24 hours, 36 hours *or* 72 hours after the clump is formed by exposure to a liquid. *See* Ex. 1001, 5:24–33. This can impact whether a given test result in the ’393 patent or the prior art meets the “removably clumpable” definition requirements, as we noted in our previous Decision addressing this same issue. *See AMCOL*, IPR2022-00206, Paper 9, at 11–12 (determining that Example 26 falls within the scope of the claims). For example, Patent Owner argues that “[t]he ’393 Patent discloses eight example litter mixtures (Examples 26-33) comprising sodium bentonite and a cellulose containing filler material” and “[s]ix of the examples (Examples 26-30 and 33) had a total external surface area of sodium bentonite $> 47\%$ and five of the six samples, 83.3%, also were ‘removably clumpable.’” Prelim. Resp. 11. Based on our review of the ’393 patent specification, these statements do not accurately portray the test results in the specification

because they fail to acknowledge that any positive clump strength result at any of the listed time frames satisfies the “removable clumpable” limitation. Using the correct construction, all of the examples that employ a mixture of sodium bentonite and a cellulose-containing filler as required by the claims produce results that meet the “removably clumpable” definition. *See* Ex. 1001, 30:55–35:36 (showing that Examples 26–33 all include at least one test result with a clump strength of ≤ 1.33). In fact, two examples that have a surface area less than the supposedly critical 47% level (Examples 31 and 32) have perfect clump test strength scores for at least three of four time intervals tested. *Id.* at 33:55–34:66. These clump strength test results using a surface area of sodium bentonite below the claimed level are actually better than one of the test results using the claimed amount of sodium bentonite. *See id.* at 30:55–31:26 (showing results for Example 26, with a 48% sodium bentonite surface area, meeting the clump strength requirement at only one of the four time periods tested).

Based on our review of the ’393 patent specification, the examples using the claimed mixture of sodium bentonite and a cellulose-containing filler show no support for identifying the 47% surface area limitation as a meaningful line between successful and unsuccessful clump strength results. Patent Owner argues that the 47% limitation finds support in Figure 10, but Patent Owner admits that Figure 10 includes numerous inaccuracies and omits data that tends to undermine that conclusion. *See* Prelim. Resp. 9–11. Moreover, Figure 10 only plots results from a mixture of sodium bentonite that lacks cellulose-containing filler and falls outside the scope of the claims, and Figure 10 focuses on only two time intervals (30 seconds and 1 hour) in a manner that restricts the clump strength results to a narrower scope than

claimed. It remains unclear how these test results can support the criticality of the 47% surface area limitation in the claims directed to a mixture of sodium bentonite and a cellulose-containing filler. The parties should address these issues in the context of these grounds as well as the ground based on Goss, Winkleman, and House, to the extent relevant. The parties should not only focus on the relevance of the 47% lower end of claimed range, but also the upper end, which allows for up to 95% surface area sodium bentonite. *See* Ex. 1001, 50:1–2 (requiring only 5% filler material in claim 1). Such a high amount of sodium bentonite would seem to encompass prior art mixtures that overly relied on sodium bentonite and introduced the density, weight, and cost problems the '393 patent and prior art were trying to move away from. *See, e.g., id.* at Ex. 1001, 1:27–29 (noting expense of sodium bentonite); Ex. 1003 ¶ 11 (Winkleman noting density and weight issues lessened by using filler); Ex. 1005, 1:44–53 (Goss noting that using sodium bentonite in weight percentages “well in excess of 60 percent” were known in the art, and suggesting that “good clumping performance” can be obtained using 40% filler and just 60% or less sodium bentonite).

CONCLUSION

For the reasons above, we grant institution of *inter partes* review.

ORDER

Accordingly, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–17 of the '393 patent on the unpatentability grounds asserted in the Petition; and

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FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

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For PETITIONER:

Michael Griggs
Brad Meyer
David Stein
BOYLE FREDERICKSON SC
mtg@boylefred.com
blm@boylefred.com
dds@boylefred.com

For PATENT OWNER:

Binal Patel
Matthew Becker
BANNER & WITCOFF, LTD.
bpatel@bannerwitcoff.com
mbecker@bannerwitcoff.com