

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PROLIME AGRICULTURAL LLC and
CAUDILL SEED AND WAREHOUSE CO., INC.
Petitioners

v.

SUL4R-PLUS, LLC
Patent Owner

Case IPR2024-00236
U.S. Patent No. 9,873,638

PATENT OWNER'S PRELIMINARY RESPONSE

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TABLE OF EXHIBITS

Exhibit Number	Exhibit Title
2001	Complaint from Parallel Case No. 22-12798, United States District Court for the Eastern District of Michigan, dated November 17, 2022
2002	Case Management Order from Parallel Case No. 22-12798, United States District Court for the Eastern District of Michigan, dated April 11, 2023
2003	Reserved
2004	Reserved
2005	Reserved
2006	Reserved
2007	Reserved
2008	Reserved
2009	Reserved
2010	Reserved
2011	Reserved

I. INTRODUCTION

Petitioners Prolime Agricultural LLC and Caudill Seed and Warehouse Co., Inc. (“Petitioners”) filed this Petition for *Inter Partes* Review of claims 1-23 of U.S. Patent No. 9,873,638 (Ex. 1001, “the ’638 Patent”), which was accorded a filing date of November 28, 2023 (the “Petition”). Pursuant to 37 C.F.R. § 42.107(a), Patent Owner Sul4r-Plus (“Sul4r-Plus” or “Patent Owner”) submits the following Preliminary Response, filed within three months of the notice according a filing date of December 22, 2023, setting forth reasons why an *inter partes* review should not be instituted.

The claims of the ’638 Patent are directed to pelletized synthetic gypsum and methods for producing pelletized synthetic gypsum. All of the claims require the fertilizer to include synthetic gypsum and have a particular size and crush strength. Ex. 1001 at Claims 1, 11, and 17. A benefit of the invention claimed in the ’638 Patent is that previous difficulties in handling synthetic gypsum, *e.g.*, sticking to material handling equipment and spreading devices, are overcome, which allows a larger amount of synthetic gypsum to be recycled and put to good use rather than ending up in landfills. *Id.* at 1:53-66. Moreover, the pelletized synthetic gypsum and methods for producing pelletized synthetic gypsum claimed in the ’638 Patent avoid known issues with fertilizer made from natural gypsum, which include, but

are not limited to, the reduced availability of sulfur (needed to promote plant growth). *Id.* at 1:40-48.

The '638 Patent issued after a lengthy prosecution that included a plethora of office actions and responses, as well as a number of interviews, during which the same reference that Petitioners rely upon for five of the six grounds—Harrison—was considered and commented on by the Examiner. Ex. 1004. Despite the attention given to Harrison by the Examiner, Petitioners now request that the Office spend more time analyzing Harrison, contending that “Harrison was never evaluated by the Examiner or the applicant during prosecution of the ‘638 Patent . . .” Pet. at 22. This is false. *See* Ex. 1004 at 318.

In a further attempt to downplay the Examiner’s consideration of Harrison, Petitioners contend the Examiner failed to appreciate that “Harrison expresses it solids content, particle size, and crush strength in a different unit, which could be the reason that the Examiner overlooked the applicability of Harrison to the claims now at issue.” Pet. at 23. The notion that the Examiner did not possess the requisite skill or training to understand that different units might be used in potential prior art references such that conversion would have been necessary strains credulity and “overlooks” the more likely rationale as to why the Examiner did not use Harrison to reject the claims of the '638 Patent during prosecution, *i.e.*, Harrison lacks any teaching or suggestion of the synthetic gypsum in the claims of the '638 Patent.

Indeed, Harrison's disclosure does not teach or suggest the synthetic gypsum feedstock required by all of the claims of the '638 Patent. The generalized disclosure cited by Petitioners in an attempt to cast dispersions on the Examiner's review and understanding of Harrison (Pet. at 12 (citing Ex. 1005 at 2:21-25)) merely explains, at a high level, different types of gypsum so as to frame the background of the invention. In describing the actual invention of Harrison, there is no discussion or suggestion of the synthetic gypsum required as feedstock in the claims of the '638 Patent. Moreover, Harrison equates its sulfogypsum, which Petitioners argue is the synthetic gypsum in the claims of the '638 Patent, to natural or mined gypsum throughout the disclosure. Simply put, the Office did not err in allowing the claims of the '638 Patent to issue over Harrison and the Board need not expend resources revisiting this reference.

The same is true of the remaining references. Indeed, while Anderson, Veverka, and Shimada were not cited during prosecution of the '638 Patent, these references are cumulative of prior art considered by the Examiner. Because the Petition presents the same or substantially similar art and arguments that the Office previously analyzed and fails to show that the Office materially erred during prosecution, the Board should exercise its discretion under 35 U.S.C. § 325(d) and deny the Petition.

Beyond this discretionary reason under 35 U.S.C. § 325(d), the Petition should be denied on the merits. Across five of the six redundant grounds, Petitioners fail to identify any prior art with the claimed fertilizer. Indeed, Grounds 1, 2, and 4-6 fail because Harrison, as previously concluded by the Office, does not disclose or even suggest each and every limitation of any claim of the '638 Patent. And, Petitioners implicitly acknowledge that Harrison is deficient with respect to the claims of the '638 Patent with its alternative obviousness arguments in Ground 2 but fail to provide an articulate rationale as to why a person of ordinary skill in the art would even seek to modify Harrison after reviewing the disclosure or how such modification would actually allow such person to arrive at the claims of the '638 Patent. The sole ground that does not involve Harrison (Ground 3) is based on a combination of references that also fails to teach or suggest any claim of the '638 Patent. Because Petitioners fail to demonstrate a reasonable likelihood of prevailing on any asserted ground, the Board should deny institution.

Finally, even if Petitioners have made the required threshold showing for some limited claims or grounds (which is not the case), the Board, in its discretion, should deny institution under § 314(a) on all challenged claims and grounds in the Petition.

II. OVERVIEW OF THE '638 PATENT

The pelletized synthetic gypsum and methods for producing pelletized synthetic gypsum described and claimed in the '638 Patent are formed by combining synthetic gypsum with a water-soluble binder composition including lignosulfonate. Ex. 1001 at Abstract and Claims 1, 11, and 17. The synthetic gypsum in the '638 Patent is the byproduct of flue gas desulfurization ("FGD"). *Id.* at 4:20-22 and 1:14-21. This is important because, unlike natural gypsum and other types of synthetic / byproduct gypsum, the synthetic gypsum that results from FGD has a very fine particle size and, therefore, a larger surface area in comparison to its volume, and the ability to retain moisture from the dewatering process. *Id.*

The '638 Patent is part of a family of U.S. patent applications owned by Patent Owner as shown in the table below:

Table 1 – Sul4r-Plus Patent Family

App No.	Filing Date	Patent No.
61/381,088	8/8/2012	N/A
13/962,903	8/8/2013	9,873,638
PCT/US2013/054212	8/8/2013	WO/2014/026048
18/831,715	8/20/2015	Abandoned
15/224,243	7/29/2016	9,919,977

The family claims priority to provisional application 61/381,088 which was filed on August 8, 2012. During prosecution of the '638 Patent, the Examiner made Harrison of record. Ex. 1004 at 314-319 (February 14, 2014 Non-Final Office Action). After considering Harrison and other prior art, the Examiner rejected the

claims as filed. *Id.* In response, the Patent Owner provided amendments to the claims and arguments as to the patentability of the claims. *Id.* at 294-304. Prosecution continued for more than three years and involved the following office actions and responses:

1. February 14, 2014 Non-Final Office Action (Ex. 1004 at 314-319);
2. July 14, 2014 Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 294-207);
3. August 6, 2014 Final Office Action (Ex. 1004 at 271-276);
4. February 6, 2015 Amendment Under 37 C.F.R. § 1.116 (Ex. 1004 at 234-244);
5. February 20, 2015 Non-Final Office Action (Ex. 1004 at 226-231);
6. August 20, 2015 Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 199-207);
7. September 2, 2015 / October 9, 2015 Non-Final Office Action (Ex. 1004 at 192-196 and 186-191);

8. April 11, 2016 Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 137-146); April 12, 2016 Supplemental Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 123-133);
9. September 1, 2016 Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 65-67);
10. September 19, 2016 Non-Final Office Action (Ex. 1004 at 51-56); October 14, 2016 Non-Final Office Action (Ex. 1004 at 41-47); and
11. March 14, 2017 Amendment Under 37 C.F.R. § 1.111 (Ex. 1004 at 26-36).

In addition, four interviews occurred. Ex. 1004 at 223-225, 183-185, 110, 100, 48-50, and 23-25. In sum, while the path to allowance was lengthy and detailed, the '638 Patent eventually issued with three independent claims (claims 1, 11, and 17) and 20 dependent claims (claims 2-10, 12-16, and 18-23).

III. CLAIM CONSTRUCTION

At this stage, and for the purpose of its Preliminary Response, Patent Owner does not believe any claim terms require express construction to deny the Petition. Accordingly, the claims should be given their ordinary and customary meaning in light of the specification and prosecution history, as understood by a person of ordinary skill in the art at the relevant time. 37 C.F.R. § 42.100(b); *Phillips v. AWH*

Corp., 415 F.3d 1303 (Fed. Cir. 2005). Petitioners appear to agree that the claims of the '638 Patent should be given their plain meaning. *See* Pet. at 10.

IV. LEVEL OF ORDINARY SKILL IN THE ART

Petitioners assert that a POSITA related to the '638 Patent “would have had a bachelor’s degree or equivalent in chemical engineering, or at least two years of field experience with agglomeration processes.” Pet. at 9. At this stage, and for purposes of its Preliminary Response, Patent Owner does not take issue with Petitioners’ assertion regarding a POSITA.

V. LEGAL STANDARD

The Board may not institute an *inter partes* review unless the Petition demonstrates that there is a reasonable likelihood that the petition would prevail with respect to at least one of the claims challenged in the petition. 35 U.S.C. § 314(a). As set forth below, the Petition does not satisfy this demonstration.

VI. THE BOARD SHOULD DENY INSTITUTION UNDER § 325(d)

The Petitioners present the same or substantially the same arguments that the Office previously analyzed and fail to show that the Office materially erred during prosecution of the '638 Patent. Accordingly, the Board should exercise its discretion to deny institution of the *inter partes* review of claims 1-3, 5, 7-12, 14, 16-19, and 22-23 of the '638 Patent under 35 U.S.C. § 325(d).

The Board has established a two-part framework to determine whether it should exercise its § 325(d) discretion: “(1) 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, whether the Petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (designated as precedential on Mar. 24, 2020).

Under the first part of the framework, the Board first considers “whether the same or substantially the same” art or arguments “previously were presented to the Office.” *Id.* Only if the first part is deemed to have been met will the Board consider “whether the Petitioner has demonstrated that the office erred in a material manner to the patentability of the challenged claims.” *Id.* In this aspect, the following six non-exclusive *Becton Dickinson* factors guide the Board’s discretion:

(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 Petitioners rely on the prior art or Patent Owner distinguishes the prior art;

(e) whether Petitioners have 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.

Id. at 9-10 (citing *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017) (designated precedential as to § III.C.5, first paragraph) (“*Becton Dickinson*”). Factors (a), (b), and (d) pertain to the first part of the framework and factors (c), (e), and (f) pertain to the second part. *Id.* at 10.

A. Petitioners Concede that the First Part of the Becton Dickinson Framework is Met.

Petitioners acknowledge that “Harrison was before the Examiner during prosecution of the ’638 Patent.” Pet. at 22. The Petition lacks any further discussion on the first part of the framework and, thus, concedes it is met. More specifically, with respect to five of the six grounds, Petitioners assert the exact same reference as was considered and made of record during prosecution of the ’638 Patent.

With respect to the primary references used in Grounds 3-5, Anderson, Veverka, and Shimada and arguments pertaining thereto, are cumulative of cited art and arguments considered during prosecution. Indeed, as recognized by Petitioners, Anderson and Veverka lack any teaching or suggestion of the synthetic gypsum in the claims of the '638 Patent, which was also found lacking in a number of other references before the Examiner during prosecution, including Harrison (*see, e.g.*, Ex. 1004 at 318). Shimada (used in Ground 5) is also cumulative of other references cited during prosecution at least because of its similarity to primary references used by the Examiner to reject the claims. Indeed, like the references used by the Examiner, Petitioners argue that Shimada similarly teaches pelletizing synthetic gypsum with a lignosulfonate binder to make fertilizer pellets purportedly with the claimed crush strength and particle size but does not teach the solids content of the lignosulfonate binder. Pet. at 55-56; *see also* Ex. 1004 at 226-231 (noting that “[t]he difference between the process and fertilizer disclosed by Steele et al, and that recited in claims 1, 3-6, 9-13, 15-17, 20-22, 24, 25, 28 and 29, is that Steele et al do not disclose that the binder composition should have 18% to 48% solids”) and 48-56 (noting that “[t]he differences between the method and composition disclosed by Wommack et al '356, and that recited in applicant's claims are that Wommack et al '356 does not disclose that the material should be fed to the forming device to a mean

pellet size guide number (SGN) from approximately 100 to approximately 500, and that the lignosulfonate should have a solids content of 18% to 48%”).

Accordingly, the arguments in the Petition present the same or substantially the same arguments that the Office previously analyzed.

B. Petitioners Fail to Show that the Office Materially Erred in Considering Harrison.

As to *Becton* factors (c), (e), and (f), the Examiner did not make a material error as alleged by the Petitioners. Pet. at 21-22. As discussed above, five of the six grounds in the Petition involve Harrison. Harrison, which the Examiner discovered through his own search, was analyzed and made of record during prosecution of the ’638 Patent because it teaches “agglomeration of gypsum in the presence of lignosulfonate.” Ex. 1004 at 318. Contrary to Petitioners’ assertion that “the Examiner overlooked the application of Harrison to the claims now at issue” (Pet. at 23), it is clear that the Examiner dedicated the appropriate time and consideration to the review of Harrison, identified any overlapping features with the claims of the ’638 Patent, and employed different (and more relevant) prior art in rejecting the claims. Petitioners should not be awarded a do-over just because they *think* that the Examiner *perhaps* did not appreciate that “Harrison expresses its solids content, particle size, and crush strength in a different unit” (Pet. at 23).

In this aspect, the Petition ascribes undue importance to the claimed properties of the pelletized synthetic gypsum and lignosulfonate binder with respect to

Harrison. It is unreasonable to suggest that, despite a robust prosecution, the Examiner did not possess the education or training to understand that some conversion of those properties might be necessary in order to evaluate the properties disclosed in Harrison. Moreover, this argument completely ignores that Harrison lacks any teaching or suggestion of the use of the synthetic gypsum required by the claims of the '638 Patent. Indeed, it is hard to imagine that the Examiner's summary of Harrison indicates that he did not consider the specific gypsum used in Harrison as the feedstock, the properties of the binder and/or pelletized gypsum (before and after unit conversion), or the properties of the resulting pelletized fertilizer (before and after unit conversion). Rather, the more logical explanation is that, after conducting a thorough review of Harrison, the Examiner found it lacking because it did not disclose the claimed invention including, but not limited to, the synthetic gypsum featured in the claims of the '638 Patent (even without specific properties attributed thereto).

Similarly, the Petition overlooks the cumulative nature of the combination of Anderson and Pietsch in Ground 3, Veverka and Harrison / Pietsch in Ground 4, and Shimada and Harrison in Ground 5. Even assuming that Petitioners' arguments can be characterized as a disagreement with Patent Owner over a reference's teachings, "it cannot be said that the Office erred in a manner material to patentability." *See, e.g., Advanced Bionics*, Paper 6 at 9; *see also Flex Logix Techs., Inc. v. Konda*,

IPR2020-00262, Paper 12 at 11 (PTAB Aug. 3, 2020) (denying institution when “[p]etitioner’s arguments amount to a disagreement with Patent Owner over a reference’s teachings”).

In sum, each of the factors (c), (e), and (f) weigh in favor of the Board’s exercise of discretion. With respect to factor (c), while Harrison was not the basis for rejection, it is clear that Harrison was evaluated and found lacking during prosecution and that Anderson, Pietsch, Veverka, and Shimada are cumulative of other references cited and considered during prosecution. With respect to factor (e), Petitioners have failed to point out sufficiently how the Examiner erred in its evaluation of the asserted prior art and merely suggest that the Examiner did not possess the requisite skills to convert units of solids content, particle size, and crush strength. Finally, with respect to factor (f), the only “additional evidence” is the unsupported proposition that the Examiner overlooked the applicability because the properties of the binder and pelletized gypsum were presented in different units. As such, all three factors in the second part of the *Becton Dickinson* framework weigh against institution.

VII. THE BOARD SHOULD DENY INSTITUTION ON ALL GROUNDS ON THE MERITS

To the extent that the Board considers the merits of the Petition (and, for the reasons discussed above and after this section, it need not), the Petition still fails to

establish a reasonable likelihood of prevailing with respect to at least one of the challenged claims.

A. Ground 1 Fails: Harrison Does Not Anticipate Any Challenged Claim At Least Because It Does Not Disclose the Claimed Synthetic Gypsum.

Petitioners fail to demonstrate that Harrison anticipates any challenged claim. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”). Harrison fails to disclose all elements of independent claims 1 and 11. And by virtue of their dependence upon these respective independent claims, Harrison does not anticipate dependent claims 2-3, 5, 9-10, 12, and 14 for the same reasons. *See* 37 C.F.R. 1.75(c) (“Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim”). The Board therefore should decline to institute IPR on Ground 1.

Each of independent claims 1 and 11 requires the use of synthetic gypsum. Ex. 1001 at Claims 1 and 11. Indeed, the first element of each of the claims recites this key feature: independent claim 1 recites the step of “feeding synthetic gypsum to a forming device” and independent claim 11 recites pellets “comprising synthetic gypsum.” *Id.* Under the *Phillips* standard, the only ordinary and customary meaning that would be ascribed to the term “synthetic gypsum” by those of ordinary skill in

the art at the time of the invention is synthetic gypsum obtained by flue-gas desulfurization given that this is the only meaning consistent with the specification and prosecution history. *See* 415 F.3d 1303 at 1313-1318.

In particular, the '638 Patent describes synthetic gypsum as “flue-gas desulfurization (‘FGD’) gypsum, [which] is a by-product recovered from flue gas streams resulting from the burning of energy sources containing concentrations of sulfur (e.g., coal).” Ex. 1001 at 1:14-19. The process by which synthetic gypsum is produced, according to the '638 Patent, involves removing sulfur dioxide from the flue gas stream after coal combustion by scrubbing the flue gas with a limestone slurry to capture sulfur released from the burned fuel, followed by dewatering to separate the liquids and solids. *Id.* at 4:20-38.

Petitioners assert that Harrison discloses the use of synthetic gypsum because the gypsum described by Harrison includes “mined (natural) gypsum and manmade (synthetic) by-product gypsum.” Pet. at 12. In support of this assertion, Petitioners cite to the background section of Harrison that describes how the manmade by-product gypsum is made: by reacting limestone and sulfuric acid to produce carbon dioxide (sulfogypsum) or by reacting phosphate rock and sulfuric acid to produce wet-process phosphoric acid (phosphogypsum). *Id.* Despite Petitioners’ attempt to equate these materials, neither phosphogypsum nor sulfogypsum are the synthetic gypsum used in the claims of the '638 Patent. In fact, based on Petitioners’ reliance

on Harrison and the phosphogypsum and sulfogypsum disclosed therein, it appears that Petitioners are advancing a plain meaning of synthetic gypsum that is divorced from the specification and prosecution history of the '638 Patent. In this sense, through the use of Harrison, Petitioners appear to ascribe a plain meaning of synthetic gypsum that does not reasonably reflect the plain language and disclosure of the '638 Patent, but rather encompasses the sulfogypsum in Harrison, which, as discussed herein, is not the same as FGD gypsum.

Harrison describes a process for converting phosphogypsum, agricultural limestone, or a mixture of limestone and sulfogypsum, natural gypsum, or both, into granular fertilizer-size particles. Ex. 1005 at 3:49-59. Harrison explains, as background to its disclosed process, that mineral gypsum is found naturally and phosphogypsum and sulfogypsum can be produced, respectively, as a “by-product *when limestone and sulfuric acid are reacted to produce carbon dioxide (sulfogypsum)* or when phosphate rock and sulfuric acid are reacted to produce wet-process phosphoric acid for use in the manufacture of phosphatic fertilizers (phosphogypsum).” *Id.* at 2:12-19 (emphasis added). In other words, Harrison teaches that the two non-naturally occurring gypsums used for feedstock – phosphogypsum and sulfogypsum – are formed by neutralizing sulfuric acid with phosphate rock or limestone, respectively. *Id.* at 9:16-24.

Contrary to Petitioners' assertions, Harrison's phosphogypsum and sulfogypsum are not the synthetic gypsum recited in claims 1 and 11 of the '638 Patent. First, the phosphogypsum described in Harrison, which results from neutralizing sulfuric acid with phosphate rock, does not involve the use of limestone, and hence, cannot be "synthetic gypsum" as described in the '638 Patent.

Second, Harrison's sulfogypsum particles that result from neutralizing sulfuric acid with limestone differ from the feedstock in the claims of the '638 Patent. The differences between Harrison's sulfogypsum and the synthetic gypsum in the claims of the '638 Patent can be ascertained at least from the differing outcomes of the process described in Harrison and the process disclosed in the '638 Patent. The synthetic gypsum that results from the flue gas desulfurization process described in the '638 Patent exhibits characteristics much more favorable for its subsequent agglomeration in the presence of a lignosulfonate binder than the sulfogypsum that results from neutralizing sulfuric acid with limestone, as described in Harrison. Indeed, Harrison discusses these unfavorable results, noting that:

[i]n development of the granulation process, it was learned that phosphogypsum was readily granulated with lignosulfonate binder, but gypsum resulting from neutralizing sulfuric acid with limestone (sulfogypsum) and mined natural gypsum was not satisfactorily granulated alone, but was readily granulated with lignosulfonate solution when admixed with 5 to about 15, but preferably about 10 percent by weight of agricultural limestone. . . . Indeed, in numerous tests wherein either sulfogypsum or comminuted natural gypsum or mixtures

of the two in various portions were utilized as feedstock in combination with the new lignosulfonate agglomeration-dispersant additive, ***resulted in poorly formed or defined particles of essentially unpredictable size distribution and essentially totally unusable hardness and friability characteristics.***

Ex. 1005 at 9:16-10:7 (emphasis added).

The fact that the sulfogypsum described in Harrison is incompatible with the described granulation process without the further addition of limestone underscores the differences in sulfogypsum and the synthetic gypsum in the claims of the '638 Patent. If Harrison's sulfogypsum was in fact the synthetic gypsum used as feedstock in the '638 Patent, there would be no need to add limestone to the sulfogypsum so that agglomeration could be achieved as required by Harrison's disclosure.

Moreover, Harrison's teaching that "mineral gypsum, i.e., naturally occurring and mined, . . . could be substituted for sulfogypsum" (Ex. 1005 at Table 1, FN e) and its consistent alternative discussion of sulfogypsum and natural gypsum (*see, e.g.,* Ex 1005 at 3:49-63, 4:12-15, 9:16-24, 11:22-23, 12:52-57 and 67-68) further undercuts Petitioners' assertion that Harrison's sulfogypsum is the same or even similar to the synthetic gypsum in the claims of the '638 Patent. In fact, Harrison specifically equates sulfogypsum with natural gypsum: "Also as used herein, the cryptic or short form sulfogypsum/mineral gypsum means either sulfogypsum alone, mineral or natural gypsum alone, or any suitable mixture of each together." Ex.

1005 at 9:39-42. Taken in context with the further explanation by Harrison that “[n]atural or mineral gypsum, of course, means the material normally found and mined from natural occurring deposits” (Ex. 1005 at 9:46-48), the sulfogypsum described in Harrison—an apparent direct substitute of which is naturally occurring gypsum—cannot be the same as the synthetic gypsum in the claims of the ’638 Patent.

In short, the sulfogypsum that Petitioners couch as synthetic gypsum a) has properties like the natural gypsum such that each can be a suitable substitution for the other and b) is unsuitable for the intended agglomeration process. As such, Harrison’s sulfogypsum is not, and cannot, satisfy the synthetic gypsum in the claims of the ’638 Patent.

Based on the teaching by Harrison that sulfogypsum and natural gypsum are clear substitutes for each other and do not agglomerate without the addition of limestone, it is not surprising that Petitioners’ expert declaration by Dr. Bryan Ennis (Ex. 1002) is devoid of any explanation of how Harrison’s sulfogypsum is the same or even similar to the synthetic gypsum in the claims of the ’638 Patent. In fact, Dr. Ennis’ declaration merely repeats the assertion in the Petition that Harrison discloses “mined (natural) gypsum and manmade (synthetic) by-product gypsum” and does not even attempt to further explain how Harrison’s sulfogypsum could be equated to the synthetic gypsum in the claims of the ’638 Patent. Ex. 1002 at 31-32.

Thus, because Petitioners have failed to show that Harrison discloses the synthetic gypsum in the claims of the '638 Patent, Harrison does not and cannot anticipate any of the challenged claims. For at least these reasons, the Board should deny institution on Ground 1.

B. Ground 2 Fails: Petitioners Have Not Articulated Any Proper Motivation to Modify Harrison.

Essentially conceding that Harrison fails to anticipate the challenged claims, Petitioners assert in Ground 2 that Harrison also renders these same claims obvious. Pet. at 24. Petitioners state that the features of the claims of the '638 Patent are obvious over Example II, taught by Harrison. *Id.* However, plainly absent from Petitioners' argument is any reason why a POSITA would have been motivated to substitute the synthetic gypsum in the claims of the '638 Patent into the process described in Harrison's Example II. Indeed, the Petition lacks even a single sentence as to why a POSITA would have found it obvious to substitute the sulfogypsum in Harrison's Example II with the synthetic gypsum in the claims of the '638 Patent. Petitioners' failure to articulate a single substantiated reason as to why a POSITA would have been motivated to modify Harrison to arrive at the claimed invention strongly indicates that Petitioners have engaged in improper hindsight reasoning. *See Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143 (Fed. Cir. 1985).

Additionally, even if the Petition is found to have somehow articulated a rationale for modifying Harrison—which it has not—a POSITA would not have

found it obvious to arrive at the claims of the '638 Patent in view of Harrison. Indeed, the synthetic gypsum used in the '638 Patent produces the desired fertilizer pellets without the addition of limestone. Harrison, on the other hand, explicitly acknowledges the inadequacy of using sulfogypsum alone in Example II, stating:

[i]t must be remembered, of course, that as indicated in footnote (e) of Table 1, that as in the case of Example II either sulfogypsum or mineral gypsum or mixtures thereof ***require prerequisite amounts of limestone to be added in combination to effect the granulation.*** It must also be remembered that as previously stated, it has been found that when either of these two types of gypsum, alone or in combination, are used in the special mix with limestone that there must be at least about 5 percent limestone mixed therewith to effect smooth and easy practice of the instant invention and yield products having the desired characteristics enumerated, supra.

Ex. 1005 at 12:53-65 (emphasis added). This quote from Harrison recognizes that sulfogypsum by itself cannot be used with the described process unless it is first mixed with solid limestone. In other words, the sulfogypsum described by Harrison is not, and cannot be, the synthetic gypsum used as feedstock in the '638 Patent. Based on the complete lack of disclosure in Harrison of "synthetic gypsum," a POSITA would not have been motivated to arrive at the claims of the '638 Patent in view of Harrison alone.

Moreover, a POSITA at the time of the invention of the '638 Patent would have been well aware that not all non-naturally occurring gypsums are created equal. Indeed, while one gypsum by-product is the synthetic gypsum in the claims of the

'638 Patent, there are other types of non-naturally occurring gypsums created through various chemical processes (including the phosphogypsum and sulfogypsum described in Harrison). Each different type of non-naturally occurring gypsum will have different properties, as evidenced by the inability of Harrison's sulfogypsum to properly agglomerate without limestone.

Because Petitioners have failed to articulate any substantiated reasoning as to why a POSITA would have been motivated to modify Harrison, the Board should deny institution of Ground 2.

C. Ground 3 Fails: Petitioners' Combination of Anderson and Pietsch Does Not Teach or Suggest the Claimed Synthetic Gypsum.

Petitioners argue in Ground 3 that the claims of the '638 Patent are obvious in light of the teachings of Anderson and Pietsch. Recognizing that Anderson, like other references considered by the Examiner during prosecution of the '638 Patent, does not teach the synthetic gypsum in the claims of the '638 Patent or even other types of non-naturally occurring gypsum, Petitioners rely on Pietsch's general teaching of agglomerating secondary raw materials to assert that a POSITA would have replaced the natural gypsum in the process of Anderson with synthetic gypsum to make fertilizer. Pet. at 31. However, Pietsch fails to remedy Anderson's deficiencies. Specifically, Pietsch does not disclose "feeding synthetic gypsum to a forming device" for producing a fertilizer or fertilizer pellets "comprising synthetic gypsum," as required by independent claims 1 and 11. And even if Pietsch did teach

this feature, which it does not, a POSITA certainly would not have found any motivation to modify Anderson with Pietsch to arrive at the claimed invention. Therefore, the Board should deny institution on Ground 3.¹

1. Pietsch Does Not Teach or Suggest Agglomerating Synthetic Gypsum for Fertilizers.

Petitioners recognize that Anderson does not teach or suggest the synthetic gypsum featured in the claims. Pet. at 31. Indeed, Anderson describes a particle that optionally includes two distinct categories of materials: (i) a mineral [granule], and/or (ii) a synthetic chemical granule. *See* Ex. 1006 at ¶ [0017]. Importantly, when referring to gypsum, Anderson refers expressly to “[a] mineral fragment of a mineral granule . . . includ[ing] powdered dolomite, limestone, gypsum, and pelletized lime.” *Id.* at ¶ [0018]. Because Anderson discloses gypsum only as a mineral fragment of a mineral granule, Anderson does not, and cannot, teach or suggest the claimed synthetic gypsum or any other type of non-naturally occurring gypsums.

¹ Petitioners’ obviousness challenge in Ground 3 only attempts to rectify Anderson’s deficiency as to the synthetic gypsum limitation. Therefore, Petitioners forfeit its ability to argue that any other claim limitation is obvious.

Pietsch does not remedy Anderson’s deficiencies with respect to the synthetic gypsum feature of the claims of the ’638 Patent. Like Anderson, Pietsch does not teach or suggest agglomerating synthetic gypsum for fertilizers. Petitioners attempt to argue that Pietsch “teaches using waste product to make fertilizers as well as agglomeration of synthetic gypsum that is a byproduct of FGD processes.” Pet. at 33. While Pietsch does generally reference “FGD gypsum,” Petitioners fail to point out that Pietsch teaches FGD gypsum in the context of cement production and building materials, not fertilizer applications. Ex. 1003 at 38. Pietsch explicitly states that, after agglomeration, FGD gypsum “can be used in *cement kilns* (replacing natural lump gypsum), economically transported to and used in plants producing *gypsum board for the building industry*, or safely discarded.” *Id.* at 39 (emphasis added). In fact, Pietsch’s one reference to a fertilizer refers to the fertilizer containing “FGD (flue gas desulfurization) ammonium sulfate,” which is not gypsum. *Id.* at 37-38. Nowhere does Pietsch provide any teaching or suggestion of using gypsum, let alone, synthetic gypsum for use in fertilizers.

In fact, Pietsch is a textbook with over 800 pages. See Ex. 1003 at 5-8. If Pietsch were to teach the claimed synthetic gypsum in a process of agglomerating minerals for “creating useful fertilizer products from synthetic gypsum byproducts,” as suggested by Petitioners, one would imagine that the Petition would include at least a citation to the chapter titled, “Fertilizers and Agrochemicals,” or even the

chapter titled, “Beneficial Uses of Agglomeration: Agglomeration Technologies and Methods.” *See* Ex. 1003 at 5-6. However, the content of those two chapters is completely absent from the record. Petitioners’ omission of any citation to at least one of these chapters suggests that Petitioners could not find anything else in Pietsch to support their position, and therefore relied on vague statements from unrelated chapters regarding recycling of secondary raw materials. Such an omission speaks loudly to the irrelevance of Pietsch.

Thus, Pietsch does not provide any teaching or suggestion of agglomerating synthetic gypsum for fertilizer production, as recited in independent claims 1 and 11.

2. A POSITA Would Not Have Been Motivated to Modify Anderson with Pietsch.

Even assuming for the sake of argument Pietsch did somehow teach the synthetic gypsum recited in the claims of the ’638 Patent (which it does not), Petitioners fail to demonstrate that a POSITA would have been motivated to modify Anderson as proposed. Petitioners reason that:

[s]ince Anderson and Pietsch teach a common goal of using waste products for beneficial purposes, both teach agglomeration of gypsum, both teach agglomeration of minerals for agriculture purposes, and Anderson recognizes that synthetic material can be agglomerated by its process, one of skill in the art would have used synthetic gypsum as taught by Pietsch in the process of Anderson for the purpose of creating useful fertilizer products from synthetic gypsum byproduct. [Ex. 1002 ¶¶117-119.]

Pet. at 33. However, this reasoning is flawed. First, the select portions of Pietsch provided by Petitioners are not directed to the use of synthetic gypsum in fertilizer applications. As noted above, the FGD gypsum disclosed in Pietsch is referred to in the context of cement production and building materials. Ex. 1003 at 38. Pietsch provides no disclosure whatsoever of a fertilizer including gypsum, let alone, synthetic gypsum. A POSITA considering Pietsch would not have been motivated to modify Anderson at least because a POSITA would appreciate that materials used in cement or building products cannot be extended for use in fertilizers due to the heightened and unique chemical requirements for agricultural products.

Secondly, a POSITA would not have found it obvious to use synthetic gypsum (or, for that matter, any other non-naturally occurring gypsum) in place of the natural (*i.e.*, mineral fragment) gypsum taught in Anderson, as proposed by Petitioners, at least because of the known distinctions between natural gypsum and synthetic gypsum. Synthetic gypsum and natural gypsum possess substantial differences in their physical and chemical properties. First, synthetic gypsum's needle-like crystalline structure, in stark contrast to the globular and rough-edged structure of natural gypsum, fundamentally impacts its solubility. *See* Ex. 1001 at Figures 1A and 1B. The larger surface area of the needle-like particles renders synthetic gypsum more soluble, leading to differences in nutrient release behavior in soil. *Id.* at 1:49-53 and 4:56-58. Second, the particle size of synthetic gypsum is different than

natural gypsum. Natural gypsum displays much larger particle size when mined as compared to synthetic gypsum when made. *Id.* at 4:66-5:16; Table 1. These differences affect processing requirements and the ultimate surface area of the granulated product. Third, and perhaps most importantly, the distinct agglomeration behavior of different gypsum types is evidence that natural gypsum and synthetic gypsum are different in practice and not considered interchangeable to a person of ordinary skill in the art. Natural gypsum (and, for that matter, sulfogypsum) generally requires added limestone for suitable agglomeration. *See, e.g.,* Ex. 1004 at 9:16-24.

Accordingly, based on Pietsch's lacking disclosure and the known distinctions between natural gypsum and synthetic gypsum, a POSITA would not have been motivated to modify Anderson as proposed in the Petition. The Board should therefore deny institution on Ground 3.

D. Ground 4 Fails: Petitioners Have Not Demonstrated that Veverka is a Prior Art Printed Publication, and Even if it is, Petitioners' Combination of Veverka and Harrison or Pietsch Does Not Teach or Suggest the Claimed Synthetic Gypsum.

Petitioners challenge the claims of the '638 Patent based on a purported printed publication, Veverka. Pet. at 7. Because Ground 4 relies on Veverka in the proposed combination, Petitioners must show that Veverka qualifies as a prior art printed publication. *See Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1380 (Fed. Cir. 2018) (noting that the "patent challenger [(i.e., petitioner)] bears the burden of

establishing that a particular document is a printed publication”). As explained below, however, by only making conclusory and threadbare statements, without any factual showing that Veverka was “disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence can locate it,” Petitioners have failed to carry their burden to show that Veverka is a prior art printed publication. *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1350 (Fed. Cir. 2008).

And, assuming for the sake of argument the Petition does somehow satisfy this burden (which it does not), the combination of prior art references advocated by Petitioners in Ground 4, *i.e.*, Veverka in view of Harrison or Pietsch, fails to teach or suggest the claimed “synthetic gypsum.” Therefore, the Board should deny institution on Ground 4.

1. Petitioners Have Failed to Show that Veverka is a Prior Art Printed Publication.

To establish that Veverka qualifies as prior art to the ’638 Patent, Petitioners must show that Veverka is “a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent.” 35 U.S.C. § 102(b) (pre-AIA).

There is no presumption for finding a reference to be a printed publication, including when determining institution for an *inter partes* review. *Hulu v. Soundview Innovations*, IPR2018-01039, Paper 29 at 16 (PTAB Dec. 20, 2019)

(precedential). “Whether a reference qualifies as a ‘printed publication’ is a legal conclusion based on underlying factual findings.” *Nobel Biocare Servs. AG v. Intradent USA, Inc.*, 903 F.3d 1365, 1375 (Fed. Cir. 2018). Public accessibility is “the touchstone in determining whether a reference constitutes a printed publication.” *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (internal quotation omitted). Petitioners have the burden to establish that each of the asserted prior art references was publicly accessible before the critical date, in order to qualify as prior art. *Hulu*, IPR2018-01039, Paper 29 at 16. (“[T]he burden is on the Petitioners to *identify with particularity* evidence sufficient to establish a *reasonable likelihood that the reference was publicly accessible* before the critical date of the challenged patent.”) (emphasis added).

Here, Petitioners have not met their burden to identify, with particularity, any evidence that demonstrates a reasonable likelihood that Veverka was publicly accessible prior to the filing date of the ’638 Patent. Petitioners’ entire argument for the prior art status of Veverka is a single conclusory statement without sufficient, credible supporting evidence: “Veverka is a 2001 publication of the Institute for Briquetting and Agglomeration.” Pet. at 7.

Petitioners supply no factual predicate to establish that interested members of the relevant public could locate Veverka through the exercise of reasonable diligence. Petitioners also point to no facts in their Petition to corroborate the

purported publication date of Veverka, much less who purportedly published this reference, the conditions for viewing the reference, or, most importantly, that Veverka was actually accessible to interested members of the public on its purported publication date. *Trane v. TAS Energy Inc.*, IPR2015-01665, Paper 12 at 11 (PTAB Feb. 4, 2016) (“Petitioner fails to provide any credible evidence that the inscription ‘July 1997’ indicates that the document was published in July 1997 or otherwise qualifies as a prior art printed publication.”); *see also In-Depth Geophysical, Inc. and In-Depth Compressive Seismic, Inc. v. Conocophillips Company*, IPR2019-00849, Paper 14 at 9-10 (PTAB Sept. 6, 2019) (“The single sentence provided in the Petition provides no explanation or persuasive corroborating evidence explaining how, or why, the date shown on Researchgate exhibit qualifies Li as a printed publication as a result of its public accessibility to interested persons of ordinary skill in the art.”). And, of course, Petitioners cannot “establish[] the fact that [a reference] was a printed publication by stating so in the Petition.” *Fluidmaster, Inc. v. Danco, Inc.*, IPR2017-00770, Paper 17 at 8 (PTAB Oct. 4, 2017) (“Statements in a petition or a patent owner’s preliminary response are not facts—these statements convey a party’s position with respect to certain facts.”).

Moreover, Petitioners’ failure of proof as to Veverka is not something that the Board should allow Petitioners to correct post institution. A petition must include a “full statement of the reasons for the relief requested, including a detailed

explanation of the significance of the evidence,” and must “identify[] specific portions of the evidence that support the challenge.” 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(5). Because Petitioners have failed to make even a threshold showing that Veverka qualifies as a prior art printed publication, claims 1-3, 5, 7, 8, 10-12, 14, 16-19, 22, and 23 cannot be found unpatentable on the basis of Ground 4.

As such, Petitioners have failed to carry their burden to show that Veverka qualifies as a prior art printed publication, and thus the Board should deny institution of Ground 4.

2. Even If Veverka Qualifies as a Prior Art Printed Publication, Petitioners’ Combination of Veverka and Harrison or Pietsch Does Not Teach or Suggest the Claimed Synthetic Gypsum.

In Ground 4, Petitioners acknowledge that Veverka fails to disclose the synthetic gypsum required by independent claims 1, 11, and 17, and argue that it would be obvious, in light of either Harrison or Pietsch, to use synthetic gypsum instead of the limestone in Veverka’s process. Pet. at 38-39. However, neither Harrison nor Pietsch teaches or suggests the use of the synthetic gypsum in the claims of the ’638 Patent. Thus, even assuming for the sake of argument a POSITA would have been motivated to combine Veverka with Harrison or Pietsch, the combination would not have resulted in the claims of the ’638 Patent.

Harrison does not remedy the deficiencies of Veverka. Petitioners attempt to argue that because “Harrison teaches that synthetic gypsum, limestone, and mixtures

thereof can be pelletized to make fertilizer by the same process and with the same resulting characteristics as Veverka,” a POSITA would have used synthetic gypsum as taught by Harrison in Veverka’s process. Pet. at 39-40. However, this statement is not accurate for several reasons. First, Harrison teaches the use of sulfogypsum, which, as explained above under Ground 1, is not the synthetic gypsum in the claims of the ’638 Patent. Second, Harrison does not teach the use of sulfogypsum *or* limestone *or* mixtures thereof as asserted by Petitioners. Rather, the only three options in Harrison for feed materials are: (1) phosphogypsum, (2) agricultural limestone, or (3) a mixture of about 85 to about 95 parts of sulfogypsum or natural gypsum or both, and about 5 to about 15 parts of limestone. Ex. 1005 at 4:12-16. Therefore, Harrison does not provide any teaching or suggestion that would have motivated a POSITA to use synthetic gypsum instead of limestone in the process taught by Veverka. Moreover, to the extent that Petitioners attempt to equate Harrison’s sulfogypsum to the synthetic gypsum claimed in the ’638 Patent, Harrison teaches away from using sulfogypsum alone, and therefore, a POSITA would not have been motivated to use the sulfogypsum in the process of Veverka without also adding limestone. Thus, even had a POSITA been motivated to modify Veverka with Harrison, the Petitioners’ proposed modification would not have resulted in the claims of the ’638 Patent.

Like Harrison, Pietsch also does not remedy the deficiencies of Veverka. Petitioners argue that “[s]ince Veverka and Pietsch both teach agglomeration of minerals to make fertilizer, and Pietsch teaches the benefits of using synthetic gypsum byproduct to make useful products, a POSA would have been motivated to use synthetic gypsum as taught by Pietsch in the process of Veverka for the purpose of creating useful fertilizer products from synthetic gypsum byproduct.” Pet. at 40-41. As explained above in Ground 3, Pietsch does not teach or suggest agglomerating synthetic gypsum for fertilizers. Rather, Pietsch teaches FGD gypsum in the context of cement production and building materials. Ex. 1003 at 38. Pietsch’s one reference to a fertilizer refers to the fertilizer containing “FGD (flue gas desulfurization) ammonium sulfate,” which is not gypsum. *Id.* at 37-38. Nowhere does Pietsch provide any teaching or suggestion of using gypsum, let alone, synthetic gypsum for use in fertilizers.

Furthermore, a POSITA would not have been motivated to modify Veverka with Pietsch at least because a POSITA would appreciate that (1) materials used in cement or building products cannot be extended for use in fertilizers due to the heightened and unique chemical requirements for agricultural products, and (2) there are known distinctions in chemical properties between limestone, which contains calcium *carbonate*, and gypsum, which contains calcium *sulfate*.

Accordingly, because Veverka in view of Harrison or Pietsch does not teach or suggest the combination advocated by Petitioners, the Board should deny institution of Ground 4.

E. Ground 5 Fails: Petitioners Have Not Articulated a Proper Motivation to Modify Shimada with Harrison.

Petitioners assert in Ground 5 that the claims of the '638 Patent are obvious in light of the teachings of Shimada and Harrison. However, in doing so, Petitioners gloss over the explicit teachings of Shimada and fail to demonstrate why a POSITA would have been motivated to modify Shimada as proposed. Therefore, the Board should deny institution on Ground 5.²

Petitioners argue that “[w]hile Shimada does not teach a solids content of its lignosulfonate binder, a POSA would have looked to Harrison, which [is] the same process and the same resulting fertilizer process, to select an appropriate solids content for the lignosulfonate binder used in Shimada’s process.” Pet. at 55-56. This, however, is not an accurate representation of Shimada’s teachings. In fact,

² Petitioners’ obviousness challenge in Ground 5 only attempts to argue Shimada’s alleged deficiency as to the claimed solids content of the lignosulfonate binder. Therefore, Petitioners forfeit their ability to argue that any other claim limitation is obvious.

Shimada does teach the percentage lignosulfonate to be used in its process. In

“Example I,” Shimada teaches that:

99.2 parts by weight of gypsum dihydrates A and B, which are by-products in a phosphate manufacturing process (at 10% moisture each, the manufacturing process and mineral phosphate differ), 3.0 parts by weight of commercially available sodium type bentonite (moisture of 8.0%), and 8.0 parts by weight of commercially available calcium lignosulfonate powder (moisture of 3.0%) were added to a drum granulator and granulated for 5 to 7 minutes while adding water.

Ex. 1009 at ¶ [0049]. Given the moisture contents for each of the components, the dry weight of each component can be calculated by subtracting the percent moisture from 100% and then multiplying the remaining percentage by the “parts by weight” of each component. Using this method, it can be ascertained that Shimada’s Example 1 includes each component in the following amounts: 79.36 parts dry weight of gypsum, 2.76 parts dry weight of sodium type bentonite, and 7.76 parts dry weight of calcium lignosulfonate powder. Adding those dry weights together to get a total dry weight of the mixture and dividing by the parts dry weight of calcium lignosulfonate powder gives a percentage of lignosulfonate of 8.63%. This solids percentage falls outside the claimed range of 18% to 40% solids and would fall further outside that range if diluted with water.

Despite Shimada’s clear teaching of a solids content of lignosulfonate that falls outside of the claimed range, Petitioners do not provide any reason why a

POSITA would have been motivated to modify Shimada with Harrison to pursue the claimed binder composition. Petitioners merely state that a POSITA would have looked to Harrison to select an appropriate solids content for the lignosulfonate binder used in Shimada's process but does not explain why the POSITA would have been motivated to modify Shimada's solids content or to look outside of Shimada for any other way to prepare Shimada's granulation auxiliary. Pet. at 55-56. Indeed, neither Petitioners nor Shimada identify any problems with or disadvantages of Shimada's express teachings related to the amount of granulation auxiliary used in its manufacturing process. Thus, Shimada's disclosure would not have suggested to a POSITA to look outside of Shimada to pursue the claimed solids content of the binder composition.

Accordingly, because Shimada in view of Harrison does not teach or suggest the combination advocated by Petitioners, the Board should deny institution of Ground 5.

F. Ground 6 Fails: Dependent Claims 5, 6, 14, 15, 20, and 21 are Not Rendered Obvious For At Least the Reasons Discussed in Grounds 1-5.

By virtue of their dependence upon an independent claim of the '638 Patent, dependent claims 5, 6, 14, 15, 20, and 21 are not rendered obvious based on any combination of Harrison, Anderson, Pietsch, Veverka, Shimada, and Zanuccoli for at least the same reasons discussed above with respect to Grounds 1-5. *See* 37 C.F.R.

1.75(c) (“Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim”). The Board therefore should decline to institute IPR on Ground 6.

VIII. THE BOARD SHOULD EXERCISE ITS DISCRETION UNDER SECTION 314(A) TO DENY INSTITUTION

The ’638 Patent is involved in a parallel proceeding before the United States District Court for the Eastern District of Michigan, Case No. 2:22-cv-12798-LJM-EAS (“the district court proceeding”). Section 314(a) gives the Board discretion to deny institution because of efficiency considerations stemming from parallel proceedings on the same patent. The Board’s precedential opinion, *Apple Inc. v. Fintiv Inc.*, outlines the considerations and factors for exercise of discretion under §314(a). IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential, designated May 5, 2020). *Fintiv* sets forth six factors for determining whether discretionary denial due to efficiency considerations relating to parallel proceedings is appropriate (the “*Fintiv* factors”):

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;

5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 6. As will be explained in greater detail below, with the exception of Factor 2 (which Patent Owner considers to be a neutral factor), all of these factors favor discretionary denial of institution here.

Because of the duplicative nature of the proceedings, the amount of resources that the district court has already expended, and the stage of the district court proceeding, instituting *inter partes* review in this case would not be an efficient use of the Board's resources and would not serve the objective of providing an effective and efficient alternative to district court litigation. *See, e.g.*, H.R. Rep. No. 112-98, pt. 1, at 40, 48 (2011); *NHK Spring Co., Ltd. v. Intri-Plex Technologies, Inc.*, IPR2018-00752, Paper 8 at 19-20 (PTAB Sept. 12, 2018); *Fintiv*, IPR2020-00019, Paper 11, 6-16.

A. Factor 1: The Advanced Stages of the District Court Proceeding Weigh Against Granting of a Stay.

Factor 1 favors denial of institution because the district court proceeding is not stayed, and there is no evidence that a stay may be granted. The district court proceeding is unquestionably at an advanced stage and will be even more so when the Board decides whether to institute review in this proceeding. The parties have exchanged written discovery, served final infringement and invalidity contentions,

and are in the process of deposing the parties' witnesses. *See* Ex. 2002 at 1-2. If instituted, by the time of the Board's institution decision, the parties will likely already have completed expert discovery and dispositive and Daubert briefing. *Id.* at 2-3. These facts indicate that a stay is unlikely even if *inter partes* review is instituted here.

B. Factor 2: The Proximity of the Court's Trial Date to the Expected Date of Any Final Written Decision is Unknown.

Factor 2 relates to the proximity of the court's trial date to the Board's projected statutory deadline for a final written decision. Here, the statutory deadline for the final written decision ("FWD") for this IPR petition would be more than a year away. At this stage, the district court has only provided a schedule up to the Markman hearing, which is scheduled for April 11, 2024. *See* Ex. 2002 at 2. Because the trial date has not yet been set, Patent Owner believes that it is appropriate to consider this a neutral factor in determining whether to deny institution.

C. Factor 3: Significant Investment in the District Court Proceeding Has Occurred and Will Occur Before Institution.

Factor 3 strongly favors denial in view of the significant investment in the parallel proceeding by the parties and the court that has already occurred and will occur by the deadline for institution. The parties and the district court have already invested (and will continue to invest) significant effort and investment. The parties

in the district court case have begun discovery in earnest, have exchanged lengthy infringement and invalidity contentions, and are in the process of conducting depositions. *See* Ex. 2002 at 2. Additional resources, including for expert discovery and dispositive and Daubert briefing, will be expended prior to the statutory deadline for an institution decision in this proceeding. Because the parties and the court have already expended significant investment and effort, this factor weighs in favor of not instituting the present *inter partes* review.

D. Factor 4: The District Court Proceeding Involves the Same Issues as the Board Proceeding Here.

Factor 4 favors denial because “the same or substantially the same claims, grounds, arguments, and evidence” in this Petition are also at issue in the district court proceeding. *Fintiv*, Paper 11 at 12. Thus, addressing these same issues here would duplicate efforts.

The defendant served final invalidity contentions in the district court proceeding on October 26, 2023, and raised the same references used in the Grounds asserted here. The challenged independent claims of the ’638 Patent here are challenged with the same art and arguments in those district court invalidity contentions. In fact, Petitioners submitted a claim chart for those references in its district court invalidity contentions that duplicate the substance of the Petition. Thus, Petitioners are relying upon the same prior art in its invalidity contentions to invalidate the same claims as asserted in the district court. *See NHK Spring*,

IPR2018-00752, Paper 8 at 19-20. Rather than select a single forum to make its invalidity arguments, Petitioners are attempting to leverage multiple parallel proceedings alleging identical invalidity arguments in each. Accordingly, Factor 4 weighs strongly against institution.

E. Factor 5: The First-Named Petitioner and the Defendant in the Parallel Proceeding Are the Same Parties.

Factor 5 favors denial of institution because the “petitioner and the defendant in the parallel proceeding are the same.” *Cisco Systems, Inc. v. Ramot at Tel Aviv University Ltd.*, IPR2020-00484, Paper 10 at 10 (PTAB August 18, 2020) (citing *Fintiv*, Paper 15 at 15); Pet. at viii; Ex. 2001. Petitioner, Prolime Agricultural LLC, is the defendant in the parallel district court proceeding.

F. Factor 6: Petitioners’ Proposed Grounds Have Significant Defects and Petitioners Waited Nearly a Year to File.

Factor 6 favors denial of institution in view of the defects in Petitioners’ proposed anticipation and obviousness grounds and Petitioners’ significant delay before filing the Petition.

For the reasons discussed above with respect to Section VII, Petitioners have not established a reasonable likelihood that they would prevail with respect to at least one of the challenged claims, let alone “a compelling unpatentability challenge” to avoid discretionary denial. § 314; *Fintiv*, Paper 11 at 14-15; *Cisco*, IPR2020-00484, Paper 10 at 10-11; Interim Procedure, at 4-5 (“Where information presented

at the institution stage is merely sufficient to meet the statutory institution threshold, the PTAB has the authority ... to exercise discretion to deny institution in view of the other *Fintiv* factors.”). The Board has denied institution under § 314(a) where, as here, Patent Owner raises an “argument [that] appears credible” that the alleged prior art did not disclose a limitation of the challenged claims. *Kranos Corp. v. Apalone, Inc.*, IPR2020-00501, Paper 13 at 14 (PTAB July 16, 2020). As further discussed in Section VII, Patent Owner’s arguments compel a denial of institution.

Moreover, Patent Owner notified Petitioners of infringement no later than November 17, 2022 when the complaint asserting infringement of the ’638 Patent was filed. *See* Ex. 2001. Petitioners thus waited nearly a year from the time it received notice of its infringement before filing this Petition, likely so that Petitioners could simply re-use the same prior art and arguments set forth in their final invalidity contentions (which were served well in advance of the filing of this Petition). Petitioners’ significant delay after receiving notice of infringement further signals the duplication of issues in both forums and supports discretionary denial.

The Board should, therefore, exercise discretion under § 314(a) to deny institution so that the cumulative issues Petitioners have raised in both the district court proceeding and the Petition can be decided efficiently and with the least amount of duplication, which is in the district court.

IX. CONCLUSION

For the above reasons, institution should be denied.

Dated: March 22, 2024

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CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION

I hereby certify that this Patent Owner's Preliminary Response complies with the word count limit and contains less than 14,000 words in 14-point Times New Roman font as calculated by the word count feature in Microsoft® Word for Microsoft 365 MSO (Version 2208), in compliance with 37 C.F.R. § 42.24(a)(1)(i). This word count is inclusive of all text and footnotes but not including a table of contents, a table of authorities, a certificate of service or word count, or appendix of exhibits or claim listing.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on March 22, 2024 a complete copy of the foregoing was served on counsel of record for the Petitioners by filing this document through P-TACTS and by sending this document via electronic mail to the following addresses:

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