

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASCEND ELEMENTS, INC.

Petitioner,

v.

DUESENFELD GMBH

Patent Owner.

Post-Grant Review No. PGR2025-00037

U.S. Patent No. 12,119,463

PATENT OWNER'S DISCRETIONARY DENIAL BRIEF

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PATENT OWNER'S EXHIBIT LIST

Ex. 2001	Declaration of Vani Dantam in support of Patent Owner's Discretionary Denial Brief
Ex. 2002	Collection of dictionary definitions
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Ex. 2004	Deposition Transcript of Walter van Schalkwijk, <i>Ascend Elements, Inc. v. Duesenfeld GmbH</i> (IPR2024-00948), dated February 6, 2025
Ex. 2005	Petition for <i>Inter Partes</i> Review of U.S. Patent No. 11,050,097, <i>Ascend Elements, Inc. v. Duesenfeld GmbH</i> (IPR2024-00948), dated May 21, 2024
Ex. 2006	Petitioner's Reply to Patent Owner's Response, <i>Ascend Elements, Inc. v. Duesenfeld GmbH</i> (IPR2024-00948), dated May 9, 2025
Ex. 2007	Joint Claim Construction Chart, <i>Duesenfeld GmbH v. Ascend Elements, Inc.</i> C.A. No. 23-1194, dated September 6, 2024
Ex. 2008	Merriam-Webster's Collegiate Dictionary (Eleventh Edition 2012) (excerpt)
Ex. 2009	Deposition Transcript of Volker Spies, <i>URT Umwelt Und Recyclingtechnik GmbH v. Duesenfeld GmbH</i> (IPR2024-00887), dated June 13, 2025
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I. Introduction

Petitioner Ascend Elements, Inc. (“Ascend” or “Petitioner”) does not bring this post-grant review (“PGR”) petition against a blank slate. Rather, like the invention at issue here—related to recycling lithium ion batteries—Petitioner recycles arguments and prior art that the Patent Office and the Board have already reviewed and disposed of. Petitioner asks the Office to repeat work that it has already done—both through the careful examination of U.S. Patent No. 12,119,463 (“the ’463 patent”) and through *inter partes* review proceedings on a related patent, U.S. Patent No. 11,050,097 (“the ’097 patent”), brought by this same Petitioner and its supplier, URT Umwelt- und Recyclingtechnik GmbH (“URT”). In fact, four of the six pieces of prior art asserted were considered during examination of the ’463 patent, and Petitioner’s arguments with regard to two limitations present in all challenged claims have already been considered and preliminarily rejected by the Board in the Petitioner’s IPR petition related to the ’097 patent. To the extent the art and arguments were not already before the Office, the unpatentability claims are exceedingly weak, primarily based on a reference that lacks key elements of the ’463 patent’s independent claim in combination with skill in the art supplied by a disputed expert declaration, where differences in expert testimony are better suited to resolution in the pending district court case.

This PGR petition therefore fits easily into the framework created by the March 26, 2025 memorandum on Interim Processes for PTAB Workload Management (“Process Memorandum”), and its goals of “improv[ing] PTAB efficiency.” Process Memorandum at 2-3. This includes the memorandum’s allowance of denial of institution under the precedent of *Advanced Bionics LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (Feb. 13, 2020) (precedential), and where consideration of “[t]he strength of the unpatentability challenge” counsels against institution. *Id.* at 2-3 & n.*. This further includes the guidance on the Process Memorandum that “extensive reliance on expert testimony and/or reasonable disputes between experts on dispositive issues may suggest that the questions are better resolved in an Article III court.” FAQs for Interim Processes for PTAB Workload Management at #21, USPTO, available at <https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management> (“FAQ for Interim Processes”). In order to avoid repeating work the Office has already done and to efficiently conserve resources, the Director should deny institution of this PGR.

As explained in further detail below, because the art and arguments underlying Grounds 6-9 have already been presented to the Office, and because the unpatentability arguments underlying all grounds, including Grounds 1-5 and 10,

are exceedingly weak and rely on conclusory expert testimony, institution should be denied.

II. Grounds 6-9 Rely Upon Art and Arguments Already Before the Office

Petitioner raises four grounds in its petition that are premised on U.S. Patent App. Pub. No. US 2014 /0290438 A1 (“Hanisch”), with a variety of secondary art.

As expressed in the Petition (Pet. at 6), those grounds are as follows:

Ground	Claim	Statutory Basis	Prior Art
6	1-3, 5, 9-12	§ 103	Hanisch in view of Hayashi
7	4	§ 103	Hanisch in view of Hayashi and/or Yosuke
8	6	§ 103	Hanisch in view of Hayashi and LithoRec
9	7, 13, 14	§ 103	Hanisch in view of Hayashi and LithoRec and/or Perry

But Hanisch, like three of the four pieces of secondary art, was already before the Examiner during prosecution less than a year ago. Moreover, arguments as to why Hanisch discloses the “inactivating” limitations of the challenged claims were already preliminarily rejected by the Board in a related *inter partes* review proceeding in a decision just months ago.

Instituting review of work the Office already did—and extremely recently—is inefficient and wasteful. In line with the Process Memorandum, and its goals of “improv[ing] PTAB efficiency” and consistent with PTAB precedent in *Advanced*

Bionics, the Board should deny institution. *See* Process Memorandum at 2-3 & n.* (citing *Advanced Bionics LLC*, IPR2019-01469, Paper 6 (Feb. 13, 2020)).

A. Legal standard

Under *Advanced Bionics* and its statutory basis, 35 U.S.C. § 325(d), “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.” *Advanced Bionics LLC*, IPR2019-01469, Paper 6 at 7 (quoting 35 U.S.C. § 325(d)). “Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent. The proceedings in which the art was previously presented include, for example: examination of the underlying patent application....” *Id.* at 7-8.

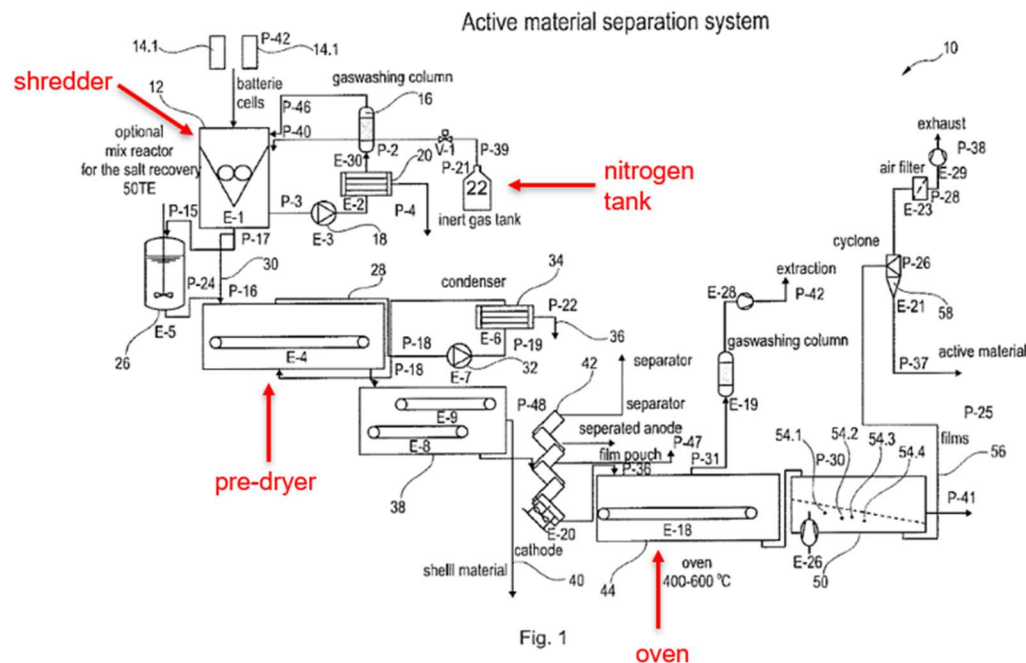
According to *Advanced Bionics* and § 325(d), “the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either 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.” *Id.* at 8-9.

This is exactly the case here: during examination of the '463 patent, which the Office completed only in October 2024, the prior art for Grounds 6-9 was substantially presented to the Office, including art that was made of record by the Examiner, like Hayashi, and art that was included on initialed Information Disclosure Statements by the applicant, like Hanisch, LithoRec, and Perry. Only Yosuke—the third piece of art presented as an alternative for one dependent claim in one ground—was not before the Office. Thus, this art was substantially before the Office. Moreover, Petitioner’s arguments regarding the “inactivating” limitations of the challenged claims have already been considered and preliminarily rejected by the Board in a related IPR. These arguments, too, were substantially before the Office.

B. The PTAB has preliminarily rejected Petitioner’s arguments on the “inactivating” requirement of all challenged claims

Section 325(d) allows for discretionary denial of institution where the same arguments have previously been presented to the Office. *Advanced Bionics*, at 7 (“[T]he 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.” (quoting 35 U.S.C. § 325(d)) (emphasis added)).

Here, Petitioner repeats the same arguments it made to the Board in its related IPR, regarding the Hanisch reference’s teaching of “inactivation.” The system of the Hanisch reference is depicted in the annotated Figure 1 below:



Ex. 1021, Fig. 1 (red annotations added); Ex. 2001, ¶ 34.

Hanisch is directed to a multi-step, continuous process for recovery of active materials from lithium-based batteries. Ex. 1021, [0001], [0004]; Ex. 2001, ¶¶ 29-31. Hanisch teaches comminuting batteries with a “cell crushing device 12” (the “shredder”), where an inert gas tank 22 provides an inert atmosphere (e.g., nitrogen) in the shredder. Ex. 1021, [0044], Fig. 1; Ex. 2001, ¶ 31. The comminuted battery material is then fed into a “pre-dryer 28,” which is set to a low temperature, preferably below 80°C. Ex. 1021, [0045]-[0046], Fig. 1; Ex. 2001, ¶ 31. This pre-dryer evaporates some electrolyte solvents from the battery material. *Id.*, [0025], [0046]; Ex. 2001, ¶ 31. After the pre-dryer, the comminuted material is fed into a high temperature oven, where the material is heated to a temperature of “at least 350°C” to decompose the binder. Ex. 1021, [0028], [0048], Fig. 1 (#44);

Ex. 2001, ¶ 29. Hanisch does not disclose any vacuum pump connected to either the pre-dryer or the decomposition oven, and it does not disclose the vacuum strength to use in any step of the process. Ex. 1021, Figure 1; Ex. 2001, ¶¶ 35 & 75.

Petitioner argues that Hanisch discloses the relevant “inactivating” limitations of the claims of the ’463 patent via “a first stage pre-dryer” that operates “at a temperature ‘below 80° C.’” *See* Pet. at 59-60 (arguing Hanisch discloses claim 1[c] “inactivating the comminuted materials and obtaining inactivated comminuted material as a result”); *id.* at 60-61 (arguing Hanisch discloses claim 1[d] “wherein the inactivating includes drying process, comprising drying the comminuted material by removal of organic carbonate from the electrolyte by vaporizing the organic carbonate at a pressure-temperature above a boiling point of the organic carbonate”).

But these arguments were already presented to the PTAB in a co-pending IPR between the same parties regarding a related patent, against which the ’463 patent is terminally disclaimed. That proceeding, *Ascend Elements, Inc. v. Duesenfeld Gmbh*, IPR2024-00948, relates to the ’097 patent, which includes similar claim terms related to the terms “inactivate” or “inactivated.” Petitioner concedes these claim terms from the ’097 patent are related to the “inactivate” terms in the ’463 patent, citing to the claim construction briefing for the ’097

patent IPR for “inactivating” terms in its PGR petition related to the ’463 patent. Pet. at 11-12, 72-73.

In the Board’s Institution Decision as to the inactivating step of the ’097 patent, the Board summarized and preliminarily rejected Petitioner’s argument that Hanisch’s pre-dryer inactivated the battery material.

First, the Board noted that “Petitioner argues that Hanisch¹ discloses inactivating the comminuted material ... by teaching low-temperature drying. In particular, Petitioner argues that Hanisch teaches this by disclosing ‘pre-dryer 28’....” *Ascend Elements, Inc. v. Duesenfeld Gmbh*, IPR2024-00948, Paper 10 at 11-13 (Nov. 22, 2024) (Institution Decision). This is exactly the argument that Petitioner makes here—that “inactivation” takes place in the “first stage pre-dryer.” Pet. at 59-60.

Second, the Board’s Institution Decision rejected this argument, preliminarily finding that the pre-dryer removed only some amount of electrolyte, but did not remove “sufficient vapor” to inactivate the battery material:

Petitioner argues that Hanisch discloses inactivating the comminuted material by drying in two of its process steps. First, Petitioner argues that Hanisch teaches this limitation by teaching low-temperature drying. Pet. 29-30 (citing Pet. 25-26). In particular, Petitioner argues that Hanisch teaches this by disclosing “pre-dryer 28 [that] comprises a circulation pump 32 and a condenser 34 for condensing electrolyte,

¹ The version of Hanisch cited in the IPR is the issued patent, while the version of Hanisch cited in the PGR here is the application that issued into the patent cited in the IPR.

which can be removed via the pipe 36.” AZ. at 26 (quoting Ex. 1004, 5:54-63). Petitioner also argues that Hanisch “claims this limitation in dependent claim 5,” which includes “the steps of: drying the solid cell fragments at a drying temperature to form dry cell fragments and drying vapours and at least partly condensing the drying vapours to retrieve electrolyte solvents.” *Id.* (quoting Ex. 1004, 8:3-10). ***On the present record, we do not find this argument persuasive. Although Hanisch teaches the removal of some volatile electrolyte through heating and condensing the resulting vapor in its low-temperature drying process, Petitioner does not direct us to evidence that tends to show that Hanisch’s low-temperature drying removes sufficient vapor to make electrochemical reactions impossible or only possible to a negligibly small extent.*** Ex. 1004, 5:54-63, 8:3-10.

Id. at 12-13 (emphasis added).

Thus, in the IPR, the Board has preliminarily ruled that Petitioner had not presented evidence Hanisch disclosed inactivation in the pre-dryer. Petitioner ignores this determination by the Board. Petitioner repeats the same argument, citing the same evidence, here, with no acknowledgement that the Board has already considered and rejected this position.

Petitioner presented the same evidence in both the IPR and the PGR. In the PGR, Petitioner relies on the published application, and in the IPR, on the issued patent. But the substance of the cited material in the Hanisch published application ([0025]) and in the issued Hanisch patent (5:54-63, 8:3-10) are entirely overlapping. *Compare* Pet. at 59-63 *with Ascend Elements, Inc. v. Duesenfeld Gmbh*, IPR2024-00948, Paper 10 at 12-13 (Nov. 22, 2024). As shown below, all of the material within that citation in Hanisch is directly represented within the

evidence the Board cited to in the IPR—and which was unavailing to demonstrate inactivation, with the color coding representing the three substantive points contained in the PGR citation:

Hanisch, Ex. 1021 (PGR)	Hanisch, Ex. 1004 (Related IPR)
0025. The method preferably comprises the step that, before heating the cell fragments up to the decomposition temperature, the cell fragments are dried at a drying temperature, so that dry cell fragments and drying vapours are formed, whereby the drying vapours are at least partly condensed. This has the advantage that the electrolyte solvent can be retrieved. It is therefore advantageous for the drying temperature to be below 100° C., in particular below 80° C.	5:54-63: A pre-dryer 28 is set up in the direction of material flow behind the cell crushing device 12, which is connected to the cell crushing device 12 via a pipe 30. During crushing of the galvanic cells 14, resulting cell fragments arrive at the pre-dryer 28 via the pipe 30. Here there is a dry temperature T_t of preferably $T_t=80^{\circ}\text{C}$. The pre-dryer 28 comprises a circulation pump 32 and a condenser 34 for condensing electrolyte, which can be removed via the pipe 36. The pre-dryer 28 is designed to be gas-proof and is flushed with inert gas by the circulation pump 32. 8:3-10: 5. The method according to claim 1, further comprising the steps of: drying the solid cell fragments at a drying temperature to form dry cell fragments and drying vapours and at least partly condensing the drying vapours to retrieve electrolyte solvents before heating the solid cell fragments up to the decomposition temperature.

Thus, the only argument that Petitioner makes for the two “inactivating” limitations of independent claim 1 (from which the remainder of the challenged claims depend) relies on an argument not only already presented to the Office but one that was preliminarily and correctly rejected. Petitioner does not acknowledge that it has already raised this argument with the Board, unsuccessfully.

Nor does the Petition demonstrate any “material error” by the Board in the IPR Institution Decision.² It is inefficient and wasteful for the Board to revisit this very recent determination, and Petitioner cannot succeed on Grounds 6-9 without it. Thus, institution should be denied.

C. The Prior Art Relied Upon for Grounds 6-9 Was Already Before the Examiner

1. Hanisch was identified in repeated IDS filings during examination

a. Hanisch was before the Examiner

The primary art for Grounds 6-9, Hanisch, was indisputably before the Examiner. Hanisch, as identified by Petitioner, is U.S. Patent App. Pub. No. US 2014 /0290438 A1. That patent application was eventually issued as U.S. Patent

² On June 11, 2025, the Board, in the co-pending IPR2024-00948, issued a Preliminary Guidance on Patent Owner’s Motion to Amend, and preliminarily found that, on the present record in that matter, Hanisch discloses a batch process. *Ascend Elements, Inc. v. Duesenfeld GmbH*, IPR2024-00948, Paper 37 at 7-8 (June 11, 2025). While Patent Owner disagrees with this finding, it does not change (or contradict) the Board’s prior preliminary ruling in the Institution Decision that the pre-dryer of Hanisch does not inactive the dried battery material. *See supra*. Whether in a continuous process or a batch process, there is no evidence that the pre-dryer of Hanisch discloses the claimed inactivation of the shredded material.

No. 9,780,419. Hanisch, whether by application number or patent number, was identified to the Office by the applicant on repeated Information Disclosure Statements repeatedly throughout prosecution. *See* Ex. 1002 at 8, 9, 31, 120, 236, 240, 270. Indeed, the Examiner signed multiple instances of the IDS filings and indicated that Hanisch was considered. *Id.* at 8, 31. Petitioner concedes as much. Pet. at 80 (“[A] version of Hanisch was before the patent office during prosecution....”).

Petitioner relies on Hanisch for the vast majority of claims and claim limitations for Ground 6-9. But the Examiner explicitly took Hanisch into account during prosecution just months before the petition. Not only is Christian Hanisch a common inventor to both the '463 patent and the Hanisch prior art reference, and not only was the Hanisch reference identified at least seven times throughout examination, but most importantly, the Hanisch reference was marked as “considered” on two signed IDS filings. *Id.* at 8, 31. “Challenging the claims using the same prior art that was previously presented on an IDS is sufficient to satisfy the first part of the Advanced Bionics framework.” *Ecto World, LLC v. RAI Strategic Holdings, Inc.*, IPR2024-01280, Paper 13 at 4 (May 19, 2025) (precedential); *see also Apple Inc. v. Theta IP, LLC*, No. IPR2024-00816, 2024 WL 4892603, at *9 (P.T.A.B. Nov. 26, 2024) (“That [a reference] appeared in an

initialed IDS is sufficient to satisfy the first *Advanced Bionics* prong.”) (citing *Advanced Bionics*, at 7-8).

Further, in multiple Reasons for Allowance, the Examiner made clear that the cited prior art—including Hanisch—did not invalidate the claims Petitioner now challenges. For example, the Examiner stated, “The prior art recited in IDS filed 08/02/2024 do not teach the specific method for treating used in lithium batteries as positively recited in the instant claim.” Ex. 1002 at 24; *see also id.* at 120 (08/02/2024 IDS listing Hanisch). The Examiner also stated, as to claim 1, “After further search and consideration, the combination of features pertaining to the method claim of independent claim 1 are found allowable. The dependent claims depending thereon are hereby allowed as well. The prior art is silent to teach or obviate the combination of features presented by the scope of instant claim 1.” *Id.* at 160.

b. The Examiner did not commit material error with regard to Hanisch

Given that it is undisputed that Hanisch was before the Examiner during prosecution and indisputable that it was considered, the burden falls to Petitioner to demonstrate that “that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics* at 8. Indeed, as the Board has recently made clear in a precedential decision, “a petitioner must provide an analysis even when the asserted prior art is on an IDS, but the Examiner did not apply the

reference.” *Ecto World, LLC* at 5. That analysis must consist of more than “generalized statements.” *Id.* at 6. Here, Petitioner has barely made an attempt, merely stating that “the Examiner did not rely on or discuss Hanisch in any 102/103 rejections.” Pet. at 80. This falls far short of showing that the Office materially erred, and shows only that the Examiner—while considering Hanisch—did not view it as art that invalidated the ’463 patent.

Nor could Petitioner supply the needed analysis to demonstrate that Hanisch “includes specific teachings that ‘impact the patentability of the challenged claims.’” *Ecto World, LLC* at 6 (quoting *Advanced Bionics* at 8 n.9). This is for at least two reasons. First, as explained above, there is no evidence that the pre-dryer of Hanisch accomplishes inactivation of the shredded battery material, as the Board already ruled in its ’097 patent Institution Decision. *See supra*, Section II.C.1; *see also* Ex. 2001, ¶¶ 65-73. Second, Hanisch does not disclose the 300 hPa vacuum limitation (claim 1[e]) of the ’463 patent. *See Ascend Elements, Inc. v. Duesenfeld GmbH*, IPR2024-00948, Paper 10 at 15-16 (Nov. 10, 2024) (Institution Decision) (as related to Hanisch, Board stating “We are not persuaded ... that Petitioner has shown that a person of ordinary skill in the art ‘would have understood that the pressure of a “vacuum” is below 300hPa”); Ex. 2001, ¶¶ 74-84. Because Hanisch lacks multiple of the limitations of the challenged claims of

the '463 patent that Petitioner claims it discloses, Hanisch cannot “impact the patentability of the challenged claims.”

In all, the Examiner considered Hanisch and committed no material error by determining that the '463 patent could issue despite Hanisch's teachings.

2. The Examiner carefully examined Hayashi, and Applicant distinguished it

a. Hayashi was before the Examiner, who committed no material error

Because Hanisch does not disclose drying at a pressure of 300 hPa, Petitioner attempts to combine Hanisch with Hayashi, which Petitioner asserts discloses low pressure teachings. Petitioner asserts Hayashi as a secondary reference for all four grounds (6-9). However, not only was Hayashi before the Examiner—it was carefully considered. Hayashi, or U.S. Patent No. 9,843,077, was both identified and discussed by the Examiner during prosecution, which Petitioner concedes. Pet at 80-81; *see also* Ex. 1002 at 8, 206-210, 221-226. Indeed, Hayashi was a basis for final rejection—which the applicant overcame. Ex. 1002 at 221-226, 206-210, 160.

The Examiner discussed Hayashi's teachings and compared them to claims 1, 3, 5-7, 17, and 18 of the '463 patent. Ex. 1002 at 221-226. It is clear that the Examiner was aware of and considered the full content of Hayashi during prosecution. *See Advanced Bionics*, at 7 (“Previously presented art includes art made of record by the Examiner...”); *see also Unified Patents Inc. v. Berman*,

IPR2016-01571 (Dec. 14, 2016), Paper No. 10 at 11 (informative) (withdrawing rejection based on reference demonstrates that reference was substantially considered); *Puma N. Am., Inc. v. Nike Inc.*, IP2019-01042, Paper No. 10 (Oct. 31, 2019) at 11 (informative) (that a prior art reference was the basis for a rejection during examination weighs in favor of denying institution).

Therefore, again, the burden falls on Petitioner to demonstrate that “that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics* at 8; *see also Ecto World*, at 5-6 (“[I]f the Examiner applied the asserted prior art or substantially the same prior art during examination, then a petitioner must demonstrate that, for example, the previously presented art teaches the limitations of the challenged claims, and that no reasonable examiner could have found otherwise.”).

To meet this burden, Petitioner states only that Examiner recognized Hayashi as teaching “a method step of inactivating pertaining to the electrolyte undergoing a pressure and temperature to be vaporized,” and asserts that “the Office did not consider the Grounds presented herein” and “did not have the benefit of ... the Juzkow Declaration...” Pet. at 80-81 (quoting Ex. 1002 at 222). Petitioner attempts to establish material error by asserting that the Examiner did not take into account aspects of Hayashi: “Specifically, neither Applicant nor Examiner addressed the fact that Hayashi discloses the use of reduced pressure and

temperatures including 80°C, 20°C, and 10°C (all of which fall below the reported decomposition temperature of LiPF₆) to volatilize organic carbonate solvents from the electrolyte, while using water vapor, instead of heating, to decompose LiPF₆.” Pet. at 82.

Petitioner fails to show material error, or that a reasonable examiner could not have allowed the '463 patent despite Hayashi. On no fewer than eight occasions, the Examiner evaluated Hayashi's teachings against the pending claims, including in addressing topics such as the use of reduced temperatures and use of water vapor:

- Claim 1: “Hayashi teaches a method for processing fluorine-containing electrolyte including a gasification step of gasifying a volatile component of an electrolyte solution including a fluorine compound by heating the electrolyte solution under a reduced pressure [Abstract].” Ex. 1002 at 222.
- Claim 2: “Hayashi teaches a gas of a gasified volatile component to be introduced to a wet or dry processing step whereby the fluorine is immobilized as calcium fluoride and an organic solvent oil phase is collected. It is interpreted that calcium fluoride is deactivated and is not a material which meets an electrochemical reaction limitation.” Ex. 1002 at 223.
- Claim 3: “Hayashi teaches a dry processing step that includes a condensation trap in the dry processing of vaporized electrolyte material [0053-0057].” Ex. 1002 at 224.
- Claim 5: “Hayashi teaches the dry process to be performed at 5kPa (50hPA) [0056-0057].” Ex. 1002 at 224.
- Claims 6-7: “Hayashi teaches a reaction with water to hydrolyze materials [0036]. The prior art teaches the vaporization and handling of vaporized volatile elements [0036-0039]. The gasification occurs at a temperature and pressure condition [0033-0035]. It would have been obvious to incorporate a

temperature and pressure condition has recited in Hayashi to the comminuted material in water in order to vaporize and remove the volatile electrolyte material gas in order to improve safety.” Ex. 1002 at 225.

- Claim 17: “Hayashi teaches the dry process to be performed such that at least a portion of the method step is at a temperature of 10°C [0056-0057].” Ex. 1002 at 225.
- Claim 18: “Hayashi teaches a temperature and pressure applied to a water and electrolyte whereby hydrolyzation occurs and the inactivated comminuted electrolyte material is removed through vaporization [0037-0039].” Ex. 1002 at 226.
- Overall, Hayashi includes a “vaporization step under reduced pressure.” Ex. 1002 at 223, 224, 225.

Thus, the Examiner confronted the very issues that Petitioner claims were not addressed. In particular, the Examiner repeatedly stated that Hayashi taught reduced pressures and temperatures, and also addressed using water vapor in its process.

As to reduced pressure, the Examiner stated multiple times that Hayashi includes a “vaporization step under reduced pressure.” Ex. 1002 at 223, 224, 225. More specifically, the examiner noted that “Hayashi teaches a method for processing fluorine-containing electrolyte including a gasification step of gasifying a volatile component of an electrolyte solution including a fluorine compound by heating the electrolyte solution *under a reduced pressure* [Abstract].” *Id.* at 222 (emphasis added). Further, the Examiner again addressed the pressure taught by Hayashi when stating that “Hayashi teaches the dry process to be performed at 5kPa (50hPa) [0056-0057].” *Id.* at 224.

As to reduced temperature, the Examiner repeatedly discussed this as well, including specific references to the three temperatures named by Petitioner. For example, the Examiner discussed a process at 10°C: “Hayashi teaches the dry process to be performed such that at least a portion of the method step is at a temperature of 10°C [0056-0057].” Ex. 1002 at 225. Further, in reference to Hayashi, the Examiner discussed the other two temperatures named by Petitioner—20°C and 80°C: “The prior art teaches that the temperature selection range for the method of gasification is dependent on the organic solvent material of the electrolyte, for their specific materials 80°C is the lowest temperature explicitly cited as optimal, but this temperature would change with changing materials [0030-0034]; additionally, the prior art reports temperatures at 20°C [0034] and does not ‘[teach away]’ from such temperatures...” *Id.* at 222.

The Examiner also repeatedly recognized the use of water. Ex. 1002 at 223 (“Hayashi teaches a gas of a gasified volatile component to be introduced to a wet or dry processing step...”); *id.* at 225 (“Hayashi teaches a reaction with water to hydrolyze materials [0036]. The prior art teaches the vaporization and handling of vaporized volatile elements [0036-0039]. The gasification occurs at a temperature and pressure condition [0033-0035]. It would have been obvious to incorporate a temperature and pressure condition has recited in Hayashi to the comminuted material in water in order to vaporize and remove the volatile electrolyte material

gas in order to improve safety.”); *id.* at 226 (“Hayashi teaches a temperature and pressure applied to a water and electrolyte whereby hydrolyzation occurs and the inactivated comminuted electrolyte material is removed through vaporization [0037-0039].”).

In all, not only did the Examiner clearly examine Hayashi in depth, the Examiner explicitly evaluated each of the elements that Petitioner now asserts were not addressed. Further, the Applicant was able to overcome the rejection (Ex. 1002 at 206-210), and the Examiner allowed the claims over Hayashi, stating: “After further search and consideration, the combination of features pertaining to the method claim of independent claim 1 are found allowable. The dependent claims depending thereon are hereby allowed as well. The prior art is silent to teach or obviate the combination of features presented by the scope of instant claim 1.” Ex. 1002 at 160.

Where, as here, “Petitioner fails to present any argument distinguishing the Examiner’s prior consideration of [a reference] or to provide a compelling reason why [the Board] should readjudicate substantially the same prior art and arguments as those presented during prosecution and considered by the Examiner,” it “would not be an efficient use of Board resources in this matter,” and institution should be denied. *Unified Patents*, at 12 (denying institution under § 325(d)). Similarly, where there is “a high degree of overlap between the arguments made during

examination and the manner in which Petitioner relies upon the prior art,” including that, as here, “the Examiner and Petitioner rely upon the same references, for the same claim limitations,” that weighs in favor of denial of institution. *Puma N. Am.*, at 14. The Examiner was reasonable in allowing the ’463 patent after consideration of Hayashi. *Ecto World* at 6. Consequently, under *Advanced Bionics*, institution should be denied.

b. There was no material error regarding the combination of Hayashi with Hanisch

To the extent Petitioner argues that it was material error for the Examiner to have failed to explicitly consider Hanisch with Hayashi, Petitioner is incorrect. First, Petitioner’s argument, if it exists at all, is conclusory and does not point to any specific failure of the Examiner. Pet. at 81 (“Hayashi was considered, but ... neither the Examiner nor Applicant considered or addressed the disclosures of Hayashi in the context of the grounds asserted in this Petition....”). Second, as explained above, the Board has preliminarily determined that Hanisch does not disclose the inactivation of comminuted material (claim 1[c]), a limitation common to all challenged claims. Nor do Petitioner’s “grounds asserted in this Petition” provide any evidence of Hayashi disclosing limitation 1[c]. *See* Pet. at 59-60. Thus, the consideration of the combination of Hayashi with Hanisch would not “impact the patentability of the challenged claims.” *Ecto World* at 5. There was no material error in the Examiner’s consideration of Hanisch and Hayashi.

3. LithoRec and Perry were before the Examiner and Petitioner fails to show error

Both LithoRec and Perry, secondary art for grounds 8 and 9, were also before the Examiner—as part of signed IDS filings. LithoRec, identified by Petitioner as Kwade et al., *LithoRec: Recycling lithiumion batteries*, published in 2012 by Cuvillier Verlag Gottingen (Ex. 1011) and Perry, identified by Petitioner as “Perry et al., *Perry’s Chemical Engineers’ Handbook* (7th ed.) published in 1997 by McGraw-Hill (Ex. 1015) were listed repeatedly in IDS filings, including as signed by the Examiner. *See* Ex. 1002 at 34 (signed IDS identifying both LithoRec and Perry and indicating they were considered); *id.* at 123 (IDS identifying both LithoRec and Perry); *see also Advanced Bionics* at 7-8 (“art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent” is “[p]reviously presented art”); *Ecto World, LLC* at 4 (“Challenging the claims using the same prior art that was previously presented on an IDS is sufficient to satisfy the first part of the Advanced Bionics framework.”).

While these references indisputably were before the Office during examination, again, Petitioner does not explain how “the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, at 9. Instead, again, Petitioner merely says, “Applicant did not explain their significance and Examiner did not apply or analyze them in any rejection or notice of allowance

for the '463 Patent.” Pet. at 80. But that is not a showing of material error—as explained above, the references were considered by the Examiner, and that they were not discussed suggests at best that the Examiner did not find them persuasive or relevant.

Further, as with Hayashi, these references do not “impact the patentability of the challenged claims.” *Ecto World* at 5. Petitioner does not argue that Perry or LithoRec disclose inactivation of comminuted material (claim 1[c]) or the 300 hPa vacuum limitation (claim 1[e]). Pet. at 59-60 (discussing limitation 1[c]), 62-63 (discussing limitation 1[e]). Rather, Petitioner relies on LithoRec only for discussion of an airlock related to claim 6 (Ground 8) and to Perry for discussion of an agitator related to claim 7 (Ground 9). Pet. at 68-70. Thus, neither LithoRec nor Perry can cure the absence of any disclosure in Hanisch of inactivation of comminuted material or pressure. *See supra*, Section II.C.1.b. Therefore, no combination of Perry and/or LithoRec with Hanisch could disclose the invention of the '463 patent.³ There is no reason for the Board to reconsider Perry and LithoRec here.

³ The Board has also already addressed and preliminarily rejected Perry’s combinability with LithoRec. *URT Umwelt und Recyclingtechnik GmbH v. Duesenfeld GmbH*, IPR2024-00887, Paper No. 10 at 21 (Nov. 20, 2024) (Institution Decision) (“We do not find Petitioner’s argument persuasive. Petitioner does not explain why a person of ordinary skill in the art would have considered Perry’s teachings regarding a shelf vacuum dryer to define the operating pressure for the vacuum dryer of LithoRec. This lack of explanation is particularly troublesome

4. Despite Yosuke, the prior art of Grounds 6-9 was substantially before the Examiner

As explained above, the four grounds advanced by Petitioner include Hanisch as a primary reference and Hayashi as a secondary reference. Three of those grounds include tertiary references—Yosuke for Ground 7, and LithoRec and/or Perry in Grounds 8 and 9. Of all the references listed, only Yosuke was not before the Examiner. Thus, all the art Petitioner relies upon for Grounds 6, 8, and 9 was before the Examiner. But even Ground 7, which is Hanisch in view of Hayashi and/or Yosuke and which relates only to claim 4 and—had prior art that was substantially before the Examiner, which is the standard under *Advanced Bionics* for declining institution.

First, the Petition acknowledges that Yosuke is unnecessary to Ground 7, which is entitled “Claim 4 is Rendered Obvious by Hanisch in view of Hayashi and/or Yosuke.” Expressly, Yosuke is presented as an “and/or” alternative to Hayashi. Petitioner presents Yosuke as interchangeable with Hayashi, which was thoroughly considered by the Office, as explained above. Therefore, the art of Ground 7 was substantially before the Office.

Second, beyond Petitioner’s concession that Yosuke is equivalent to Hayashi, Petitioner’s use of Yosuke is also equivalent to the Kaplan and Muska

given the teachings of LithoRec that ‘batch drying is not used’ and of Perry that ‘[v]acuum-shelf dryers are indirect-heated batch dryers.’”).

references discussed by the Examiner in a non-final rejection of Claim 4, which Applicant overcame. *See, e.g., Unified Patents*, at 11-12 (where art in Petition is relied on “in substantially the same manner as the Examiner used” presented art, Petition relies on “same or substantially the same prior art as presented previously to the Office”).

Claim 4, in addition to the limitations of Claim 1 from which it depends, includes “performing the drying within an interior of a drying device; continuous monitoring, by a controller, of at least one progress parameter that is indicative of a progress of the drying, the at least one progress parameter comprising a pressure in the interior of the drying device or a pressure of a gas flow out of the interior of the drying device drying process, and not terminating the drying process until the progress parameter reaches a predetermined progress parameter threshold value.”

Petitioner says Yosuke “further discloses continuous monitoring, by a controller, of at least one progress parameter that is indicative of progress of the drying, the at least one progress parameter comprising a pressure in the interior of the drying device or a pressure of a gas flow out of the interior of the drying device drying process. For example, Yosuke discloses ‘a pressure measurement means ...for measuring the pressure inside the ... drying furnace.’” Pet. at 46. But during prosecution, the Examiner noted that Muska covered this step, noted that “Muska teaches a control system [Fig 4-77] which is interpreted to read on a continuous

monitoring step.” Ex. 1002 at 293. Further, while Petitioner explains that Yosuke also teaches continuous monitoring that does not terminate (Pet. at 46-47), the Examiner noted that the Kaplan reference inherently taught “not terminating the drying process.” Ex. 1002 at 292-293.

Therefore, Yosuke is used by Petitioner “in substantially the same manner as the Examiner used” as presented art, both because Petitioner equates Yosuke with the presented art, Hayashi, and because Yosuke is used in substantially the same manner the Examiner used Kaplan and Muska with regard to claim 4 during Examination. Institution should be denied.

III. Arguments for Ground 10 (Indefiniteness) Were Before the Office and/or Rely on Disputed, Conclusory Expert Testimony

Petitioner argues that three separate claim terms render some or all the claims of the '463 patent indefinite. Of those, only one claim limitation (related to the “inactivating” claim terms) is found in independent Claim 1, and this term is common to the claims of the '097 patent. The Board has already preliminarily determined that term is not indefinite. Nor did Petitioner put forward an indefiniteness argument about this term in claim construction proceedings at the district court. There is no need to revisit the Board’s work, or the district court’s, on this term.

Meanwhile, the other two terms at issue only apply to dependent claims, and both arguments rely on conclusory, contested expert testimony. Thus, Petitioner’s

challenges to these terms are equally unsupportable. It is abundantly clear that each of these three claim terms, “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). None is indefinite, and the weakness of Petitioner’s arguments, favors denying institution.

1. The Board has already determined that the “inactivating” claim terms are not indefinite

The first clause of the ’463 patent that Petitioner seeks to find indefinite is stated in independent Claim 1, which recites “inactivating the comminuted material and obtaining inactivated comminuted material as a result.” Ex. 1001 at Claim 1; Pet. at 71. This claim clause is nearly identical to the following claim phrase found in the ’097 patent: “inactivating the comminuted material such that an inactivated comminuted material is obtained.” Ex. 1016 at Claim 1. As Petitioner acknowledges, these two patents (and “inactivating” claim terms) are closely related, and the ’463 patent was terminally disclaimed back to the expiration date of the ’097 patent. Pet. at 72.

In co-pending IPR2024-00948, the Board has already evaluated Petitioner’s argument that “a POSITA would not have understood ... the outer boundaries of when comminuted material is considered ‘inactivated.’” *Ascend Elements, Inc. v. Duesenfeld Gmbh*, IPR2024-00948, Paper 37 at 15-16 (June 11, 2025). The Board

preliminarily determined that the “inactivating” terms of the ’097 patent are not indefinite. Additionally, the Board noted that it had preliminarily construed the “inactivating” terms in its prior institution decision (where no indefiniteness argument had been raised) and that it maintained that preliminary construction, even given Petitioner’s assertions of indefiniteness. *Id.* Further, the Board made clear that the fact that its construction was different from Patent Owner’s proposal did not render the “inactivating” terms indefinite. *Id.* at 16. The Board specifically found that the “inactivating” terms were “term[s] of degree” that comported with Federal Circuit precedent and which “provide enough certainty to one of skill in the art” such that they are not indefinite. *Id.* at 16-17.

The arguments Petitioner makes here in the PGR are the same as those it made in the co-pending IPR. Given that the same arguments were before the Board, there is no reason to revisit this determination in this proceeding. *Advanced Bionics*, at 7 (“[T]he 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.” (quoting 35 U.S.C. § 325(d)) (emphasis added)).

Moreover, Petitioner had a full opportunity to litigate the alleged indefiniteness of the “inactivating” clause during the district court claim construction proceedings for the ’097 patent. Petitioner initially flagged the

alleged indefiniteness of the “inactivating” term in its initial invalidity contentions, but then dropped this argument when presented with the opportunity to litigate this issue in the district court claim construction proceedings. *See* Ex. 2003 at 26; *Vascular Solutions LLC v. Medtronic, Inc.*, 117 F.4th 1361, 1368 (Fed. Cir. 2024) (indefiniteness may be litigated through claim construction). In those claim construction proceedings, Petitioner raised disputes with two claim terms (*i.e.*, “drying the comminuted material” and “drying device configured to inactivate the comminuted material”), but never argued that the “inactivating” term was indefinite. Ex. 2007. Having foregone its opportunity to litigate the indefiniteness of the “inactivating” clause in district court, Petitioner has no basis now to urge this Board to commit its resources and institute this challenge.

In any event, Petitioner’s claims that the “inactivating” terms are meritless, failing to cite even a single case. Petitioner relies instead on conclusory and contested expert testimony, which weighs in favor of discretionary denial. *See* Pet. at 71-73 (citing Ex. 1003, ¶¶ 216-219).⁴ As the Board has recently expressed, this weighs in favor of discretionary denial, since “extensive reliance on expert testimony and/or reasonable disputes between experts on dispositive issues may

⁴ This testimony will be contested in the forthcoming Declaration of Vani Dantam in support of Patent Owner’s Preliminary Response.

suggest that the questions are better resolved in an Article III court.” FAQ for Interim Processes, #21.

Petitioner’s argument is based on the expert’s opinion alone that “[t]he meaning of this step is not reasonably clear because a POSITA would not understand from the claims or the specification the particular point at which the comminuted material is ‘inactivated.’” Ex. 1003, ¶ 216. Petitioner’s expert opines that the various metrics for completion of drying would be “confusing” to one of skill in the art. *Id.*, ¶ 218. Not only has the Board already rejected this unsupported opinion, it was right to do so under the law.

It is well established that patent claims must “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S. at 910. The definiteness of the claim language is to be evaluated “viewed in light of the specification and prosecution history.” *Tinnus Enters., LLC v. Telebrands Corp.*, 733 F. App’x 1011, 1020 (Fed. Cir. 2018). In *Tinnus*, the Federal Circuit reversed the PTAB’s finding of indefiniteness in a PGR proceeding, ruling that the term “substantially filled” was definite, particularly in view of the guidance provided by the specification. *Id.* at 1019 (“These embodiments serve to inform a person of ordinary skill of the objective boundaries of the claimed invention.”).

The term “inactivating” (and the related phrases containing this term) are not indefinite. The term “inactivating” is appropriately governed by its plain meaning,

as Patent Owner has consistently maintained. Ex. 1029 at 22 (page 9). To the extent that any construction is needed to inform the scope of this plain meaning, Patent Owner has consistently maintained that a person of ordinary skill would understand that “inactivated” material would be rendered safe for transport. *Id.*

Moreover, the specification thoroughly describes inactivation, including its relationship to drying, in such a way that a person of skill in the art would understand how to determine inactivation. The specification makes clear that drying is the means (a process) by which inactivation (a result) is achieved. *See, e.g.,* Ex. 1001 at 13:56-58 (“The ***drying of the comminuted material results in deactivated comminuted material 42***, which is fed into a filling device **44** (emphasis added). Further, the claim language itself makes clear that “inactivating” (*i.e.*, obtaining a result of inactivated material) “includes a ***drying process.***” *Id.* at 17:26-28. The specification provides various metrics for determining if comminuted material has been sufficiently dried to become inactivated:

- “A method is preferred in which the drying of the comminuted material is only completed if, after the completion of the drying process, no flammable or explosive gas mixture can form above the comminuted material that has been filled [in the container]....” Ex. 1001 at 6:51-7:6 (teaching additional parameters for ascertaining completion of drying);

- “The comminuted material is preferably dried until an electrolyte content in the comminuted material is so low that an electrochemical reaction is impossible.” *Id.* at 7:7-20 (teaching additional parameters);
- “The comminuted material is preferably dried for so long that a 50 kg amount of comminuted material, which is contained in a compacted form in a 50 litre drum, does not experience a build-up of heat....” *Id.* at 7:21-29 (teaching additional parameters);
- “It is beneficial if the comminuted material is dried until the electrolyte content of organic components that are volatile at 50°C has a maximum value of 3% by weight....” *Id.* at 7:30-34 (teaching additional parameters);
- “The drying is preferably conducted for so long that the accumulated content of organic carbonates from the electrolyte that are volatile at 80°C falls short by volume in the atmosphere above the comminuted material.” *Id.* at 7:35-38; and
- “[T]he drying is conducted until the dimethyl carbonate content is lower than 4% by volume....” *Id.* at 7:39-42 (teaching additional parameters).

These metrics are illustrative to teach a person of skill parameters that may be observed to determine if comminuted material has been rendered inactivated through the drying process. These metrics are not mandatory, and they are not

limiting on the claim scope. Patent Owner has consistently taken this position throughout all proceedings.

A person of skill in the art would understand “inactivation” to be achieved when a central problem addressed by the patent is solved—rendering the comminuted material safe for transport to a recycling facility, which each of the various metrics cited would do. *See, e.g.*, Ex. 1001 at 13:56-60. That the specification describes multiple ways to identify inactivation does not mean that a POSITA could not understand when material is inactivated—rather, it helps clarify what inactivation means. Petitioner complains that the specification provides guidance on “how long to dry comminuted material but not how a POSITA would know that comminuted material has reached a point of inactivation.” Pet. at 72. But, as explained, these are one and the same: how long to dry is in fact how to arrive at the point of inactivation.

Petitioner attempts to argue that the teaching of these various metrics somehow renders the term “inactivating” indefinite. Pet. at 73. However, Petitioner ignores the governing standard. Petitioner has failed to show any inconsistency among these metrics that would render a POSITA unable to determine whether the comminuted material was sufficiently dry to be “inactivated.” *See Janssen Pharms., Inc. v. Teva Pharms. USA, Inc.*, 97 F.4th 915, 937 (Fed. Cir. 2024) (rejecting indefiniteness argument because “Teva did not

present evidence that different measurement techniques would typically yield different particle-size measurements of paliperidone palmitate”) (citing *Takeda Pharm. Co. v. Zydus Pharms. USA*, 743 F.3d 1359, 1366–67 (Fed. Cir. 2014) for proposition that the “mere possibility of different results” is insufficient for indefiniteness).

Moreover, Petitioner complains that the term is indefinite because “‘inactivation’ is not limited to the drying process.” *Id.* at 71. But this attempts to create an issue where there is none. The specification makes clear that the result of inactivation is necessarily arrived at by drying, but that there might also be other steps attendant to the inactivation-by-drying process. *See, e.g.*, Ex. 1001 at 11:33-35 (“The battery processing installation preferably has an airlock between the comminution unit and the deactivation device, especially the drying device”); 13:15:-17 (“Comminuted material **24** is produced during the comminuting; the material is fed into an inactivation device in the form of a drying device **26**.”); 13:56-58 (“The drying of the comminuted material results in deactivated comminuted material **42**, which is fed into a filling device **44**.”).

Petitioner has failed to carry its burden to show that the claim term “inactivate” (and the related claim clauses) are indefinite, and this Board should not commit further resources to readjudicate this issue, particularly where

Petitioner already lost this issue in the co-pending IPR, and further had a full opportunity to raise this before an Article III court and declined.

2. There is sufficient antecedent basis for “the agitator” of claim 7 such that it is not indefinite

Petitioner argues that “the agitator” of claim 7 lacks an antecedent basis, since neither claim 1 nor claim 6 (from which claim 7 depends) recite “an agitator,” again based on disputed expert testimony and without citing any case law. Pet. at 74-75. But, applying the correct legal standard, even if Petitioner is correct that the agitator of claim 7 lacks explicit antecedent basis, “the lack of an antecedent basis does not render a claim indefinite as long as the claim ‘apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by [§ 112 ¶ 2].’ ” *In re Downing*, 754 F. App’x 988, 996 (Fed. Cir. 2018) (quoting MPEP § 2173.05(e)). Instead, “[w]hether this claim, despite lack of explicit antecedent basis for [the specific claim term], nonetheless has a reasonably ascertainable meaning must be decided in context”—and this contextual inquiry into indefiniteness “focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the specification.” *Energizer Holdings, Inc. v. Int’l Trade Comm’n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006). Here, the specification supplies sufficient antecedent basis by implication: “the agitator” of claim 7 is “the agitator” described in the specification. *See Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1116 (Fed. Cir. 1987)

(antecedent basis may be supplied by implication including by reference to specification).

A POSITA reading claim 7 would have no trouble understanding “the agitator” recited therein, since the specification describes in great detail the structure, attributes, and function of the agitator of the ’463 patent. *See* Ex. 1001 at 7:54-10:13 (describing the agitator of the preferred embodiment). In particular, the specification makes clear what the purpose of the agitator is: “[t]he agitator serves in particular to prevent blockages and/or thermal energy from entering the comminuted material and/or to separate the layered foils, meaning that the vaporisation of the electrolyte is not sterically hindered.” *Id.* at 7:58-62.

The specification also describes the structure of the agitator: “[i]t is beneficial if the agitator has at least one stirring blade, which is arranged such that it moves the comminuted material upwards.” *Id.* at 8:1-3; *see also id.*, 10:50-54 (“It is beneficial if the drying device comprises an agitator, for example an anchor agitator or a rod agitator, whose stirring rods can be arranged transversely to an agitator shaft. Alternatively or additionally, the agitator is an external agitator that moves the dryer as a whole.”); *id.* at 13:51-55 & Fig. 1 (describing and depicting “agitating with an agitator **41**, such as an anchor agitator or a rod agitator with rods arranged perpendicular to the agitator shaft”); 15:5-28 & Fig. 4 (similar).

The specification further describes the metrics for the agitator's power output: "[t]he agitator preferably exhibits a power output of at least 1 kW per cubic metre of drying volume." *Id.* at 7:67-8:1; *see also id.* at 8:14-15 ("The agitator preferably has a power output of at least 1 kilowatt per cubic meter of volume of the drying device.").

Additionally, the specification describes the relationship of the agitator to the drying process: "The agitator is preferably used to supply at least 35%, in particular at least 50%, of a vaporisation heat required for the drying of the comminuted material. In other words, in an ideal situation, it is not necessary to provide an additional heater to heat the comminuted material. If such a heater is provided, its power output is preferably smaller than the power output of the agitator." *Id.* at 8:4-10; *see also* 15:5-28 & Fig. 4 (similar).

Given the detail supplied by the specification as to "the agitator," and given that the indefiniteness question examines the claims in light of the specification, it is clear that a POSITA reading claim 7 in light of the specification of the '463 patent would understand the meaning of "the agitator." *Slimfold Mfg. Co.*, 810 F.2d at 1116; *see also Tinnus Enters.*, 733 F. App'x at 1019-1020 (description of embodiments in specification can inform one of skill in the art of scope of claim such that claim is not indefinite). There is no indefiniteness issue as to claim 7,

and the reliance on contested expert testimony coupled with the weakness of Petitioner’s argument weighs in favor of discretionary denial.⁵

3. “Components of comminuted material” is not indefinite based on its plain meaning

Ascend complains that the language in claim 10, “the comminuted material includes components of comminuted material,” is indefinite because a person of skill would not know what a “component” of comminuted material is. Pet. at 75-76 (citing Ex. 1003, ¶ 223). This again is based on unsupported expert testimony, where the expert relies solely on “my opinion.” Ex. 1003, ¶ 223. Again, this weighs in favor of discretionary denial.

Moreover, again, on the merits, Petitioner’s argument again seeks to create a problem where there is none. The claim language itself makes clear what it means. In full, claim 10 recites the following:

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

The plain text of the claim makes clear that, in this permutation of the invention of the ’463 patent, the comminuted material (shredded batteries) is made up of

⁵ There is no indication that claim 7 was intended to depend from claims 13 or 14, as Petitioner speculates (Pet. at 74), and no need to do so—since the specification supplies sufficient information to inform a POSITA of the scope of claim 7. *See supra*.

components (fragments of crushed batteries) that are different sizes, and, by weight, 90% of those fragments of crushed batteries have a sieve size of 50mm or less. *See* Ex. 1001 at 4:61-5:3 (explaining that “this should be understood to mean that 90% by weight of the components fall through a sieve which has a mesh width of 50 mm.”); *see also id.* at 2:62-3:9 (describing crushing process within comminution unit); *see also, e.g., id.* at 2:8-14 (describing comminuted material as “battery fragments”).

A POSITA would thus readily understand that a “component” of comminuted material is simply a fragment of crushed battery among a larger amount of crushed battery. This is consistent with dictionary definitions of “component.” *See, e.g.,* Ex. 2008 (Merriam Webster Dictionary) (defining “component” as “a constituent part: ingredient”). There is no indefiniteness issue whatsoever with this claim term. The weakness of this argument, and the argument’s reliance on conclusory expert testimony, weigh in favor of discretionary denial.

IV. Considering the “Strength of the Patentability Challenge” and the Reliance on Disputed Expert Testimony, Institution Should Be Denied

The Process Memorandum “processes aim to improve PTAB efficiency [and] maintain PTAB capacity to conduct AIA proceedings,” and allow the parties to address in a discretionary denial brief “[t]he strength of the unpatentability challenge.” Process Memorandum at 2-3; *see also Apple Inc. v. Fintiv, Inc.*,

IPR2020-00019, Paper 11 at 15 (PTAB Mar. 20, 2020) (“[I]f the merits of the grounds raised in the petition are a closer call, then that fact has favored denying institution when other factors favoring denial are present. . . there may be strengths or weaknesses regarding the merits that the Board considers as part of its balanced assessment”). Here, the challenges in all ten grounds are weak. In addition to the weaknesses described above as to Grounds 6-10, Grounds 1-5 are also weak, and fall facially short of demonstrating obviousness or indefiniteness. Moreover, all ten grounds rely heavily on expert testimony to supply opinion on the point of view of a POSITA—testimony which is hotly contested, and where the declaration of Petitioner’s expert is in conflict with the testimony of Patent Owner’s expert declaration submitted herewith.⁶ Because the Petition and related briefing contain “extensive reliance on expert testimony and/or reasonable disputes between experts on dispositive issues ... the questions are better resolved in an Article III court.” FAQ for Interim Processes. #21.⁷ For these reasons, discretionary denial is warranted.

⁶ Further differences between Patent Owner’s expert and Petitioner’s expert will be laid out in the declaration of Vani Dantam accompanying Patent Owner’s Preliminary Response.

⁷ Incidentally, the judge presiding over the district court matter could himself be characterized as a person of skill in the art as to the subject matter of the challenged patent, and is eminently competent to resolve disputes between the parties’ experts. *See, e.g.,* John Murphy, Rutgers Law School, *available at* <https://www.law.rutgers.edu/john-f-murphy> (listing degrees including PhD in chemical engineering from California Institute of Technology in 2005); *see also*

A. Grounds 1-5 are weak patentability challenges because Tomioka does not disclose, and teaches away from, comminuting solvent-containing batteries

The '463 patent claims a process of comminuting batteries that contain electrolyte solvent, and then inactivating the comminuted battery material by drying away the solvent. All claims of the '463 patent require comminuting the batteries that still contain electrolyte solvent. This requirement is established in at least the following claim elements:

- “receiving, into a comminuting device, used lithium batteries that include... electrolyte comprising a fluorine salt and a solvent, the solvent including an organic carbonate”;
- “inactivating the comminuted material and obtaining inactivated material as a result”; and
- “wherein the inactivating includes a drying process, comprising drying the comminuted material by removal of organic carbonate from the electrolyte by vaporizing the organic carbonate”.

Ex. 1001, Claim 1.

United States Senate Committee on the Judiciary Questionnaire for Judicial Nominees as to John Frank Murphy, *available at* <https://www.judiciary.senate.gov/imo/media/doc/Murphy%20SJQ%20Public%20Final.pdf> (listing degrees and membership in American Chemical Society, American Institute of Chemical Engineering).

Tomioka teaches the opposite. Tomioka acknowledges the hazards inherent to comminuting batteries that contain electrolyte solvent. To avoid these hazards, Tomioka teaches *dismantling* the batteries, then removing the solvents, and only then, crushing the remaining battery material, as detailed below. Tomioka does not render obvious the claims of the '463 patent; to the contrary, Tomioka teaches away from the perceived risks of comminuting batteries that still contain electrolyte solvent.

1. Tomioka avoids the hazards associated with crushing batteries that contain electrolyte solvents

Tomioka recognizes the hazards of working with batteries that still contain electrolyte. Tomioka notes the “significant risk of ignition and explosion” when working with lithium-ion batteries. Ex. 1005 at [1004]; Ex. 2001, ¶ 37.

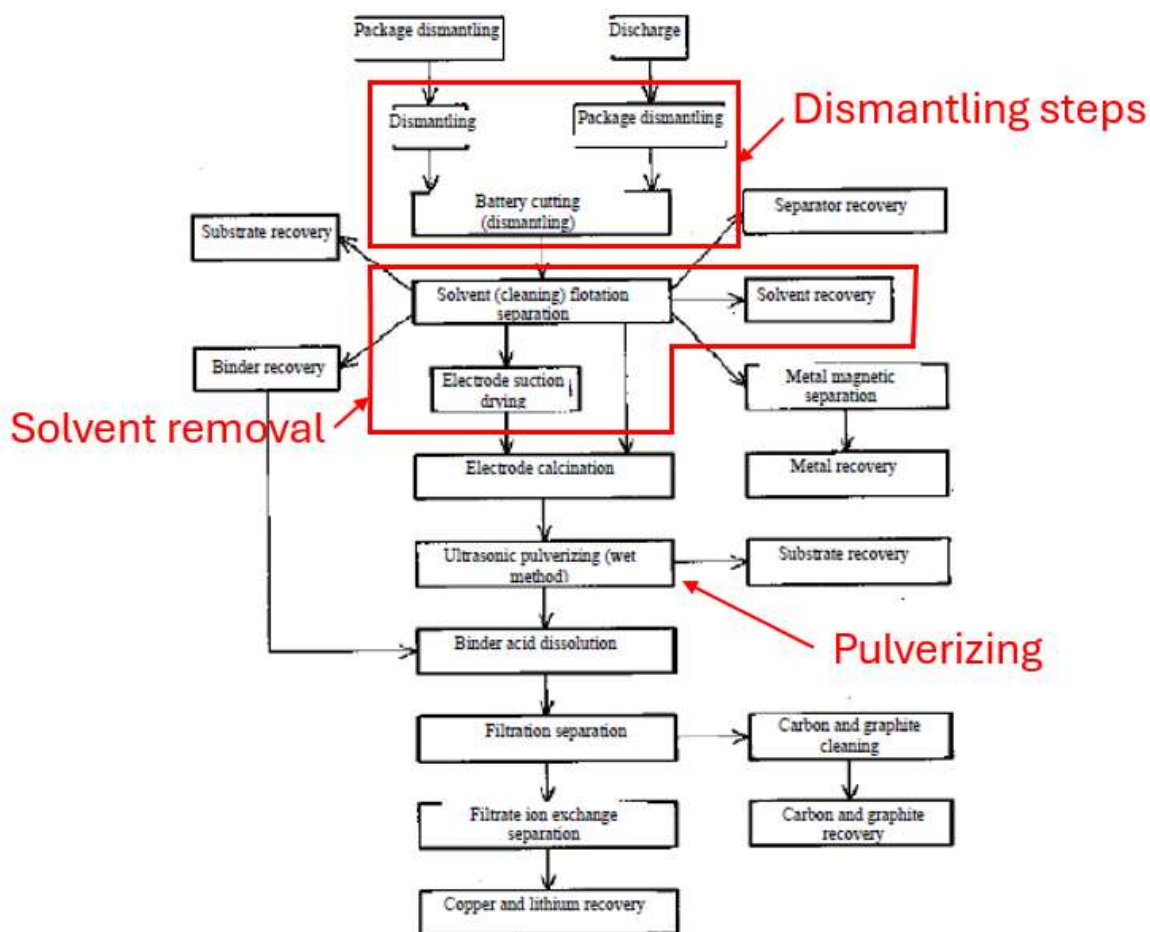
Accordingly, Tomioka teaches the need to carefully remove the outer resin package and extract the battery materials safely. Ex. 1005 at [0005] (“it is crucial to first efficiently separate and remove the resin package so that the internal battery units can be extracted safely”); Ex. 2001, ¶ 38. To do this, Tomioka considers the possibility of “manual disassembly” of the battery packs, but recognizes that “this approach is not suitable for large-scale disposal processing.” Ex. 1005 at [0005]; Ex. 2001, ¶ 39. Tomioka then considers a comminution-based approach, and *rejects* it as being too dangerous. *See* Ex. 1005 at [0005] (“Alternatively, *mechanically crushing* the disposal battery packs collectively, followed by wind

separation and specific gravity sorting, could be considered as a mass producing method; however, there is also a *risk of sparking* due to residual voltage if the battery units are damaged in the process.”) (emphasis supplied); Ex. 2001, ¶ 40.

Rather than comminute the batteries, Tomioka devised a mechanical approach to *dismantle* the batteries, carefully avoiding damage to the internal components of the batteries. *See id.* at [0028] (setting parameters of dismantling device “in order to avoid damaging the battery body”); [0026] (configuring dismantling device “to be greater than the thickness of the battery body to avoid damaging it”).

Expressly, Tomioka does not comminute the battery body components until the solvents have been removed. The following flowchart depicts Tomioka’s invention as comprising dismantling the batteries, followed by removal of the solvents, and thereafter pulverizing the batteries:

[Fig. 1]

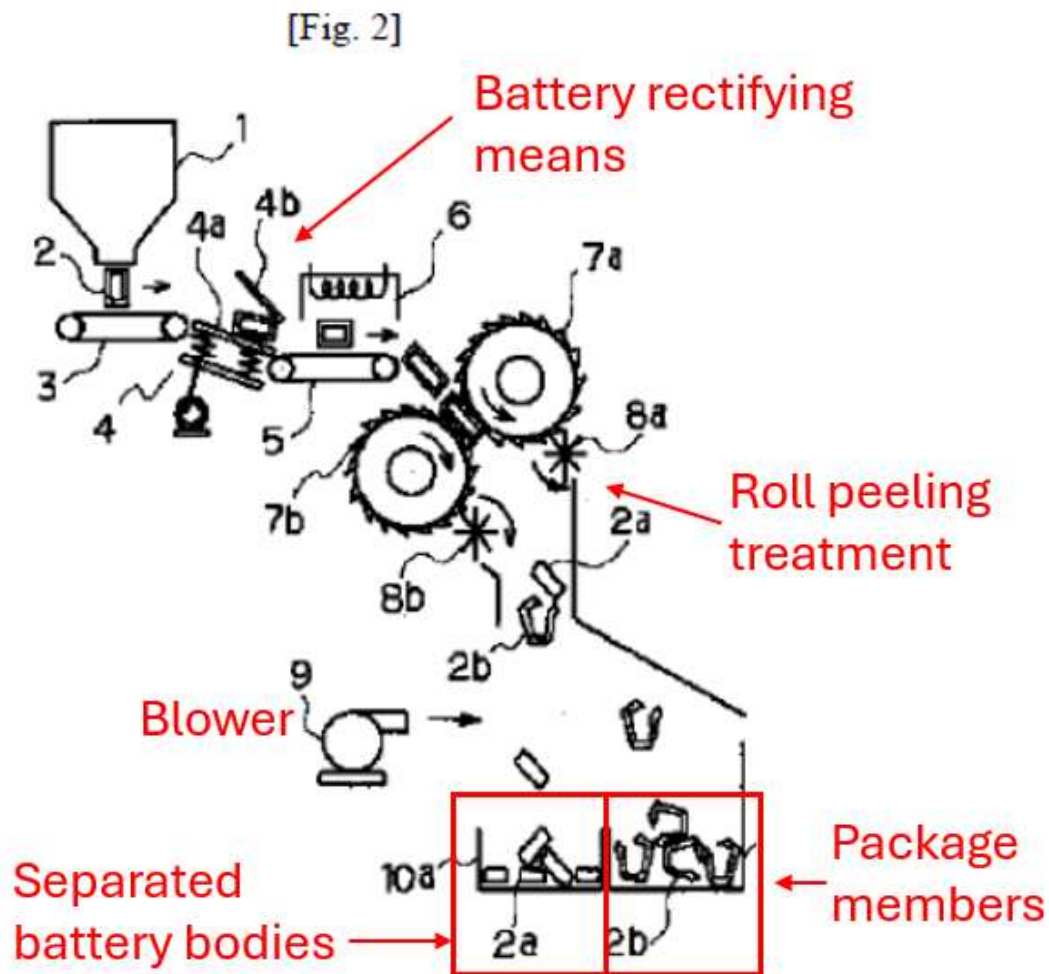


Ex. 1005, Figure 1 (annotated); Ex. 2001, ¶ 43.

In both independent claims of Tomioka, batteries are dismantled, the battery components are cleaned, and subsequently the batteries are processed either by crushing or peeling and separating the active components. *See* Ex. 1005 at Claim 1 & Claim 2. Throughout Tomioka, the solvents are removed first, prior to anything that could be called “comminuting.”

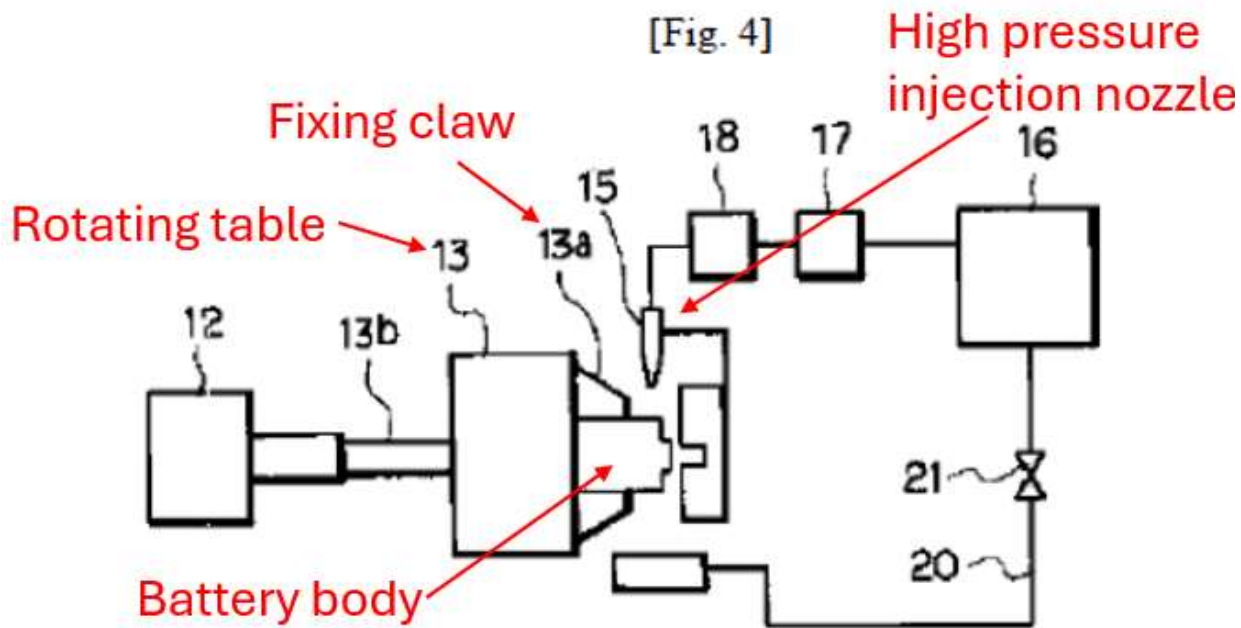
2. Tomioka discloses techniques for selectively destroying the outer casings to allow extraction of the battery bodies, and removal of solvents from the un-comminuted batteries

Rather than comminute the batteries while they contain solvent, Tomioka teaches a device that selectively removes the battery packaging and thereby allows the battery elements to be extracted. Tomioka discloses the following device, which contains a “battery rectifying means” to guide the batteries into a “pair of rollers.” Ex. 1005 at [0044]; Ex. 2001, ¶ 44. The rollers are precisely spaced, and rotate at different speeds, to conduct a “roll peeling process” that will “selectively destroy” the battery package. Ex. 1005 at [0046]; Ex. 2001, ¶ 44. The intact battery bodies fall down, while the packages are blown aside by a “air classification blower.” *Id.* at [0046]; Ex. 2001, ¶ 44.



Id. at Fig. 2 (annotated); Ex. 2001, ¶ 44.

The separated battery bodies are then carefully dismantled to allow removal of the battery elements. *Id.* at [0448]. In the device of Figure 4, the separated battery bodies are mounted on a rotating table, and “an insulated oil is injected from a high-pressure injection nozzle” in order to “cut and open the terminal lead-out side of the battery body”:



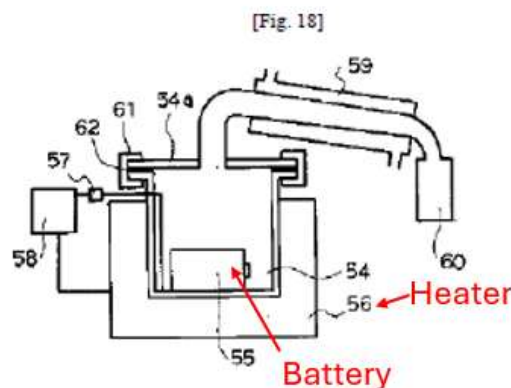
Id. at [0048] & Fig 4 (annotated); Ex. 2001, ¶ 46.

Following this dismantling, the “battery element part is removed through the cutting/opening section of the battery body.” *Id.* at [0049]; Ex. 2001, ¶ 47. The removed battery elements are then “immersed in isopropyl alcohol for approximately 10 minutes of shaking cleaning,” and then dried under vacuum. Ex. 1005 at [0049]; Ex. 2001, ¶ 47. Immersing the battery elements in a liquid is the opposite to drying as taught by the patent.

Tomioka offers alternative embodiments for removing the solvents from the batteries “to enhance the safety of the dismantling operation.” Ex. 1005 at [0088]; Ex. 2001, ¶ 48. Tomioka emphasizes the need to remove the solvents, to avoid the hazards of the electrolyte solvents causing short circuits during the disassembly process. *See* Ex. 1005 at [0088] (“These flammable solvents may ignite due to

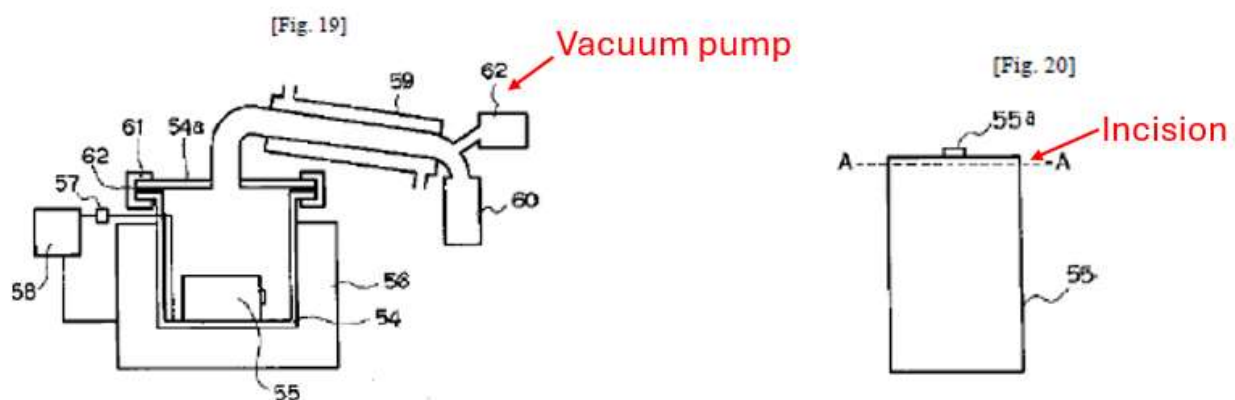
short circuits between the positive and negative electrodes during the disassembly process or generate harmful gases such as hydrofluoric acid; thus, it is desirable to remove and recover them as much as possible.”); Ex. 2001, ¶ 48.

One of Tomioka’s embodiments to remove the solvents from the batteries is to heat the batteries in a chamber until they rupture. As shown in Figure 18, a battery is placed in a chamber comprising a heater. The chamber is heated to 350°C, and [t]hrough this heating treatment, the safety valve opens under high pressure inside the aforementioned recovered battery 55.” Ex. 1005 at [0091]; Ex. 2001, ¶ 49. The released vapors are then condensed and collected.



As an alternative to the high-heat treatment, Tomioka proposes a low-temperature embodiment whereby an “incision” is made in the battery, or the battery is cut to remove the battery element, and the solvents are evaporated through vacuum drying. See Ex. 1005 at [0093] (“As shown in Fig. 20 from a side view, in the case of a cylindrical secondary battery 55, an incision is made along the A-A line approximately 1 to 4 mm inward on the protruding surface of the positive terminal to partially open it, or the battery element can be extracted by cutting it open.”); Ex. 2001, ¶ 50. Tomioka is explicit that this cut serves to

dismantle of the battery to open the top. Ex. 1005 at [0093] (“In addition, when a portion of the recovered battery is opened by cutting, and the liquid inside the battery is vaporized for condensation and recovery, it can be performed as follows.”); *see also id.* at [0012] (“Furthermore, ‘dismantling’ means cutting the outer casing of the individual battery or the battery pack to extract the electrode element components....”); Ex. 2001, ¶ 51.



Id. at Figs. 19 & 20 (annotated); Ex. 2001, ¶ 51. Once this incision, or cut, is made, the battery is introduced into a chamber as shown in Figure 19, applying vacuum. Ex. 1005 at [0092-93]; Ex. 2001, ¶ 51. The solvents are condensed and recovered.

In none of these embodiments is there a comminution of the battery when it contains electrolyte solvents. To the contrary, the next paragraph in Tomioka teaches that the solvents should be removed prior to further steps for processing of the battery (*i.e.*, prior to cleaning the separated battery, and delaminating the active material layers), to promote safety:

Similarly to the aforementioned Embodiment 1, by carrying out the extraction and recovery of the solvent within the battery during the separation and recovery of the battery body as well as after the discharge processing and during the battery dismantling process, the working environment and safety for battery dismantling operations are significantly improved. Consequently, subsequent steps such as cleaning treatment of the separated battery dismantling products, heating treatment of the electrode elements, delamination processing of the active material layer, and treatment and recovery of the delaminated active material layer can proceed smoothly, leading to efficient waste processing with good productivity.

Ex. 1005 at [0094]; Ex. 2001, ¶ 52.

3. Petitioner fails to identify a teaching in Tomioka for comminuting batteries that contain electrolyte solvents and drying the comminuted material

Grounds 1-5 fail because the Petition cannot identify any teaching in Tomioka that would suggest comminuting batteries that contain electrolyte, and drying the comminuted material. Indeed, the Petition is internally inconsistent on addressing the issue of whether Tomioka discloses a comminution device.

The Petition does not argue anticipation. Conceding the lack of a comminution device in Tomioka, the Petition states that “Tomioka also *renders obvious* receiving the used lithium batteries into a comminuting device.” Pet. at 33 (emphasis supplied).

But in the same paragraph, the Petition then attempts to argue that the embodiment of Figures 19 and 20 *does* disclose a comminution device, and that the comminuted material is then dried under vacuum. Pet. at 33 (“Further, Figures 19

and 20 depict an embodiment of the invention in which the battery is comminuted, and the electrolyte is dried under pressurized conditions.”). Petitioner, through its expert, attempts to conflate the disclosures of Figures 19 and 20 with a comminution device. He opines that “Figures 19 and 20 show an embodiment of the invention in which the battery is dismantled by cutting, *such that it is comminuted*, and the electrolyte is dried under pressurized conditions.” Ex. 1003 at ¶121 (emphasis supplied).

Neither Petitioner nor Mr. Juzkow explain how Figures 19 and 20 amount to disclosing a comminution device, and then drying the comminuted material. At most, Figure 20 shows dismantling the very top of the battery. *See* Ex. 1005 at [0093] (describing the cut being made “approximately 1 to 4 mm inward”) & Fig. 20. But Figure 19 depicts that the intact bulk of the battery (potentially minus the dismantled top) is then placed in the vacuum drying chamber. The intact battery, minus the dismantled top, is not “comminuted material.” Neither Petitioner nor Mr. Juzkow supply any definition of “comminution” that would encompass the entire body of the battery, minus the dismantled top—nor could they. This conclusory, unfocused expert declaration is not the basis of a genuine dispute. *See* FAQ for Interim Processes, at No. 21 (“The failure to provide focused expert testimony may weigh against institution.”).

Tomioka itself confirms that removing the top off a battery does not amount to “comminution.” Rather, Tomioka correctly characterizes this act as “dismantling.” *See* Ex. 1005 at [0012] (“Furthermore, ‘dismantling’ means cutting the outer casing of the individual battery or the battery pack to extract the electrode element components such as the positive electrode, negative electrode, and separator, and if necessary, cutting them into strip-like pieces.”). Indeed, Tomioka characterizes Figure 20 as “an explanatory diagram to describe another embodiment of the **dismantling** and separation of recovered batteries.” Ex. 1005 at Brief Description of Drawings, RE Fig. 20 (emphasis supplied); *see also id.* at Fig. 1 (in third box down, characterizing step as “Battery cutting (dismantling)”). Petitioner’s strained reading of Tomioka cannot amount to the claim requirement of the ’463 patent of “inactivating the comminuted material ... wherein the inactivating includes a drying process, comprising drying the comminuted material....” Ex. 1001 at Claim 1. In Tomioka, the thing being dried is the intact battery, potentially minus the dismantled top.

Indeed, in the co-pending IPR brought by this Petitioner’s supplier URT, URT’s expert could not point to any comminution in a reference asserted in the URT IPR (Uchida) that, like Tomioka, involved “a method in which the lid body 24 of the container 20 is cut off (severed).” *See* Ex. 2009 (deposition of URT expert Dr. Spies) at 93:21-95:15 (expert testifying he could find no comminution in

S232 of Uchida); *see also* Ex. 2010 (Uchida) at Fig. 1 (depicting S232 “Cut Battery Container”); [0090] (describing “step 232” as “a method in which the lid body 24 of the container 20 is cut off (severed)...”).

Thus, neither the ’463 patent, nor dictionary definitions, nor a person of ordinary skill, would allow for the intact bulk of the battery, minus the dismantled top, to amount to “comminuted material.” The ’463 patent teaches various devices for comminuting batteries, whereby the batteries are “crushed” or “smashed,” or, most expansively, “cut into two parts by means of two blades.”⁸ Ex. 1001 at 2:62-3:9; *see also id.* at 3:33-38 (“mechanically comminuted, for example through cutting, cropping, impact, cutting and/or crushing,” such that “a larger interface is available for the transition of materials into the gas phase.”). Dictionaries offer definitions of “comminuted,” “comminute,” or “comminution” such as “broken into several pieces,” “to reduce to minute particles,” “reduction of materials by grinding, cutting, shredding, chopping, etc.,” or “breaking up or grinding into small fragments, [a]lso known as pulverization,” etc. *See* Ex. 2002 (collection of dictionary definitions). And the accompanying declaration of Vani Dantam confirms that a person of ordinary skill in the art would not consider an intact

⁸ To the extent that the ’463 patent discusses comminuting by “cut[ting] into two parts by means of two blades, it is in the context of a “comminution device” that achieves comminution via one or more methods. Tomioka discloses neither the comminution device, nor the achievement of comminution.

battery, minus its dismantled top, to be “comminuted” material. Ex. 2001, ¶ 64. Indeed, the point of carefully dismantling the top of the battery is to be able “to extract the electrode element components such as the positive electrode, negative electrode, and separator.” Ex. 1005 at [0012]. Comminuting the batteries would destroy, rather than “extract,” these components, leaving no usable components behind. Ex. 2001, ¶ 64.

Like Tomioka, the ’463 patent recognizes the distinction between “comminuting” and “dismantling.” The ’463 patent explains that separating out the individual cells from larger battery systems is properly characterized as “dismantling,” not “comminuting.” *See* Ex. 1001 at 4:3-8 (“Prior to being comminuted, the used batteries are preferably dismantled. This means that larger battery systems are dismantled into their smaller subcomponents, the modules or stacks, or even that the cells which contain the electrochemically active material are separated from the control electronics.”); *see also* Ex. 2001, ¶¶ 55-60.

To the extent that Petitioner argues that dismantling the top off a battery, and then drying the otherwise-intact battery, amounts to “comminuting” the battery and drying the comminuted material, this is contrary to the language of Tomioka, contrary to the ’463 patent, and contrary to how a person of ordinary skill of art would understand the term “comminuting.” If that is the dispute, then this dispute would be best resolved in an Article III court, where the court would have the

benefit of live testimony from each of the experts, to more fully understand how these terms are understood in the industry. *See* FAQ for Interim Processes at #21 (“While the Board may consider expert testimony, as a matter of efficiency, extensive reliance on expert testimony and/or reasonable disputes between experts on dispositive issues may suggest that the questions are better resolved in an Article III court.”).

Thus, Petitioner fails to show any teaching in Tomioka of the following requirements of all claims of the ’463 patent: (1) “receiving, into a comminuting device, used lithium batteries that include... electrolyte comprising a fluorine salt and a solvent, the solvent including an organic carbonate”; (2) “inactivating the comminuted material and obtaining inactivated material as a result”; or (3) “wherein the inactivating includes a drying process, comprising drying the comminuted material by removal of organic carbonate from the electrolyte by vaporizing the organic carbonate....” Ex. 1001 at Claim 1. Given the weakness of the patentability arguments and the reliance on disputed expert testimony, this counsels against institution on Grounds 1-5.

4. Tomioka teaches away from the claimed approach of comminuting batteries that still contain electrolyte solvent

In addition to lacking disclosure of key elements of the ’463 patent claims, Tomioka *counsels against* comminuting batteries while they still contain electrolyte solvent. Tomioka considered, and specifically *rejected*, the approach of

comminuting solvent-containing batteries in view of the hazards posed. Ex. 1005 at [0005] (“Alternatively, mechanically crushing the disposal battery packs collectively, followed by wind separation and specific gravity sorting, could be considered as a mass producing method; however, there is also a risk of sparking due to residual voltage if the battery units are damaged in the process.”).

Throughout, Tomioka emphasizes the need to avoid damaging the batteries. *See, e.g.*, Ex 1005 at [0029] (“avoid damaging the battery body”); *accord* at [0025]; Ex. 2001, ¶ 62. To avoid damaging the battery, Tomioka discloses devices to dismantle the batteries with surgical precision. *See, e.g.*, Ex. 1005, Fig. 4 & [0048] (“Meanwhile, an insulated oil is injected from a high-pressure injection nozzle 15 set at a diameter of 0.35 mm and a stand-off distance of 2 mm, maintained at about 80°C, under a pressure of 3000 kfg/cm² to cut and open the terminal lead-out side of the battery body 2a almost horizontally, enabling the dismantling of the battery element part for removal.”); *see also id.* at Fig 20 & [0093] (“an incision is made along the A-A line approximately 1 to 4 mm inward on the protruding surface side of the positive terminal 55a to partially open it, or the battery element can be extracted by cutting it open.”); *see also id.* at [0012] (teaching the need to dismantle batteries “to extract the electrode element components”).

This careful dismantling of batteries is the opposite of comminution. *See* Ex. 1001 at 2:62-3:9 (explaining that comminution includes whereby “batteries are crushed between two tool surfaces,” or “smashed by striking them with a second movable tool,” or “the batteries are thrown against a wall”). Even the most expansive disclosure of “comminuting” in the specification of the ’463 patent (*i.e.*, “a cutting comminution unit whereby the batteries are cut into two parts by means of two blades”) is a rough metal-on-metal treatment prone to the sparking that Tomioka says to avoid. *See* Ex. 1001 at 3:3-5; Ex. 1005 at [0005] (“risk of sparking”); Ex. 2001, ¶ 62.

Thus, by counseling against comminuting batteries that still contain solvent, Tomioka teaches away from the invention of the ’463 patent. *See Pozen Inc. v. Par Pharm., Inc.*, 696 F.3d 1151, 1164–65 (Fed. Cir. 2012) (“A reference teaches away when ‘a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.’”) (quoting *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). While teaching away is not required to dispel Petitioner’s challenge based on Tomioka, here this reaffirms that Petitioner’s argument is weak and it would be appropriate for the Board to exercise its discretion to deny the Petition.

5. Dependent claims 2, 3-8, and 10-12 are also not disclosed by Tomioka

Claims 2-3, 8, and 10-12 depend from the independent claim 1. If an independent claim is not obvious then its dependent claims also cannot be obvious because they all depend from a nonobvious claim. *Ortho-McNeil Pharm., Inc. v. Mylan Lab'ys, Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008). Thus, Ground 1 of the Petition also fails to disclose these dependent claims.

6. Grounds 1-5 all fall in tandem

The foregoing discussion explains why the Petition's challenge under Tomioka fails to invalidate independent Claim 1, as asserted in Ground 1. The same infirmities apply to Grounds 2-5. In Grounds 2-5, Petitioner introduces other prior art references to address limitations that are particular to various dependent claims:

Ground	Claim	Statutory Basis	Prior Art
2	4	§ 103	Tomioka in view of Yosuke
3	5, 9	§ 103	Tomioka in view of Hayashi
4	6, 7	§ 103	Tomioka alone or in view of LithoRec
5	13-14	§ 103	Tomioka and LithoRec in view of Perry

In none of Grounds 2-5 does Petitioner present evidence that would remedy the deficiencies explained above with respect to Ground 1 (*i.e.*, that the asserted prior art does not disclose comminuting batteries that still contain electrolyte solvent). Therefore, the weakness of Petitioner's argument for Ground 1 likewise

permeates Grounds 2-5, as well. Accordingly, the Board should exercise its discretion to deny institution as to all of these grounds.

B. Grounds 1-5 depend improperly on contested expert testimony

An obviousness determination cannot be based on conclusory expert testimony. *See, e.g., TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (“This court’s opinions have repeatedly recognized that conclusory expert testimony is inadequate to support an obviousness determination on substantial evidence review.”); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”). Moreover, where there is extensive reliance on expert testimony, the Board has explained that “questions are better resolved in an Article III court,” favoring discretionary denial. FAQ for Interim Processes at #21.

Yet, Petitioner’s arguments related to certain limitations common to all challenged claims rely on conclusory, unsupported expert testimony. For example, Petitioner’s expert declares that Tomioka “renders [claim 1[a]] obvious” based on unsupported testimony of the point of view of a person of skill in the art, such as that a “POSITA would have understood that ‘dismantling’ used batteries comprises comminuting the batteries...”; “it would have been obvious to a POSITA to

perform the dismantling and drying in the same container...”; and that “it would have found it obvious to a POSITA to look to Tomioka’s other disclosures of comminuting used batteries.” Ex. 1003, ¶¶ 119-124; *see also* Pet at 32-35 (relying on same).

Not only does Patent Owner’s expert disagree with Petitioner’s expert’s determination that a POSITA would understand dismantling to be comminution (Ex. 2001, ¶¶ 53-64), Petitioner’s supplier URT’s expert also disagrees. As explained above, when shown a reference involving “a method in which the lid body 24 of the container 20 is cut off (severed),” like Tomioka’s dismantling, the expert said he could not locate any comminution. *See* Ex. 2009 (deposition of URT expert Dr. Spies) at 93:21-95:15; *see also* Ex. 2010 (Uchida) at Fig. 1; [0090].

Petitioner’s arguments related to other limitations of claim 1 and the dependent claims are based on its expert’s opinion of how “a POSITA would have understood” Tomioka to disclose that claim or limitation. *See* Ex. 1003, ¶126 (claim 1[c]); ¶131 (claim 1[d]); ¶139 (claim 1[e]); ¶140 (claim 2); ¶142 (claim 8); ¶146 (claim 10); *see also* Pet. at 35-45 (relying on same).

These types of opinions permeate Petitioner’s Grounds 1-5, are contested by Patent Owner’s expert, and at least in one dispositive instance, by Petitioner’s supplier’s URT’s expert. These contested opinions, upon which Petitioner

extensively relies, are better suited to the Article III court than to the Board, and weigh in favor of discretionary denial.

V. CONCLUSION

For the foregoing reasons, Patent Owner urges the Director to exercise discretion and deny institution of the Petition.

Date: June 16, 2025

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WORD COUNT CERTIFICATION

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner's Discretionary Denial Brief has a total of 12,874 words as counted by Microsoft Word, exclusive of the cover page, table of contents, table of authorities, certificate of service, word count, and signature block (37 C.F.R. § 42.24(a)). The word count includes include all other text, including headings, footnotes, and quotations. This is within the 14,000-word limit allowed under § 42.24(a)(1)(i).

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CERTIFICATE OF SERVICE

I hereby certify that on June 16, 2025, a copy of this Patent Owner's Discretionary Denial Brief, including all accompanying attachments, appendices, and exhibits, has been served in its entirety via e-mail on Attorneys for Petitioner at the following e-mail addresses:

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