

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADVANCELL PTY LTD.,
Petitioner,

v.

SCIENCONS, AS and ARTBIO, INC.,
Patent Owner.

Case No. PGR2025-00029
Patent 12,125,603

PATENT OWNER'S SUR-REPLY

TABLE OF CONTENTS

I.Introduction.....	1
II.Claim Construction.....	3
A. “precursor isotope source...decay[s] into one or more progeny isotopes...” (Claims 1 and 12)	3
B. “disposed on the rod” (Claims 1 and 12).....	4
C. “allowing sufficient time for the precursor isotope source to decay comprises allowing 5 hours, 10 hours, 20 hours, 24 hours, 48 hours, 72 hours, or 96 hours” (claim 10).....	5
D. “the precursor isotope source is configured to decay and emanate the one or more progeny isotopes into the container for 5 hours, 10 hours, 20 hours, 24 hours, 48 hours, 72 hours, or 96 hours” (claim 20).....	6
E. Limitations 1a and 1d.....	6
III.Petitioner Fails to Meet Its Burden to Show the Unpatentability of Any Challenged Claim	8
A. Ground 1 Fails	8
1. Limitations 1a and 1d	9
2. “precursor isotope source disposed on [a/the] rod” (claims 1 and 12)	11
3. Claim 12’s open and closed positions of the rod.....	14
4. Dependent claims 4-5 and 14-15	15
5. Dependent claims 8 and 17.....	18
B. Ground 2: claims 5 and 15	18
C. Ground 3: claims 9 and 18	18
D. Ground 4 Fails to Demonstrate Unpatentability Under §112.....	19
1. Claims 2-3.....	20
2. Claim 20.....	21
IV.Experts	22
A. Petitioner’s Attack on Mr. Conroy Fails	22
B. Petitioner’s Experts Fail to Support Its Case.....	24
V.Conclusion.....	25

I. INTRODUCTION

Petitioner wastes its Reply attacking arguments Patent Owner never made while largely ignoring the rebuttal argument and evidence presented in the Patent Owner Response (POR). As such, the POR argument and evidence is left un rebutted and ripe for resolution in favor of Patent Owner.¹

The Reply discusses multiple claim terms but attacks irrelevant strawman arguments instead of meaningfully addressing the actual POR evidence and argument. The Reply, for example, still ignores the challenged claims' express limitation that the precursor isotope source "decay into one or more progeny isotopes." The Reply is silent regarding its own expert's concession during cross-examination that, under the plain language of the claims, the only "precursor isotope source" in Hassfjell-Hoff is [²²⁸Th]barium stearate—there is no other "precursor isotope source," including the lace basket. The Reply doubles down on the petition construction that "disposed on the rod" means "directly or indirectly

¹ Misapprehending the procedural posture and burden of proof, the Reply curiously asserts that "PO makes no meaningful argument for why the D.I. was incorrectly decided." Reply, 1. *See In re Magnum Oil Tools Int'l*, 829 F.3d 1364, 1375 (Fed. Cir. 2016). The POR amply demonstrates that, after trial on the merits and in view of a developed record, the petition case fails.

attaching to the rod.” But the Reply does not, as it cannot, refute that Hassfjell-Hoff describes the [²²⁸Th]barium stearate packets as not attached (directly or indirectly) to any tube—they are placed loosely in a lace basket. POR, 14, 16, 25. Petitioner refutes none of this. Petitioner identifies nothing in Hassfjell-Hoff that “decay[s] into one or more progeny isotopes” and is “disposed on the rod” because there is no such disclosure.

The petition case disregarded the claim language requiring exposing and isolating “by sliding the rod” and the Reply does the same. The Reply offers no response to the fact that both Petitioner and its own expert acknowledged both here and in PGR2025-00040 that in Hassfjell-Hoff, isolating/exposure is not accomplished “by sliding the [tube].” Rather, it is *solely* the gate valve that causes isolation and exposure of the [²²⁸Th]barium stearate. The Reply instead offers improper new attorney argument attempting to parse between “some exposure” and “fully exposing.” No expert supports this new technical conjecture that is found nowhere in the petition materials.

The remaining Reply arguments fare no better. The Reply fails to remedy the petition’s deficiencies regarding the dependent claims addressed in grounds 1-3, nor does it rebut the arguments presented in the POR. Indeed, the Reply’s arguments confirm the inconsistencies in its own mappings. And as to the §112 arguments raised in ground 4, the Reply wholly abandons the petition’s arguments

regarding claims 1, 8, 9, 10, and 12, and rather than engage with the POR's arguments for the remaining claims, the Reply tries to avoid those arguments through mischaracterization.

The petition case fails to withstand the scrutiny of a more fulsome evaluation and a developed record. Accordingly, the patentability of each challenged claim should be upheld.

II. CLAIM CONSTRUCTION

A. “precursor isotope source...decay[s] into one or more progeny isotopes...” (Claims 1 and 12)

The petition never proposed any construction of a “precursor isotope source” as recited in independent claims 1 and 12, nor did Patent Owner in the POR. *See, e.g.*, Pet., 3-5; POR, 10-14. As pointed out in the POR, however, the claims plainly recite the additional limitation that the precursor isotope source “decay[s] into one or more progeny isotopes.” *Id.* Petitioner's own expert agrees, under the plain language of the claims only Hassfjell-Hoff's [²²⁸Th]barium stearate qualifies—there is no other “precursor isotope source,” including the lace basket. POR, 11, 24-25, 27-28; EX2004, 53:18-25, 56:13-17, 59:9-22, 61:7-16; Pet., 38 (distinguishing the “precursor isotope source” from the “filtering basket”). None of this is disputed, or even meaningfully addressed, in the Reply (1-2). At bottom, Petitioner identifies nothing in Hassfjell-Hoff that both “decay[s] into one or more progeny isotopes” **and** is “disposed on the rod” because there is no such disclosure.

The Reply (1-2) mischaracterizes the POR argument and pivots to different terminology not recited in either claim 1 or 12. Turning away from the language of the claims, the Reply (1) argues the excerpted passage “[t]he source may or may not contain a holder for the radioactive part...” lacks “clarity.” This passage is unaddressed in the petition, and no expert has testified it somehow alters the plain language of the challenged claims. *See also, e.g.,* EX2002, ¶¶36-43 (unrebutted Conroy testimony). Nor is there any cited legal authority requiring doing so. The Reply’s (1) retreat to a different claim in a different patent reciting different language is also unavailing.

B. “disposed on the rod” (Claims 1 and 12)

The petition construed “disposed on the rod” to mean “directly or indirectly attaching to the rod.” Pet., 3. Petitioner doubles down on this construction in Reply. Reply, 4 (“The correct construction...[is] directly or indirectly attached to the rod”). As explained in the POR, the petition challenge fails under its own construction since Hassfjell-Hoff expressly confirms the [²²⁸Th]barium stearate is not attached (directly or indirectly) to the tube—it is placed in packets which are placed loosely in a lace basket. POR, 14, 16, 25. Nothing in the Reply rebuts this.

The Reply (2) attacks a strawman in asserting “PO rejects the Petition’s proposed construction” and advances a “construction that requires direct attachment to the rod.” Contrary to the mischaracterization in the Reply, the POR

explained “[t]he petition challenge fails whether the Board applies the plain meaning of the term or Petitioner’s proposed construction.” POR, 14, 26. The POR correctly pointed out that despite bearing the burden, the petition never even discussed the plain meaning, whereas courts have interpreted “disposed on” to mean “located or positioned on.” *See also* Reply, 5 (admitting located/positioned on does not mean “direct contact”). Ultimately, what matters is that Petitioner’s own construction (directly or indirectly attached) reads out the cited prior art. Whether or not some hypothetical construction PO never made excludes an embodiment, as the Reply (2-6) argues, is an irrelevant sideshow.²

C. “allowing sufficient time for the precursor isotope source to decay comprises allowing 5 hours, 10 hours, 20 hours, 24 hours, 48 hours, 72 hours, or 96 hours” (claim 10)

The Reply backs away from the alternative construction of claim 10 the petition discussed in ground 4 (*see* Pet., 61) and drops its argument that claim 10 lacks §112 support. *See* Reply, 6, 21. The Reply (6) further mischaracterizes Mr. Conroy’s testimony, but the Reply’s statements are immaterial, as it makes no

² Material absorbed, for example, on a sponge located on the rod would bring the material into contact with the rod. At any rate, the “direct contact” strawman is irrelevant. Hassfjell-Hoff’s [²²⁸Th]barium stearate is not “directly or indirectly attached” to the tube. The petition case fails for at least that reason.

arguments in the grounds regarding claim 10. Accordingly, the Reply's arguments have no bearing on the patentability of claim 10 and should be accorded no weight.

D. “the precursor isotope source is configured to decay and emanate the one or more progeny isotopes into the container for 5 hours, 10 hours, 20 hours, 24 hours, 48 hours, 72 hours, or 96 hours” (claim 20)

Petitioner complains that Mr. Conroy “does not explain his opinion that the claim language difference has no impact on the construction” and pretends that Dr. Mirzadeh “explains that a POSITA would have understood claim 20’s limitation to require exact times.” Reply, 7. First, Mr. Conroy did explain how the language of claim 20 supported his opinion. EX2002, ¶50. By contrast, Dr. Mirzadeh’s testimony is entirely conclusory, inserts the word “exactly” without any justification, and even includes a case citation despite his admission that he has no legal background. *See* EX1002, ¶39; EX2004, 38:11-15.

E. Limitations 1a and 1d

The petition never proposed constructions of the “exposing” and “isolating” steps in limitations 1a and 1d. *See, e.g.,* Pet., 3-5. Neither did the POR. The argument now raised in reply is both improperly new and offers no expert testimony in support. Reply, 7-10. Petitioner’s new construction should thus be rejected as untimely, unsupported attorney argument.

Even if considered, Petitioner’s argument is an irrelevant strawman attack. Petitioner attacks “PO’s construction,” which it alleges “implies that limitations 1a

and 1d require that sliding the rod must be the sole cause of the exposure and isolation.” Reply, 7; *see id.*, 9 (arguing “PO’s construction” requires the rod must be the “*sole* determinant”). The Reply is unable to identify any such “construction” because none exists. In contrast, the plain language of claim 1 recites “exposing an interior surface of a container to a precursor isotope source *by sliding a rod*” and “isolating the precursor isotope source from the container *by sliding the rod*.” The POR addressed this language vis-a-vis a petition deficiency. *See* POR, 19-24.

The new argument is a misplaced attempt to sidestep both the language of the challenged claims as well as Petitioner’s own self-defeating argument and expert testimony. As explained in the POR, Petitioner and its expert argued both here and in PGR2025-00040 that in Hassfjell-Hoff, isolating/exposure is not accomplished “by sliding the [tube].” Instead, it is the gate valve that causes isolation and exposure of the [²²⁸Th]barium stearate. POR, 20-23. Petitioner’s own expert plainly conceded this again during cross-examination. *See, e.g.*, POR, 21, EX2004, 60:20-23, 64:15-65:22. The Reply offers no response and these facts are now resolved in PO’s favor.

The Reply’s remaining arguments also fail. The Reply argues that the Examiner’s understanding of the claims and an identified point of differentiation vis-à-vis the prior art should be ignored. Reply, 8-9. Ignoring the prosecution history, of course, invites legal error. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317

(Fed. Cir. 2005) (In construing a claim, “a court ‘should also consider the patent’s prosecution history’” as “the prosecution history provides evidence of how the PTO and the inventor understood the patent.” (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995)); *Netcraft Corp. v. eBay, Inc.*, 549 F.3d 1394, 1400 (Fed. Cir. 2008) (courts “must consider the parties’ arguments based on the prosecution history”). And in any event, the Reply gives no reason to ignore the plain language of limitations 1a and 1d, the admissions of its own expert, and its own inconsistent argument in PGR2025-00040. Petitioner also cites to a different claim in a different patent it argues “requires a valve” (Reply, 9-10), which, by Petitioner’s own admission, recites different language that has no bearing here. The language of claim 1 here unambiguously requires that exposure and isolation occur “by sliding the rod,” and the Reply is non-responsive to the arguments raised in the POR. Petitioner simply fails to show this element in the prior art.

III. PETITIONER FAILS TO MEET ITS BURDEN TO SHOW THE UNPATENTABILITY OF ANY CHALLENGED CLAIM

A. Ground 1 Fails

Petitioner wastes its Reply attacking arguments not made but leaving the actual evidence and argument in the POR unrebutted. In its first sentence addressing the grounds the Reply asserts the “POR only addresses patentability for grounds 1-3 under its own construction of ‘disposed on the rod’ and ‘sliding the

rod.” Reply, 10. This is simply false. As explained above, the POR did not propose a construction of “sliding the rod,” much less the irrelevant strawman arguments Petitioner falsely attacks in reply. The POR clearly explained why, applying the petition’s own construction, Hassfjell-Hoff failed to disclose the “disposed on [a/the] rod” limitation. As explained below, the Reply’s further discussion of ground 1 similarly fails.

1. Limitations 1a and 1d

Like the petition, the Reply fails to show that Hassfjell-Hoff discloses “exposing an interior surface of a container to a precursor isotope source by sliding a rod” as recited in limitation 1a. The Reply admits that exposure occurs “as soon as the gate valve is opened before the tube/rod is lowered.” Reply, 12. This is consistent with both Hassfjell-Hoff’s own description and the testimony of both experts and confirms that exposure in Hassfjell-Hoff is not by sliding the rod as required. *See* POR, 20-21.

Petitioner tries to avoid this conclusion by newly arguing exposure as a matter of degree. No such argument is found in the petition. No expert has testified to a different degree of exposure based on the position of the tube once Hassfjell-Hoff’s gate valve is open—this is wholly unsupported attorney conjecture. The Reply identifies no testimony or evidence distinguishing between “some exposure” to the [²²⁸Th]barium stearate compared to “fully expose the interior surface,”

because no such evidence exists. Reply, 12. Additionally, Petitioner never proposed any construction of *exposing* that involves different degrees of exposure or distinguishes between “some exposure” and “fully exposing,” and Petitioner provides no testimony supporting its new position. It is undisputed that it is the opening of the gate valve that exposes Hassfjell-Hoff’s container to precursor isotopes, and the Reply’s attempt to avoid this simple conclusion fails.

Regarding limitation 1d, Petitioner raises a similarly flawed argument. Petitioner does not dispute that so long as the gate valve is opened, the source in Hassfjell-Hoff remains exposed, and that only when the gate valve is closed is the [²²⁸Th]barium stearate isolated from the container. Nor does it dispute that the rod does not cause the gate valve to open or close. Nobody disputes that any conceivable isolation in Hassfjell-Hoff would only occur upon closing the gate valve—moving the tube does not isolate. Instead, the Reply asserts that Hassfjell-Hoff’s tube would prevent the gate valve from closing if it were down. Reply, 13. But this is merely an assertion that the rod might be positioned to obstruct closing the gate valve; it does not show a step of exposing or isolating “by sliding the rod.” The more salient fact is, consistent with the reference itself and Petitioner’s own expert testimony, the polyethylene bottle of Hassfjell-Hoff is exposed to or isolated from the [²²⁸Th]barium stearate solely by virtue of opening or closing the gate valve—even where the tube is never moved at all.

Accordingly, the Reply's arguments regarding limitations 1a and 1d fail.

2. “precursor isotope source disposed on [a/the] rod” (claims 1 and 12)

As explained in the POR, Hassfjell-Hoff fails to disclose “a precursor isotope source” that “decay[s] into one or more progeny isotopes” and is “disposed on the rod” under Petitioner's own construction (“directly or indirectly attached”). The Reply's arguments do not disturb this conclusion.

First, the Reply correctly states that “Hassfjell-Hoff's [^{228}Th]barium stearate is ‘not attached to anything.’” Reply, 14 (quoting POR, 24-26). Indeed, the [^{228}Th]barium stearate is not directly or indirectly attached to Hassfjell-Hoff's tube or anything else. The Reply never identifies a single thing the [^{228}Th]barium stearate is attached to—certainly not the tube. Indeed, the Reply concedes that the “[^{228}Th]barium stearate is placed in packets in a basket,” confirming that the identified packets are *attached to nothing, directly or indirectly*. In fact, Hassfjell-Hoff ensures the [^{228}Th]barium stearate does not attach to the basket or tube by wrapping it in packet material “to avoid any loss of the [^{228}Th]barium stearate.” EX1003, 7. The petition challenge fails under the petition's own construction and the Reply does not demonstrate otherwise.

Seeking to sidestep the ramifications of its own construction, the Reply pivots to new argument, asserting that “the packets are indirectly disposed on the

rod”³ or that the “[²²⁸Th]barium stearate is indirectly ‘on’ the rod because the rod is the substrate supporting and controlling the position of the [²²⁸Th]barium stearate.” Reply, 14-15. Petitioner points to no expert who has embraced this nonsensical new theory, which deviates from the argument advanced in the petition (“directly or indirectly attaching”). Even if considered, Petitioner’s new assertion that the rod is “supporting and controlling the position of the [²²⁸Th]barium stearate” fails to meet its own construction (“directly or indirectly attached”), much less the plain meaning of the claims. Not only is the “indirectly disposed on”/“moves with the rod” theory unsupported, untimely, and contrary to Petitioner’s own construction in the petition, it also conflicts with additional new argument in the Reply. For example, the Reply cites new, inconsistent definitions and argument it never previously presented. Reply, 4 (“a source of attachment or support”; “hanging from”; “to put in place”), 5 (“indirectly ‘supported by or suspended from’”). The “indirectly disposed on”/“moves with the rod” theory is head-spinning new

³ This is also nonsensical considering Petitioner’s construction of “disposed on” (i.e., “directly or indirectly attached”). Under Petitioner’s own construction, the new argument “indirectly disposed on” would mean “indirectly [directly or indirectly attached].”

argument that conflicts with other new argument, among other content. Any such new argument has been waived.

Petitioner's only other remaining argument for this limitation is its misplaced assertion that Hassfjell-Hoff "discloses the basket as a source." Reply, 15. As an initial matter, the relevant claim limitation is "precursor isotope source" (not "source") and one that "decay[s] into one or more progeny isotopes." As stated in the POR, PO does not concede that either the petition or any expert has sufficiently asserted, let alone established, that the lace basket of Hassfjell-Hoff would be considered a "precursor isotope source" as claimed. *E.g.*, POR, 10-11 & n.1, 13, 26-30. As PO has pointed out repeatedly, the petition consistently maps the claimed "precursor isotope source" only to Hassfjell-Hoff's [²²⁸Th]barium stearate. *See* Pet., 15, 17-18, 31-32; POR, 24-25, 28-30. Petitioner's own expert does not agree that Hassfjell-Hoff's lace basket would be considered a "precursor isotope source" as claimed and only slight-of-hand and word-games with different terminology would suggest otherwise. To the extent any "basket as a 'precursor isotope source'" argument is even considered as having been properly raised in the petition (PO asserts it was not), such a theory was effectively disavowed by Petitioner's own expert during cross-examination.

Indeed, both experts agree that only the [²²⁸Th]barium stearate in Hassfjell-Hoff could conceivably be considered "a precursor isotope source" according to

the plain language of the '603 patent's claims. *See* POR, 26-27; EX2002, ¶63; EX2004, 61:7-16; *see also, e.g., id.*, 53:18-25, 56:13-17, 59:9-22. Petitioner never grapples the testimony of its own expert during cross-examination or with the independent claims' recitation that the precursor isotope source "decay[s] into one or more progeny isotopes," which at best is satisfied by the [²²⁸Th]barium stearate alone, nothing else.

Petitioner thus fails to show disclosure by Hassfjell-Hoff for a "precursor isotope source" that "decay[s] into one or more progeny isotopes" and is "disposed on [a/the] rod" as recited in the challenged claims. No such disclosure is found in Hassfjell-Hoff, and the Reply fails to show otherwise.

3. Claim 12's open and closed positions of the rod

Petitioner argues that claim 12's requirement that a rod slide between an *open position* and *closed position* is satisfied because claim 12 does not require "that movement of the rod alone 'determine whether the rod is exposed or sealed off.'" Reply, 15-16. However, this makes a similar mistake to Petitioner's analysis of claim 1, where Petitioner's insistence that the rod need not be the *sole* cause of exposure or isolation overlooked that the sole cause of exposure or isolation was the gate valve, and moving Hassfjell-Hoff's tube to different positions had no effect whatsoever on whether the precursor isotope source was isolated or exposed.

Similarly for claim 12, Petitioner overlooks that claim 12 characterizes the open position and closed position as *positions of the rod* (“rod configured to slide between an open position...and a closed position....”). Rather than mapping to different positions of a rod, the petition mapped the open and closed positions to joint configurations of multiple components (the tube and the gate valve), with only the gate valve’s status (open or closed), not the tube’s position, controlling whether the alleged precursor isotope source of Hassfjell-Hoff is open or closed. *See* Pet., 15, 31-32; POR, 23. Because the Petition fails to identify positions of the rod as the open and closed positions, it fails to show the open and closed positions recited in claim 12.

4. Dependent claims 4-5 and 14-15

Petitioner complains about “hard to parse” arguments but has only itself to blame. Reply, 16. For the “chamber having a gas tight seal” of claims 4 and 5, the petition relied on Hassfjell-Hoff’s “vacuum equipment to avoid leakage” and “the upper compartment (*i.e.*, the housing *chamber*)” being sealed to prevent gas escaping. Pet., 20-23 (original emphasis). But Petitioner ignores testimony arising during cross-examination of Mr. Conroy. Specifically, during the deposition Mr. Conroy explained that Hassfjell-Hoff’s system is not sealed when in operation, as air escapes through a valve in the upper chamber. *See* EX1023, 97:3-98:3, 99:10-23. This confirms that Petitioner’s characterization for claims 4-5 of Hassfjell-

Hoff's upper chamber as a whole being sealed during operation is incorrect, yet the Reply simply ignores this.

Furthermore, claim 5 recites "sealing the rod within a tube using an O-ring to form the gas tight seal between the rod and the tube." The Petitioner, however, is inconsistent and incoherent on what it identifies as the claimed "gas tight seal." The petition at pages 20-21 states "a POSITA would have understood that closing the gate valve forms a *gas tight seal*" (original emphasis). Claim 5 depends from claim 4 and refers to "the gas tight seal," yet the petition (22-23) pivots to the "tube passage" in Hassfjell-Hoff Fig. 2 to argue a "POSITA would have understood that the O-ring forms a gas tight seal." The O-rings identified on pages 22-23 of the petition are distinct from the gate valve identified on pages 20-21. For claims 14-15, the petition refers back to the discussion regarding claim 5. *See* Pet., 33-35.

Thus, the petition is hopelessly confusing and ultimately incoherent as to the elements recited in claims 4-5 and 14-15. The challenges to these claims fail for at least this reason. The challenges additionally fail because, as Mr. Conroy explained in response to Petitioner's questioning, the upper chamber of Hassfjell-Hoff is designed, not as a gas tight chamber, but a chamber that specifically permits air to escape by vacuum pump as shown in Fig. 2.

Moreover, as pointed out in the POR, Hassfjell-Hoff does not disclose "sealing the rod within a tube." POR, 31-33. Rather, Hassfjell-Hoff shows a tube

(which Petitioner calls a rod) extending out of both ends of a tube passage. *See id.*; EX1003, Fig. 2. Petitioner does not dispute any of this or resolve any of the petition's inconsistencies. The Reply concedes that "Hassfjell-Hoff's tube passage (i.e., the claimed tube) does not seal the entire rod 'within' the claimed tube." Reply, 16 (emphases omitted). The Reply instead pivots to irrelevant argument about whether one embodiment (Fig. 4) in the '603 patent shows a rod not entirely sealed in a tube. The Reply cites no legal authority that a claim must import all aspects of every disclosed embodiment—clearly there is no such requirement. Furthermore, the Reply ignores Fig. 2, which expressly discloses an embodiment including a "rod." EX1001, 18:19-24. Fig. 2 is described as including a rod which "slides in a tube" which can be sealed with an o-ring. *Id.* The rod has a precursor isotope source on it, and it may be "withdrawn into a gas tight seal." EX1001, 13:64-14:25. In Fig. 2, no part of the rod is shown moving out of a sealed chamber when the rod and precursor isotope source are moved into the closed position in which they are sealed in the tube.

As to claims 14-15, Petitioner does not dispute that for the seal it points to in Hassfjell-Hoff, the rod does not "form [the] gas tight seal" in the closed position to isolate the precursor isotope source; rather, the seal Petitioner identifies is present continuously in all times (e.g., whether open/exposed or closed/isolated), and the only seal that is *formed* is the gate valve's seal, which is unrelated to the rod's

position. Petitioner's arguments for claims 14-15 thus fail at least for this reason. *See also* POR, 33 (further discussing defects in petition mappings).

5. Dependent claims 8 and 17

Petitioner does not dispute that its "alternative argument" in ground 1 relying on the basket and packet material is inconsistent with dependent claims 8 and 17. POR, 34-35. Thus, regardless of what mapping is chosen for the precursor isotope source, it is impossible to satisfy all elements of dependent claims 8 and 17.

Accordingly, the petition fails to meet its burden to show that Hassfjell-Hoff anticipates any of claims 1-6, 8, 11-17, and 19 under §102(a)(1). EX2002, ¶80.

B. Ground 2: claims 5 and 15

The challenge to claims 5 and 15 in ground 2 fail for at least the same reasons discussed above. Contrary to the Reply's mischaracterizations (20), the POR showed that the petition's arguments failed even applying the petition's constructions. POR, 31-33. Indeed, the petition never proposed any construction relating to the limitations of claims 5 and 15. Petitioner has thus failed to meet its burden in ground 2.

C. Ground 3: claims 9 and 18

The Reply claims that the POR misunderstood the petition, and that actually Petitioner had intended to eliminate Hassfjell-Hoff's filering basket and packets

entirely. That is not what the petition said and making this argument now is untimely and unsupported. What the petition proposed was to “*implement* the filter membrane packets and surrounding filtering basket disclosed by Hassfjell-Hoff *with* the O’Hara gas permeable metal or mineral membrane, screen, filter, or porous disc (each are a sponge) containing the precursor isotope source.” Pet., 52. In other words, the filtering basket and packets would be implemented, but a sponge would be added to hold the precursor isotope source.

As explained in the POR, this would conflict with any mapping in which the filtering basket made up part of “the source.” POR, 37-38. The Reply (20) appears to agree. However, this means that the deficiencies of ground 1’s main mapping squarely apply—Petitioner has not proposed moving the [²²⁸Th]barium stearate precursor isotope onto Hassfjell-Hoff’s tube or attaching it—directly or indirectly. The [²²⁸Th]barium stearate is not disposed on the rod when held in a packet within the filtering basket, whether in loose form or in a sponge or other material. Ground 3 thus fails.

D. Ground 4 Fails to Demonstrate Unpatentability Under §112

The petition had argued that claims 1-3, 8-10, 12, and 20 were unpatentable under 35 U.S.C. §112 for various combinations of enablement, written description, and indefiniteness. As the POR explained, these arguments were misplaced, and Petitioner on Reply no longer defends its arguments regarding any of claims 1, 8,

9, 10, and 12. *See* Reply, 21 (arguing only that “Ground 4 Proves Certain Claims Unpatentable”: claims 2-3 and 20). As explained below, even the claims Petitioner continues to challenge (claims 2-3 and 20) have not been shown to be unpatentable.

1. Claims 2-3

Dropping most of the petition’s arguments, the Reply now raises only a single §112 argument against claims 2 and 3: that, for claim 2’s phrase “exposing the interior surface to a thorium 228 isotope (^{228}Th) and/or a radium 224 isotope (^{224}Ra),” that Patent Owner purportedly “does not deny” that the specification fails to enable exposing an interior surface to a ^{228}Th isotope. Reply, 21. This misreads the claim and mischaracterizes the POR.

To begin with, Petitioner’s enablement argument misinterprets the claim. As the Board correctly noted at institution, claim 2 is open ended and this limitation is satisfied by a precursor isotope source made with any amounts of ^{228}Th and ^{224}Ra (so long as they are not both absent). *See* DI, 23-24 (confirming this understanding of the claim and noting “concerns about Petitioner’s arguments” for claims 2 and 3). The Reply’s citation to Mr. Conroy’s testimony is of no moment: when asked about the meaning of “and/or” in claim 2, he responded “[I]t can *comprise*, yes, them together or in singular.” EX1023, 91:10-16. Comprising one does not exclude the other.

Petitioner also falsely states that “PO does not deny that situation 1[²²⁸Th] is not enabled.” Reply, 21. This ignores the argument on page 43 of the POR, which explained that a source that initially comprised ²²⁸Th which had not yet decayed would also satisfy this claim element, and cited to testimony from Mr. Conroy explaining the same. POR, 43 (citing EX2002, 98). This parallels the specification’s express disclosure of a precursor isotope source that includes ²²⁸Th, and which may include other isotopes including ²²⁴Ra, including examples in which some isotopes (e.g., ²²⁴Ra) may not initially be present but may subsequently become present as radioactive decay products. *See, e.g.*, EX1001, 6:24-38. Petitioner provides no response because the petition’s argument is indefensible.

The Reply drops the petition’s original argument regarding claim 3 and raises no further argument separate from its argument for claim 2. The Reply’s arguments for claims 2 and 3 thus both fail for similar reasons.

2. Claim 20

Petitioner’s §112 argument for claim 20 depends on its claim construction, which should be rejected as explained above and in the POR. However, the Reply once again mischaracterizes the POR, claiming that “PO does not deny that the claim is invalid under §112 to the extent the Board adopts this construction.” Reply, 21 (citing POR, 51-53). Petitioner appears not to have read the pages of the

POR it cites to, as it explained how claim 20 would be enabled and disclosed even if Petitioner's construction (requiring an exact time) were adopted.

Petitioner's §112 challenges should be rejected.

IV. EXPERTS

A. Petitioner's Attack on Mr. Conroy Fails

The '603 patent relates to devices and methods useful for generating radiopharmaceuticals. EX1001, 12:35-38; Pet., 2. Mr. Conroy satisfies Petitioner's POSITA definition. *See* Pet., 2-3. He has a bachelor's degree in pharmacy, a comparable field to those listed in Petitioner's definition, and many years of experience in the pharmaceutical industry, including many years of experience prior to the '603 patent's priority date as a practicing radiopharmacist with board certification in nuclear pharmacy. *E.g.*, EX2002, ¶¶2-4; EX2003; EX1023, 34:2-17 (at least six years' experience preparing and dispensing radioactive drugs for patient use). He is also well versed in the principles of radioisotope generation and familiar with radioisotope generators sold and under development prior to the critical date of the '603 patent. EX2002, ¶4.

Rather than responding to the substance of Mr. Conroy's testimony, Petitioner asserts that his pharmacy degree is not among the degrees listed in its definition but offers nothing but attorney argument to explain why the field of pharmacy is not a "comparable" field in the context of radiopharmaceutical

generators. Moreover, Mr. Conroy's extensive experience with radiopharmaceutical generation further confirms his qualifications. Petitioner complains that experience using radiopharmaceutical generators is insufficient, but this contradicts its own definition of relevant experience as "professional experience with radioisotope generators, or other relevant industry experience." Pet., 2-3. Petitioner also complains that Mr. Conroy did not personally design a new radiopharmaceutical generator, despite his unambiguous testimony that he was able to do so, and merely previously hadn't had cause to do so. EX1023, 30:2-19.

Petitioner's remaining arguments are similarly unfounded. The fact that Mr. Conroy previously co-founded and worked for a company that did business with ARTBIO, among many other customers, falls well short of showing an interest in these proceedings. Petitioner asserts that this company had dealings with ARTBIO but concedes that it does not know whether those dealings involved the technology claimed in the '603 patent. Rather, Petitioner asserts, as unsupported attorney argument, that "ARTBIO's AlphaDirect™ technology is *likely* the commercial embodiment of the invention disclosed in the '603 patent." Reply, 26.

Petitioner's cited cases also fall short. For example, *Parrot S.A. v. QFO Labs, Inc.* involved a declarant who conceded "a direct, financial stake in the outcome" as a co-founder and officer of the patent owner, and even in that case,

the Board only accorded reduced weight to testimony untethered to record evidence. IPR2018-01690, Paper 40, 63-64 (Feb. 20, 2020). Petitioner identifies no testimony of Mr. Conroy lacking supporting evidence and provides no reason to disregard his opinions. And in *Transcend Medical, Inc. v. Glaukos Corp.*, cited by the Reply, the declarant not only owned an interest in the patent owner itself, but also sat on its “Scientific Advisory Board,” worked for the patent owner as a clinical monitor for all trials of the patented product, and had personally earned a half-million dollars from the patent owner. 2015 WL 263612, *7 (D. Del. Jan. 16, 2015). The present case bears no resemblance, as Mr. Conroy has neither worked for or owned any interest in Sciencons or ARTBIO. EX1023, 61:2-17; EX2002, ¶10; *see* EX2003.

B. Petitioner’s Experts Fail to Support Its Case

Petitioner does not dispute that Per Hoff’s opinions regarding theories of unpatentability, including anticipation and obviousness, are conclusory and entitled to no weight. While Petitioner asserts that Per Hoff’s declaration describes his recollection of how “the device in his article actually worked at the time” (Reply, 22), the theories of the petition were based on the Hassfjell-Hoff publication, not the device. Nor were Dr. Mirzadeh’s opinions informed by the Hoff declaration. *See* EX2004, 21:4-13; EX1002, xii (Hoff declaration not cited).

As to Dr. Mirzadeh, the Reply fails to address the deficiencies discussed in the POR. *See, e.g.*, POR, 10-11, 20-22, 39-41, 48, 55-56.

V. CONCLUSION

The Board should uphold the challenged claims' patentability.

Respectfully submitted,

Date: June 16, 2026

/ Michael T. Rosato /

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Reg. No. 52,182

CERTIFICATE OF COMPLIANCE

Pursuant to §42.24(d), the undersigned certifies that this paper contains no more than 5,600 words, not including the portions of the paper exempted by §42.24(b). According to the word-processing system used to prepare this paper, the paper contains 5,529 words.

Respectfully submitted,

Date: June 16, 2026

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CERTIFICATE OF SERVICE

I certify that the foregoing Patent Owner's Sur-Reply was served on this
16th day of June, 2026, on Petitioner at the following electronic service addresses:

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