Trials@uspto.gov
571-272-7822

Paper 10
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FRESENIUS KABI USA, LLC and FRESENIUS KABI SWISSBIOSIM GmbH,
Petitioner,

v.

COHERUS BIOSCIENCES, INC.,
Patent Owner.

PGR2019-00064
Patent 10,155,039

Before SUSAN L.C. MITCHELL, CHRISTOPHER G. PAULRAJ, JOHN H. SCHNEIDER, *Administrative Patent Judges.*

PAULRAJ, *Administrative Patent Judge*.

DECISION
Denying Institution of Post-Grant Review
35 U.S.C. § 324 and 37 C.F.R. § 42.208

I. INTRODUCTION

Fresenius Kabi USA, LLC and Fresenius Kabi SwissBioSim GmbH (collectively, "Petitioner") filed a Petition requesting post-grant review of claims 1–12 (the "challenged claims") of U.S. Patent No. 10,155,039 B2 (Ex. 1001, "the '039 patent"). Paper 3 ("Pet."). Coherus BioSciences, Inc. ("Patent Owner") filed a Preliminary Response to the Petition. Paper 9 ("Prelim. Resp."). We have jurisdiction under 35 U.S.C. § 324.

To institute a post-grant review, we must determine whether the information presented in the petition "would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." 35 U.S.C. § 324(a). After considering the Petition and the Preliminary Response, we determine, for the reasons set forth below, that Petitioner has failed to demonstrate that it is "more likely than not" that any of the challenged claims are unpatentable based on the grounds presented. Therefore, we do not institute a post-grant review of those claims.

A. Related Matters

Petitioner and Patent Owner both indicate that the '039 patent is the subject of the following litigation: *Coherus BioSciences, Inc. v. Amgen Inc.*, Case No. 1:19-cv-00139-RGA (D. Del.). Pet. 2; Paper 6, 2.

B. The '039 Patent

The '039 patent, titled "Stable Aqueous Formulations of Adalimumab," discloses pharmaceutical adalimumab compositions suitable for long-term storage. Ex. 1001, Abstract. The '039 patent issued from an application (Appl. No.

15/799,851) filed October 31, 2017, and claims priority to three provisional applications, all of which were filed before the AIA critical date.

Adalimumab is the active pharmaceutical ingredient in the drug Humira. Ex. 1001, 7:31–32. Adalimumab is described in U.S. Pat. No. 6,090,382, which is incorporated by reference in its entirety in the '039 patent. *Id.* at 1:57–59. Although Humira was commercially available in an aqueous formulation at the time the '039 patent was filed, the '039 patent discloses that the stability of aqueous adalimumab could be improved by removing the citrate and phosphate buffer, mannitol, and sodium chloride. Ex. 1002, 5:5–27.

According to the specification, "adalimumab compositions which comprise only one buffer (as opposed to two or more buffers) are more stable than adalimumab compositions comprising both a citrate buffer and a phosphate buffer." *Id.* at 11:58–61. The specification provides acetate, succinate, histidine, phosphate, tartrate, maleate, and citrate as examples of sole buffers that are more stabilizing than the citrate and phosphate buffer combination. *Id.* at 16:26–27, 21:46–47. The specification further describes that "sodium chloride is destabilizing" and that other stabilizers are "significantly better [options] . . . than mannitol." *Id.* at 5:7–8, 14:23.

The specification also provides testing data used to demonstrate the improved stability of the '039 patent's adalimumab compositions. Some of the tests used Humira as a control for purposes of stability comparison. *See, e.g.*, *id.* at 37:18–23. The data from the Humira-control tests show that single buffer adalimumab formulations are more stable than the commercially available Humira. *Id.* The '039 specification further discloses analyzing the adalimumab compositions using size exclusion chromatography ("SEC") and capillary isoelectric focusing ("cIEF"), among other techniques. *See generally id.* at 25:1–

63:49. Table E-1, reproduced below, displays examples of acetate-buffered formulations that exhibit comparable or superior stability to Humira.

TABLE E-1

Measured pH for Block E formulations at t0 and t1 (one week, 40° C.)

Form No.	pH	citrate	phosphate	sorbitol	Gly	Arg	mannitol	NaCl	PS 80	t0	t1	t2
1	5.2	8	18	0	0	0	65	100	0.1	5.15	5.11	5.21
2	3.5	8	18	0	0	0	65	100	0.1	3.36	3.49	3.50
3	5.2	0	0	0	0	0	65	100	0.1	5.13	5.24	5.24
4	3.5	0	0	0	0	0	65	100	0.1	3.31	3.43	3.45
5	3.5	0	0	65	0	0	0	100	0.1	3.30	3.48	3.42
6	3.5	0	0	0	0	130	0	0	0.1	3.24	3.52	3.42
7	3.5	0	0	0	0	130	0	0	0	3.27	3.59	3.48
8	3.5	0	0	0	240	0	0	0	0	3.27	3.33	3.39
9	5.2	0	0	0	240	0	0	0	0	5.05	5.25	5.20
10	3.5	0	0	0	100	100	0	0	0	3.30	3.45	3.41
11	5.2	0	0	0	100	100	0	0	0	5.20	5.38	5.39
12	3.5	0	0	0	150	50	0	0	0	3.24	3.38	3.37

Id. at 39.

C. Illustrative Claims

Petitioner challenges claims 1–12 of the '039 patent, of which claims 1, 5, and 9 are the only independent claims. Claim 1 is representative of the independent claims and recites:

1. A stable aqueous pharmaceutical composition comprising:

a) adalimumab;

b) a buffer;

c) polysorbate 80; and

d) a sugar,

wherein the composition is free of i) mannitol, ii) citrate and phosphate buffers, and iii) sodium chloride and wherein the composition has a pH of about 5 to about 6.

D. Asserted Grounds of Unpatentability

Petitioner advances three grounds of unpatentability in relation to claims 1–12 of the '039 patent and seek cancellation of those claims. Pet. 1. Petitioner argues that the challenged claims are unpatentable for: 1) lack of written description; 2) lack of enablement; and 3) indefiniteness. *Id.*

Ground	Claims	Statutory Basis
1	1–12	35 U.S.C. § 112 (written description)
2	1–12	35 U.S.C. § 112 (enablement)
3	1–12	35 U.S.C. § 112 (indefiniteness)

Petitioner also relies on the declaration of Christian Schöneich, Ph.D. Ex. 1002.

II. ANALYSIS

A. Post-Grant Eligibility

Post-grant reviews are only available for patents "described in section 3(n)(1)" of the Leahy-Smith America Invents Act, Pub. L. No. 112-20, 125 Stat. 284 (2011) ("AIA"). AIA § 6(f)(2)(A); *see Arkema Inc. v. Honeywell Int'l Inc.*, PGR2016-00011, Paper 13 at 15 (PTAB Sept. 2, 2016). These patents issue from applications "that contain[] or contained at any time . . . a claim to a claimed invention that has an effective filing date . . . on or after" March 16, 2013. AIA § 3(n)(1). *See also* 37 C.F.R. § 42.204(a) (requiring that "petitioner . . . certify that the patent for which review is sought is available for post-grant review").

The '039 patent issued on December 18, 2018, from U.S. Application No. 15/799,851, filed on October 31, 2017. Ex. 1001, codes (45), (21), (22). The '851 application, through a continuation application, claims priority to U.S. Provisional Application No. 61/698,138, filed on September 7, 2012, U.S. Provisional Application No. 61/769,581, filed on Feb. 26, 2013, and U.S. Provisional Application No. 61/770,421, filed on Feb. 28, 2013. *Id.* at codes (60), (63).

Petitioner filed the request for post-grant review on September 17, 2019, which is within nine months of the grant of the '039 patent. 35 U.S.C. § 321(c). *See* Pet. 2. Petitioner asserts that "the challenged claims have an effective filing date no earlier than September 6, 2013, because the earlier-filed priority provisional applications do not adequately disclose or enable them under 35 U.S.C. §112(a), and are thus eligible for PGR." Pet. 1.

Because Petitioner has failed to show it is more likely than not that any of the challenged claims are unpatentable based on the merits of the challenges presented, we determine that we need not address Petitioner's priority date arguments or the issue of PGR eligibility for the '039 patent. For purposes of our analysis herein, we will assume *arguendo* that the '039 patent is PGR eligible.

B. Level of Ordinary Skill in the Art

Petitioner does not propose a level of ordinary skill in the art. Patent Owner, however, asserts that a person of ordinary skill in the art ("POSA") would have "an advanced degree in biology, biochemistry, or chemistry (or related discipline), and at least two years of experience preparing formulations of proteins suitable for therapeutic use." Prelim. Resp. 11. Patent Owner further contends that a POSA would have understood stability testing and partial least squares modeling for formulation development and would have been familiar with prior art concerning adalimumab formulations. *Id.*

Patent Owner's undisputed proposed definition is consistent with the cited prior art, and we adopt it for the purposes of this Decision. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required "where the prior art itself reflects an appropriate level and a need for testimony is not shown" (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

C. Claim Construction

We apply the claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and used to construe claims in a civil action under 35 U.S.C. § 282(b). *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018); 37 C.F.R. § 42.100(b) (as amended). Under the *Phillips* standard, claim terms must be given "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1313.

1. "stable aqueous pharmaceutical composition"

Petitioner asserts that the term "stable aqueous pharmaceutical composition" should be construed as a range of stability, encompassing formulations that do not lose more than 5% to 20% of their activity during long-term storage. Pet. 10. Although the term "stable" appears in the preamble of the claim, Petitioner contends that it serves as a limitation because: 1) during prosecution, the applicant distinguished the claimed compositions from the prior-art formulations on the ground that they are "stable," 2) and the applicant repeatedly described the "invention" as being "stable." *Id.* at 12.

In particular, Petitioner relies upon the following definition provided in the specification:

> The term 'stable' with respect to long-term storage is understood to mean that adalimumab contained in the pharmaceutical compositions does not lose more than 20%, or more preferably 15%, or even more preferably 10%, and even most preferably 5% of its activity relative to activity of the composition at the beginning of storage.

Id. at 10. (citing Ex. 1001, 9:28–33; Ex. 1002 ¶ 44–51). Petitioner further contends that the term "stable" should be construed to refer to the stability during "long-term storage" of adalimumab, which is defined to mean "that the pharmaceutical

composition can be stored for three months or more, for six months or more, and preferably for one year or more, most preferably a minimum stable shelf life of at least two years." *Id.* at 11 (citing Ex. 1001, 9:12–27; Ex. 1002 ¶¶ 49–51). From these ranges, Petitioner contends that the term "stable" encompasses "aqueous compositions that [do] not lose more than 5% of their biological activity when stored for a minimum of two years," "[e]ither as a liquid at 2-8° C, or frozen, e.g., at - 20° C or colder." *Id.* at 12.

Patent Owner does not dispute that the term "stable" in the preamble serves as a limitation. Rather, Patent Owner counters that the term "stable aqueous pharmaceutical formulation" "should be given its plain and ordinary meaning," which only requires the formulation to maintain a "stability suitable for its intended pharmaceutical application." Prelim. Resp. 12–13. Patent Owner argues that the term does not require "stability upon 'long-term storage'" and that "[t]he specification as a whole does not show a 'clear intent' to redefine the term 'stable.'" *Id.* at 13. Additionally, Patent Owner argues that "[t]he plain language of the claims does not require 'long term' stability," and the specification describes extensive stability testing techniques that do not require long term storage or a direct measurement of biological activity following long term storage. *Id.* at 13–14. Patent Owner contends definitions from the specification relied upon by Petitioner only relate to long-term storage, and do not constitute "a 'clear intent' to redefine the 'term stable"' to require the range of stabilities asserted by Petitioner. *Id.* at 15.

We are unpersuaded by Petitioner's argument that the term "stable" should be construed to include formulations that do not lose more than 5% of their activity during two years of long-term storage. Although the specification defines "'stable' with respect to long-term storage" in terms of the biological activity of

adalimumab (Ex. 1001, 9:28–33), and defines "long-term storage" and "long term stability" in terms of a time period up to two years (*id.* at 9:12–16), other portions of the specification indicate that the required stability may be determined by a comparison to the commercial formulation of adalimumab known in the prior art, i.e., Humira. *See id.* at 9:16–23 ("Generally speaking, the terms 'long term storage' and 'long term stability' further include stable storage durations that are at least comparable to or better that [sic] the stable shelf typically required for currently available commercial formulations of adalimumab, without losses in stability that would render the formulation unsuitable for its intended pharmaceutical application"); *see also id.* at 4:43–47 ("The method is useful to obtain a formulation of adalimumab that exhibits long term stability comparable to or better than commercially available adalimumab formulations marked under the trademark Humira®."). As noted by both Petitioner and Patent Owner, the testing methods described in the specification only included tests that measured chemical degradation, not changes in activity. Pet. 16; Prelim. Resp. 13. As such, we agree with Patent Owner that "[a] POSA would understand that at least the assays described in the specification, which use the commercial Humira® formulation as a control comparator, are sufficient to determine that an adalimumab formulation is 'stable' within meaning of the claims." Prelim. Resp. 13.

Even taking into account the definitions cited by Petitioner, we agree with Patent Owner that "[a] POSA would not interpret the claims as covering a genus of formulations having a range of different stabilities . . . , especially because the claims simply do not recite a range of stability values to be achieved over different periods of time." Prelim. Resp. 15. Rather, the term "stable" is defined to only require a minimum level of stability (i.e., a loss of no more than 20% of activity) and notes optional "more preferable" levels, including most preferably no more

than 5%. Ex. 1001, 9:28–33. Likewise, the terms "long-term storage" and "long term stability" are only defined to require a minimum stability of three months, and the specification only states that the composition "most preferably" has a stable shelf life of at least two years. *Id.* at 9:12–16. As such, we do not find any intrinsic or extrinsic evidence of record suggesting that the applicant intended to require that the claimed formulations must be able to achieve the highest amount of stability over the longest time period identified in the specification.

2. Citrate and Phosphate Buffers

Petitioner asserts that a POSA would have understood that the phrase "citrate and phosphate buffers" recited among the excluded ingredients in the claims could reasonably be interpreted in one of two ways: (1) the claims exclude citrate buffer, phosphate buffer, and the combination of the two, or (2) the claims exclude only the combination of citrate and phosphate. Pet. 14. Petitioner further asserts that the specification does not define "citrate and phosphate buffers." *Id.* Patent Owner responds that the correct interpretation of "citrate and phosphate buffer" is "the combination of citrate and phosphate buffers." Prelim. Resp. 16–17.

We determine that there is sufficient evidence in the intrinsic record to support Patent Owner's assertion that a POSA would understand that the term "citrate and phosphate buffer" refers only to the combination of a citrate buffer and a phosphate buffer. As noted by Patent Owner, the specification consistently states that the combination of citrate and phosphate is to be avoided. Prelim. Resp. 17 (citing Ex. 1001, 5:15–27, 21:43–47). For example, several embodiments disclosed in the specification identify citrate and phosphate individually among the buffers that may be included in the composition, but state that "said buffer does not comprise a combination of citrate and phosphate." *See, e.g.*, Ex. 1001, 2:9–19.

The specification further teaches that "the combination of citrate and phosphate is surprisingly significantly poorer in stabilizing adalimumab than other buffers" and further explains that "the present invention . . . is directed to adalimumab formulations . . . wherein a buffer combination of citrate and phosphate is avoided." *Id.* at 5:14–16, 21:42–44. Additionally, the specification also contrasts the invention with prior art adalimumab formulations (i.e., Humira) containing a citrate/phosphate buffer combination. *Id.* at 5:18–27. Therefore, we are persuaded by and agree with Patent Owner's construction of "citrate and phosphate buffer" as only excluding the combination of citrate and phosphate.

3. Other Claim Terms

Petitioner also proposes constructions for the terms "buffer," "about," "sugar," and "single dose." Pet. 13–16. To the extent the specification provides an express definition of these claim terms, we have taken those definitions into account. However, we decide that it is not necessary to construe these other terms for purposes of our analysis in this decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'").

D. Ground 1: Lack of Written Description

Petitioner argues that the challenged claims are unpatentable for lack of written description because the '039 patent does not adequately disclose "examples of formulations that fall[] within the scope of the claims, empirical test data demonstrating that such formulations are 'stable' as defined in the patent, or guidance as to which particular combinations of ingredients and concentrations result in 'stable' formulations." Pet. 44–45 (citing Ex. 1002 ¶¶ 154–55). With

respect to these arguments, we focus our analysis on independent claim 1 as our conclusions for that claim are applicable to the other challenged claims.

1. Legal Standard

35 U.S.C. § 112 requires that a patent's specification "contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). This provision ensures "the inventor actually invented the invention claimed" and "had possession of the claimed subject matter as of the filing date." *Id.* at 1350–51. A patent specification can demonstrate possession of the claimed invention by providing a "precise definition" of the invention. *Id.* at 1350. "To provide this 'precise definition' for a claim to a genus, a patentee must disclose 'a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can "visualize or recognize" the members of the genus.'" *Amgen Inc. v. Sanofi*, 872 F.3d 1367, 1373 (Fed. Cir. 2017) (quoting *Ariad*, 598 F.3d at 1350).

2. Analysis

Petitioner contends that the '039 patent "does not pass the 'representative species' test" because "claim 1 is a broad genus claim and stability must be verified by empirical testing." Pet. 45. Petitioner states that "[a]lthough the specification discloses dozens of additional test formulations, the only one that may be an embodiment of the claims is formulation D-12." *Id.* at 46. Petitioner also asserts that despite the disclosure of formulation "D-12," "empirical test data on a single species would not have described with reasonable clarity to a POSA which of the millions of possible species are stable enough to be members of the genus." *Id.* at 46–47.

Petitioner further argues that the '039 patent "does not earn a passing grade on the 'common structural features test'" because the specification "does not correlate particular combinations and concentrations of the claimed ingredients . . . with the claimed stability." *Id.* at 47. Particularly, Petitioner asserts that the test data for formulation "D-12" do not measure biological activity, as the claim term "stable" requires. *Id.* at 50–51. Petitioner argues that because biological activity is not measured by the testing methods, "the data, when viewed by a POSA as a whole, do not establish that any embodiment of the claims falls within the claimed stability range." *Id.* 50.

We agree with Patent Owner that Petitioner has not satisfied its burden of showing that it is more likely than not that claims 1–12 of the '039 patent are unpatentable for lack written description. As Patent Owner correctly asserts, there is no legal requirement that a patent must include test results or working examples demonstrating stability for every possible composition that is covered by the claims. Prelim. Resp. 58; *see Ariad*, 598 F.3d at 1352 (stating that "the written description requirement does not demand either examples or an actual reduction to practice."). Additionally, as acknowledged by Petitioner, at least one embodiment disclosed in the specification, the formulation "D-12," "arguably falls within claim 1 since it has 'adalimumab biosimilar,' 10 mM phosphate buffer, 0.1% polysorbate 80, 240 mM trehalose sugar and a pH of 5.44, and does not contain mannitol or NaCal." Pet. 18. Therefore, we are not persuaded by Petitioner's "representative species test" arguments insofar as the specification identifies with sufficient clarity each of the ingredients that must be included as part of the claimed composition (i.e., adalimumab, a buffer, polysorbate 80, and a sugar) and further provides a reason to exclude the ingredients that must *not* be included in the

claimed composition (i.e., mannitol, a citrate/phosphate buffer combination, and sodium chloride).

We further agree with Patent Owner that Petitioner has failed to sufficiently show why a POSA could not determine that the '039 patent "correlates the presence and absence of particular components and conditions with achieving the claimed stability." Prelim. Resp. 59–60. Petitioner bases its argument on an incorrect construction of the term "stable" as requiring a range of stability, which includes a loss of no more than 5% activity over a period of two years. As discussed above, however, we do not construe the term "stable" recited in the claims to require the maximum stability disclosed in the Specification of the '039 as asserted by Petitioner. Patent Owner identifies teachings in the specification indicating the structural features required for achieving a stable adalimumab composition, which include: 1) avoiding the citrate/phosphate buffer combination in favor of another more stable buffer (such as an acetate buffer); 2) including polysorbate 80 as a stabilizer; 3) removing sodium chloride (NaCl) from the formulation; 4) using a sugar or polyol as the tonicity modifier in place of mannitol/NaCl; and 5) maintaining a pH of at least 5 (with an optimal pH near 5.2). *Id.* at 60 (citing Ex. 1001, 5:42–44, 21:40–47, 37:25–38:4, 38:1–7, 61:24–25). Patent Owner further asserts, and we agree, that the specification "provides working examples that demonstrate comparable or superior stability to the commercial Humira® formulation" and that Petitioner fails to demonstrate why a POSA would doubt that the formulations that demonstrated improved stability relative to Humira would be stable. *Id.* at 60–61.

Because Petitioner relies on an incorrect construction of stable and does not address the specification's teachings that certain components and pH, including those explicitly recited in the claims, can impart stability, we are unconvinced

based on the present record by Petitioner's argument that the inventors did not demonstrate possession of the claimed stable aqueous pharmaceutical composition. For the foregoing reasons, we agree with Patent Owner that Petitioner has failed to demonstrate that it is "more likely than not" that any of the challenged claims are unpatentable for lack of written description.

E. Ground 2: Lack of Enablement

Petitioner asserts that the challenged claims are unpatentable because the specification does not enable the full scope of the claims. Pet. 56. To support this assertion, Petitioner addresses a subset of the factors set forth in *In re Wands*, 858 F.2d 731 (Fed. Cir. 1988), and argues those factors "confirm . . . the '039 patent specification does not enable a POSA to practice the full scope of claims 1–12 without undue experimentation." *Id.* at 56. With respect to these arguments, we also focus our analysis on independent claim 1 as our conclusions for that claim are applicable to the other challenged claims.

1. Legal Standard

"Enablement requires that 'the specification teach those in the art to make and use the invention without undue experimentation.'" *Idenix Pharm. LLC v. Gilead Sci. Inc.*, 941 F.3d 1149, 1154 (Fed. Cir. 2019) (quoting *Wands*, 858 F.2d at 737). The factors to be considered when determining if undue experimentation is required to practice the invention include: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims. *Wands*, 858 F.2d at 737.

2. Analysis

Petitioner does not separately discuss each of the *Wands* factors, but instead focuses on the breadth of the claims, the amount of experimentation required, and the little guidance and lack of working examples provided in the specification to assert that a POSA would not be able to practice the full scope of the claimed invention without undue experimentation. Pet. 56–60.

In particular, Petitioner contends that the scope of claims 1–12 "encompass millions of different formulations and those formulations will vary significantly in terms of stability." *Id.* at 56. With respect to the quantity of experimentation necessary, Petitioner contends that a "POSA would need to test compositions covered by the claims to determine whether they met a particular claimed stability level," and "[i]f they did not, the POSA would then need to make adjustments to the compositions and re-test as many times as necessary before achieving the required level." Pet. 57 (citing Ex. 1002 ¶¶ 186–87) (internal citations omitted). Petitioner further contends that that "[a] POSA would have no way to evaluate if a formulation had the claimed range of stability, i.e., the claimed range of activity, with the tests measuring chemical degradation disclosed in the application." *Id.* With respect to the guidance provided in the specification, Petitioner contends that the only example of a formulation that possibly contains the ingredients of claims 1-4 is Formulation D-12, and the specification does not demonstrate that that is a "working" example, i.e., has the claimed stability. *Id.* at 58 (citing Ex. 1002 ¶¶ 159–63). Petitioner further contends that, "[t]he specification does not provide any examples of ingredient combinations set forth in claims 5-12, working or otherwise. *Id.* (citing Ex. 1002 ¶ 177).

Petitioner contends that "to enable the full scope of the claims, the specification must enable a POSA to make sufficiently stable formulations

containing hard-to-stabilize features, such as a high concentration of adalimumab, a pH at or near 4, a sugar like glucose that is a potent oxidizer, and buffers that the specification describes as being strong destabilizers, such as acetate," and "must also enable a POSA to make formulations that meet the stringent 5% upper end of the claimed stability range." *Id.* at 59. According to Petitioner, making and using the compounds covered by the claim would require undue experimentation because "a POSA would have to make and screen each candidate composition for stability, using a test of their own devising, to see whether it was stable for at least 3 months." *Id.* at 60.

We are not persuaded by Petitioner's arguments. As with its written description challenge, Petitioner's arguments for lack of enablement are premised on an incorrect construction of the term "stable." Contrary to Petitioner's arguments, we do not find that the claims must necessarily be enabled for the "stringent 5% upper end" of the stability range insofar as the specification only discloses that a loss of no more than 5% is "most preferabl[e]," but is not otherwise required to achieve a stable pharmaceutical composition. Pet. 59; Ex. 1001, 9:28–33. As discussed above, we find that the specification provides a detailed disclosure of the testing used to assess stability (using Humira as the control), and identifies specific ingredients to be included and excluded from the claimed composition, and further identifies the pH that is necessary to achieve the claimed stability. Although there may be certain concentrations of adalimumab or certain types of buffers and sugars that may render the compositions more difficult to stabilize, Petitioner does not explain sufficiently why a POSA would not have known how to adjust or select those ingredients in order to achieve the claimed stable aqueous pharmaceutical composition. Moreover, even if a POSA would have needed to test whether a particular composition was stable, "[t]he fact that

some experimentation is necessary does not preclude enablement; what is required is that the amount of experimentation 'must not be unduly extensive.'" *PPG Indus., Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1996) (citing *Atlas Powder Co. v. E.I. DuPont De Nemours & Co.*, 750 F.2d 1569, 1576 (Fed. Cir. 1984)). Indeed, even "a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed." *Id.* (citing *Ex parte Jackson*, 217 USPQ 804, 807 (BPAI 1982)).

In sum, based on the current record, Petitioner has not demonstrated that achieving the claimed composition would require a POSA to undertake undue experimentation. For the foregoing reasons, we agree with Patent Owner that Petitioner has failed to demonstrate it is "more likely than not" that any of the challenged claims are unpatentable for lack of enablement.

F. Ground 3: Indefiniteness

1. Legal Standard

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). The standard set forth by the Supreme Court "mandates clarity, while recognizing that absolute precision is unattainable." *Id.* at 910.

2. Analysis

Petitioner asserts that the challenged claims are indefinite because the requirement that the "composition be 'free of . . . citrate and phosphate buffers' is

subject to two reasonable constructions:" (1) the claims exclude citrate buffer, phosphate buffer, and the combination of the two; or (2) the claims exclude only the combination. Pet. 61 (citing Ex. 1002 ¶ 57). Petitioner further contends that the "intrinsic evidence does not sufficiently resolve the ambiguity" and the "phrase 'citrate and phosphate buffers' was not discussed during prosecution of the application." *Id.* at 62.

As explained above, we construe the term "phosphate and citrate buffer" to be the combination of the two buffers. Therefore, we are not persuaded that the claims are indefinite insofar as the scope of what is excluded from the claimed composition is sufficiently clear. Accordingly, we agree with Patent Owner that, based on the current record, Petitioner has failed to demonstrate it is "more likely than not" that any of the challenged claims are unpatentable based on indefiniteness.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has failed to show it is "more likely than not" that any of claims 1–12 of the '039 patent are unpatentable based on the grounds presented. We, therefore, do not institute a post-grant review of those challenged claims based on the current Petition.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. §324, no post-grant review is instituted as to any claim of the '039 patent.

FOR PETITIONER:

Linnea Cipriano
Huiya Wu
GOODWIN PROCTER LLP
Lcipriano@goodwinlaw.com
HWu@goodwinlaw.com

FOR PATENT OWNER:

Joseph Hynds
Jennifer Nock
Aydin Harston
ROTHWELL, FIGG, ERNST & MANBECK, P.C.
jhynds@rfem.com
jnock@rfem.com
aharston@rfem.com