

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

L'ORÉAL USA, INC.,
Petitioner,

v.

LIQWD, INC.,
Patent Owner.

Case PGR2018-00025
Patent 9,668,954 B2

Before TONI R. SCHEINER, CHRISTOPHER M. KAISER, and
TIMOTHY G. MAJORS, *Administrative Patent Judges*.

MAJORS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION

Claims 1–13, 19–23, 29, and 30 Shown to Be Unpatentable;
Claims 14–16, 18, and 24–28 Not Shown to Be Unpatentable
35 U.S.C. §§ 314, 318(a) and 37 C.F.R. §§ 42.4(a), 42.73

ORDERS

Denying-In-Part Petitioner's Motion to Exclude (Paper 58) and
Denying-In-Part Patent Owner's Motion to Exclude (Paper 55)
37 C.F.R. § 42.64(c)

Granting Patent Owner's Motions to Seal (Papers 24, 59, 69) and
Granting Petitioner's Motions to Seal (Papers 45, 62)
37 C.F.R. §§ 42.14, 42.54

I. INTRODUCTION

A. Background

L’Oréal USA, Inc. (“Petitioner”) filed a Petition requesting post-grant review of claims 1–30 of U.S. Patent No. 9,668,954 B2 (Ex. 1001, “the ’954 patent”). Paper 3 (“Pet.”). Liqwd, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). On August 9, 2018, we instituted post-grant review of the challenged claims (except claim 17¹) based on the grounds advanced in the Petition. Paper 12 (“Inst. Dec.”).

During the trial, Patent Owner filed a Response. Paper 23 (“Resp.”). Petitioner filed a Reply to Patent Owner’s Response. Paper 46 (“Reply”). Patent Owner sought authorization to file a motion to strike the Reply for including allegedly new argument and evidence related to certain claims and, thus, for non-compliance with 37 C.F.R. § 42.23(b). We did not grant such authorization, but permitted the parties (Paper 51) to submit supplemental briefing (Papers 52, 53) on the issue of whether Petitioner had complied with Rule 42.23(b). We further allowed Patent Owner to file a Sur-Reply to address the allegedly untimely argument and evidence in the Reply. Paper 60 (“Sur-Reply”). Patent Owner filed Observations on Cross-Examination. Paper 56. Petitioner responded to those observations. Paper 65. Petitioner also filed Observations on Exhibit 2056 from a related post-

¹ Based on a disclaimer of claim 17 under 35 U.S.C. § 253, the Board did not institute post-grant review of that claim. Inst. Dec. 3 n.1; 37 C.F.R. § 42.207(e); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1357 (2018) (noting that “some [claims] may drop out thanks to the patent owner’s actions [e.g., claims canceled by amendment].”); *cf. In re Yamazaki*, 702 F.3d 1327, 1332 (“[W]e have interpreted § 253 to mean that after such disclaimer the patent is treated as though the disclaimed subject matter never existed.”) (citation and internal quotation marks omitted).

grant review (an exhibit submitted as Exhibit 2084 in this proceeding).
Paper 67; Paper 66, 4. Both parties also filed Motions to Exclude Evidence.
Paper 58 (“Pet. Mot.”); Paper 55 (“PO Mot.”). The Board held an oral
hearing on May 20, 2019. A transcript of that hearing is in the record.
Paper 77.

We have jurisdiction under 35 U.S.C. § 6, and we issue this Final
Written Decision pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73.
After considering the parties’ arguments and evidence on this record, we
conclude that Petitioner has established by a preponderance of the evidence
that each of claims 1–13, 19–23, 29, and 30 is unpatentable for obviousness.
Petitioner has not, however, met its burden to establish by a preponderance
of the evidence that claims 14–16, 18, and 24–28 are unpatentable.

B. Related Matters

The parties identify several related petitions for post-grant review
including PGR2018-00023 and PGR2018-00024, which were filed at the
same time as the present Petition and also challenged the patentability of
claims 1–30 of the ’954 patent, but on different grounds. Pet. 9–11; Prelim.
Resp. 1. We denied institution of review in those proceedings. *L’Oréal
USA, Inc. v. Liqwd, Inc.*, Case PGR2017-00023, slip op. at 2–4, 37 (PTAB
Aug. 10, 2018) (Paper 9); *L’Oréal USA, Inc. v. Liqwd, Inc.*, Case PGR2017-
00024, slip op. at 2–4, 25 (PTAB Aug. 10, 2018) (Paper 12).²

² In PGR2018-00023 and PGR2018-00024, Petitioner challenged the claims
based on anticipation and obviousness (relying on different prior art and/or
combinations than presented here) and further challenged the claims for lack
of written description and for indefiniteness.

Petitioner also identifies PGR2017-00011 and PGR2017-00012 relating to prior challenges to the claims of U.S. Patent No. 9,498,419 (“the ’419 patent”), which patent issued from the grand-parent application to the ’954 patent. Pet. 10. The Board declined to institute review in PGR2017-00011 (Paper 24), but instituted review in PGR2017-00012 and entered a Final Written Decision on June 27, 2018, concluding that the challenged claims of the ’419 patent were unpatentable. *L’Oreal USA, Inc. v. Liqwd, Inc.*, 2017 WL 3085428 (PTAB July 19, 2017); PGR2017-00012, Paper 102. That Final Decision is on appeal at the Federal Circuit. *Liqwd, Inc. v. L’Oreal USA, Inc.*, No. 2018-2152 (Fed. Cir.).³

Petitioner also identifies *Liqwd, Inc. v. L’Oreal USA, Inc.*, No. 1:17-cv-00014 (D. Del.), as a pending infringement suit related to the ’419 and ’954 patents. Pet. 10–11.

C. The Asserted Grounds of Unpatentability

Petitioner contends that claims 1–30 of the ’954 patent are unpatentable based on the grounds set forth in the table below (Pet. 14–15). As noted above (*supra* n.1), claim 17 was disclaimed and, therefore, Petitioner’s challenge to that claim is not substantively addressed in this Final Written Decision.

³ The ’419 patent was also the subject of an even earlier appeal related to a denial of a preliminary injunction sought by Patent Owner and its exclusive licensee (Olaplex LLC). *Liqwd, Inc. v. L’Oreal USA, Inc.*, No. 2017-2295, 2018 WL 480759, at *1 (Fed. Cir. Jan. 16, 2018).

Statutory Ground⁴	Basis	Challenged Claims
§ 103	Pratt ⁵ and Tanabe ⁶	1–19, 21, and 23–30
§ 103	Pratt, Tanabe, and Stone ⁷	20 and 22
§ 103	Pratt, Tanabe, Berkemer, ⁸ and KR '564 ⁹	1–19, 21, and 23–30
§ 103	Pratt, Tanabe, Berkemer, KR '564, and Stone	20 and 22

Petitioner relies on declarations from R. Randall Wickett, Ph.D., among other evidence. Ex. 1012 (“Wickett Decl.”); Ex. 1062 (“Wickett Reply Decl.”). Patent Owner responds with a declaration from Edward T. Borish, Ph.D. (Ex. 2072 (“Borish Decl.”)) and a declaration from Liqwd’s founder, Dean Christal (Ex. 2046 (“Christal Decl.”)), among other evidence.

⁴ The relevant post-grant review provisions of the America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), took effect on March 16, 2013. 125 Stat. at 293, 311. Because the application from which the ’954 patent issued was filed after that date, our citations to Title 35 are to its post-AIA version.

⁵ Pratt et al., US 2012/0024309 A1, published Feb. 2, 2012 (Ex. 1009, “Pratt”).

⁶ Tanabe et al., US 6,358,502 B1, issued Mar. 19, 2002 (Ex. 1007, “Tanabe”).

⁷ Stone et al., US 2013/0034515 A1, published Feb. 7, 2013 (Ex. 1008, “Stone”).

⁸ Berkemer, German Patent Application Publication No. 1,220,969, published July 14, 1966 (Ex. 1003) (certified translation provided as Ex. 1004, “Berkemer”).

⁹ Korean Patent Application Publication No. 10-2006-0059564, published 2006 (Ex. 1005) (certified translation provided as Ex. 1006, “KR ’564”).

D. The '954 Patent

The '954 patent “generally relates to formulations and methods for treating keratin in hair, skin, or nails, and in particular for strengthening and/or repairing hair during or after a coloring or permanent wave treatment.” Ex. 1001, 1:19–22. Certain treatments of hair, including dyeing and bleaching, can result in the disulfide bonds of the hair’s keratin being broken, and the '954 patent expresses “a need for hair formulations and treatments that repair and/or strengthen keratin in hair damaged [by dyeing and bleaching].” *Id.* at 1:33–2:45. According to the '954 patent, “it is an object of this invention to provide improved formulations and methods for repairing and/or strengthening damaged hair.” *Id.* at 2:50–52. The formulations of the '954 patent “may be applied simultaneously with the hair coloring formulation or subsequently to the application of the hair coloring formulation.” *Id.* at 17:31–33. These formulations are described as containing “an active agent,” which may be any of a large number of compounds, including maleic acid. *Id.* at 7:42–11:18.

The '954 patent describes various working examples where a highlighting formulation is applied to hair simultaneously (as part of a mixture) with an active agent formulation. *See, e.g.*, Ex. 1001, 22:38–23:17 (Example 3 (adding an active agent formulation comprising maleic acid to a highlighting formulation comprising a bleach powder and developer to form a mixture)). The '954 patent also describes comparing characteristics of the hair so treated with hair treated with the highlighting formulation alone (i.e., without the active agent). *Id.*

E. Illustrative Claim

The '954 patent includes one independent claim, claim 1. That challenged claim is illustrative and recites:

1. A method for bleaching hair comprising:
 - (a) mixing a bleach powder and a developer to form a bleaching formulation;
 - (b) mixing an active agent formulation comprising an active agent with the bleaching formulation to form a mixture, wherein the active agent is maleic acid; and
 - (c) applying the mixture to the hair;wherein the active agent in the mixture is at a concentration ranging from about 0.1% by weight to about 50% by weight.

Ex. 1001, 25:57–67.

II. ANALYSIS

A. Person of Ordinary Skill in the Art

Petitioner proposes that a skilled artisan is “someone with at least an Associate’s degree in chemistry, chemical engineering, or a related field, and at least 5–7 years of laboratory experience with formulation and testing of hair care products.” Pet. 20. Petitioner also proposes that the skilled artisan may be “someone with a Ph.D. in chemistry, chemical engineering, or a related field with at least minimal prior laboratory experience with formulation and testing of hair care products.” *Id.* (citing Ex. 1012 ¶ 34). According to Patent Owner, “a POSITA . . . would have at least the qualifications of or equivalent to a college degree in chemistry or an associated degree, together with several years of work experience.” Resp. 13 (citing Ex. 2072 ¶ 28).

For this Decision, we adopt Petitioner’s proposal. We do not, however, discern a material difference between the proposals that would

affect our analysis. We also find that the relied-upon prior art demonstrates the level of skill in the art at the time of the invention. *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 reflects an appropriate level and a need for testimony is not shown).

B. Claim Construction

In a post-grant review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.200(b).¹⁰ Claim terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). We need only construe terms in controversy, and only to the extent necessary to resolve that controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

We recap here the claim construction issues raised at institution. At that stage, Petitioner proposed alternative constructions in the three concurrently filed petitions challenging the claims of the '954 patent (PGR2018-00023, PGR2018-00024, and PGR2018-00025). In PGR2018-00023, Petitioner proposed what it coined the “acid interpretation.” PGR2018-00023, Paper 1, 27–33. By contrast, in PGR2018-00024 and in

¹⁰ The Final Rule changing the claim construction standard in PGR proceedings does not apply here, as the Petition was filed before the rule's effective date, November 13, 2018. 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, 51,344 (Oct. 11, 2018).

this Petition, Petitioner advanced a so-called “salt interpretation.” Pet. 21–22 (“[I]n the event the Board disagrees with the acid interpretation and finds that the claims should be interpreted to include salts of maleic acid (‘salt interpretation’), . . . Petitioner sets forth below the bases for unpatentability of the claims under a salt interpretation.”).

We disagreed with Petitioner’s proposed “acid interpretation” for the reasons explained in the decision denying institution in PGR2018-00023. PGR2018-00023, Paper 9, 6–16; *see also* Inst. Dec. 6–9. We concluded that the claims of the ’954 patent did not exclude salts of maleic acid from forming when the free acid is mixed with an alkaline bleaching formulation because that interpretation would exclude all the ’954 patent’s preferred embodiments and working examples. *Id.* We also concluded: (i) that “bleach powder” as recited in claim 1 requires a dry particulate composition (i.e., powder) comprising at least a persulfate and an alkali; and (ii) that “bleaching formulation,” as recited in claim 1, requires a mixture of bleach powder and developer that provides a sufficiently alkaline pH so that the bleaching formulation, when mixed with the active agent formulation and applied to the hair, can remove color from and lighten the hair. *Id.*

We briefly summarize why the bleach powder includes an alkali, and why the bleaching formulation must provide a sufficiently alkaline pH to lighten hair. As Petitioner’s expert explains:

Bleaching is typically carried out under alkaline conditions. Such alkaline conditions are also used in other chemical hair treatments such as dyeing, permanent waving, straightening, etc. . . . Under alkaline conditions, the hair swells allowing the chemical treatment [i.e., agents that destroy the melanin pigment and lighten the hair] to penetrate the hair cuticle into the cortex.

Ex. 1012 ¶ 21; Pet. 17 (“To accomplish [bleaching/lightening], the oxidizing agent was typically mixed prior to application with an alkaline agent in order to form a bleaching mixture at alkaline pH.”). The ’954 patent’s examples describe bleach powder products that are powdered alkaline compositions containing persulfate salts. Ex. 1001, 22:38–24:18 (Examples 3–5); *see also* Ex. 2010 (Joico Bleach Powder label with ingredients); Ex. 2011 (Clairol Professional Basic White powder lightener with ingredients). And this interpretation appears consistent with how bleach powders are described elsewhere in the art. *See, e.g.*, Ex. 1011, 17 (describing bleach powder as including “peroxodisulfate” and “an alkalizing agent”); Ex. 2012 ¶ 5 (bleach powder “contains persulfate salts and alkaline agent(s), which act as accelerators of the bleaching process.”)).

There is no example or description in the ’954 patent of a bleach powder without an alkali, or of any method of lightening hair with a bleaching formulation having an acidic pH. Indeed, evidence of record demonstrates that it is conventionally known that bleaching or lightening of the hair is ineffective without an alkalizing agent and an alkaline pH. Pet. 22; *see, e.g.*, Ex. 1010, 1:46–49 (describing insufficient bleaching power below pH 8.5); Ex. 2008 ¶ 42 (“A pH of greater acidity than 9.0 will tend to give a poor bleaching effect and also reduce the dyeing effect.”).

Patent Owner did not dispute Petitioner’s “salt interpretation” advanced in the Petition. Resp. 21–22. Nor does Patent Owner (or Petitioner) propose any express construction for other claims or claim limitations here—either at institution or through trial. *Id.*; Pet. 20–22. We again (and for consistency with our decisions in related proceedings) adopt

the constructions above, but note that those constructions do not appear to be decisive relative to the grounds here. Based on the evidence and argument presented during trial, and as discussed below, there appears to be no dispute that Pratt teaches a bleach powder and bleaching formulation, that Pratt's formulations are sufficiently alkaline to lighten the hair, and that numerous references teach the use of maleic acid (or its salts) in hair care formulations.

C. Priority

The '954 patent issued from U.S. Patent Application No. 15/415,464 ("the '464 Application" (Ex. 1033)), which was filed on January 25, 2017. Ex. 1001, 1:4–15. The '464 Application is a continuation of U.S. Patent Application No. 15/290,593 (Ex. 1032), which is a continuation of U.S. Patent Application No. 15/087,415 (Ex. 1031), which is a continuation of U.S. Application No. 14/713,885 (Ex. 1030), which claims the benefit of U.S. Provisional Patent Application No. 61/994,709 filed May 16, 2014 ("the '709 Provisional Application" (Ex. 1020)). Ex. 1001, 1:4–15.

Petitioner did not, in this Petition, affirmatively challenge the priority date of the '954 patent's claims.¹¹ Rather, Petitioner stated only that it "does

¹¹ In PGR2018-00023 and PGR2018-00024, Petitioner did expressly challenge the priority of, and sufficiency of the supporting written description for, the claims of the '954 patent. In those petitions, the priority issue arose in relation to Petitioner's challenge to the claims as anticipated by the publication of an application in the '954 patent's priority chain. See PGR2018-00023, slip op. at 18–23 (Paper 9) (denying institution and finding that the challenged claim language was adequately supported in the priority applications); PGR2018-00024, slip op. at 11–16 (Paper 12) (same). We rejected Petitioner's priority arguments related to the anticipation challenge and rejected Petitioner's similar arguments that were the basis of a § 112(a) written description challenge. See IPR2018-00024, slip op. at 22–23 (Paper 12). To the extent that priority of the claims arose during trial briefing in

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not concede that the '954 patent claims are entitled to any claim of priority" to the filing dates of the earlier applications in its priority chain. Pet. 10 n.2; *see id.* at 12 ("Petitioner does not concede that the '954 patent is entitled to priority earlier than the filing date, earlier than *i.e.* January 25, 2017."). Moreover, Petitioner asserted, "the Board need not address this [priority] issue for purposes of this proceeding given that the prior art relied on predates the May 16, 2014, alleged priority date." Pet. 12–13.

Patent Owner, in its Response, asserts that the '954 patent claims are entitled to a priority date at least as early as May 15, 2015 or May 16, 2014. Resp. 13. Those dates correspond, respectively, to the filing dates of U.S. Patent Application No. 14/713,885 (Ex. 1030) and the '709 Provisional Application (Ex. 1020). Citing disclosures in the '954 patent and priority applications, Patent Owner contends that the claimed subject matter is described in the earlier applications and the '954 patent itself. Resp. 16–21. Patent Owner puts particular emphasis on disclosures in the '954 patent and earlier applications that allegedly provide descriptive support for the limitation of claim 1 reciting "wherein the active agent in the mixture is at a concentration ranging from about 0.1% by weight to about 50% by weight." Resp. 16–20. Patent Owner emphasizes those disclosures and that claim limitation to address Dr. Wickett's opinion that "the specification of the

this proceeding, the arguments turn on substantially the same issue as was considered in the related petitions (*i.e.*, whether the priority applications supported the "about" language in claim 1's limitation reciting "wherein the active agent in the mixture is at a concentration ranging from *about* 0.1% by weight to *about* 50% by weight"). Ex. 1001, 25:65–67 (emphases added); Reply 6–7; Resp. 13–21.

‘954 patent (or any application it claims priority to) does not disclose a range of maleic acid using the term ‘about.’” Ex. 1012 ¶¶ 40–41; Resp. 13–20.

In addition to arguing that the claims are entitled to the earlier priority dates, Patent Owner contends that “the Board has already rejected the priority challenge made by Petitioner’s declarant” and that Petitioner “waived [its] ability to challenge the May 16, 2014 priority date” by not raising the issue in the Petition. Resp. 14–15 (citing *L’Oréal*, Case PGR2018-00024, slip op. at 11–16 (PTAB Aug. 10, 2018) (Paper 12); *Polaris Wireless, Inc. v. Trueposition, Inc.*, Case IPR2013-00323, 2013 WL 8563953, *17 (PTAB Nov. 15, 2013)). We first address these contentions.

We agree with Patent Owner that the Board (in related proceedings) has already considered and rejected Petitioner’s contention that claim 1 is lacking descriptive support in the priority applications. See *L’Oréal*, Case PGR2018-00023, slip op. at 18–23 (Paper 9); *L’Oréal*, PGR2018-00024, slip op. at 11–16 (Paper 12). Further below we discuss the reasons why we rejected Petitioner’s contention previously, and why we do so here as well.

We do not, however, agree with Patent Owner’s contention that Petitioner waived any challenge to the priority of the ‘954 patent’s claims. Patent Owner cites the Board’s decision in *Polaris Wireless* to support its waiver argument. But that case did not address waiver. And, insofar as *Polaris Wireless* is read to suggest that priority issues must first be raised by a petitioner in its petition, the Board has since expressly distinguished *Polaris Wireless* on that precise point. See *Core Survival, Inc. v. S & S Precision, LLC*, Case PGR2015-00022, 2016 WL 791751 (PTAB Feb. 19, 2016) (describing the cited language in *Polaris Wireless* as dicta and finding “Patent Owner fails to direct us to, and we not discern independently, any

support in *Polaris Wireless* for the proposition that a Petitioner has any initial burden to contest entitlement to a provisional filing date”). Indeed, the Board in *Core Survival* goes on to explain that “the law is clear that there is no initial burden on Petitioner to rebut a provisional date” and that “[a]s *Dynamic Drinkware* makes clear, the initial burden of production for showing an earlier priority date rests with the patent owner, not the petitioner.” *Id.* (citing *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379–80 (Fed. Cir. 2015)).

Moreover, even if we agreed that, where a petitioner challenges a patent claim as being anticipated by an earlier application/publication in that patent’s own priority chain (a challenge presented in *Polaris Wireless*), that some initial burden is borne by petitioner to identify what claimed features are missing in the ancestral applications, that is not the context in which priority arises here. To the contrary, to the extent priority issues arose in this proceeding they stemmed from Patent Owner’s arguments on objective indicia of nonobviousness—in particular, to a contention that “[p]rior to the ’954 patent priority date (May 16, 2014), no one had been able to meet . . . [an alleged long-felt] need.” Resp. 7. On such indicia, it is Patent Owner who bears the initial burden of production. *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 737–38 (Fed. Cir. 2013); accord *Dynamic Drinkware*, 800 F.3d at 1380 (holding that burden of production is on Patent Owner for priority date issues). And, Petitioner responds that if the ’954 patent claims are *not* entitled to a May 16, 2014, priority date, any alleged long-felt need was already met by the “Olaplex” product, which product was commercialized in late 2014. Reply 24–25; Ex. 2046 ¶¶ 6–7.

For the reasons above, we are unpersuaded that Petitioner waived any contest to the priority of the '954 patent's claims. It was, thus, appropriate for Petitioner to provide counter argument on the priority issues in its Reply to further respond to alleged objective indicia of nonobviousness advanced by Patent Owner *after* trial was instituted. Reply 6–8. As noted, Patent Owner's argument on such indicia is predicated, at least in part, on the asserted priority date of the '954 patent.

Turning to the merits of the priority arguments, Petitioner contends that "PO's insertion of the term 'about' into . . . claim [1] improperly expanded the scope of the claims beyond the 'up to 50%' limit disclosed in the specification." Reply 7. According to Petitioner, the parties' experts agree that the term "about" expands "the scope of the endpoints of the range by $\pm 10\%$." *Id.* Yet, Petitioner argues, "an amount of active agent in the mixture up to 55% is not supported under 35 U.S.C. §112(a) in any application to which the '954 patent claims priority." *Id.*

To determine if the claims of the '954 patent are entitled to the priority benefit of the '709 Provisional Application's filing date (May 16, 2014), we ask whether that application provides written descriptive support for those claims.¹² As explained by the Federal Circuit, "whether a prior application meets the 'written description' requirement with respect to later-

¹² We compare the disputed limitations (e.g., "wherein the active agent in the mixture is at a concentration ranging from about 0.1% by weight to about 50% by weight") in the '954 patent's claims to the disclosure of the '709 Provisional Application (Ex. 1020), recognizing that the other intervening applications (Exs. 1030–1032) share in all material respects a specification with the '709 Provisional Application and '954 patent, and include the same key disclosures.

filed claims, the prior application need not describe the claimed subject matter in exactly the same terms as used in the claims.” *Eiselstein v. Frank*, 52 F.3d 1035, 1039 (Fed. Cir. 1995). Instead, the description of the prior application “must simply indicate to persons of skill in the art that as of the earlier date the applicant had invented what is now claimed.” *Id.*; *see also Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991) (“Precisely how close the original description must come to comply with the requirement of § 112 must be determined on a case-by-case basis.”).

We find, on the record before us, that the disclosure of the ’954 patent and its ancestral applications provide sufficient written descriptive support for the active agent concentration as recited in claim 1. We explain below.

As Patent Owner points out, the ’954 patent and its priority applications recite at least the following key disclosure:

For highlighting applications, prior to use, a sufficient volume of a liquid active agent formulation is mixed with a sufficient volume of a highlighting formulation to form a highlighting mixture having the desired concentration of active agent. Typical concentrations of the active agent in the highlighting mixture range from small amounts, such as approximately at least 0.01% (by wt), preferably at least 0.1% (by wt), to large amounts, such as up to 50% (by wt). Preferably the highlighting mixture contains the active agent in a concentration ranging from 0.1% (by wt) to 5% (by wt), more preferably from 0.1% (by wt) to 3% (wt). While greater concentrations of active agent could be present in the highlighting mixture, they are generally not needed to achieve the desired results.

Ex. 1001, 16:27–40; Ex. 1020, 21:10–19; Resp. 16–17.

According to Patent Owner and Dr. Borish, this paragraph indicates “that imprecise or approximate numerical limitations are being described.”

Resp. 17; Ex. 2072 ¶ 98. That is so, Patent Owner contends, because the disclosure uses qualifiers like “typical” and “such as” to describe the active agent concentrations. Resp. 17. Moreover, Patent Owner contends, “the passage says lesser and greater concentrations of the active agent are permitted” because the term “‘approximately’ modifies the lowest endpoint” of 0.01%, and the passage further discloses that “greater concentrations . . . could be present,” thus indicating that the upper concentration of 50% is not a fixed limit. *Id.* at 18. Patent Owner further contends that other portions of the specification reinforce that the concentrations of active agent are not absolute, but reflect approximations. *See, e.g.*, Resp. 18–19 (“The ’954 patent teaches that ‘the liquid active agent formulation’ (i.e., the formulation mixed with the bleaching formulation to form the mixture as in claim 1), ‘may contain any suitable concentration of active agent in a suitable carrier, typically a diluent.’”) (quoting Ex. 1001:16:16–18); Ex. 1020, 21:1–3; *see also* Ex. 1001, 7:27–28 (“The active agent is typically present in an amount ranging from about 0.01 wt % to about 50 wt % of the formulation”); Ex. 1020, 9:28–29 (same).

The Federal Circuit’s decision in *Eiselstein* is instructive in resolving the present priority dispute. In *Eiselstein*, the relevant claim limitation recited “from about 45% to about 55%” of nickel in an alloy, yet the specification described the alloy as containing various metals (e.g., chromium, iron) with the “balance essentially nickel in a weight proportion of 45% to 55% of the alloy.” *Eiselstein*, 52 F.3d at 1039 (emphasis omitted). Thus, similar to here, the claim used the term “about,” whereas a relevant disclosure in the specification did not. The Federal Circuit, nevertheless, held that the less precise claim was supported by the allegedly

precise disclosure because, when read in the appropriate context, the specification conveyed that the range of 45% to 55% was intended to be approximate. *Id.* at 1039–1040 (“Eiselstein need not be bound to maximum precision for the nickel content when the whole tenor of his disclosure indicates approximation.”).

Like *Eiselstein*, we find that the context and “tenor” of the description in the priority applications and ’954 patent suggests approximation—not absolute precision—for the concentration of active agent. For example, the block-quote above describes active agent concentrations as “typical” and uses other qualifying language, including “such as” and “approximately” to describe those concentrations in the mixture. Ex. 1001, 16:27–40; Ex. 1020, 21:10–19. Moreover, as to the lower bound of “about 0.1% by weight” recited in claim 1’s range, the lower bound is encompassed by the admittedly disclosed broader range (approximately at least 0.01% up to 50%) in the cited block-quote. As for the upper bound of “about 50%” in claim 1, the last sentence from the relevant quoted paragraph discloses that “[w]hile **greater concentrations of active agent** could be present in the highlighting mixture, they are generally not needed to achieve the desired results.” Ex. 1001, 16:37–40 (emphasis added); Ex. 1020, 21:10–19. So, reading the relevant disclosures in context and considering Dr. Borish’s testimony, which we find persuasive on this point, we find that the skilled artisan would not have interpreted “such as up to 50%” as a precise, upper-bound limit on the active agent concentration in the mixtures described, but

instead would have recognized possession of “about 50 % by weight” as also being part of the invention.¹³ See Ex. 2072 ¶¶ 96–105.

We also do not agree with Petitioner’s interpretation of Dr. Borish’s testimony on the priority issue. Reply 8–9. Dr. Borish does not testify that the “greater amounts” language expands the limits of the range to one endpoint and that the “about” language expands it even further to some other higher endpoint such as above 60% as Petitioner suggests. *Id.* A reasonable reading of Dr. Borish’s relevant cross examination is that he was using the “greater amounts” and “about” language interchangeably related to an upper, active agent concentration of 50%, and opining that the former provided descriptive support for the latter. See, e.g., Ex. 1053, 150:8–151:14 (“Q And your position is that this language [i.e., greater concentrations language] supports the term ‘about.’ A Correct.”).

We found unpersuasive Petitioner’s challenge to the priority of the ’954 patent claims in the related petitions for post-grant review for similar reasons. And we find Petitioner’s priority arguments here unpersuasive on this record. In sum, the preponderance of the evidence favors Patent

¹³ Other disclosures, although not necessarily specific to concentrations in a bleaching mixture, also suggest the active agent concentrations in the formulations are approximations. For example, the ’954 patent describes the liquid active agent formulation that is added to the bleaching formulation as including “active agent ranging from about 5% (by wt) to about 50% (by wt) or greater.” Ex. 1001, 16:22–24 (emphasis added); Ex. 1020, 21:6–8. The ’954 patent also discloses, for example, that the amount of active agent used in shampoos and conditioners “in amounts up to 50% (by wt)” while also indicating that “[t]he active agent may be included [in such products] in any suitable concentration” and “greater concentrations.” Ex. 1001, 15:15–52; Ex. 1020, 19:25–20:10.

Owner’s argument on priority and we determine that the challenged claims are entitled to the benefit of the May 16, 2014, filing date.

D. Overview of the Asserted References

1. Pratt (Ex. 1009)

Pratt relates to a “bleaching composition for keratin fibres, especially human hair, comprising at least one compound with bleaching and/or lightening effect.” Ex. 1009, Abstract. Pratt discloses “[t]he object of the present invention is [an] aqueous composition for bleaching hair comprising three parts which are mixed prior to application onto hair.” *Id.* The three parts include “a—a substantially anhydrous composition comprising at least one compound with bleaching effect,” “b—an aqueous composition comprising at least one oxidizing agent,” and “c—a composition comprising at least one cationic and/or cationizable compound.” *Id.*

Pratt discloses that “[i]t is known that bleaching components are chemically active on hair and damages hair which is afterwards difficult to repair,” and further that “the objective of [Pratt’s] present invention is reducing the damaging effect of commonly used bleaching agents.” *Id.* ¶ 3. According to Pratt, “when a bleaching composition is added at least one cationic or and/or cationizable compound, damaging effect of bleaching composition on hair is noticeably reduced.” *Id.* ¶ 5; *see also id.* ¶ 39 (identifying illustrative chemical structure for cationic or cationizable compounds), ¶¶ 46–50 (listing exemplary and preferred compounds, concentrations, and forms), ¶ 103 (example including 2.5 wt% cetrimonium chloride) and ¶ 116 (example including 2.0 wt% behentrimonium chloride). Pratt discloses that the “third composition” (part c of the mixture) also “preferably comprises additionally at least one hair conditioning

compound.” *Id.* ¶ 53. Pratt discloses the third composition’s pH varies “most preferably [between] 3 to 6 and in particular 3 to 5.” *Id.* ¶ 94. Moreover, Pratt discloses, the pH of the third composition may be adjusted by using, for example, citric acid or maleic acid. *Id.*

Regarding the substantially anhydrous composition comprising at least one compound with bleaching effect (i.e., part a), Pratt discloses a “powder” as a preferred form. *Id.* ¶¶ 16, 101 (describing preparation of the bleaching composition “by combining all powder components together and by mixing until homogeneity”); *see also id.* ¶ 17 (disclosing that “bleaching compositions also comprise the components customarily used in such compositions,” including “alkalizing agents”). Pratt teaches that “[t]he pH of the ready to use product, mixture of bleaching composition and oxidizing lotion [parts a and b], is in the range of 8 to 12, in particular between 9 and 11.” *Id.* ¶ 97.

Pratt teaches that the “mixing ratio” of the three parts of the composition (i.e., parts a, b, and c) “is in the range of 4:8:0.1 to 4:8:1, preferably 4:6:0.2 to 4:6:0.75, more preferably 4:4:0.2 to 4:4:0.75.” *Id.* ¶ 95. Pratt describes, *inter alia*, an example mixture that includes 25 parts of the substantially anhydrous bleaching composition (part a), 35 parts of the oxidizing composition (part b), and 2 parts of the third composition (part c). *Id.* ¶ 104. Pratt teaches that applying this example mixture to the hair (compared to a composition without part c) “bleached more effectively” and that the “damaging effect of [the] inventive composition is lower compared to the comparative composition.” *Id.* ¶ 108; *see also id.* ¶ 138 (describing example compositions as providing “bleaching effects [that] were excellent

and . . . [that] hair bleached with these compositions were easier to comb, felt soft and natural upon touching and had improved shine”).

2. *Tanabe (Ex. 1007)*

Tanabe describes hair care compositions that include at least three components, providing a composition “excellent in the effect of improving optical or mechanical properties of hair.” Ex. 1007, Abstract. The first component (A), according to Tanabe, is glycine or alanine, which is added in a proportion from 0.01 to 20 wt %. *Id.* at 1:48–54. The second component (B) is an acid and Tanabe identifies maleic acid as one of three “particularly preferred” acids. *Id.* at 1:58–2:5; *see also id.* at 7:1–7 (claim 1, reciting, *inter alia*, “(B) an acid selected from the group consisting of malic acid, maleic acid and a mixture thereof”) and 8:1–6 (claim 8, same). Tanabe teaches that such acids “may be added preferably in a proportion of from 0.01 to 5 wt. %, more preferably from 0.05 to 3 wt. %, notably from 0.1 to 2 wt. %.” *Id.* at 2:7–11. Tanabe teaches that the third component (C) is a cationic surfactant including, “for example, a quaternary ammonium salt.” *Id.* at 2:13–34; *see also id.* at 2:45–50 (teaching concentrations for the cationic compound preferably in proportion of 0.1 to 20 wt %); *id.* at 4:55–5:20 (Table 1, describing example conditioners including behenyltrimethylammonium chloride¹⁴ as the cationic compound). Tanabe discloses that the pH of its compositions range from 2 to 6, and that a pH of 2.5 to 3.5 is preferred. *Id.* at 3:26–30.

¹⁴ Behenyltrimethylammonium chloride is another name for behentrimonium chloride, one of the preferred and exemplary cationic compounds in Pratt’s bleaching mixture. Ex. 1012 ¶ 47.

Tanabe further discloses and exemplifies the hair care composition as being a conditioner. *Id.* at 3:37–5:34 (Example 1 and Table 1, describing examples using malic acid, succinic acid, and maleic acid); *see also id.* at 3:31–35 (“The hair cosmetic composition . . . can be used, for example, as a hair rinse, conditioner, treatment, hair cream, hair pack or the like[.]”). And Tanabe teaches the use of its compositions for improving the condition of, for example, bleach-treated hair. *Id.* at 3:41–43, 6:57–67.

3. *Berkemer (Ex. 1004)*

Berkemer “relates to a method for improving structurally damaged hair, in which the surface of the lusterless, unattractive hair is permanently smoothed and consolidated” by treating the hair “with the solution of a maleic acid or substitution products thereof.” Ex. 1004, 3:7–14. Berkemer teaches that “[h]air that is repeatedly subject to . . . bleaching or various coloring methods . . . becomes lusterless and dull.” *Id.* at 1:24–32. Berkemer’s treatment of hair with maleic acid or a substitution product thereof is disclosed as “lead[ing] to an astonishing structural improvement of the hair surface,” which is “a substantial advance in comparison with the [previously] known methods,” such as treatments containing lactic or citric acids. *Id.* at 1:34–2:5, 2:19–20, 3:23–24, 3:30–32 (“the compounds according to the invention, as unsaturated compounds, counteract the post-oxidation that is harmful for the hair surface after a bleaching”).

According to Berkemer, “in the treatment with the cited unsaturated compounds, a firm substantial attachment to the hair cortex is achieved, and thereby a permanent smoothing of the surface is achieved.” *Id.* at 3:20–23. Berkemer teaches that “the particularly firm adhesion to the hair surface of the compounds used according to the invention indicates that, beyond pure

adsorption forces, chemical bonds have formed by reaction of the C–C double bonds [of maleic acid] to the amino acid and hydroxyl groups of the keratin substances.” *Id.* at 3:23–28.

Berkemer discloses the concentration of maleic acid or substitution products thereof “at a concentration of 0.3 to 4%, in particular 2.5%” in aqueous solution. *Id.* at 3:12–17. Berkemer further teaches the solution preferably has “a pH from 1.9 to 4.0, [and] preferably 2.5.” *Id.* at 4:8–12 (also disclosing that “glycocoll” (i.e., glycine) may be added as a buffer); see Ex. 2072 ¶ 137 (explaining that glycocoll is another name for glycine).

4. KR ’564 (Ex. 1006)

KR ’564 “relates to a hair treatment agent comprising mild acid,” which “has the advantages of alleviating and preventing hair damage caused by chemical treatments such as permanent wave, dyeing or bleaching.” Ex. 1006, 2 (teaching that the mild acid “has the advantages of alleviating and preventing hair damage caused by permanent wave, dyeing, bleaching and the like”). The “mild acid” is disclosed as “lactic acid, citric acid, malic acid, oxalic acid, acetic acid, tartaric acid, adipic acid, succinic acid, **maleic acid**, glutamic acid, fumaric acid, pyruvic acid, gluconic acid, citric acid [sic], picric acid, aspartic acid, terebic acid and the like.” *Id.* at 4 (emphasis added). “[T]he type of organic acid . . . may be selected within a wide range.” *Id.* Further, KR ’564 teaches that the mild acid treatment agent “may be preliminarily added to a permanent wave agent, dyeing agent and the like as an additive for various hair treatment solvents.” *Id.* (“[T]he hair treatment agent may be used by being dissolved in purified water, lotion or hair oil; or it may be used as a shampoo, conditioner or hair styling composition by mixing it with other components.”).

KR '564 describes use of lactic acid in an example and reports improved gloss, shine, and smooth feel on the hair cuticle. *Id.* at 7. KR '564 teaches that the other mild acids provided comparable results. *Id.* at 7 (“the results slightly differed depending on the type [of mild acid used]”).

5. *Stone (Ex. 1008)*

Stone relates to hair care compositions, such as conditioners. Ex. 1008 ¶ 14. Stone discloses that the compositions may include, *inter alia*, glycerin and propylene glycol as known solvents, and phenoxyethanol as a known preservative. *Id.* ¶¶ 32–33. Stone describes conditioner compositions that include, for example, water, behentrimonium methosulfate, cetearyl alcohol, stearamidopropyl dimethylamine, cetearyl alcohol, quaternium-91, glycerin, and phenoxyethanol. *Id.* ¶¶ 54–61 (Examples 10–13).

E. *Asserted Obviousness over Pratt and Tanabe (Ground 1)*

Petitioner asserts that claims 1–19, 21, and 23–30 are unpatentable under 35 U.S.C. § 103 over Pratt and Tanabe. Pet. 25–60.

1. *Analysis*

a. Claim 1

Claim 1 recites a three-step method for bleaching hair, requiring mixing a bleach powder and developer to form a bleaching formulation, followed by mixing an active agent formulation with the bleaching formulation to form a mixture (the active agent being maleic acid), and then applying the mixture to hair. Ex. 1001, 25:57–67. Claim 1 also recites that the active agent in the mixture is at a concentration ranging from about 0.1% by weight to about 50% by weight. *Id.*

Petitioner has shown, and we find by a preponderance of the evidence on this record, that the combined art teaches or suggests all the limitations of the method recited in claim 1 when a cationic, maleic-acid containing conditioner as suggested in Tanabe is used for the “third composition” of Pratt’s mixture and method. Pet. 32–40; Ex. 1009 ¶¶ 5, 39, 53, 94–108, 116; Ex. 1007, Abstract, 2:4–33, 3:36–5:19 (Example 1 and Table 1), 7:1–7, 7:35–38 8:1–6, 8:34–36; Ex. 1012 ¶¶ 51–63.

Example 1 of Pratt, for instance, discloses a powdered bleaching composition (part a) that is mixed with a peroxide-containing oxidizing composition (part b and a “developer” as claimed), as well as a “third composition” (part c) containing, *inter alia*, a cationic compound and a pH adjuster. Ex. 1009 ¶¶ 99–103. Pratt teaches that part c may be provided in the form of a conditioner. *Id.* ¶ 53. After parts a, b, and c are mixed, the mixture is applied to hair, and Pratt discloses that the hair was bleached with lower damage. *Id.* ¶¶ 104–108, 138 (e.g., lower cysteic acid content, easier to comb, improved shine). Pratt is not explicit about a required mixing order, but suggests parts a and b may be mixed before the addition of part c to the mixture, as explained by Dr. Wickett. *See, e.g., id.* ¶ 97 (describing a “ready to use product” comprising a mixture of the bleaching composition and oxidizing composition); Ex. 1012 ¶ 53; *see also* Ex. 1062 ¶ 19 (opining that the mixing order would, in any event, be obvious from Pratt and not be expected to affect the bleaching formulation).¹⁵ As for maleic acid, although

¹⁵ In addition, paragraph 5 of Pratt reads, in relevant part, “when a bleaching composition is added at least one cationic or and/or cationizable compound, damaging effect” Ex. 1009 ¶ 5. As we pointed out at institution concerning the parties’ disagreements about Pratt’s paragraph 5, that paragraph appears to be missing some grammar but, when read with the

Pratt uses citric acid in an example, Pratt teaches that maleic acid is a suitable alternative pH adjuster for its third composition. *Id.* ¶ 94.

Pratt does not describe any example using maleic acid or specific concentrations of maleic acid in its compositions. We find, however, that Tanabe’s teachings supply the limitations of claim 1 that are missing in Pratt. Pet. 38–40; Ex. 1012 ¶¶ 60–63. Tanabe teaches conditioning compositions containing, *inter alia*, glycine or alanine, a dicarboxylic acid component, and a cationic compound, which compositions are described as providing improved optical or mechanical properties to bleached hair (luster, softness, and the like). Ex. 1007, Abstract, 1:34–39, 3:36–5:19. Maleic acid is described (and claimed) as a particularly preferred acid component, and Tanabe suggests that the acid may be used in a concentration from 0.01 to 5 wt%, even more preferably from 0.1 to 2 wt%. *Id.* at 2:4–13, 7:1–7, 7:35–38 8:1–6, 8:34–36. As Petitioner explains, using maleic acid in Tanabe’s preferred range of 0.01 to 5 wt%, and substituting Tanabe’s conditioner as part c of Pratt’s mixture in Pratt’s three-part ratio (a:b:c) results in maleic acid concentrations that overlap with a portion of the broad maleic acid range (about 0.1 to about 50 wt%) of claim 1. *See, e.g.*, Pet. 39–40 (showing that, at Pratt’s preferred mixing ratio of 4:4:0.2 to 4:4:0.75, a concentration of 2% and 5% of maleic acid as suggested in Tanabe, yields a maleic acid

remainder of Pratt, it suggests either the cationic component (part c) is added to the bleaching composition (parts a and b) or, vice versa, the bleaching composition is added to the cationic component, forming Pratt’s mixture that is applied to the hair. Inst. Dec. 20. Pratt further discloses a “mixing ratio” of parts a, b, and c, and that mixtures of all three are formed. Ex. 1009 ¶¶ 95, 104. Hence, whether part c is added to parts a and b (or a and b are added to part c), Pratt is clear that a *mixture* of all three is ultimately formed.

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concentration in the mixture of 0.049 wt% to 0.171 wt%, and 0.122 wt% to 0.429 wt% respectively); Ex. 1012 ¶ 62.

Patent Owner argues that Pratt and Tanabe fail to teach two limitations of claim 1. Resp. 41. Patent Owner contends that (i) neither Pratt nor Tanabe teaches the use of maleic acid in a mixture with a bleaching formulation and (ii) that neither Pratt nor Tanabe teaches the claimed concentration of maleic acid in such a mixture. *Id.* at 41–44. Patent Owner’s arguments are unavailing as we explain below.

Patent Owner’s arguments attack the teachings of Pratt and Tanabe individually. Resp. 41–43; see Reply 9. The challenge to claim 1 is over the references’ *combined* teachings. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”).

As for Pratt, Patent Owner argues that “none of Pratt’s examples uses maleic acid or provides specific concentrations of maleic acid that should be used.” Resp. 42–43 (“Pratt’s disclosure suggests very small amounts of other pH adjusters should be used”). As a threshold matter, the teachings of the prior art are not limited to its examples. And, Pratt expressly identifies maleic acid as a suitable additive for Pratt’s acidic part (c) composition in a bleaching mixture. Ex. 1009 ¶ 94; Ex. 1012 ¶ 43; Ex. 1062 ¶¶ 20, 26, 29. Petitioner relies on Tanabe’s teaching of a conditioning composition having, for example, 2% or 5% of maleic acid as a substitute for Pratt’s part (c) composition. Ex. 1012 ¶ 62. When the art is so combined, as explained above, the bleaching mixture would have maleic acid concentrations (e.g., 0.429 wt%) within the range recited in claim 1 (about 0.1 to about 50%).

Patent Owner’s argument on Tanabe’s teachings fares no better. According to Patent Owner, Tanabe teaches maleic-acid-containing conditioners suitable for treating bleach-damaged hair. Resp. 42. But, Patent Owner contends, Tanabe “fails to disclose mixing these acidic cosmetic compositions into an alkaline bleaching mixture.” *Id.* at 42–43 (“Tanabe also fails to provide information regarding the concentration of active agent in a mixture with a bleaching formulation . . .”). The suggestion to mix acidic conditioning compositions that include cationic compounds and maleic acid in an alkaline bleaching formulation comes, however, from Pratt. Ex. 1009 ¶¶ 39, 53, 94, 95; Pet. 33–36; Ex. 1012 ¶¶ 51–58, 62. Again, when Pratt and Tanabe are *combined* as proposed, we find that all the limitations of claim 1’s method are met.

b. Reasons to Combine; Expectation of Success

We further find that there are sufficient reasons on this record for the skilled artisan to have combined Pratt and Tanabe such that the claimed subject matter would have been achieved. Pet. 26–40.

Petitioner contends the ordinarily skilled person “would have been motivated to combine Pratt and Tanabe and use Tanabe’s cationic surfactant conditioner composition as component (c) in Pratt’s bleaching mixture, with the expectation that doing so would lead to bleached hair having less damage and improved optical or mechanical properties.” Pet. 26–27; *see also id.* at 29–30 (“POSITA would have been motivated to use Tanabe’s conditioner composition in Pratt’s composition (c) with the expectation that it would not only function as Pratt’s cationic compound, but also that it would provide Tanabe’s disclosed benefit as a conditioner.”); Ex. 1012 ¶¶ 48–49. As Petitioner explains, Pratt and Tanabe disclose identical or

nearly identical cationic compounds for the respective compositions and, indeed, Pratt and Tanabe use the same compounds in examples. Pet. 27–30 (discussing the preferred use in both Pratt and Tanabe of behentrimonium chloride); *see, e.g.*, Ex. 1007, 1:5–7, 2:13–43, 3:31–5:34 (Example 1 and Table 1); Ex. 1009 ¶¶ 5, 39, 116 (Example 3). Other features of Pratt’s “third composition” and Tanabe’s conditioners also overlap. Pet. 30–31 (Table 3A); Ex. 1012 ¶ 49; *see also* Pet. 35 (citing disclosures in both references about the use of maleic acid, and overlap of acidic pH values); *compare* Ex. 1007, 3:29–31 (pH of Tanabe’s compositions from 2 to 6, and most preferably 2.5 to 3.5), *with* Ex. 1009 ¶ 94 (pH of Pratt’s third composition most preferably 3 to 5).

Given the substantial overlap in suitable ingredients for Tanabe’s conditioners and Pratt’s part (c) composition, as described above, we agree that “a skilled artisan would have understood that Tanabe’s compositions are suitable for use as Pratt’s composition (c).” Ex. 1012 ¶ 50. We are also persuaded by Petitioner’s argument and Dr. Wickett’s testimony that the skilled artisan “would have understood that the compositions of Tanabe would effectively function as Pratt’s composition (c),” and that the skilled artisan would have made and expected such a combination to provide a further conditioning benefit (e.g., luster, manageability) for the hair as suggested by Tanabe. Pet. 28–29; Ex. 1012 ¶¶ 47–50; Ex. 1007, 1:34–44, 6:57–67. Hence, we find that the skilled artisan would have had reasons to combine the references’ teachings in the manner proposed.¹⁶

¹⁶ Petitioner, for Ground 3, relies on Berkemer and KR ’564 primarily as providing even further reasons to combine Pratt and Tanabe as proposed and to have chosen and used maleic acid, in particular. *See infra* Section II(G).

Patent Owner argues that there is no adequate reason given for combining Pratt and Tanabe. Resp. 45. According to Patent Owner, the “crux” of Petitioner’s argument is that using Tanabe’s conditioner as part (c) of Pratt’s bleaching method would obtain both the benefits of Pratt and Tanabe’s observed improvements to the optical and mechanical properties of the hair. *Id.* at 46. But, Patent Owner contends, Petitioner’s expert “did not know” if Tanabe’s preferred acid compounds would provide the cited benefits in a high-pH bleaching method, and “did not know” why Tanabe preferred maleic acid. *Id.* at 47–49. According to Patent Owner and Dr. Borish, no benefit would be provided because Tanabe’s conditioner has an acidic pH and would not be expected to work at an alkaline pH. *Id.* at 48 (“Tanabe’s Table 1 shows increasing pH prevents Tanabe’s conditioner from providing improved optical or mechanical properties”), 48 (“The chemistry underlying the benefits provided by Tanabe’s low-pH conditioner relies on the ability of these acids to donate acidic protons”); see Ex. 2072 ¶¶ 138, 218, 230, 243–248.

Having considered Patent Owner’s argument and evidence, we do not agree that a sufficient reason for combining Pratt and Tanabe is missing on this record. A dual-benefit rationale is part of Petitioner’s argument. However, as Petitioner explains, Tanabe’s conditioner would also have been thought to serve as a substitute (and at least equivalent to) Pratt’s part (c) composition in a bleaching mixture. See, e.g., Pet. 28–29; Ex. 1012 ¶¶ 47–50; Reply 11, 13–14; Ex. 1062 ¶¶ 39, 42–43. Evidence of record supports this reasoning.

As discussed above, the characteristics of Pratt’s part (c) composition and Tanabe’s conditioners overlap (e.g., the same cationic compounds,

maleic acid, and similar acidic pH). *See, e.g.*, Ex. 1007, 1:5–7, 2:4–43, 3:31–5:34; Ex. 1009 ¶¶ 5, 39, 94, 116. Pratt also teaches low pH conditioners, similar to those described in Tanabe, may be included in its high pH bleaching mixture, thus providing a reason to have selected and combined Tanabe’s low pH cationic conditioners. Ex. 1009 ¶¶ 94, 103. Pratt also identifies maleic acid for use in its part (c) composition, thus suggesting maleic acid’s suitability and providing a further reason for the skilled artisan to have used Tanabe’s maleic-acid containing conditioners. *Id.*; Ex. 1007, 2:4–6, 7:1–7 (claim 1 reciting maleic acid, malic acid, or mixtures thereof), 7:35–38 (claim 6, reciting the amount of the acid from 0.01 to 5 wt %). Moreover, as Petitioner notes, adding conditioners to bleaching mixtures was a known technique to combat bleach damage. Reply 14; Ex. 1053, 153:7–23 (describing a “conditioning benefit” during bleaching); Ex. 1038 (Dispenza Tr.),¹⁷ 103:25–105:4; Ex. 2005, 7 (“[T]he preferred method at present is to condition the hair after bleaching or to include conditioners in the [bleaching] products.”); Ex. 1062 ¶ 10.

The testimony of Dr. Wickett cited by Patent Owner demonstrates that the witness could not be certain from Tanabe that maleic acid alone would provide an added benefit in a high pH bleaching environment. *See* Ex. 2061, 242:3–8 (“You don’t know that, but you could determine it by routine experimentation.”).¹⁸ But certainty is not necessary to show a sufficient

¹⁷ Dr. Thomas Dispenza was Patent Owner’s expert in an earlier proceeding.

¹⁸ As we pointed out at institution (Inst. Dec. 16), neither Pratt nor Tanabe needed to have recognized maleic acid alone as a conditioning agent for bleaching methods. That recognition may have been what motivated the inventors of the ’954 patent, but a finding of obviousness does not require the skilled artisan be motivated by the same concern as the inventors and the

reason to have combined Pratt and Tanabe. The reasons to have combined the references are explained above. And Dr. Wickett testifies that the skilled artisan would have thought and inferred that Tanabe’s low pH conditioners would, at minimum, provide “conditioning benefits” when combined with Pratt. *See, e.g.*, Ex. 2061, 235:3–236:11, 242:3–19, 256:9–21 (“I would expect the benefit would occur to some extent. . . . [Tanabe] calls these things out for these specific effects, but really, the effect that’s measured is of the whole formulation.”). As to an expectation of success, which is separate from a motivation for combining the references,¹⁹ the expectation need only be reasonable. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1364 (Fed. Cir. 2007) (“[T]he expectation of success need only be reasonable, not absolute.”). The record establishes a reasonable expectation of achieving a successful bleaching method as claimed via the combination of Pratt and Tanabe because, as discussed, Pratt itself suggests that acidic conditioners

evidence of record provides reasons for using Tanabe’s maleic-acid containing cationic compositions as the third composition in Pratt’s bleaching mixture. *See In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996) (“[T]he motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness.”); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (“In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls.”).

¹⁹ *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016) (faulting § 103 analysis as looking “to whether one would reasonably expect the prior art references to operate as those references intended once combined” because, under the “correct inquiry,” “one must have a motivation to combine accompanied by a reasonable expectation of success of achieving what is claimed in the patent-at-issue.”).

(e.g., with pH values as low as 2 or preferably 3) can be added to a high pH bleaching composition. *See, e.g.*, Ex. 1009 ¶ 94; Pet. 34–36.

Patent Owner’s argument that Tanabe’s conditioners would not be expected to provide a benefit in an alkaline environment is unavailing. In support, Patent Owner cites Tanabe’s Table 1, which Patent Owner contends shows that “increasing pH prevents Tanabe’s conditioner from providing improved optical or mechanical properties.” Resp. 48 (discussing comparative examples with a pH of 5 and 5.5 compared to inventive examples having a pH of 3.3). Tanabe, however, does not attribute the performance of those examples (less favorable on some of the measured hair characteristics) to differences in pH. Ex. 1007, 3–4 (Table 1). Moreover, none of the comparative examples include maleic acid, and none include Tanabe’s required amino-component (glycine or alanine). *Id.* While the comparative examples lack those compounds, the comparatives also include hydrochloric acid, which is absent in the inventive examples. *Id.* As the comparatives differ based on several variables, we are unpersuaded the difference in performance would be attributed solely to pH as Patent Owner suggests. *See* Ex. 1062 ¶ 27 (“because there are multiple variables in play, a skilled artisan would not make the conclusion that only one variable is responsible for the outcome”); Ex. 2080, 180:19–182:21; Paper 65, 5 (Resp. to Observation No. 16).

Neither do we find persuasive Patent Owner’s argument that Tanabe’s conditioners would be thought to provide benefits only by virtue of maleic acid donating protons in a low-pH environment. Resp. 49; Ex. 2072 ¶¶ 138, 218, 230, 243–248. Tanabe does not disclose that maleic acid is beneficial only when protonated (as opposed to being partly or fully deprotonated salts

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of maleic acid). Reply 14. Also, Pratt suggests that acidic conditioners may favorably be included in a bleaching mixture and an alkaline bleaching environment. Ex. 1009 ¶¶ 94–108; *see also* Ex. 1062 ¶ 40. In addition, as Petitioner points out, other prior art of record specifically describes using maleic acid in high pH environments (where the acid would convert to salts) to impart benefits to the hair. Reply 14–15; Ex. 1029, 5–6 (Table 1, Example 1), 8–9 (describing and claiming use of maleic acid in hair dye compositions to reduce damage and improve hair strength); Ex. 1062 ¶ 41 (opining that Ex. 1029 “contradicts Dr. Borish’s theory” and demonstrates that maleic acid provides a protective effect “even when fully deprotonated at a pH of 10.3.”).

For the reasons above, we find Petitioner has shown that the combination of Pratt and Tanabe teaches or suggests all of claim 1’s limitations, and that the skilled artisan had a sufficient reason to combine the art as proposed with a reasonable expectation of success in arriving at the bleaching method that is claimed. Before reaching a conclusion of obviousness, however, we consider the parties’ argument and evidence related to alleged objective indicia of nonobviousness. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016).

c. Objective Indicia of Nonobviousness

As the Federal Circuit explains, “[a] party is also free to introduce evidence relevant to the fourth *Graham* factor, objective evidence of nonobviousness, which may be sufficient to disprove or rebut a prima facie case of obviousness.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012). Indeed, “evidence rising out of so-called ‘secondary considerations’ must always

when present be considered en route to a determination of obviousness.”

Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538 (Fed. Cir. 1983).

Objective evidence of nonobviousness may include, for example,

“commercial success enjoyed by devices practicing the patented invention, industry praise for the patented invention, copying by others, and the existence of a long-felt but unsatisfied need for the invention.” *Apple Inc. v. Samsung Electronics Co., Ltd.*, 839 F.3d 1034, 1052 (Fed. Cir. 2016).

A nexus must be shown between the objective indicia of nonobviousness and the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the *claimed invention*.” *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). The stronger the showing of nexus to the claimed invention, the greater the weight accorded the objective indicia of nonobviousness. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985). We apply “a [rebuttable] presumption of nexus for objective considerations when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘is the invention disclosed and claimed in the patent.’” *WBIP*, 829 F.3d at 1329 (citations omitted).

(1) Copying

Patent Owner’s assertions on copying are essentially as follows. Patent Owner asserts that, sometime in August 2016, Petitioner began selling products that use a maleic acid additive and, when those products are used in the way instructed by Petitioner, they infringe claim 1 of the ’954 patent. Resp. 64–68 (describing the three products: (a) Matrix Bond Ultim8

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Step 1; (b) Redken pH-Bonder #1; and (c) L’Oréal Professional Smartbond Step 1), which Patent Owner refers to collectively as the “Copy Products” (Resp. 72)); Ex. 2046 (Christal Decl.) ¶¶ 21–22. According to Patent Owner, Petitioner’s products require users to, *inter alia*, mix a maleic acid formulation with a bleaching formulation. Resp. 65–68. Based on a third-party analysis of Petitioner’s products (Ex. 2049), Patent Owner contends those products include an active agent (i.e., maleic acid) concentration of between about 10–11% and that the active agent concentration, when mixed with the bleaching formulation, varies between 0.3–1.2%—thus, within the range recited in claim 1. Resp. 65–68. Patent Owner contends that Petitioner “tout[s] the use of maleic acid in hair bleaching” in advertising demonstrating a link and nexus between the products and the ’954 patent claims. *Id.* at 68 (citing, e.g., Ex. 2044, 3) (“Breakthrough formula with a double acid complex of maleic acid and alpha hydroxy acids helps protect bonds and balance hair’s pH”) (omitting capitalization). Patent Owner contends that Petitioner’s use of maleic acid in its bleaching products arose from copying of information provided to Petitioner in confidence by Patent Owner at a meeting over a year before Petitioner launched its products. Resp. 63–64, 70–72.

Dean Christal (Patent Owner’s founder) testifies that he formed Olaplex LLC (“Olaplex,” Patent Owner’s exclusive licensee) in May 2014 to bring the Olaplex bond-builder hair care system to the market. Ex. 2046 ¶¶ 1, 6. According to Mr. Christal, “[a]fter Olaplex’s success with stylists and its incredible sales . . . , Petitioner approached [Mr. Christal] by at least 2015 about acquiring Olaplex.” *Id.* ¶ 7.

In furtherance of a potential acquisition of Olaplex by Petitioner, the parties executed a non-disclosure agreement (“NDA”) in mid-May 2015 and scheduled an in-person meeting for later that month. *Id.* ¶¶ 9–13. That meeting took place on May 19, 2015, and Mr. Christal, Dr. Pressly (an inventor of the ’954 patent) and three of Petitioner’s representatives attended that meeting. *Id.* ¶ 13. Mr. Christal states that, at the meeting, the parties discussed Olaplex’s bond-builder product and “other proprietary technology relating to other chemicals (maleic acid).” *Id.* ¶ 14. Mr. Christal states that he gave Petitioner’s representatives a copy of Patent Owner’s then-unpublished patent application (Ex. 1030).²⁰ According to Mr. Christal, he “told Petitioner’s representatives that cheaper alternatives to Olaplex’s active were contained in the patent application.” *Id.* ¶ 16. Mr. Christal declares that “Petitioner never told [him] that they had developed a maleic acid-based additive for using during bleaching.” *Id.* ¶ 19.

Petitioner ultimately did not acquire Olaplex. Instead, according to Mr. Christal, in approximately September 2015, one of Petitioner’s representatives, Mr. Dolden, met with him again and “informed [Mr. Christal] that Petitioner was no longer interested in purchasing [Olaplex’s] technology.” *Id.* ¶ 20. Mr. Christal testifies that Petitioner launched two of the alleged “Copy Products” about a year later, in August 2016, and a third alleged Copy Product was launched in November 2016. *Id.* ¶ 21.

Patent Owner contends that Petitioner’s own documents show that Petitioner’s products are the result of copying. For example, Patent Owner

²⁰ Exhibit 1030 is U.S. Application No. 14/713,885, filed on May 15, 2015, and this application is the great-grandparent to the application that issued as the ’954 patent. Ex. 1001 (63).

cites an email dated a few weeks before the May 19, 2015, meeting stating that “Lab’s believes there is something really new and different here” and that “The Olivia [an apparent coded reference to Olaplex] and OA P1 are completely different.” Ex. 2067 at LO_USA0056223; Resp. 69. According to Patent Owner, “OA P1” related to a prototype under development at that time by Petitioner. Resp. 69.

Patent Owner also cites Petitioner’s internal documents from after the May 19, 2015, meeting, such as a presentation relating to “Projet Olivia” expressing a “[s]trategic interest” in “[a]cquir[ing] an original, patented technology.” Ex. 2068, LO_USA0002413, LO_USA0002427 (“Olivia technology”); Resp. 70. Patent Owner highlights an email in late June 2015 from the Chairman of Petitioner’s corporate parent with the subject line “Olaplex,” stating that “[t]his is a great technological innovation . . . [and] a ‘must have.’” Ex. 2069, LO_USA0035379–80 (“It would have been preferable to invent it ourselves but that was not the case Now the choice is: either the R & I guarantee that it is able to develop an equivalent product within 12 months, [or] we have to buy it.”); Resp. 70.

Patent Owner describes this evidence as “overwhelming” on the issue of copying. Resp. 63. And, Patent Owner asserts, “Petitioner’s copying of the ’954 patent invention after asking for and obtaining proprietary information about the ’954 patent from the Patent Owner is strong evidence of nonobviousness.” *Id.* at 72.

Petitioner responds that copying is not established on this record. Reply 22. Petitioner argues that “PO must establish that Petitioner’s products were copied from a patented product, not from PO’s technology generally.” *Id.* (citing *Iron Grip Barbell Co., v. USA Sports, Inc.*, 392 F.3d

1317, 1325) (Fed. Cir. 2004)). According to Petitioner, however, “PO has not established that any product falls within the scope of the ‘954 patent claims, and as such PO cannot demonstrate that Petitioner’s products were copied from a product covered by the ‘954 patent.” Reply 22.

In any event, Petitioner argues, there was no copying of Patent Owner’s confidential information. *Id.* To the contrary, Petitioner asserts, Petitioner “independently developed” a maleic-acid additive for use with a bleaching mixture at least as early as April 2015—a month before Petitioner had access to Patent Owner’s unpublished application. *Id.* at 22–23.

Petitioner contends that the development of the maleic acid additive is memorialized in a lab notebook it produced in this proceeding. *Id.* at 23; Pet. 24, 59–60; Ex. 1036; Ex. 1061; *see also* Ex. 1037 (Crim Declaration) ¶¶ 11–12. According to Petitioner’s expert, Dr. Wickett, he analyzed this notebook and concludes that it describes “an additive containing 11.1% maleic acid in a bleaching mixture, which was then used to bleach hair swatches.” Ex. 1062 ¶¶ 61–62; *see, e.g.*, Ex. 1061 14–16 (L11363_158–161). According to Petitioner, Patent Owner does not challenge, nor did Patent Owner’s expert even consider, the evidence of independent development and, instead, Patent Owner relies on the Board’s decision giving little weight to the notebook in a prior case because of “heavy redactions” to the version of the notebook submitted in that proceeding. Reply 22–23; Ex. 1053 (Borish Tr.) 178:20–182:11.²¹

²¹ Petitioner states that here it produced unredacted entries and pages from the notebook related to the development of the maleic-acid product. Reply 23 n.8. Petitioner states that Patent Owner’s past “negligent treatment” of Petitioner’s highly confidential information explains Petitioner’s reluctance to produce unredacted, highly confidential product information that is not

Considering Patent Owner’s argument and evidence, one plausible takeaway is that Petitioner used information from the then-confidential ancestral application to the ’954 patent to design maleic-acid additives for a bleaching mixture, thus copying Patent Owner’s technology. However, reviewing all the evidence, we find it tells a somewhat different story—one that significantly weakens the implication that Petitioner’s products arose from copying. Indeed, Petitioner has submitted evidence we find shows that at least one month before the May 19, 2015, meeting and receipt by Petitioner of the then-confidential patent application, Petitioner had described a maleic-acid containing bleaching mixture in its own highly confidential lab notebook. We discuss further below.

We agree with Petitioner that Patent Owner has not shown that Petitioner copied any actual patented product. We do not understand Patent Owner to allege otherwise because the record here is that Patent Owner and its exclusive licensee’s product at the time—the Olaplex product—did not use maleic acid or practice the claims of the ’954 patent. Indeed, the Olaplex product uses a different active agent in its compositions, which are apparently the subject of a different family of patents. Resp. 73; Ex. 2003, 2, 8; Ex. 1062 ¶¶ 58–59.²²

relevant to these proceedings. *Id.* at 24 n.10. Petitioner’s concern is not without some basis as Patent Owner admittedly (although unintentionally) disclosed Petitioner’s highly confidential information earlier in this case. See Papers 28–29 (Order and Joint Stipulation related to alleged violations of the protective order by Patent Owner).

²² See Prelim. Resp. (Paper 9) 7 (explaining that the “inventors initially developed a hair treatment formulation using a complex salt called bis-aminopropyl diglycol dimaleate, which led to the granting of U.S. Patent Nos. 9,095,518; 9,144,537; and 9,855,447”); see also *Liqwd*, 2018 WL

We disagree, however, that Patent Owner has not shown here that Petitioner’s cited products (e.g., Redken pH-Bonder #1) practice claim 1 of the ’954 patent. We find that the preponderance of the evidence on this record establishes that those products, when used as instructed, do practice claim 1’s method. Ex. 2047, 1; Ex. 2048, 2; Ex. 2049, 1; Ex. 2050, 1; Ex. 2052, 1; Ex. 2053, 1; Ex. 2072 ¶¶ 306–309, 316–319, 326–330. To the extent Petitioner argues in Reply that the product instructions require *addition* of the active agent (maleic-acid additive) not “mixing” as in claim 1’s step (b), we are unpersuaded. Reply 19–20. The instructions show, for example, a “mixing table” for the three parts, including the maleic acid portion that is added last, suggesting all the components be mixed before application to the hair. Ex. 2044, 5; *see also* Ex. 2043, 4–5; Ex. 2045, 10.

Of course, that a product or its use may fall within the scope of a claim does not, without more, demonstrate copying. The question then is whether Petitioner duplicated the features of Patent Owner’s work based on Petitioner’s access to that work. *See Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347–48 (Fed. Cir. 2013) (“Copying requires duplication of features of the patentee’s work based on access to that work, lest all infringement be mistakenly treated as copying.”) (citing *Iron Grip Barbell*, 392 F.3d at 1325). Independent development by

480759 at *1 (explaining that “Olaplex’s product uses bis-aminopropyl diglycol dimaleate (‘dimaleate’) as the active agent,” which is the subject of “U.S. Patent No. 9,095,518 (issued Aug. 4, 2015)” and at least one other related patent); *see also id.* (“But it is undisputed here that dimaleate does not come within the ’419 patent claims [the parent to the ’954 patent],” which claims “are limited to maleic acid (or its salts).”).

Petitioner may, however, rebut or weaken the allegations of copying.
Vandenberg v. Dairy Equip. Co., 740 F.2d 1560, 1567–68 (Fed. Cir. 1984).

Considering Petitioner’s lab notebook, the supporting Declaration of Melanie Crim, and the unrebutted analysis of that evidence by Petitioner’s expert, we find that it reveals Petitioner had developed its own maleic-acid additive for a bleaching composition *before* receiving Patent Owner’s confidential patent application. According to Ms. Crim, “L’Oréal scientists/chemists keep laboratory notebooks detailing their research and development efforts as part of their normal course of business” and, in Ms. Crim’s role as a scientist employed by L’Oréal/Petitioner for over 23 years, she is “familiar with the general practices regarding [Petitioner’s] notebooks.” Ex. 1037 ¶¶ 2–3. Ms. Crim testified that laboratory notebook L11363 (Exhibit 1036) is such a notebook kept in the ordinary course of Petitioner’s research and development activity, and that this particular notebook was assigned to Ms. Kimberly Hamilton and signed by her on page 2 on July 24, 2014. Ex. 1037 ¶¶ 4–5; Ex. 1036, 1–2; *see* Ex. 1061, 1–2.²³ Ms. Crim declares that she also regularly witnesses notebook entries relating to experiments and work conducted by other scientists for purposes of ensuring a faithful record of that work. Ex. 1037 ¶ 6. According to Ms. Crim, she witnessed and signed Ms. Hamilton’s notebook (L11363) on April 21, 2015 with respect to numerous entries dated April 16, 2015. Ex. 1037 ¶¶ 9–12; Ex. 1036, 173, 176 (corresponding to pages L 11363-158 and L 11363-161 using the pagination of the notebook); Ex. 1061, 14, 16

²³ By all appearances on this record, Exhibit 1061 includes pages from the same notebook (Ex. 1036), but without the degree of redactions in Exhibit 1036, and is unredacted on the pages cited by Petitioner.

(corresponding to pages L 11363-158 and L 11363-161 using the pagination of the notebook).

Ms. Crim testifies that the lab notebook describes, *inter alia*, Ms. Hamilton’s work and entries from April 16 “where an additive composition including 11.1% maleic acid in water (described on page L11363-158) was mixed with a bleaching formulation and applied to hair.” Ex. 1037 ¶ 11; Ex. 1036, 173; *see also* Ex. 1061, 14 (describing, among other things, Project “Fox” as including “11.1% Maleic Acid . . . QS Water”). Ms. Crim further explains that, as shown in Ex. 1036 (page L11363-161), the “Group 6” formulation included 30 grams of bleach powder, mixed with 300 grams of Pro-Oxide developer, to which 8 grams of additive of maleic acid (in the “Additive” column) at a concentration of 11.1% in water was added. Ex. 1037 ¶ 12; Ex. 1036, 176 (corresponding to page L11363-161); Ex. 1061, 16 (corresponding to page L11363-161). Dr. Wickett’s analysis of Petitioner’s notebook corroborates and is consistent with Ms. Crim’s description. Ex. 1062 ¶¶ 60–61. And, although Patent Owner challenges the admissibility of the notebook evidence and Ms. Crim’s testimony (which we address below in Section III), Patent Owner provides no evidence or specific analysis that supports a different interpretation of Petitioner’s lab notebook. We find that the evidence of independent development is, thus, a persuasive counter to Patent Owner’s argument and evidence about copying.

We have also considered the emails and other L’Oréal documents that Patent Owner cites, but we find that those do not establish a strong case of copying of the ’954 patent’s subject matter. There is little question that those documents reflect an interest and urgency from Petitioner’s executives about a potential acquisition of Olaplex. But that interest started *before*

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Patent Owner ever disclosed to Petitioner that maleic acid was a useful active agent for the later-released, alleged copycat products. *See* Ex. 2067 (May 5, 2015, email); *see also* Ex. 2071 (April 16, 2015, email). There is no evidence that the patents or applications in the '954 patent family had published or otherwise been available to Petitioner prior to May 19, 2015. Nor is there strong evidence that those patents, in particular, sparked or maintained Petitioner's interest in the potential business acquisition. Patent Owner's only actual product—the "Olaplex" product—about which Petitioner was apparently aware and interested *did not use maleic acid* and was the subject of other, unrelated patents or applications of Patent Owner.²⁴ We find that the cited documents about "Olaplex" (or "Olivia"), whether dated before the NDA and May 19 meeting or after, are primarily aimed at Petitioner's interest in acquiring the known and commercially-available Olaplex product and that technology, of which there is no argument or evidence of record that Petitioner copied. Finally, in the very documents Patent Owner cites, there is also evidence that Petitioner was taking steps to avoid exposing its product designers to information acquired under NDA. *See, e.g.*, 2067 ("Labs want to keep on working and relying on the strength of the Chinese wall.").²⁵

²⁴ To the extent some of the documents discuss an interest in patented technology, there is insufficient evidence tying that interest to the '954 patent or patent family. As noted above, the Olaplex product purports to be covered by a different patent family (i.e., US 9,095,518 and related patents and applications). *See supra* n.22.

²⁵ Petitioner also writes "Frederic also wants to keep on working while we are receiving confidential information under the NDA, again the [sic] relying on the Chinese wall." Ex. 2067, LO_USA0056223.

On balance, for the reasons given above, we are unpersuaded the evidence demonstrates that Petitioner copied the claimed subject matter. Moreover, we reiterate that use of maleic acid in hair treatments, including in bleaching processes and mixtures and other alkaline treatments is taught in the art. *See* Section II(D)–(E); *see also infra* Section II(G); Ex. 1009 ¶ 94; Ex. 1006, 2–4; Ex. 1029, 5–6; Ex. 1010, 2:61–3:1, 3:28–32, claim 8. *In re Kao*, 639 F.3d at 1068 (explaining that objective indicia of nonobviousness must be tied to “*novel*” elements of the claim to be afforded substantial weight) (citations omitted). For this additional reason, we do not give substantial weight to Patent Owner’s evidence on copying.

(2) Commercial Success

Patent Owner argues that Petitioner’s alleged “Copy Products” have enjoyed commercial success, which “is strong evidence of nonobviousness.” Resp. 72–74. In support, Patent Owner argues that Petitioner has generated gross sales of about \$10.2 million for those products from August 2016 through February 2018. *Id.* at 73. Also, Patent Owner contends, Petitioner is the “only seller” of maleic acid bleach additive and, thus, “has enjoyed 100% market share in sales of products whose use practices the ’954 patent invention.” *Id.*

We find that the evidence of commercial success is, at best, weak. “When a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent, it is presumed that the commercial success is due to the patented invention.” *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). Here, we do not agree the relevant market should be defined to include *only*

Petitioner’s products with maleic acid as Patent Owner now suggests. Resp. 73 (arguing, without citing evidentiary support, that the market is wholly coextensive with the scope of the ’954 patent claims). As Petitioner points out, Patent Owner, in seeking a preliminary injunction, apparently took a different position on the relevant market—that the market encompassed so-called “bond-builder” products including at least the L’Oréal products *and Olaplex’s products*, which Patent Owner concedes do not include maleic acid and, thus, do not practice the claims of the ’954 patent. Resp. 73; Ex. 2003, 8 (*Liqwd*, 2018 WL 480759 at *8); *id.* at 2 (“Olaplex’s product uses bis-aminopropyl diglycol dimaleate . . . as the active agent”); Ex. 1062 ¶¶ 58–59 (describing the structure of the Olaplex active and explaining “a skilled artisan would understand that the active ingredient added to the Olaplex product is not maleic acid as required by the claims of the ’954 patent”).

Even if Petitioner’s products practice claim 1 as argued by Patent Owner, without a proper definition of the market, the cited sales figures do not persuade us that those products were commercially successful to any significant extent. *See, e.g., In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (“This court has noted in the past that evidence related solely to the number of units sold provides a very weak showing of commercial success, if any.”); *see, e.g., Ex parte Jellá*, 90 USPQ2d 1009, 1012 (BPAI 2008) (precedential) (finding gross sales without other information, such as “what sales would normally be expected in the market,” did not persuasively show commercial success). The roughly nineteen months of sales for Petitioner’s products is not so high that, on the record here, we can say it speaks for itself. If, for example, the (at least) two-player bond-builder market urged

by Patent Owner in related proceedings involved or was projected to produce far greater annual sales, Petitioner’s sales may be underwhelming in comparison. Patent Owner’s contention here is wanting for analysis and information on the market, and therefore lacks an adequate frame of reference for the gross sales of Petitioner’s products.

In addition, to the extent Petitioner’s products include maleic acid and are allegedly commercially successful because of its use, as explained above, the prior art already described that compound’s suitability for use in various hair treatment compositions.²⁶ *Galderma*, 737 F.3d at 740; *Ormco Corp. v. Align Technology, Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006) (“[I]f the feature that creates the commercial success was known in the prior art, the success is not pertinent.”); *see also J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997) (“[T]he asserted commercial success of the product must be due to the merits of the claimed invention beyond what was readily available in the prior art”). Because maleic acid’s use in various hair treatments is taught in the prior art, including as an additive to bleaching and highlighting mixtures (e.g., Pratt, KR ’564) and as a treatment for bleach-damaged hair (e.g., Tanabe, Berkemer, KR ’564), Patent Owner’s argument and evidence on commercial success are entitled to somewhat less weight.

For the above reasons, we give little weight Patent Owner’s evidence of commercial success and conclude that such evidence, when balanced with the remainder of the record, does not outweigh the evidence of obviousness.

²⁶ *See supra* Section II(D)–(E); *see also infra* Section II(G) (regarding combination of Pratt, Tanabe, Berkemer, and KR ’564); Ex. 1029, 5–6 (describing maleic acid use in alkaline dyeing mixture).

(3) Long-felt and Unmet Need

Patent Owner contends that, before the '954 patent, hair damage was seen as an “unavoidable” side effect of hair bleaching. Resp. 10 (quoting Ex. 1009 ¶ 3). Patent Owner argues the “[e]vidence shows there was a long-felt and unmet need for a method that prevents damage during oxidative hair bleaching.” Resp. 61. According to Patent Owner, hair bleaching “has long been known to damage hair,” as evidenced by Berkemer (filed in 1964) and that, decades later, references continued to report that bleaching mixtures can result in damage to hair. *Id.* (citing, for example, Ex. 1011, 16; Ex. 2005, 6; Ex. 2072 (Borish Decl.) ¶¶ 59–64, 288–290).²⁷

Patent Owner asserts that “[p]rior attempts to address bleach damage only masked the underlying problem, and they did not actually repair the damage or prevent it.” Resp. 61 (citing Ex. 1038 (Dispenza Tr.) 102:8–22; Ex. 2072 ¶¶ 65–68, 291). According to Patent Owner, the skilled artisan would have understood that there was no solution to bleach damage “other than to not bleach the hair.” Resp. 61; Ex. 2072 ¶¶ 68, 291.

Patent Owner argues the '954 patent provides the solution to the long-felt need. Resp. 61–62. More specifically, Patent Owner contends, Petitioner’s advertisements (for products alleged to practice the claims of the '954 patent) state that maleic-acid containing bleach additives protect bonds during hair bleaching. Resp. 62; *see, e.g.*, Ex. 2045, 16 (“maleic acid protects the bonds during the chemical process”). Patent Owner further contends Petitioner’s witness (Mr. Nandagiri) also confirmed that adding

²⁷ Patent Owner cites here to Exhibit 2029, but no such exhibit exists in the record. *See* Resp. vii (describing Ex. 2029 as “RESERVED”).

maleic acid avoids the problem of bleach damage. Resp. 62 (citing Ex. 2057, 240:18–241:4).²⁸

Also, according to Patent Owner, the passage of time between publication of the asserted references adds to the nonobviousness of the claims. Resp. 62–63. As Patent Owner notes, Pratt was published in 2009 and the other applied references were published in 1999 (Tanabe), 1966 (Berkemer), and 2006 (KR '564), respectively. Patent Owner contends that no one sought to combine these decades-spanning disclosures, as Petitioner proposes, because the combination was not obvious. *Id.* And, Patent Owner argues, even Petitioner’s executives recognized the patent as a “great technological innovation.” *Id.* at 63 (quoting Ex. 2069, LO_USA0035379).

Petitioner contends that Patent Owner’s argument on long-felt and unmet need is, for several reasons, flawed. Petition 24–25; Reply 24–26. If the '954 patent is not entitled to a priority date of May 16, 2014, Petitioner contends the alleged need was met by Patent Owner’s own Olaplex product, commercialized in 2014. Reply 24–25. For the reasons discussed above (*supra* Section II(C)), we determine that the '954 patent is entitled to claim priority to May 16, 2014. Thus, this counter from Petitioner fails.

²⁸ Petitioner contends (Reply 26) that Patent Owner “cherry-picked” this witness testimony because, in full context, the witness answered that conditioners provide the same benefit:

Q. What can you add to bleach to avoid this problem, this damage?

A. Maleic acid is an example.

Q. Anything else?

A. *Conditioning agents.*

Ex. 2057, 241:2–6 (emphasis added).

Even if the '954 patent is entitled to a May 16, 2014, priority date, Petitioner contends that the alleged “need was met by numerous prior art references and conditioners” cited in this record. Reply 25. Those references include, for example, Pratt and KR '564, as well as other references published before 2014. *Id.*; Pet. 24–25 (citing, e.g., Ex. 1041); *see also* Ex. 1012 ¶¶ 164–167; Ex. 1062 ¶¶ 62–64 (“Pratt alone would have met the alleged long-felt need, as the results of the Examples of Pratt are consistent with the results described in Example 3 of the '954 patent,” such as “improved combability, better shine, softer feel, and better elasticity.”); *see also* Ex. 1006, 2 (describing acid treatments with “the advantages of *alleviating and preventing* hair damage caused by chemical treatments such as permanent wave, dyeing or bleaching.”) (emphasis added).

There is little question that damage to the hair from bleaching was a long-known and well-publicized problem. *See, e.g.*, Ex. 1012 ¶ 22; Ex. 1004, 2:24–32 (“Hair that is repeatedly subjected to a cold-perm treatment, bleaching or various coloring methods frequently displays symptoms such as split ends . . . , brittle hair, . . . and the hair becomes lusterless and dull”); Ex. 1006, 3 (“cuticles are easily damaged by day-to-day styling or coloring (dyeing, bleaching, etc.)”); Ex. 1009 ¶ 3 (“It is known that bleaching components are chemically active on hair and damages hair which is afterwards difficult to repair.”). Indeed, that damage is what many (if not most) of the references here aim to address.

The preponderance of the evidence on this record supports Petitioner’s assertion that the alleged long-felt need was met by other references before the '954 patent. Patent Owner argues that “[p]rior attempts to address bleach damage only masked the underlying problem, and

they did not actually repair the damage or prevent it.” Resp. 61. But we do not agree that is correct, and Patent Owner’s support relates generically to “conditioners” and alleged “after-the-fact treatments.” Ex. 2072 ¶ 68. Pratt, for example, does not describe an after-the-fact treatment. Quite the opposite, Pratt specifically describes the addition of acidic and cationic compositions to a bleaching mixture for use *during bleaching*, and Pratt reports that “when a bleaching composition is added [to] at least one cationic or and/or cationizable compound, damaging effect of bleaching composition on hair is noticeably reduced.” Ex. 1009 ¶¶ 5, 100–108 (Example 1).²⁹ As Dr. Wickett explains, the results with Pratt’s bleaching mixtures are directly comparable to the results reported in the ’954 patent, such as for Example 3 (“hair was softer, less frizzy, appeared hydrated, with more shine”). Ex. 1001, 23:8–12; Ex. 1012 ¶¶ 164–167; Ex. 1062 ¶¶ 62–64.

Petitioner also cites to Boswell (US 7,179,302), which issued in 2007. Ex. 1041; Pet. 24–25. Like Pratt, Boswell relates to additives for use *during* bleaching. Ex. 1041, Abstract. Boswell discloses “compositions [that] contribute to reducing the oxidative damage sustained by keratinous fibers such as human hair during bleaching.” *Id.* Moreover, Boswell discloses:

“[A]n object of the present invention [is] to provide new compositions capable of *improved protection* of keratinous fibers such as human hair from oxidative damage, in particular the structurally important keratin bonds such as the disulphide bonds from oxidative breakage.

²⁹ See also Ex. 1009 ¶ 138 (describing other example bleaching mixtures as providing “bleaching effects [that] were excellent and . . . hair bleached with these compositions were easier to comb, felt soft and natural upon touching and had improved shine.”).

It has now been surprisingly found that [the described] chelants have *damage inhibiting* properties.

Ex. 1041, 3:48–65 (emphasis added); *see also id.* at 18:63–22:32 (describing, for example, reduced damage to hair treated by particular chelants (measured in cysteic acid units)).

Patent Owner cites and relies on Boswell for its statement that “conditioners do not bring the hair back to its initial condition but merely conceal the damage under a protective layer of the conditioning agent.” Ex. 2072 ¶ 68 (quoting Ex. 1041, 2:39–42). But that statement in Boswell relates to historical background—not Boswell’s invention that is described.³⁰ Ex. 1012 ¶¶ 165–167 (Dr. Wickett citing Boswell, among other references, and opining that “the prior art is replete with compositions and methods that prevent or repair damage caused by a chemical process, such as bleaching.”). Dr. Borish does not opine specifically on Boswell’s actual invention, much less whether it would prevent or repair damage caused by bleaching and, thus, satisfy the alleged need. On the issue of an alleged long-felt, unmet need, and whether that need was already met in the existing art, we find that Dr. Wickett’s testimony and Petitioner’s evidence outweighs Patent Owner’s evidence.

We also find persuasive Petitioner’s argument that Patent Owner does not explain clearly what “prevent” or “repair” means and why that would distinguish over minimizing, protecting against, and reducing bleach damage reported throughout the art. Reply 25. As Dr. Wickett explains, the notion of 100% damage prevention, if that is what Patent Owner means, is

³⁰ Boswell describes other agents and compounds used “for reducing the damage to hair during bleaching and dyeing.” Ex. 1041, 2:56–67.

unrealistic and Dr. Wickett was “not aware of any testing or product that completely (*i.e.*, 100%) prevents damage.” Ex. 1012 ¶ 166. There is also no adequate support cited in the ’954 patent to show that damage is prevented completely by the claimed methods. On this record, we find that reducing, inhibiting, or protecting against damage is also preventing damage—at least to some extent. Assuming *arguendo* the method in the ’954 patent provides improved prevention of bleach damage versus the prior art methods, that does not mean that the need for damage-preventing methods was not met, to different degrees perhaps, by a host of references that came before the ’954 patent. “The relevant secondary consideration is ‘long-felt *but unsolved need*,’ not long-felt need in isolation.” *Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 884 (Fed. Cir. 1998).

Regarding Patent Owner’s argument about an email from Petitioner’s executive allegedly “admit[ing] the ’954 patent represents a real innovation,” we do not find this argument persuasive. Resp. 63. The email in question says nothing about maleic acid or any patent or application in the ’954 family. Ex. 2069, *generally*. To the contrary, the email was about Olaplex, which was already selling the Olaplex hair-treatment product that admittedly *does not* practice the invention claimed in the ’954 patent. *See supra* n.22. On this record, the nexus Patent Owner seeks to draw between that email and the invention claimed in the ’954 patent is not there.

Patent Owner also argues that the age of certain of the references and the passage of time between them shows that the claimed invention is nonobvious. We do not, however, agree on this record. *See Iron Grip Barbell*, 392 F.3d at 1324–25 (“Absent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is

not evidence of nonobviousness.”); *In re Wright*, 569 F.2d 1124, 1127 (CCPA 1977) (“The mere age of the references is not persuasive of the unobviousness of the combination of their teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem.”). On balance, for reasons discussed above, we find there was no specific long-felt and unmet need. As we give little weight to Patent Owner’s argument and evidence on that issue, we find that the age of the references relative to the priority date of the ’954 patent does not show nonobviousness.

(4) Unexpected Results

Patent Owner argues that unexpected results “confirm the nonobviousness of the ’954 patent claims.” Resp. 74. According to Patent Owner, those results are evidenced in data submitted during prosecution of two related patent applications (Ex. 2038 and Ex. 2041 (collectively the “Pressly Declarations”)), and by information in the ’954 patent. Resp. 74 (citing Ex. 1001, 22:38–23:17 (Example 3); Ex. 2072 ¶¶ 344–345).

Petitioner contends that “[t]he Board should not give any weight to PO’s alleged unexpected results . . . because PO did not make the individual who performed the testing and executed Exs. 2038 and 2041, Dr. Pressly, available for deposition.” Reply 21. According to Petitioner, the Board specifically granted Petitioner’s request for a deposition of Dr. Pressly related to his declarations, yet “Dr. Pressly refused to appear” and “refused to allow his attorney to accept service [of a subpoena] on his behalf.” *Id.* (citing, e.g., Ex. 1055, 3; Ex. 1064). Petitioner also contends that, consistent with the Board’s determination in related proceedings, the results of using

maleic acid in a bleaching process would have been expected. Reply 22 (citing PGR2017-00012, Paper 17, 17).

Patent Owner relies on the Pressly Declarations to support, *inter alia*, its argument of alleged unexpected results. Resp. 74. Dr. Pressly is a named inventor on the '954 patent, and those declarations were submitted during prosecution of two related applications: US Application No. 14/713,885 (the great-grandparent application to the '954 patent) and US Application No. 15/955,455 (an application filed on April 17, 2018, after the '954 patent's issuance). Ex. 2038, 1; Ex. 2041, 1. Those declarations purport to describe assessments of hair treated with bleaching mixtures that include maleic acid, among other active agents. Ex. 2038, 3–5; Ex. 2041, 2–6.

Earlier in this proceeding, the Board granted Petitioner's opposed motion for a limited deposition of Dr. Pressly on the two relied-upon declarations. *See, e.g.*, Paper 42, 4 ("Petitioner's ability to depose the declarant who performed the relied-upon testing and generated the relied-upon data that supports factual assertions advanced by Patent Owner falls well within the post-grant review discovery standard."). Among other things, the Board determined that non-deposition discovery did not provide an adequate substitute for Petitioner's ability to cross examine Dr. Pressly about the testing he performed and the results he observed, particularly because those results involve various subjective assessments of the hair. *Id.* at 7 ("Dr. Pressly is in the best position to distinguish, for example, between what represents a 'good feel' versus a 'great feel' with the hair he tested.").

Notwithstanding Petitioner's efforts to cross-examine Dr. Pressly, his deposition never occurred. While Petitioner's motion was pending, Patent Owner told Petitioner "that Dr. Pressly can be available for deposition in

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Santa Barbara January 28-31 *if so ordered by the Board.*” Ex. 2076, 2. But, once the Board granted the deposition requested by Petitioner, things changed. Dr. Pressly, via Patent Owner’s counsel, apparently informed Petitioner that he would not voluntarily appear for a deposition and he would have to be subpoenaed, which subpoena Patent Owner’s counsel would not or could not accept. Ex. 1064, 1–3. Indeed, Dr. Pressly did not appear on January 29 in Santa Barbara as noticed (Paper 43), where Petitioner sought to serve a subpoena on the witness. Ex. 1055, 3 (“We are here for the deposition of Eric Pressly ordered by the Board We informed counsel for Patent Owner that a process server would be present to serve a subpoena Since Dr. Pressly has failed to show, we will not be proceeding with the deposition at this time.”). And, Petitioner’s several additional attempts to serve Dr. Pressly were also unsuccessful. Exs. 1056–1058 (affidavits describing attempts from January 28 through February 1 to serve Dr. Pressly at his apparent residence in Santa Barbara).

Although the Board accepted Patent Owner’s representation that “Dr. Pressly is not [Patent Owner’s] employee and that Patent Owner cannot compel his appearance at deposition,” we also stated when we granted the deposition that “[i]f Dr. Pressly refuses to testify at cross examination altogether, the Board may (as we previously informed the parties) decline to give any weight to his direct [declaration] testimony and/or strike that testimony.” Paper 42, 8 n.6 (citing *HTC Corp. v. NFC Tech., LLC*, Case IPR2014-01198 (PTAB Nov. 6, 2015), Paper 41, 4–5 (striking declaration of non-party witness who refused to participate in deposition noticed by petitioner).

We conclude that Petitioner was reasonable and diligent in its efforts to obtain the allowed deposition discovery from Dr. Pressly. We also conclude that Patent Owner, as the party proffering the Pressly Declarations to support the alleged unexpected results, had an obligation to secure attendance of the witness at deposition when requested by Petitioner, or risk the Board declining to give weight to those declarations.³¹ Petitioner, in fairness and to be afforded an opportunity to respond to Patent Owner's argument, was entitled to cross examine Dr. Pressly in this proceeding about his observations of the hair he tested—matters about which he was uniquely positioned to testify.

Petitioner did not get the opportunity to depose Dr. Pressly here, despite its good faith efforts, and therefore we give little weight to the Pressly Declarations. Dr. Borish, Patent Owner's expert, did not make the observations and assessments reported in the Pressly Declarations. To the extent he endeavors to opine on such assessments as allegedly showing unexpected results, we similarly give little weight to that opinion. Ex. 2072 ¶¶ 345–347. As we explained when the Pressly deposition was granted, the ability to question the retained expert was a poor substitute on this record to cross-examining Dr. Pressly because the expert “did not perform the testing or make the [subjective] assessments.” Paper 42, 7.

For the above reasons, we give little weight to Patent Owner's assertion of unexpected results based on the Pressly Declarations.

³¹ While Dr. Pressly may not officially be an employee of Liqwd (Patent Owner), Dr. Pressly declared that he co-owns Olaplex LLC (Patent Owner's exclusive licensee) and that he receives royalties from Liqwd. Ex. 2041 ¶ 2. Patent Owner also listed Olaplex LLC as a real party in interest in this proceeding. Paper 7, 1.

Beyond our discussion above, we also note the following about the Pressly Declarations and Dr. Borish’s opinion on the same. Dr. Pressly assessed characteristics of hair (feel, appearance, etc.) when bleached with mixtures that include maleic acid, but only a small range of active agent concentrations were tested. No maleic acid concentration above 5% in the mixture was apparently tested. See Resp. 74; Ex. 2072 ¶ 345. Claim 1, however, claims a range spanning “about 0.1% by weight to about 50% by weight” of maleic acid in the mixture. Claim 1, thus, embraces a bleaching mixture that includes, for example, at least *10 times* the amount of maleic acid as the upper bound for which any data is provided. Pressly’s testing, hence, is not reasonably commensurate in scope with the breadth of claim 1. *In re Peterson*, 315 F.3d 1325, 1329–30 (Fed. Cir. 2003) (“[U]nexpected results must be commensurate in scope with the claimed range.”). We find unpersuasive the opinion that “a POSITA would have expected that benefit [observed at/below 5%] to persist at higher concentrations of active agent throughout the range in claim 1.” Ex. 2072 ¶ 346. Dr. Borish does not provide persuasive reasoning or evidence to explain why a bleaching mixture including, for example, 40% or even 50% by weight of the recited acid would be expected to provide the alleged benefits observed below 5%.

Moreover, to the extent the Pressly Declarations are alleged to show better results with maleic acid than certain other acids, Petitioner has provided evidence that better results would have been reasonably expected when maleic acid is used. Ex. 1004, 2:34–3:37 (describing the results of using maleic acid as “a substantial advance in comparison with the known methods”). As Dr. Wickett explains, “based on the express teaching of Berkemer that maleic acid was superior to citric acid . . . a skilled artisan

would have expected maleic acid (unsaturated compound) to outperform citric acid (known method).” Ex. 1062 ¶ 66.

Example 3 from the ’954 patent is, like the testing in the Pressly Declarations, not commensurate in scope with claim 1. Ex. 2072 ¶ 346 (describing Example 3 as including maleic acid at 2.8% by weight in a bleaching mixture to produce hair that is “softer, less frizzy, appeared hydrated, with more shine than the control”); Ex. 1001, 22:38–23:17.³² Moreover, to the extent the control in this example is simply a bleaching mixture “in the absence of the active agent formulation [maleic acid in water],” the comparison is not against the closest prior art, such as Pratt and its bleaching mixtures that include and exemplify specific, acidic cationic part (c) compositions. *See, e.g.*, Ex. 1009 ¶¶ 100–108; “[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art.”). *In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991).

In sum, for the reasons above, we give little weight to Patent Owner’s contentions and evidence of alleged unexpected results on this record.

³² Petitioner contends Patent Owner did not provide a supporting declaration from someone who conducted the experiments in the specification as required under 37 C.F.R. § 42.61(c). Reply 6 n.3. Petitioner is correct, but Petitioner did not make a timely objection identifying Rule 42.61(c). *See* Paper 15 and Paper 26 (Petitioner’s Objections); 37 C.F.R. § 42.64(b)(1) (objections must be filed within 10 business days of institution and within five business days from service of the evidence once trial is initiated and “[t]he objection must identify the grounds for the objection with sufficient particularity to allow correction in the form of supplemental evidence”).

(5) Industry Skepticism and Praise

Patent Owner, relying again on the Pressly Declarations (Exs. 2038 and 2041), contends that those declarations overcame a patent examiner’s “skepticism” and persuaded the examiner to allow claims in two related patent applications. Resp. 74–76. According to Patent Owner, “the Patent Examiner who is an expert in the technical field of the ’954 patent was initially skeptical that maleic acid provides a benefit over similar chemicals,” and this allegedly confirms the nonobviousness of the challenged ’954 patent claims. *Id.* at 76.

Patent Owner is correct that the Pressly Declarations appear to have convinced the patent examiner handling prosecution of two related applications to allow the claims. Indeed, as Patent Owner notes, the examiner stated, for example, that the Pressly Declaration (Ex. 2041) “is persuasive to establish the unexpectedness of maleic acid compared to conventional acids uses as pH adjusters; namely citric acid.” Ex. 2042, 8–9; Resp. 75–76.

Considering the evidence, it is fair to say that the examiner did not expect the results reported and was skeptical that adding maleic acid in a bleaching mixture would provide differences in characteristics of the hair. Resp. 75–76. We give some weight to the examiner’s statements as reflecting “unexpected results.” However, as noted above, we decline to place substantial weight on the evidence of alleged unexpected results, which here also turn on information in the Pressly Declarations. As already explained, Petitioner was unable in this proceeding to explore the testing and assessments in those declarations through cross examination of Dr. Pressly relevant to the claims of the ’954 patent challenged here. And, while the

examiner’s statements about the Pressly Declarations are worthy of consideration, we cannot agree that those statements reflect skepticism among the *industry* at large, nor that this examiner should be deemed an “expert” as Patent Owner suggests. Resp. 76.

On industry praise, Patent Owner cites Petitioner’s internal emails, describing a “great technological innovation,” a “must have,” and the “greatest opportunity [an executive of Petitioner had] seen at L’Oréal in 30 years.” Resp. 76; Ex. 2069, LO_USA0035379); Ex. 2071, LO_USA0026489).

The problem with Patent Owner’s argument, however, is that there is an inadequate nexus between those laudatory statements in Petitioner’s emails and *the invention claimed*. As discussed above (related to the allegations of copying), the cited emails appear to relate to a potential acquisition of Olaplex and its product, which was already on the market; yet that product did not include maleic acid like the claims of the ’954 patent. Reply 27; Ex. 1062 ¶ 58; Resp. 73; Ex. 2003, 8 (*Liqwd*, 2018 WL 480759 at *8); *id.* at 2 (“Olaplex’s product uses bis-aminopropyl diglycol dimaleate . . . as the active agent”). As Petitioner points out, “Olaplex did not have a ‘maleic acid’ product on the market in April-June 2015 [when these emails were sent] (and admittedly still does not).” Reply 27. Indeed, the cited statement about Olaplex/Olivia being the “greatest opportunity . . . in 30 years,” was in an email sent at least a month before Patent Owner alleges it told anyone at L’Oréal about maleic acid or the invention claimed in the

'954 patent. *See supra* (regarding copying allegations).³³ Accordingly, we do not find that the record here demonstrates industry praise for the subject matter claimed in the '954 patent.

In sum, when we weigh all the evidence of record, we find that the evidence on objective indicia of nonobviousness does not outweigh the evidence that claim 1 is unpatentable as obvious over Pratt and Tanabe for the reasons discussed above.

d. Claims 2–13, 19, 23, 29, and 30

Petitioner argues that the combination of Pratt and Tanabe teaches or suggests the limitations that dependent claims 2–13, 19, 23, 29, and 30 add to independent claim 1. Pet. 40–45, 45–46, 47–52, 54–56, 58–59; Ex. 1007, 1:51–57, 2:4–12, 2:63–3:17, 3:18–26, 3:32–35 (liquid conditioners), 3:36–6:61 (Examples 1–5); Ex. 1009 ¶¶ 1, 50 (part (c) being in solution), 86–92 (absence of dye precursor), 104, 106; Ex. 1012 ¶¶ 20, 60–63, 64–89, 90–92, 93–106, 111–120, 127–132; Ex. 1011, 17; Ex. 1038, 102:10–103:24 (testimony regarding application of acidic conditioners). Petitioner has provided argument and cited evidence sufficient to demonstrate that the skilled artisan would have combined the references to arrive at the subject matter recited in the respective dependent claims with a reasonable expectation of success. Patent Owner does not, separate from its arguments for claim 1, dispute Petitioner's arguments with respect to claims 2–13, 19, 23, 29, and 30. Resp. 76–77 ("Petitioner fails to show independent claim 1

³³ Patent Owner does not direct us to evidence demonstrating industry praise for Petitioner's products, which are alleged to actually practice the method claimed in the '954 patent.

is not patentable. Therefore, the Petition’s obviousness challenge also fails for all the challenged dependent claims.”).

We have reviewed Petitioner’s arguments and the underlying cited evidence in support of the challenge to claims 2–13, 19, 23, 29, and 30, and we credit and adopt that argument and evidence as findings of the Board for those dependent claims. We are persuaded that the preponderance of the evidence of record establishes that the combination of Pratt and Tanabe teaches or suggests all the limitations of claims 2–13, 19, 23, 29, and 30, and that the skilled artisan had reasons for combining the references in the manner proposed with a reasonable expectation of success and as explained in the Petition. We find that the evidence on objective indicia of nonobviousness does not, on the record here, outweigh the evidence of obviousness for the reasons discussed above, which reasons also apply to the subject matter of claims 2–13, 19, 23, 29, and 30.

e. Claims 14–16, 18, and 24–28

The parties, as shorthand, have referred to this group of claims as the “breakage claims” throughout this proceeding. *See, e.g.*, Reply 12–13; Sur-Reply 1–5. These dependent claims all relate to reductions in hair breakage and, more specifically, a percentage reduction in breakage when comparing hair bleached with a mixture that includes the active agent (i.e., maleic acid) and a mixture that does not. Claim 24, for example, depends from claim 1 and recites: “wherein following step (c) breakage of the hair is decreased by at least 5% compared to hair bleached with the bleaching formulation in the absence of the active agent.” Ex. 1001, 27:7–10. Other claims recite

different percent reductions (e.g., at least 20%, at least 50%, etc.). *See, e.g., id.* at 27:11–26.³⁴

Petitioner asserts that, “assuming the ‘954 patent claims [claims 14–16, 18, and 24–28] are enabled for reducing the claimed amount of breakage . . . [,] a POSITA would have expected the combined Pratt/Tanabe method to achieve the same decreases in breakage as recited.” Pet. 53; *see also id.* at 56–58. Petitioner contends that “to the extent that such [reduced breakage amounts] are inherently present in the methods of the claims . . . , Petitioner submits that the same would be present in the Pratt/Tanabe method because that method discloses and obviates a method of bleaching hair” as recited in claim 1. Pet. 53–54; *see also id.* at 57 (“a POSITA would have expected that the identical methods of bleaching hair using overlapping amounts of maleic acid in the Pratt/Tanabe bleaching process discussed above for claim 1 would necessarily have resulted in overlapping reductions in breakage of the hair.”).

As we explained at institution, Petitioner’s argument and evidence on the obviousness of the breakage claims was unpersuasive. Inst. Dec. 25–26. The Petition invoked inherency to show that the claimed breakage limitations would be met. But, as the Federal Circuit has cautioned, “[i]nherency may not be established by probabilities or possibilities.” *See, e.g., Scaltech Inc. v. Retec/Tetra L.L.C.*, 178 F.3d 1378, 1384 (Fed. Cir. 1999) (citations omitted) (“The mere fact that a certain thing may result

³⁴ Claims 14–16 and 18 depend from claims 1, 12, and 13, and claims 12 and 13 collectively require, after step (c), a step “(d)” that involves applying a second active agent formulation comprising maleic acid and a conditioning agent. Ex. 1001, 26:30–55.

from a given set of circumstances is not sufficient to establish inherency.”). Moreover, there is a high standard required of the challenger when inherency is relied upon to support an assertion of obviousness. *Par Pharm., Inc. v. Twi Pharm., Inc.*, 773 F.3d 1186, 1195–1196 (Fed. Cir. 2014) (“A party must . . . meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art”).

On inherency, we found that Petitioner had not provided sufficient evidence to show that combining Pratt and Tanabe in the way proposed would necessarily produce the reduced breakage amounts as recited in claims 14–16, 18, or 24–28. Inst. Dec. 25–26. As we noted at that time, some of the breakage limitations in these claims *might* be met by combining the art, and there is some overlap with the claimed maleic acid concentrations. *Id.* But such possibilities are insufficient to demonstrate that any—much less all—of the recited breakage limitations would be inherently satisfied in the Pratt/Tanabe combination.

Notwithstanding our assessment of Petitioner’s argument and evidence on the breakage claims at institution, Petitioner’s challenge to those claims was included in the trial in view of SAS. SAS, 138 S. Ct. at 1359 (holding that, upon institution, a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”).

Patent Owner made no separate argument on the breakage claims in the Patent Owner Response. Resp. 76–77. Petitioner, in its Reply, provided further argument on the breakage claims. Reply 12–13. Petitioner also submitted a Rebuttal Declaration from Dr. Wickett providing opinions on

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the breakage claims. Ex. 1062 ¶¶ 44–48. In the Reply, Petitioner relies in large part on an exhibit (Ex. 2028) submitted by Patent Owner with Patent Owner’s *Preliminary* Response. Reply 12; Ex. 1062 ¶ 44–47. According to Petitioner, if Exhibit 2028 identifies an “industry standard” technique for measuring hair breakage, as Patent Owner stated in its Preliminary Response (Paper 9, 38), that exhibit discloses that “the use of a conditioner can reduce breakage up to 60% compared to hair that has not been conditioned.” Reply 12 (citing Ex. 2028, 445). Because Pratt’s part (c) composition and Tanabe’s compositions may comprise conditioners, Petitioner reasons, “a POSITA would have been motivated to mix Tanabe’s acidic conditioner into Pratt’s bleaching mixture with the expectation of reducing hair breakage, and in view of the repeated grooming test results [in Ex. 2028], the POSITA would have expected to achieve a greater than 50% reduction in hair breakage by doing so.” Reply 12–13 (citing, e.g., Ex. 1062 ¶ 18, 47).

Patent Owner sought to strike Petitioner’s Reply for including new argument and evidence on the breakage claims in violation of 37 C.F.R. § 42.23(b). Paper 51. Rule 42.23(b) reads, in pertinent part: “A reply may only respond to arguments raised in the corresponding opposition or patent owner response.” 37 C.F.R. § 42.23(b). We did not authorize a motion to strike, but allowed supplemental briefing on whether Petitioner’s Reply, particularly as related to the breakage claims, had complied with Rule 42.23(b). Papers 51–53. We also allowed Patent Owner a Sur-Reply to address Petitioner’s argument on the breakage claims—in the event the Board decided that the Reply did not violate Rule 42.23(b), and to afford Patent Owner an opportunity to respond to Petitioner’s Reply argument and evidence. Paper 51; Paper 60 (“Sur-Reply”).

On balance, we find that Petitioner’s Reply invokes new argument and evidence in an effort to show unpatentability of the breakage claims. As Patent Owner persuasively argues, Petitioner’s Reply does not attempt to “explain why the Board misunderstood [Petitioner’s] arguments, [rather] L’Oréal and the Wickett Rebuttal Declaration start over.” Paper 60, 1. Although the Petition repeatedly urged that using Tanabe’s conditioners in Pratt’s bleaching mixture would have been obvious, the Petition never alleged, much less explained clearly and with supporting evidence, that the mere use of a *conditioner* would be responsible for specific percentage reductions in breakage recited in the claims as Petitioner does now in the Reply. Reply 12–13. To the contrary, as explained above, the Petition invoked inherency—asserting that an overlap in maleic acid concentrations demonstrates that the breakage limitations would inherently be met. Pet. 52–54, 56–58. Noticeably missing, however, in Petitioner’s Reply and supplemental briefing is any express mention of inherency. And, Petitioner’s expert essentially concedes that the rebuttal opinions on the breakage claims are not, in fact, responsive to argument or evidence raised in Patent Owner’s Response or in the declaration of Patent Owner’s expert, Dr. Borish. Ex. 1062 ¶ 44. (“Dr. Borish does not opine on the claims directed to a reduction in breakage . . . [and] [m]y previous opinion did not take this method [in exhibit 2028] into account when assessing the breakage claims identified above.”). Under such circumstances, the Board may rightly refuse consideration of Petitioner’s Reply on the breakage claims under Rule 42.23(b).³⁵

³⁵ See *Intelligent Bio-Systems*, 821 F.3d at 1369 (holding, in connection with Rule 42.23(b), that “the expedited nature of IPRs bring with it an obligation

Even considering Petitioner’s Reply argument and evidence on the breakage claims, however, we remain unpersuaded Petitioner has met its burden. We are not persuaded that all conditioners will behave in the manner described in Exhibit 2028. As Patent Owner notes, citing abundant evidence, not all conditioners necessarily convey the same benefits. Sur-Reply 2–3 (citing, for example, Ex. 1011, 10; Ex. 2006, 3; Ex. 1017, 10; Ex. 2080, 81:3–82:14). Even Exhibit 2028 discloses that “different product will vary in their deposition efficiency, [and] their effectiveness is also related to the manner in which a product is used.” Ex. 2028, 445. As Patent Owner contends, “L’Oréal fails to provide evidence or technical analysis explaining why the Figure 10 data [of Exhibit 2028] is representative of what would happen if Tanabe’s . . . [conditioners] were substituted for Pratt’s composition (c).” Sur-Reply 4. Exhibit 2028 describes testing on a “commercially available conditioning product” under certain conditions. Ex. 2028, 445–446, 451. Yet, Petitioner does not provide a sufficient evidentiary basis to demonstrate that the results observed with that product

for petitioners to make their case in their petition to institute” and that “[w]hile the Board’s requirements are strict ones, they are requirements of which petitioners are aware when they seek to institute an IPR.”). Petitioner cites the Board’s Trial Practice Guide, which states that “the Board will permit the petitioner, in its reply brief, to address issues discussed in the institution decision.” Paper 52, 5; Trial Practice Guide Update, 14 (Aug. 2018). The Guide continues, however, and states that “Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability.” *Id.* As explained, the Reply does not directly address the Board’s discussion on inherency as provided in the Institution Decision, nor does Petitioner explain persuasively why its theory that conditioners per se would be expected to result in up to 60% breakage reduction could not have been raised earlier.

under those conditions would *necessarily* and *inherently* inure to Tanabe’s particular conditioner when combined with Pratt’s bleaching mixture.

In short, it may be the case that the Pratt/Tanabe combination would reduce hair breakage by some amount, possibly meeting some of the breakage claims. But the evidence cited by Petitioner does not demonstrate that is necessarily so for any or all of the breakage claims. Also, an *expectation* of reduced breakage, which Petitioner repeatedly asserts in the Reply, and a showing that the result is inherently present in the modified bleaching mixture of Pratt are not one and the same. Reply 13 (arguing “a POSITA would have expected to achieve a greater than 50% reduction in hair breakage”); *cf. Honeywell Int’l Inc. v. Mexichem Amanco Holdings S.A.*, 865 F.3d 1348, (Fed. Cir. 2017) (holding that properties cannot be dismissed as “merely inherent” without separate consideration as to the expectedness of such properties). Put differently, that a result—claim limitations reciting particular percent reductions in breakage—may be expected does not persuasively demonstrate to us that such limitations are inherently present when the prior art is combined and modified as proposed. Again, the burden of showing claim limitations are inherently met when the art is combined, and obviousness is the issue, is a high one. *Par Pharm.*, 773 F.3d at 1195–1196. And we find that burden was not satisfied by Petitioner here.³⁶

³⁶ Insofar as Petitioner suggests the breakage limitations add nothing of consequence to method claim 1 that would potentially distinguish over the prior art, we are unpersuaded. See Tr. 15 (arguing that “the reduced breakage itself is not an additional requirement . . . but rather a property necessarily present in the process of the claims” and referring, for example, to *In re Huai-Hung Kao*, 639 F.3d 1057 (Fed. Cir. 2011)). The problem with Petitioner’s suggestion is that, based on Petitioner’s argument and cited evidence, we are unable to conclude that each of the breakage limitations

2. Conclusions

After considering the parties’ arguments and balancing the evidence on this record, we conclude Petitioner has met its burden and established by a preponderance of the evidence that each of claims 1–13, 19–23, 29, and 30 is unpatentable for obviousness over Pratt and Tanabe. Petitioner has not, however, established by a preponderance of the evidence that claims 14–16, 18, and 24–28 are unpatentable for the reasons discussed above.

F. Asserted Obviousness over Pratt, Tanabe, and Stone (Ground 2)

Petitioner also asserts that claims 20 and 22 are unpatentable as obvious over Pratt, Tanabe, and Stone. Pet. 60–66.

Petitioner argues that Pratt, Tanabe, and Stone teach or suggest or otherwise render obvious all the limitations that dependent claims 20 and 22 add to independent claim 1. Pet. 60–66; Ex. 1012 ¶¶ 133–146. Patent Owner relies only on its arguments related to the Pratt and Tanabe combination, and asserts that “the addition of Stone does not alter the conclusion, as explained [] in connection with Ground 1, that Pratt and Tanabe do not render claim 1 (and therefore, dependent claims 20 and 22) obvious.” Resp. 50–51. As explained above, we do not agree that the Pratt/Tanabe combination is deficient as to the claims from which claims 20 and 22 depend.

(e.g., at least 20%, at least 50%) would be met across the *entire* maleic acid concentration range in claim 1. Claim 1 recites a broad range (0.1–50%) and, while some concentrations in that range presumably provide the percent reductions recited in the dependent claims, the proposed combination of Pratt and Tanabe results in only *some* overlap at the lower end of claim 1’s range. See *supra* Section II(E)(1)(a); Pet. 39–40 (showing a maleic acid concentration of 0.429 wt% when combined); Ex. 1012 ¶ 62.

We have reviewed Petitioner’s arguments and the underlying cited evidence in support of the challenge to claims 20 and 22, and we credit and adopt that argument and evidence as findings of the Board for those dependent claims. We are persuaded that the preponderance of the evidence of record establishes that the combination of Pratt, Tanabe, and Stone teaches or suggests all the limitations of claims 20 and 22, and that the skilled artisan had reasons for combining the references in the manner proposed with a reasonable expectation of success as explained in the Petition. Pet. 60–66; Ex. 1007, 2:13–50, 3:36–6:61 (Examples 1–5); Ex. 1008 ¶¶ 32–33, 50–51 (Example 8), 56–61 (Examples 11–13), Ex. 1012 ¶¶ 133–138, 139–146. We find that the evidence on objective indicia of nonobviousness does not, on the record here, outweigh the evidence of obviousness for the reasons discussed above, which reasons also apply to the subject matter of claims 20 and 22.

G. Asserted Obviousness over Pratt, Tanabe, Berkemer, and KR ’564 (Ground 3)

Petitioner asserts that claims 1–19, 21, and 23–30 are unpatentable under 35 U.S.C. § 103 over Pratt, Tanabe, Berkemer, and KR ’564. Pet. 66–93. These references are summarized in Section II(D) above.

1. Analysis

a. Claim 1

Petitioner has shown by a preponderance of the evidence, as explained above, that Pratt and Tanabe disclose all the limitations of claim 1. We do not repeat that analysis here.

Petitioner does not rely on any teaching in Berkemer or KR ’564 as being necessary to satisfy any particular limitation in claim 1—having

already proposed that the combination of Pratt and Tanabe teaches all the limitations and makes obvious the method of claim 1. Pet. 66–67, 69–74. Instead, the thrust of Petitioner’s argument here is that the teachings of Berkemer and KR ’564 provide even further reasons for the skilled artisan to have selected maleic acid from among the disclosed or preferred acids described in Pratt and Tanabe. See, e.g., Pet. 70 (“[T]he teachings of Berkemer and KR ’564 would have provided a POSITA further motivation to select maleic acid specifically from the very short list of only 3 ‘preferred’ options for Tanabe’s component (B).”); see Ex. 1012 ¶ 147 (incorporating analysis on the Pratt/Tanabe combination and adding “in my opinion, Berkemer and KR ’564 provide an additional reason to specifically select maleic acid from Tanabe’s three preferred acids for use as component (B)”); see also Reply 16–17; Ex. 1062 ¶ 54.

In support of its arguments, Petitioner cites to disclosures in Berkemer and KR ’564 related to the use of maleic acid in hair treatments and the benefits of doing so. Pet. 67, 71. For example, Petitioner contends that “Berkemer expressly teaches that treating hair using an unsaturated acid such as *maleic acid provides ‘astonishing structural improvement of hair surface’ and ‘a substantial advance in comparison with the known methods,’* which include treatment with unsaturated acids such as citric and lactic acids.” Pet. 67 (citing Ex. 1004, 1:34–2:5, 2:19–37, 3:23–26) (emphasis by Petitioner). Petitioner cites Berkemer’s disclosure that such benefits are “achieved according to the invention in that the hair is treated with the solution of a maleic acid or substitution products thereof.” *Id.*; Ex. 1004, 3:12–14. Petitioner contends that KR ’564 teaches alleviating hair damage due to bleaching, and that “KR ’564 uses a hair treatment agent

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comprising a mild organic acid ***including maleic acid*** to alleviate and prevent hair ***damage associated with chemical treatments.***” Pet. 67 (citing Ex. 1006, 2, 4, 7) (emphasis by Petitioner); Ex. 1006, 2 (“The present invention relates to a hair treatment agent comprising mild acid . . . [,] which has the advantages of alleviating and preventing hair damage caused by permanent wave, dyeing, bleaching and the like.”). According to Petitioner, “like Pratt, the stated goals of both Berkemer and KR’564 are directed to solving the problem of hair damage caused by the bleaching process . . . [and] both Berkemer and KR’564 disclose the use of maleic acid to achieve this goal.” Pet. 68 (citing Ex. 1004, 2:24–25, 3:7–8, 3:12–17; Ex. 1006, 2, 4, 7). For those reasons, Petitioner contends the skilled artisan would have been motivated to combine Pratt, Tanabe, Berkemer, and KR ’564 with a reasonable expectation of success. Pet. 68–69; Ex. 1012 ¶¶ 147–59.

Petitioner has shown by a preponderance of the evidence that the ordinarily skilled person would have predictably combined Pratt and Tanabe as proposed for the reasons explained above. *See supra* Section II(E). We find the teachings of Berkemer and KR ’564 provide further reasons to have selected maleic acid as a desirable compound for a bleaching composition designed according to the teachings of Pratt and Tanabe. Pet. 66–74; Ex. 1012 ¶¶ 147–159. Berkemer discloses the preferred use of maleic acid over previously known acids, such as citric acid, to treat bleach-damaged hair. Ex. 1004, 2:34–3:5, 3:12–17, 3:19–37. Berkemer discloses achieving “a firm substantial attachment” between “the hair cortex” and maleic acid after the hair has been made alkaline by a bleaching process, to provide “a permanent smoothing of the [hair] surface,” suggesting that those of skill in the art would have expected some benefit from using maleic acid even in a

high-pH environment. Ex. 1004, 3:19–23; Ex. 1062 ¶ 51. And, Berkemer describes “an astonishing structural improvement of the hair surface” when maleic acid is used. Ex. 1004, 4:23–24; Ex. 1012 ¶¶ 148–154; 1062 ¶¶ 32–33, 51. KR ’564 also provides reasons to use maleic acid to alleviate bleach damage, and further suggests that it can be added to alkaline treatment compositions. Pet. 67; Ex. 1006, 2–4 (“In addition to being used alone as a treatment agent, the hair treatment agent [mild acid] according to the present invention may be preliminarily added to a permanent wave agent, dyeing agent and the like as an additive for various hair treatment solvents.”)³⁷ (“the hair treatment agent . . . may be used as a shampoo, conditioner . . . by mixing it with other components.”); Ex. 1012 ¶¶ 155–157.

Patent Owner argues that “Pratt, Tanabe, Berkemer, and KR ’564 each fail to disclose elements of the ’954 patent claim 1.” Resp. 52; *see also id.* 53–55. According to Patent Owner, those references do not teach use of maleic acid in a mixture with a bleaching formulation, nor the claimed concentration of maleic acid in the formulation. *Id.* at 52–55. Patent Owner further argues that the Petition fails to demonstrate a reason for combining

³⁷ KR ’564 discloses that alkali in wave, bleaching, and dyeing treatments damages the hair. Ex. 1006, 4 (“with hydrogen peroxide used in dyeing or bleaching, when an alkaline agent is caused to act as a strong oxidizing agent, the keratin component of hair is destroyed and eluted, thereby incurring hair damage”), (“The reason for the continued occurrence of damage even after chemical treatments such as permanent wave, dyeing and the like is that there is residual alkali in the hair . . .”), (“[T]o prevent hair damage or decrease progression thereof, it is necessary to neutralize and remove the alkali agent to prevent expansion of the hair.”) (“[W]hen the pH is 8 or greater swelling and softening of the hair occurs, and when the pH is 12 swelling further increases; this means that the hair begins to dissolve due to the alkali.”).

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the applied references. Resp. 56–59. Patent Owner contends a skilled person would have expected alkaline bleaching conditions to alter the benefits in Berkemer and KR '564 (which Patent Owner contends would be manifested only at low pH). *Id.* at 56–58 (citing e.g., Ex. 2072 ¶¶ 259–260). And, Patent Owner argues, the skilled person would have been led away from using maleic acid out of concern for neutralizing the bleaching reaction and due to safety concerns. *Id.* at 58–59.

Patent Owner's argument about Pratt, Tanabe, Berkemer, and KR '564 not teaching all the limitations of claim 1 is unavailing. Resp. 52–53. As already explained, we find that the preponderance of the evidence demonstrates that Pratt and Tanabe, when combined, teach or suggest a method with all the limitations of claim 1. Patent Owner's contention that Pratt mentions maleic acid in a list of optional pH adjusters and does not exemplify mixing maleic acid with a bleaching formulation is unpersuasive because the challenge is based on a *combination* of references. *In re Merck*, 800 F.2d at 1097; *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (explaining that “in a section 103 inquiry, the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered”) (citation and internal quotation marks omitted). For reasons discussed above, Tanabe expressly prefers maleic acid for a low pH conditioning composition that would function as a suitable substitute for Pratt's part (c) composition, which is mixed with Pratt's bleaching formulation. *See supra* Section II(E). The concentrations of maleic acid described for Tanabe compositions, when combined with Pratt bleaching mixture as proposed, would result in maleic acid concentrations within the

scope of claim 1. Ex. 1012 ¶ 62. Patent Owner provides insufficient evidence to the contrary.

Patent Owner’s argument related to the individual teachings of the other references similarly fails. Resp. 52–53 (e.g., “Tanabe omits any disclosure of mixing these [acidic] conditioners into an alkaline bleaching mixture”). Pratt teaches mixing an acidic part (c) composition (e.g., a conditioner) with a bleaching formulation. Ex. 1009 ¶¶ 94–108; Ex. 1012 ¶¶ 53, 55; *see also* Ex. 1062 ¶ 40. It is the combination of references that is key. And Petitioner’s challenge does not hinge on Berkemer or KR ’564 supplying a limitation of claim 1 missing in the Pratt/Tanabe combination.

We turn next to Patent Owner’s argument that Berkemer and KR ’564 would not have provided any motivation for choosing maleic acid. Resp. 56–58. Patent Owner argues “that alkaline conditions using [*sic*] in bleaching would alter the benefits taught by Berkemer and KR ’564, which specify low, acidic pH ranges for their conditions.” *Id.* at 56. According to Patent Owner, “[n]either reference teaches mixing a mild acid treatment [maleic acid] with an alkaline bleaching formulation nor that such a mixture would provide any benefit.” *Id.* at 57 (citing Ex. 2072 ¶¶ 259–260, 263, 269–270). Patent Owner is correct that Berkemer and KR ’564 do describe acidic compositions having a lower pH, which are capable of treating bleach-damaged hair. *See, e.g.*, Ex. 1004, 4 (describing a pH from 1.9 to 4.0), 1006, 4 (mild acid solution with pH range of 4–5). Nevertheless, Berkemer expressly discloses a structural feature of maleic acid (i.e., carbon-carbon double bonds) as providing attachment to the hair cortex and a smoothing effect, which feature would exist whether maleic acid is in a low pH or a high pH environment (in a substantially deprotonated salt form).

Ex. 1004 3; Ex. 1062 ¶¶ 33, 51.³⁸ This disclosure provides support, from Berkemer itself, that maleic acid’s benefits would not necessarily be limited to low pH conditions. Also, as discussed above, other evidence of record indicates that it was known that maleic acid may be used to reduce hair damage—even under alkaline conditions. *See* Ex. 1029, 5–6 (Table 1, Example 1), 8–9 (describing maleic acid compositions used in high pH (>10) dyeing compositions to reduce damage and improve hair strength); Ex. 1012 ¶ 23 (discussing Ex. 1006 and Ex. 1029); Ex. 1062 ¶ 41.

KR ’564 also teaches that its acidic compositions can be added to alkaline treatments, including without limitation permanent wave and dyeing compositions. Ex. 1006, 4.³⁹ As disclosed in KR ’564, the hair treatment agent (mild acids, such as maleic acid) “may be preliminarily added to a permanent wave agent, dyeing agent *and the like* as an additive for various hair treatment solvents.” *Id.* (emphasis added). The parties disagree about the interpretation of the phrase “and the like” in this sentence and whether it extends to alkaline bleaching treatments. *Compare* Resp. 57–58 (arguing “a

³⁸ Patent Owner cites testimony expressing uncertainty about whether, as described in Berkemer, the C-C double bond is responsible for attachment or reaction with the hair. *See, e.g.*, Ex. 2080, 174:4–175:8 (“[T]hat’s certainly what he [Berkemer] states as the theory, but I’m not sure that it’s really the correct theory. I’m not really an expert on that part of the chemistry.”). This testimony does weaken Petitioner’s contentions somewhat about the significance of a C-C double bond as reported in Berkemer. *See also* Ex. 2072 ¶¶ 162–63. It does not, however, discount entirely Berkemer’s express teaching.

³⁹ Ex. 1006, 3 (“permanent wave agent and hair dyes used in chemical treatment *all comprise alkali*; this is because the cuticles present in the outermost part of the hair are easily opened *under alkaline conditions*”) (emphasis added).

POSITA would have understood that the mild acid treatment . . . could be added to acidic neutralizing solutions used in permanent waving or in certain hair dyeing processes, which do not require alkalizing agents”), *with* Reply 16–17 (“the Board has already found that there is nothing ambiguous about KR’564’s teaching to add maleic acid **to a bleaching formulation** . . . [and] PO’s attempt to limit this teaching to only non-alkaline processes improperly ignores the teachings of KR’564 as a whole”).

We have considered the argument and the evidence about KR ’564 and the subject sentence and phrase, in particular. We find, however, that Petitioner has the more reasonable interpretation when the entirety of the reference is considered. Inasmuch as Patent Owner argues that KR ’564 does not suggest adding maleic acid to an alkaline bleaching formulation, we do not agree. As Petitioner points out, “KR’564 is expressly directed to reducing or preventing damage from **alkaline treatments**.” Reply 17 (emphasis by Petitioner); Ex. 1006, 3; Ex. 1062 ¶¶ 35, 52. Read in context, we are persuaded that “and the like” as used in the disputed sentence extends to alkaline bleaching compositions and treatments, which are repeatedly listed in KR ’564 along with wave and dyeing treatments as among the alkaline treatments that cause the damage that KR ’564 is aimed at alleviating and preventing. Ex. 1006, 2–3.⁴⁰

⁴⁰ Ex. 1006, 2 (describing the mild acid of the invention as “alleviating and preventing hair damage caused by permanent wave, dyeing, bleaching and the like”); *see also id.* at 3 (“[C]uticles are easily damaged by . . . coloring (dyeing, bleaching, etc.) by permanent wave and the like In order to prevent the severe swelling, softening and thus damage of hair due to alkaline chemicals (permanent wave agents, hair dyes and the like) [A]long with solving the above-mentioned problems, the present invention has been designed to provide a hair treatment agent that does not damage

We also disagree with Patent Owner’s argument that a skilled artisan would have avoided adding maleic acid. Resp. 58–59. Patent Owner contends one would not have added large amounts of maleic acid to make the bleaching mixture acidic, because that would hinder the bleaching process. *Id.* at 58. But that is not the combination and modification of the art being proposed, and Petitioner’s challenge is not based on adding such a high quantity of acid as to make the entire mixture acidic. Quite the opposite, consistent with Pratt’s teachings, an acidic part (c) conditioner (e.g., with a pH as low as 2 and preferably in the range of 3–5) is added to an alkaline bleaching formulation. Ex. 1009 ¶¶ 94, 103. Yet the overall mixture retains an alkaline pH sufficient to bleach and lighten the hair. *Id.* ¶¶ 5–6, 97, claim 12.

Neither do we agree that alleged safety concerns would have led the skilled artisan away from maleic acid. Resp. 58–59. According to Patent Owner, maleic acid was seldom used in cosmetics and it has been known to cause, *inter alia*, allergic reactions and “[v]arious toxicological side effects in animals and humans.” *Id.* As Petitioner points out, however, “the use of dilute maleic acid with a pH of around 2 or higher was not only well-known in cosmetics, including hair bleaching and dyeing composition, but was indeed considered safe” as demonstrated by the same evidence Patent Owner cites. Reply 18; *see, e.g.*, Ex. 2035, Abstract (“The Cosmetic Ingredient Review (CIR) Expert Panel concluded that Maleic Acid is safe for use in cosmetic formulations as a pH adjuster in the practices of use as described in

hair . . . with the effects of alleviating and preventing hair damage due to chemical treatments such as permanent wave, dyeing, bleaching and the like.”).

this safety assessment.”); Ex. 1062 ¶¶ 6–7. Moreover, the combined prior art and secondary references of record repeatedly disclose the use of maleic acid in hair-care compositions, undermining Patent Owner’s argument that the skilled artisan would “steer clear” of that compound. Resp. 7; *see, e.g.*, 1004, 3 (“hair is treated with the solution of a maleic acid” and provides “a substantial advance in comparison with the known methods”); 1006, 7 (identifying maleic acid as a mild acid suitable for treating bleach-damaged hair); 1007, 2:4–11, claims, 1, 6, 8, 13 (describing and claiming “hair cosmetic composition[s]” including up to 5% maleic acid); Ex. 1009 ¶ 94 (identifying “maleicacid” as a suitable pH adjuster for a bleaching composition); Ex. 1010, 2:61–3:1, 3:28–32, claim 8 (disclosing maleic acid as a suitable chelating agent in a bleaching process); Ex. 1029, 5–6 (Table 1, Example 1), 8–9 (disclosing maleic acid in hair dye compositions).

For the reasons above, we find Petitioner has shown by a preponderance of the evidence that the combined disclosures of Pratt, Tanabe, Berkemer, and KR ’564 teach or suggest all of claim 1’s limitations, and that the skilled artisan had a sufficient reason to combine those disclosures as proposed with a reasonable expectation of success in arriving at the bleaching method that is claimed. We find that the evidence on objective indicia of nonobviousness does not, on the record here, outweigh the evidence of obviousness for the reasons discussed above. *See supra* Section II(E)(1)(c).

b. Claims 2–13, 19, 23, 29, and 30

Petitioner argues that the limitations that claims 2–13, 19, 23, 29, and 30 add to independent claim 1 would have been obvious over Pratt, Tanabe, Berkemer, and KR ’564. Pet. 74–86, 87–90, 91–92. Petitioner’s argument

here relies and builds upon the argument on these same dependent claims over Pratt and Tanabe. *See supra* Section II(E)(1)(d); Ex. 1012 ¶¶ 147–159. Petitioner has provided argument and cited evidence sufficient to demonstrate that the skilled artisan would have combined the references as proposed to arrive at the subject matter recited in the respective dependent claims with a reasonable expectation of success. Patent Owner does not, separate from its arguments for claim 1, dispute Petitioner’s arguments with respect to claims 2–13, 19, 23, 29, and 30. Resp. 76–77 (asserting for Grounds 1 and 3 only that “Petitioner fails to show independent claim 1 is not patentable. Therefore, the Petition’s obviousness challenge also fails for all the challenged dependent claims.”).

We have reviewed Petitioner’s arguments and the underlying cited evidence in support of the challenge to claims 2–13, 19, 23, 29, and 30, and we credit and adopt that argument and evidence as findings of the Board for those dependent claims. We are persuaded that the preponderance of the evidence of record establishes that the combination of Pratt, Tanabe, Berkemer, and KR ’564 teaches or suggests all the limitations of claims 2–13, 19, 23, 29, and 30, and that the skilled artisan had reasons for combining the references in the manner proposed with a reasonable expectation of success as explained in the Petition. We find that the evidence on objective indicia of nonobviousness does not, on the record here, outweigh the evidence of obviousness for the reasons discussed above, which reasons also apply to the subject matter of claims 2–13, 19, 23, 29, and 30.

c. Claims 14–16, 18, and 24–28

Petitioner relies on the same reasoning as discussed above concerning Ground 1 and the breakage claims (claims 14–16, 18, and 24–28). Pet. 86–

87, 90–91. For substantially the same reasons as explained for Ground 1, we find Petitioner’s argument and evidence unpersuasive. *See supra* Section II(E)(1)(e). Accordingly, we conclude Petitioner has not met its burden to show by a preponderance of the evidence that claims 14–16, 18, and 24–28 would have been unpatentable over Pratt, Tanabe, Berkemer, and KR ’564.

2. *Conclusions*

After considering the parties’ arguments and balancing the evidence on this record, we conclude Petitioner has met its burden and established by a preponderance of the evidence that each of claims 1–13, 19–23, 29, and 30 is unpatentable for obviousness over Pratt, Tanabe, Berkemer, and KR ’564. Petitioner has not, however, established by a preponderance of the evidence that claims 14–16, 18, and 24–28 are unpatentable for reasons discussed.

H. Asserted Obviousness over Pratt, Tanabe, Berkemer, KR ’564, and Stone (Ground 4)

Petitioner asserts that claims 20 and 22 are unpatentable as obvious over Pratt, Tanabe, Berkemer, KR ’564, and Stone. Pet. 94–100.

Petitioner argues that Pratt, Tanabe, Berkemer, KR ’564, and Stone teach or suggest or otherwise render obvious all the limitations that dependent claims 20 and 22 add to independent claim 1. Pet. 94–100; Ex. 1012 ¶¶ 133–146, 160–161. For Ground 4, Patent Owner argues only that “the addition of Stone does not alter the conclusion, as explained above in connection with Ground 1, that Pratt and Tanabe do not render claim 1 (and therefore, dependent claims 20 and 22) obvious.” Resp. 59. As explained above, we do not agree that Ground 1 (or Ground 3) is deficient as to the claims from which claims 20 and 22 depend.

We have reviewed Petitioner’s arguments and the underlying cited evidence in support of the challenge to claims 20 and 22, and we credit and adopt that argument and evidence as findings of the Board for those dependent claims. We are persuaded the preponderance of the evidence of record establishes that the combination of Pratt, Tanabe, Berkemer, KR ’564, and Stone teaches or suggests all the limitations of claims 20 and 22, and that the skilled artisan had reasons for combining the references in the manner proposed with a reasonable expectation of success as explained in the Petition. Pet. 94–100; Ex. 1012 ¶¶ 133–146, 160–161; *see supra* Section II(F). We find that the evidence on objective indicia of nonobviousness does not, on the record here, outweigh the evidence of obviousness for the reasons discussed above, which reasons also apply to the subject matter of claims 20 and 22.

III. MOTIONS TO EXCLUDE

The party moving to exclude evidence bears the burden of proving entitlement to the relief requested, specifically that the material sought to be excluded is inadmissible under the Federal Rules of Evidence (“FRE”). *See* 37 C.F.R. §§ 42.20(c), 42.62(a).

Petitioner moves to exclude all or part of ten exhibits: Exhibits 2038, 2041, 2046, 2049, 2067–2071, and portions of Exhibit 2072. Paper 58 (Pet. Mot.). Patent Owner moves to exclude twelve exhibits: Exhibits 1005, 1006, 1009, 1035, 1036, 1037, 1041–1044, 1060, and 1061. Paper 55 (PO Mot.). Both motions are opposed. Paper 61 (Patent Owner’s Opposition); Paper 64 (Petitioner’s Opposition).

A. Petitioner’s Motion to Exclude

1. Exhibits 2038 and 2041

Petitioner moves to exclude Exhibits 2038 and 2041 (the Pressly Declarations) as hearsay and because Petitioner “refused to provide Dr. Pressly for deposition.” Pet. Mot. 2–3. Petitioner further contends Patent Owner did not comply with 37 C.F.R. § 42.65(b) (regarding submission of affidavits) with respect to the testing in the declarations. *Id.* at 3.

Patent Owner responds that Exhibits 2038 and 2041 are part of the intrinsic record and, because Patent Owner’s expert reasonably relies on those exhibits, Petitioner’s hearsay objection is without merit. Paper 61, 2–3. Patent Owner also contends Petitioner waived the Rule 42.65(b) objection because it was not timely raised. Paper 61, 3.

We have considered Exhibits 2038 and 2041 (and the opinion about those exhibits) as discussed above in the context for which they were offered (objective indicia of nonobviousness as to alleged unexpected results and industry skepticism). We gave the exhibits little weight on those issues for the reasons explained, and ultimately found in Petitioner’s favor—that objective indicia of nonobviousness did not outweigh the evidence of obviousness on this record. Thus, excluding this evidence would not change the result. Accordingly, we dismiss Petitioner’s motion to exclude Exhibits 2038 and 2041 as moot.

2. Exhibit 2046

Petitioner moves to exclude the Declaration of Dean Christal (Ex. 2046) as irrelevant. Pet. Mot. 3. Petitioner’s argument is without basis as Mr. Christal’s declaration is relevant to at least the copying allegations, and details, for example, the circumstances under which allegedly confidential

information was provided to Petitioner’s representatives. Paper 61, 3–4. Petitioner’s motion to exclude Exhibit 2046 is denied.

3. *Exhibit 2049*

Petitioner moves to exclude Exhibit 2049, which is an apparent third-party lab report, on the basis that it lacks authenticity (e.g., it is missing pages, and there are discrepancies regarding when certain pages were dated), and that it is irrelevant. Pet. Mot. 4–6. Petitioner further contends that Patent Owner did not submit an affidavit to support Exhibit 2049 under 37 C.F.R. § 42.65(b). *Id.* at 5 n.1.

Patent Owner responds that Exhibit 2049 is, upon consideration of all the circumstances, authentic, and further relevant to showing the maleic acid content in Petitioner’s alleged “Copy Products,” and that Dr. Borish reasonably relies on the report for such. Paper 61, 5–6.

We decline to exclude Exhibit 2049. The fact that the first page of Exhibit 2049 is a “Summary” bearing the page number “2” does raise questions about the exhibit’s completeness. That said, we do not agree that aspect of the exhibit (or the other alleged deficiencies cited by Petitioner) warrant its exclusion. On balance, Patent Owner has cited evidence sufficient to support a finding that the item is what it purports to be—a report from Analyze, Inc., assessing the chemical composition of Petitioner’s three allegedly infringing products. *See, e.g.*, Exhibit 2–9 (detailing a Summary, Introduction, and the Analysis being performed). As Patent Owner further points out, the report appears to be signed by Steven J. Valenty, Ph.D., as Analyze Inc.’s Consulting Chemist and President. Paper 61, 4–5. Dr. Borish’s testimony further corroborates that the report is

reasonably reliable as to the analysis of Petitioner's products. *See, e.g.*, Ex. 2072 ¶ 321 (pg. 162).

Petitioner's other criticisms, such as one page bearing a date from 2015 and *before* Petitioner's products were purchased in 2016, and certain pages (possibly) being out of order or missing, do not demonstrate that the exhibit is inauthentic and deserving of exclusion. As Patent Owner notes, the date issues appear to be typographical errors and Petitioner has not provided any persuasive argument as to why the allegedly mis-ordered or missing data sheets render the exhibit as a whole inauthentic or unreliable for the matters on which it is offered. *Compare* Ex. 2049, 13 (cover letter dated Dec. 15, 2015) *with* 14–18 (apparent enclosures to the letter indicating the year was 2016); Paper 61, 5.

We do not exclude Exhibit 2049 on this record under 37 C.F.R. § 42.65(b) because Petitioner did not object to the exhibit on that basis at the time required. *See* Paper 26, 11–12. Nor was this rule otherwise timely raised against Exhibit 2049 in a manner that might have allowed Patent Owner a meaningful opportunity to correct the alleged deficiency without potentially disrupting the case schedule.

4. Exhibits 2067, 2068, 2069, and 2071

Petitioner moves to exclude Exhibits 2067, 2068, 2069, and 2071 (internal Petitioner emails, etc.) on the basis that those documents are irrelevant. Pet. Mot. 7–10. More specifically, Petitioner contends the exhibits are being used by Patent Owner to support its allegations of copying and/or industry praise. *Id.* But, according to Petitioner, the exhibits discuss Patent Owner's Olaplex product, which does not practice the claims of the '954 patent, so the exhibits lack relevance. *Id.*

We disagree that the cited exhibits are irrelevant and should be excluded. Even if the exhibits relate largely to the Olaplex product as Petitioner argues, that argument goes to the weight we should give these documents on the issues of copying and praise. *See, e.g., Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, Case CBM2012-00002, slip op. at 70 (PTAB Jan. 23, 2014) (Paper 66) (stating that “the Board, sitting as a non-jury tribunal, is well-positioned to determine and assign appropriate weight to the evidence presented in this trial”). We have considered and given appropriate weight to these exhibits as explained. Petitioner’s motion to exclude Exhibits 2067, 2068, 2069, and 2071 is denied.

5. *Exhibit 2070*

Petitioner moves to exclude Exhibit 2070, which are responses to an interrogatory from related proceedings. Pet. Mot. 9. Petitioner contends this exhibit is irrelevant and inadmissible under FRE 401 and 402 because Patent Owner has not established that use of Petitioner’s products falls within the scope of the claims of the ’954 patent. *Id.*

Patent Owner cites Exhibit 2070 (specifically, pages 8–10 and 27–28) showing sales figures for the alleged “Copy Products,” which sales Patent Owner contends are relevant to commercial success. Resp. 73; Paper 61, 8. As explained above (*see supra* Section II(E)(1)(c) relating to alleged copying), we found that a preponderance of the evidence demonstrates that Petitioner’s cited products, when used as directed, practice at least claim 1. The sales of those products is, accordingly, relevant to the alleged commercial success. Petitioner’s motion to exclude Exhibit 2070 is denied.

6. *Exhibit 2072*

Petitioner moves to exclude portions of Exhibit 2072 (Borish Decl.). Pet. Mot. 10–15. Those portions are discussed below.

Petitioner moves to exclude paragraphs 306, 309, 311, 316, 319, 321, 326, and 332 because those paragraphs rely upon Exhibit 2049, which exhibit Petitioner separately argues lacks authentication and is for other reasons inadmissible. *Id.* at 10–11. We reject Petitioner’s argument for the reasons explained above related to the motion to exclude Exhibit 2049. We are unpersuaded it was inappropriate for Dr. Borish to rely on Exhibit 2049, the report from Analyze, Inc., under FRE 703 for purposes of analyzing whether Petitioner’s products practice claim 1 when used as intended. Petitioner’s motion to exclude those paragraphs is, thus, denied.

Petitioner additionally moves to exclude paragraphs 335–338 of the Borish Declaration insofar as those paragraphs rely on Exhibits 2067, 2068, and 2069 (Petitioner’s internal emails/documents) to show alleged copying. Pet. Mot. 11–12. Petitioner contends those underlying exhibits relate to the Olaplex product, which is concededly not encompassed by the claims of the ’954 patent and, thus, the cited paragraphs and underlying exhibits cited are irrelevant. *Id.* We reject Petitioner’s argument for the reasons discussed above as to the motion to exclude Exhibits 2067, 2068, and 2069, which we conclude are relevant to Patent Owner’s allegations. Petitioner’s motion is denied as to paragraphs 335–338 of Exhibit 2072.

Petitioner moves to exclude paragraphs 339–343 of the Borish Declaration as attempting to show commercial success of Petitioner’s products, and because those paragraphs cite Exhibit 2070. Pet. Mot. 12–13. Petitioner again contends that its products do not practice the claimed

method, and Petitioner further contends Dr. Borish is not qualified to opine on the commercial market. *Id.* As Patent Owner does not cite those paragraphs from Dr. Borish’s Declaration in arguing the alleged commercial success (Resp. 73), and because we find the evidence of commercial success weak in any event—finding in Petitioner’s favor on that issue—Petitioner’s motion to exclude those paragraphs is moot.

Petitioner moves to exclude paragraphs 344–347 of the Borish Declaration because those paragraphs rely on the Pressly Declarations (Exhibit 2038 and Exhibit 2041). Pet. Mot. 13–14. As we explained above, we have considered Exhibit 2038 and Exhibit 2041, and Dr. Borish’s opinion about those exhibits, but we give those exhibits and opinion little weight on the issue of alleged unexpected results and industry skepticism. *See supra* Section II(E)(1)(c) and Section III(A)(1). We find that the evidence did not overcome the evidence of obviousness on this record. Excluding paragraphs 344–347 of the Borish Declaration, as requested by Petitioner, would not change the result. The motion to exclude those paragraphs is, thus, moot.

Finally, Petitioner moves to exclude paragraphs 348–351 of the Borish Declaration as attempting to show industry skepticism and praise. Pet. Mot. 14–15. Petitioner contends that Dr. Borish improperly relies in those paragraphs on inadmissible exhibits (the Pressly Declarations (Exhibits 2038 and 2041)) and Petitioner’s internal emails (Exhibits 2069 and 2071). We addressed the underlying exhibits above, and we disagree that it was inappropriate for Dr. Borish to rely on those exhibits. For the reasons explained, however, we found the evidence of industry praise or skepticism weak and insufficient to outweigh the evidence of obviousness

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on this record—ultimately finding in Petitioner’s favor. Excluding the cited paragraphs from Dr. Borish’s Declaration would not change that result. Neither does consideration of Exhibits 2037, 2038, and 2041 (portions of the prosecution history for related patents) or Dr. Borish’s opinion on those exhibits change the result. As explained, we are unpersuaded an examiner’s statements evidence praise or skepticism from the industry. *See supra* Section II(E)(1)(c). And, inasmuch as the statements of the examiner were informed by the Pressly Declarations, we gave those declarations (and opinion testimony about them) little weight for reasons explained. *Id.* Petitioner’s motion to exclude paragraphs 348–351 of Ex. 2072 is moot.

B. Patent Owner’s Motion to Exclude

1. Exhibits 1005 and 1006

Patent Owner moves to exclude Exhibits 1005 and 1006 (KR ’564 and its English translation). Patent Owner contends Exhibit 1005 should be excluded under 37 C.F.R. § 42.63(b) because it was not completely translated and, more specifically, because the certified translation (Exhibit 1006, 13) includes a date that is earlier than the untranslated “certified copy” stamp included on Exhibit 1005. PO Mot. 2.

We reject Patent Owner’s argument. As noted by Petitioner, Patent Owner’s objection to Exhibit 1005/1006 earlier in the proceeding stated merely that the certification does not establish that the signor is able to assert, based on personal knowledge or expertise, that Exhibit 1006 is a proper and complete translation of Exhibit 1005.⁴¹ Paper 64, 3; *see* Paper

⁴¹ Patent Owner made a similar argument and objection in PGR2017-00012 related to the KR ’564 reference (Ex. 1006), which the Board rejected. *See* PGR2017-00012, Paper 102, 41–42.

14, 3. That is far less specific than the objection made now in Patent Owner’s motion regarding the KIPO stamp and the certification having different and anachronistic dates. Having not made a timely objection with sufficient particularity to allow Petitioner to have corrected the alleged deficiency, we find Patent Owner waived the objection now raised in the motion to exclude. 37 C.F.R. § 42.64(b)(1). Beyond that, Petitioner did submit a signed certification attesting that Exhibit 1006 was an accurate English translation under 37 C.F.R. § 42.63(b), and, in the face of this certification, Patent Owner does not identify any translated content that is even arguably inaccurate.

Patent Owner’s arguments that Exhibits 1005/1006 are irrelevant and contain hearsay are also unpersuasive, and do not warrant exclusion of the exhibits. The exhibits are relevant as cited prior art teaching and suggesting the use of compositions including maleic acid to treat bleach-damaged hair, and Petitioner has specifically related those teachings to the ’954 patent. *See, e.g.*, Pet. 67–74. In at least that respect, KR ’564 (Ex. 1006) is relevant for what it discloses to the skilled artisan, irrespective of the truth of its disclosures. As for whether KR ’564 evidences means for “alleviating and preventing” bleach damage that already existed in the art (e.g., to address Patent Owner’s argument of a long-felt, unmet need), and whether this is hearsay, we conclude Petitioner’s expert properly relied on KR ’564’s statements when testifying on that issue under FRE 703. Ex. 1006, 2. Indeed, Patent Owner’s expert Dr. Borish relies on statements in KR ’564, as though the statements were true, when rendering his opinions. *See, e.g.*, Ex. 2072 ¶¶ 60–61, 66, 149–151. Petitioner was, thus, similarly permitted to

rely on KR '564 in support of his opinions that prior art techniques met the alleged need. Ex. 1012 ¶ 165.

Patent Owner's motion to exclude Exhibits 1005 and 1006 is denied.

2. *Exhibit 1009*

Patent Owner moves to exclude Exhibit 1009 (Pratt) as hearsay. PO Mot. 3–4. According to Patent Owner, Petitioner and its expert cannot rely on Pratt to show that the alleged long-felt need for preventing or reducing bleach damage was met. *Id.* Patent Owner also contends that Pratt is particularly unreliable because Pratt fails to show that cysteine content is actually improved, and a measurement of ΔE (related to a lightening effect) in Pratt is incorrect. *Id.* at 4.

We conclude, as argued by Petitioner (Paper 64, 7), that it was permissible for Dr. Wickett to rely on statements in Pratt, about the ability of Pratt's compositions to “noticeably reduce[]” bleach damage, when responding to Patent Owner's argument about the alleged long-felt need. *See* Ex. 1009 ¶¶ 5, 108; Ex. 1062 ¶ 18. Similar to Exhibit 1006 (discussed above), Patent Owner's own expert also relies on statements in Pratt as though true. *See, e.g.,* Ex. 2072 ¶¶ 66, 68 (citing and quoting statements in Pratt that “damaging effects of bleaching compositions are unavoidable”). The extent of Pratt's measured cysteine acid content (as illustrative of damage reduction) and the alleged error regarding Pratt's degree of lightening effect does not justify exclusion of Pratt. To the extent the parties disagree about the significance of Pratt's disclosures, this goes to the weight of the evidence, not its admissibility. *See, e.g.,* Ex. 2072 ¶ 130 (testifying that Pratt's results would have been regarded with skepticism); Ex. 1062 ¶¶ 23–25 (testifying that a skilled person would interpret a reduction of over 10%

in cysteic acid in Pratt to represent a marked improvement). For the above reasons, Patent Owner’s motion to exclude Pratt is denied.

3. *Exhibit 1035*

Patent Owner moves to exclude Exhibit 1035. We do not rely on that exhibit in this Decision. Accordingly, we dismiss Patent Owner’s motion to exclude Exhibit 1035 as moot.

4. *Exhibits 1036 and 1061*

Patent Owner moves to exclude Exhibit 1036 (Lab Notebook) and Exhibit 1061 (excerpts from the Notebook with unredacted pages). Patent Owner contends those exhibits are incomplete (e.g., as redacted and allegedly missing pages) and not the best evidence. PO Mot. 6, 9 (citing FRE 106, and 1002/1003).⁴² Patent Owner further argues these exhibits are irrelevant and prejudicial because there is no testimony from the notebook’s author, limiting Patent Owner’s ability to respond to the exhibits. PO Mot. 7; Paper 73, 2–3, 5. Patent Owner contends the notebook and its excerpted pages are hearsay. PO Mot. 7–8. And, Patent Owner argues, the exhibits lack sufficient authenticity. Finally, Patent Owner contends the exhibits should be excluded because Petitioner cannot rely on technical test data without submitting an affidavit under 37 C.F.R. § 42.65(b). *Id.* at 9.

⁴² Patent Owner is correct (PO Mot. 6) that the Board did not give significant weight to the notebook in earlier post-grant proceedings because of redactions. *See* PGR2017-00012, Paper 102, 30 (“Most importantly, each of the three pages Petitioner cites has significant redactions.”). Here, however, Petitioner has also provided the cited portions of the notebook without redactions. Ex. 1061. We disagree, therefore, that Petitioner “ignor[ed]” the Board’s earlier decision as Patent Owner argues. PO Mot. 6.

We have considered these exhibits on the issue of copying and, in particular, in support of Petitioner’s argument that it had described and developed a maleic-acid-containing bleaching additive *before* it ever had access to Patent Owner’s confidential patent application. *See supra* Section II(E)(1)(c) (discussion related to copying arguments and evidence). Patent Owner is correct that the exhibits include redactions, but Petitioner has also produced the pages detailing its apparent work on maleic-acid additives without redactions. *See, e.g.*, Ex. 1061, 14–16 (L11363_158–161). If Patent Owner believed it needed the entire notebook in unredacted form, it could have and should have sought that earlier in this proceeding from Petitioner or through the Board’s discovery processes if necessary.⁴³ Regarding FRE 1002 and 1003, as Petitioner contends, the exhibits are apparent photocopies of the lab notebook bearing the number L11363 and, thus, we conclude constitute an original or duplicate under FRE 1001(d) or (e). Paper 64, 11.

We also find unpersuasive Patent Owner’s argument that Exhibits 1036 and 1061 are irrelevant and prejudicial. These exhibits are relevant to Petitioner’s rebuttal on the question of copying, and specifically to Petitioner’s evidence on independent development. Nor are we persuaded that the notebook’s probative value on the issue of copying is substantially

⁴³ Petitioner asserts that Patent Owner has a copy of the notebook, produced in the corresponding litigation, and that Patent Owner’s counsel has deposed the notebook’s author (Ms. Hamilton/Dreher) as recently as December 2018 about the notebook. Paper 64, 9. Hence, Petitioner contends Patent Owner is taking positions in its motion inconsistent with information known to Patent Owner. *Id.* Patent Owner does not respond directly to this charge (Paper 73, *generally*), but the record here is not sufficient for us to determine what information Patent Owner possesses about these exhibits from discovery taken in related proceedings.

outweighed by the danger of unfair prejudice (FRE 403). To the contrary, we conclude that the probative value of the notebook evidence is high on the issue of copying. To the extent Patent Owner is allegedly prejudiced by not having pursued additional discovery (e.g., a deposition of Ms. Hamilton) in this proceeding about the notebook, such prejudice resulted from its own strategic decisions.

On hearsay, we agree with Petitioner that the lab notebook (Exhibits 1036 and 1061) falls under the business record exception. Paper 64, 10. As attested sufficiently by Ms. Crim, an employee with over 23 years' experience at L'Oréal, who witnessed and signed the lab notebook on the same pages and shortly after Ms. Hamilton's working entries, it was L'Oréal's standard practice among its scientists to make and keep such lab records as in the course of the company's regular research and development work. Ex. 1037 ¶¶ 2–10. Even if the notebook reflects a series of allegedly distinct entries (as Patent Owner contends), we do not agree that the notebook cannot be a business record. The *content* of the individual notebook entries need not be the same to fall under that exception provided, as here, that the evidence shows sufficiently that the other aspects of the hearsay exception are met (e.g., that such notebooks are made and kept in the regular course of L'Oréal's research and development activities). *Id.*

Patent Owner cites the Federal Circuit's decision in *Shu-Hui Chen v. Bouchard*, 347 F.3d 1299, 1308 (Fed. Cir. 2003). PO Mot. 7–8. But that decision does not stand for the notion that lab notebooks cannot qualify for the business records exception as suggested by Patent Owner.⁴⁴ Rather, the

⁴⁴ Indeed, Judge Newman (writing in dissent) would have allowed the notebook as a business record, determining that the “[t]here can be no

Federal Circuit held that the Board had not abused its discretion in determining that a junior party in an interference had not shown that notebook evidence was a business record on the particular facts presented there (e.g., the junior party did not show that the notebooks belonged to the allegedly corroborating witness, and there was a lack of evidence on how notebooks were maintained). *Chen*, 347 F.3d at 1308; *see also id.* at 1310 (describing the need for “evidence corroborating” an alleged inventor’s oral testimony of prior conception of the alleged invention in interference proceedings). Here, however, Petitioner has provided sufficient evidence that the notebook belonged to L’Oréal’s researcher, Ms. Hamilton, and Petitioner provided evidence on L’Oréal’s policies and practices with respect to maintaining such notebooks. Ex. 1037 ¶¶ 2–12.

Patent Owner also cites the Board’s decision in *Corning Inc. v. DSM IP Assets B.V.*, Case IPR2013-00043, slip op. at 5–6 (PTAB May 1, 2014) (Paper 97) for the proposition that unique experimental records cannot be business records exempt from exclusion as hearsay. PO Mot. 7–8. Importantly, however, the alleged business records in that case were “various documents generated in research laboratories of DSM [Patent Owner] *that were created post-filing of the petitions* and report information relating to particular experiments performed at DSM” to address whether certain claim limitations were inherent in prior art asserted by petitioner, Corning. *Id.* at 3 (emphasis added); *see also id.* at 5 (“The experiments in

dispute that Chen [the alleged inventor, and non-author of the notebook] satisfies the criteria of a ‘qualified witness’ under Rule 803(6), or that it was the regular practice to keep research notebooks.” *Chen*, 847 F.3d at 1313 (“Ms. Wei’s notebooks were business records”).

this case took place solely to address issues in this case.”). Not surprisingly, the Board determined that the specific documents, the creation of which appeared to have been IPR-induced, did not represent records made and kept in the *regular* course of business. *Id.* at 4–5. Those are not the facts here. Rather, as explained, the evidence demonstrates that Exhibits 1036 and 1061 are a record of L’Oréal’s regular research and development activities.

We have also considered Patent Owner’s argument on the authenticity of Exhibits 1036 and 1061, but find those arguments unpersuasive. PO Mot. 8–9. The cross-examination of Ms. Crim cited by Petitioner (taken from a deposition in a different proceeding) does reveal some inconsistencies compared to her Declaration (e.g., when she last saw the notebook, and her ability to recognize Ms. Hamilton’s signature from memory). *Id.* at 8–10; *but see, e.g.*, Paper 67, 2–3 (Petitioner’s responsive Observation Nos. 2–6). We do not, however, find the inconsistencies to be so great as to justify excluding the exhibits or Ms. Crim’s Declaration (see below regarding Exhibit 1037). On balance, we find the evidence on this record is sufficient to support a finding that Exhibits 1036 and 1061 are what Petitioner claims them to be—Petitioner’s Lab Notebook and relevant excerpts from the same notebook detailing Petitioner’s work on maleic-acid additives for bleaching compositions *before* Petitioner received any non-public information about the use of maleic acid in bleaching compositions from Patent Owner. Petitioner, through at least Ms. Crim’s testimony, authenticated Exhibit 1036 as being a laboratory notebook from L’Oréal bearing the notebook number L11363, which Ms. Crim herself witnessed and signed. *See, e.g.*, Ex. 1037 ¶¶ 4, 7. And, based on a comparison and distinct features, we are persuaded on this record that Ex. 1061 includes excerpts from that same authenticated

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notebook. *See, e.g.*, Ex. 1061, 14 (bearing, *inter alia*, the same notebook page number (L11363-158), dates and signatures, and depiction of chemical compound for maleic acid as shown at Ex. 1036, 173); Fed. R. Evid.

901(b)(3)-(4) (authentication provided by comparison of expert or trier of fact, or by distinctive characteristics of the evidence taken together with all the circumstances); Ex. 1062 ¶¶ 60–61.

Finally, Patent Owner does not persuade us that Exhibits 1036 and 1061 should be excluded based on Rule 42.65(b). That rule requires an explanatory affidavit when a party relies on “a technical test or data from such a test.” 37 C.F.R. § 42.65(b). The argument advanced by Petitioner, however, with respect to Exhibits 1036 and 1061 does not, *per se*, rely on such “a technical test or data from such a test” as contemplated. Rather, as already explained, these exhibits show that Petitioner was already working on and had already described maleic-acid bleaching additives in its internal documents before receiving the information about the use of maleic acid in bleaching mixtures from Patent Owner—thus, specifically responding to Patent Owner’s intimation that use of maleic acid in Petitioner’s products could have only come from copying, and not Petitioner’s own work. This showing does not turn specifically on any “technical test or data from such test” as recited in the rule. Accordingly, we conclude that a Rule 42.65(b) affidavit was not required to admit Exhibits 1036 and 1061 here.

For all the above reasons, we deny Patent Owner’s motion to exclude Exhibits 1036 and 1061.

5. *Exhibit 1037*

Patent Owner moves to exclude Exhibit 1037 (Crim Declaration). PO Mot. 9–11. Patent Owner argues the Crim Declaration should be excluded

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as irrelevant, lacking foundation, and as hearsay. *Id.* We conclude that Ms. Crim’s Declaration is relevant, at minimum, to the authenticity of Petitioner’s lab notebook as discussed above. We also conclude that an adequate foundation exists for Ms. Crim to have testified about the notebook and L’Oréal’s policies and practices for making and keeping such notebooks. *See, e.g.*, Ex. 1037 ¶ 4 (“This is the type of laboratory notebook [Exhibit 1036] used at the research and development facility at L’Oréal USA, where I work. . . . I have witnessed Ms. Hamilton sign documents during the course of my work at L’Oréal USA. I recognize the signature on page 2 of Ex. 1036 as the signature of Ms. Hamilton.”), ¶ 8 (“I also recognize the signature above my signature as that of Kimberly Hamilton, whose laboratory notebooks I often witnessed (including in 2015) and continue to witness.”). We find that Patent Owner’s citation to allegedly contradictory cross-examination testimony from Ms. Crim goes to the weight and sufficiency of the evidence, not its admissibility. PO Mot. 9–10.

Patent Owner contends paragraph 12 of the Crim Declaration should be excluded for lack of foundation and as hearsay insofar as Ms. Crim repeats details of work appearing in the notebook. PO Mot. 10–11. We do not, however, agree. As a signatory and witness for the experimental work described in Ms. Hamilton’s notebook, Ms. Crim established a familiarity with, and foundation to describe, the notebook’s contents. *See, e.g.*, Ex. 1037 ¶ 10. And, as for hearsay, we conclude the notebook falls under the business record exception as explained above.

For the reasons above, we deny Patent Owner’s motion to exclude Exhibit 1037.

6. *Exhibits 1041–1044*

Patent Owner moves to exclude Exhibits 1042–1044 on the basis of hearsay. PO Mot. 11–12. According to Patent Owner, Petitioner relies on disclosures in those exhibits related to a need for preventing or repairing damage to hair from bleaching being met in the prior art. *Id.* Petitioner contends, *inter alia*, that its expert may rely on such alleged hearsay information in any event, yet Patent Owner argues there is “no evidence that an expert would reasonably rely on the statements in Exs. 1041–44.” Paper 73, 4. We do not rely on Exhibits 1042, 1043, or 1044 in this Decision. We, thus, dismiss Patent Owner’s motion to exclude those exhibits as moot.

With respect to Exhibit 1041 (Boswell), we considered that exhibit in our analysis and its description of techniques for addressing and reducing hair damage occurring *during* the bleaching process, as well as Dr. Wickett’s testimony about that exhibit. *See supra* Section II(E)(1)(c) (regarding the alleged long-felt, unmet need). Dr. Wickett opines that Boswell describes one of several techniques already known in the art for protecting against or reducing bleach damage and, thus, any long-felt need as argued by Patent Owner would already have been met by such prior art techniques. Ex. 1012 ¶¶ 165–167.

Even if we agreed that disclosures in Boswell, standing alone, may be characterized as hearsay, we agree that Petitioner’s expert may consider and rely on the alleged hearsay statements in testifying that any long-felt need was met. Patent Owner argues there is no evidence experts would rely on statements in Boswell. Paper 73, 4. But Patent Owner’s *own expert* repeatedly relies on Boswell’s statements as though they were fact. *See, e.g.*, Ex. 2072 ¶ 59 (citing and quoting Boswell (Ex. 1041, 2:27–28) for the

proposition that “[r]epeated oxidative treatments leave weak, brittle hairs, which have little shine and luster.”); *see also* Ex. 2072 ¶ 68.⁴⁵ Patent Owner cannot pick and choose in this way only so much of the prior art disclosure as suits its positions, while dismissing disclosures that contradict its arguments as hearsay that no expert would reasonably rely upon. Patent Owner’s motion to exclude Exhibit 1041 is, thus, denied.

7. *Exhibit 1060*

Patent Owner moves to exclude Exhibit 1060. We do not, however, rely on that exhibit in this Decision. Accordingly, we dismiss Patent Owner’s motion to exclude Exhibit 1060 as moot.

IV. MOTIONS TO SEAL

Five motions to seal are pending. Papers 24, 45, 59, 62, and 69. Those motions seek to seal Papers 23, 46, 55, 56, and 58, as well as Exhibits 1053, 1054, 1061, 1062, 2046, 2061, 2067–2072, 2080, and 2084.

We have reviewed the motions to seal and find that good cause exists to seal the requested papers and exhibits. The protective order in this case (*see* Paper 21 and Addendum A to Paper 18) will govern the treatment of confidential information appearing in the requested papers and exhibits.

The record will be maintained undisturbed, with the papers and exhibits listed above remaining sealed, pending the outcome of any appeal taken from this Final Decision. At the conclusion of any appeal proceeding, or if no appeal is taken, the sealed documents will be made public. *See*

⁴⁵ Patent Owner’s expert similarly relies on other disclosures in exhibits Patent Owner contends are inadmissible (e.g., Ex. 1035, 1042, 1043), as though such disclosures were factual and true. Ex. 2072 ¶¶ 56, 59.

Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,760–61 (Aug. 14, 2012). Further, either party may file a motion to expunge the sealed documents from the record pursuant to 37 C.F.R. § 42.56. Any such motion will be decided after the conclusion of any appeal proceeding or the expiration of the time period for appealing, and it will be denied with respect to any sealed document identified in this Decision.

This Decision relies on confidential information appearing in several papers and exhibits. Within ten days of this Decision, the parties shall file a joint motion to seal, explaining why this Decision should be kept under seal in light of the policy of making the Board’s decisions public. The joint motion shall include an agreed proposed redacted version of this Decision to be made publicly available. If no motion is filed within ten days, this Decision shall become publicly available.

We also note that Papers 61, 67, 73, and 74 were filed with a designation that those papers include Highly Confidential-Protective Order Material. We do not, however, see a pending motion to seal specifically related to those papers. Accordingly, if the parties contend those papers include confidential information, Petitioner and Patent Owner must file a joint motion to seal within ten days of this Decision. If no motion is filed by that time, Papers 61, 67, 73, and 74 will become publicly available.

CONCLUSION

For the reasons above, we determine Petitioner has established, by a preponderance of the evidence, that claims 1–13, 19, 21, 23, 29, and 30 of the ’954 patent are unpatentable under § 103 over Pratt and Tanabe, and that claims 20 and 22 are unpatentable under § 103 over Pratt, Tanabe, and Stone. We further determine that claims 1–13, 19, 21, 23, 29, and 30 of the

'954 patent are unpatentable under § 103 over Pratt, Tanabe, Berkemer, and KR '564, and that claims 20 and 22 are unpatentable under § 103 over Pratt, Tanabe, Berkemer, KR '564, and Stone.

By a preponderance of the evidence on this record, we conclude that Petitioner has not established that claims 14–16, 18, and 24–28 are unpatentable under § 103 over Pratt and Tanabe (or over Pratt, Tanabe, Berkemer, and KR '564).

Petitioner's Motion to Exclude is moot as to Exhibits 2038 and 2041, and denied as to Exhibits 2046, 2049, and 2067–2071. Petitioner's Motion to Exclude portions of Exhibit 2072 is: (i) denied as to paragraphs 306, 309, 311, 316, 319, 321, 326, 332, and 335–338; and (ii) moot as to paragraphs 339–351.

Patent Owner's Motion to Exclude is denied as to Exhibits 1005, 1006, 1009, 1036, 1037, 1041, and 1061, and moot as to Exhibits 1035, 1042–1044, and 1060.

We have considered the parties' pending motions to seal (Papers 24, 45, 59, 62, and 69). We grant those motions and seal each of the requested documents pursuant to the terms of the controlling Protective Order in this case (Paper 21 and Addendum A to Paper 18). The sealed documents will remain confidential until the conclusion of any appeal or the expiration of the time for appealing, at which time those documents will be made public. Before those documents are made public, either party may file a motion to expunge any sealed document not identified in this Final Written Decision.

ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has proved by a preponderance of the evidence that claims 1–13, 19–23, 29, and 30 of U.S. Patent No. 9,668,954 are unpatentable;

FURTHER ORDERED that Petitioner has not proved by a preponderance of the evidence that claims 14–16, 18, and 24–28 of U.S. Patent No. 9,668,954 are unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Exclude (Paper 58) is *denied* as to Exhibits 2046, 2049, 2067–2071, and paragraphs 306, 309, 311, 316, 319, 321, 326, 332, and 335–338 of Exhibit 2072, and *dismissed as moot* as to Exhibits 2038 and 2041, and paragraphs 339–351 of Exhibit 2072;

FURTHER ORDERED that Patent Owner’s Motion to Exclude (Paper 55) is *denied* as to Exhibits 1005, 1006, 1009, 1036, 1037, 1041, and 1061, and *dismissed as moot* as to Exhibits 1035, 1042–1044, and 1060;

FURTHER ORDERED that Petitioner’s Motions to Seal (Papers 45 and 62) are *granted*;

FURTHER ORDERED that Patent Owner’s Motions to Seal (Papers 24, 59, and 69) are *granted*; and

FURTHER ORDERED that the sealed documents in the record shall remain confidential until the conclusion of any appeal or the expiration of the time for appealing, at which time they will be made public;

FURTHER ORDERED that, before any sealed documents are made public, either party may file a motion to expunge any sealed document not identified in this decision;

FURTHER ORDERED that, no later than ten days after the issuance of this decision, the parties shall file a joint motion to seal, explaining why

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this decision should remain under seal, and including a redacted version of this decision that can be made publicly available;

FURTHER ORDERED that the present decision shall remain under seal until the joint motion to seal the present decision is resolved; and

FURTHER ORDERED that, because this is a Final Written Decision, parties seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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PETITIONER:

Non-Public Version – Protective Order Material

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