

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

L'ORÉAL USA, INC.,
Petitioner,

v.

LIQWD, INC.,
Patent Owner.

Case PGR2017-00012
Patent 9,498,419 B2

Before LORA M. GREEN, CHRISTOPHER M. KAISER, and
MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

KAISER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 328(a) and 37 C.F.R. § 42.73

INTRODUCTION

A. Background

L'Oréal USA, Inc. ("Petitioner") filed a Petition requesting post-grant review of claims 1–8 and 10 of U.S. Patent No. 9,498,419 B2 (Ex. 1001, "the '419 patent"). Paper 2 ("Pet."). Liqwd, Inc. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp."). We instituted trial on two of the grounds asserted in the Petition. Paper 17 ("Inst. Dec."). After the Supreme Court's decision in *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018), we also instituted on the remaining ground presented in the Petition. Paper 97.

After we instituted trial, Patent Owner filed a Response (Paper 44, "PO Resp."), and Petitioner filed a Reply (Paper 55). Patent Owner filed Observations on Cross-Examination of Petitioner's Reply Witnesses. Paper 77 ("PO Obs."). Patent Owner filed a Supplemental Response addressing the ground added to the trial after *SAS*, and Petitioner filed a Supplemental Reply. Paper 100 ("Supp. Resp."); Paper 101 ("Supp. Reply"). In addition, both parties filed Motions to Exclude Evidence. Paper 72 ("PO Mot."); Paper 73 ("Pet. Mot."). On the request of both parties, we held an oral hearing, and the transcript of that hearing is in the record. Paper 98.

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. We conclude that Petitioner has established by a preponderance of the evidence that each of claims 1–8 and 10 of the '419 patent is unpatentable.

B. Related Matters

The parties identify *Liqwd, Inc. v. L’Oreal USA, Inc.*, No. 1:17-cv-00014 (D. Del.), as a pending infringement suit asserting the ’419 patent. Pet. 8; Paper 4, 1. The ’419 patent also was challenged in a separate petition for post-grant review, which was assigned case number PGR2017-00011. We denied institution of review in that proceeding. *L’Oréal USA, Inc. v. Liqwd, Inc.*, Case PGR2017-00011, slip op. at 16 (PTAB July 19, 2017) (Paper 24).

C. The Asserted Grounds of Unpatentability

We instituted trial on the following grounds, which are all of the grounds presented in the Petition (Inst. Dec. 27; Paper 97, 3; *see* Pet. 25–87):

Statutory Ground¹	Basis	Challenged Claims
§ 102	Ogawa ²	1–6, 8, and 10

¹ 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 ’419 patent issued was filed after that date, our citations to Title 35 are to its post-AIA version. Section 4(c) of the AIA re-designated 35 U.S.C. §§ 112(1), (2) as 35 U.S.C. §§ 112 (a), (b), respectively, effective September 16, 2012. 125 Stat. at 296–297.

² Ogawa et al., U.S. Patent No. 7,044,986 B2, issued May 16, 2006 (Ex. 1002, “Ogawa”).

Statutory Ground ¹	Basis	Challenged Claims
§ 103	Ogawa, Berkemer, ³ and KR '564 ⁴	1–8 and 10
§ 103	Kitabata, ⁵ Berkemer, and KR '564	1–8 and 10

D. The '419 Patent

The '419 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, 1:16–19. Certain treatments of hair, including dyeing and bleaching, can result in the disulfide bonds of the hair’s keratin being broken, and the '419 patent expresses “a need for hair formulations and treatments that repair and/or strengthen keratin in hair damaged [by these treatments].” *Id.* at 1:31–2:44. The '419 patent “provide[s] improved formulations and methods for repairing and/or strengthening damaged hair.” *Id.* at 2:49–51. The formulations of the '419 patent “may be applied simultaneously with the hair coloring formulation or subsequently to the application of the hair coloring formulation.” *Id.* at 17:32–34. These formulations are described as containing “an active agent” that may be any

³ Berkemer, German Patent Application Publication No. 1,220,969, published July 14, 1966 (Ex. 1003) (certified translation provided as Ex. 1004, “Berkemer”).

⁴ Korean Patent Application Publication No. 10-2006-0059564, published 2006 (Ex. 1006) (certified partial translation provided as Ex. 1018, “KR '564”).

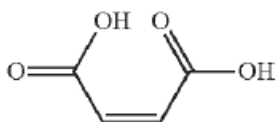
⁵ Kitabata et al., US 2002/0189034 A1, published Dec. 19, 2002 (Ex. 1005, “Kitabata”).

of a large number of compounds, including maleic acid or salts thereof. *Id.* at 7:42–11:18.

E. Illustrative Claim

Of the challenged claims of the '419 patent, claim 1 is independent and illustrative. It recites:

1. A method for bleaching hair comprising:
 - (a) mixing a formulation comprising an active agent with a bleaching formulation, wherein the active agent has the formula:



or salts thereof;

and

- (b) 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; and

wherein the mixture does not contain a hair coloring agent.

Ex. 1001, 25:42–26:5.

ANALYSIS

A. 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). 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).

In the Institution Decision, we construed “wherein the mixture does not contain a hair coloring agent” as “wherein the mixture applied to the hair does not have a colorant or pigment that is customarily used in hair care products, which changes the color or tone of the hair it is applied to based on visual inspection.” Inst. Dec. 5–6. We based that construction on a definition the applicant offered during prosecution of the ’419 patent. Ex. 1010, 7.

Although neither party proposes a construction different from ours in the Response or the Reply, the parties disagree about the scope and application of that construction. Specifically, Patent Owner interprets our construction as including an effective-amount limitation, in that the presence in small amounts of ingredients that are not customary hair-coloring agents but could color hair if they happened to be present in larger amounts does not convert a mixture into a mixture containing a hair coloring agent. PO Resp. 9–10. Petitioner, however, argues that, to the extent our construction and the representation made during prosecution that led to our construction might be interpreted as including such an effective-amount limitation, it is inappropriate to allow the patent applicant to “enlarge the claims” beyond the scope of disclosure in the specification of the ’419 patent. Reply 22 (quoting *Biogen, Inc. v. Berlex Labs., Inc.*, 318 F.3d 1132, 1140 (Fed. Cir. 2003)).

We are persuaded that Patent Owner is correct. The Federal Circuit has construed “hair coloring agent” in the ’419 patent in the related litigation, and its construction is “a customary hair-coloring composition that is present in the mixture in an amount that, when the mixture is applied to hair, results in hair coloring, judged in the usual way—by visual inspection.” Reply 21 n.2 (quoting *Liqwd, Inc. v. L’Oreal USA, Inc.*, No. 2017-2295, slip op. at 5–6 (Fed. Cir. Jan. 16, 2018)). Petitioner urges us to reject this construction in favor of a construction that defines “hair coloring agent” as any composition capable of coloring hair and present in some amount within the mixture applied to the hair, regardless of whether it is present in the mixture in a sufficient amount to bring about any visually apparent change in hair color. *Id.* at 21–22.

Petitioner’s interpretation of a mixture containing a hair coloring agent includes any mixture that contains any amount of any agent that is capable of coloring hair, even if that agent is not present in sufficient amounts to color hair. That construction is broader than Patent Owner’s construction, because Patent Owner’s construction includes only mixtures that contain sufficient amounts of an agent to color hair. But the challenged claims place this term in a negative limitation: “wherein the mixture *does not contain* a hair coloring agent.” Ex. 1001, 26:4–5 (emphasis added). The claims exclude mixtures that contain hair coloring agents. Therefore, by giving a broader construction to a mixture containing a hair coloring agent, Petitioner’s proposed construction gives the challenged claims a narrower scope than those claims would have under the Federal Circuit’s *Phillips*-type

construction. That precludes us from adopting Petitioner’s proposed construction.

Under our rules, “[a] *claim* in an unexpired patent . . . shall be given its broadest reasonable construction . . .” 37 C.F.R. § 42.200(b) (emphasis added). Although we usually speak of construing claim terms rather than the claims themselves, our rules make clear that it is the claim as a whole, and not the scope of any individual claim term, that is to be given its broadest reasonable interpretation. The broadest reasonable construction of a claim may or may not be the same as the *Phillips*-type construction given that claim in district court proceedings. When the two types of construction differ, however, the broadest reasonable construction cannot be narrower than the *Phillips*-type construction. *See In re CSB-Sys. Int’l, Inc.*, 832 F.3d 1335, 1341 (Fed. Cir. 2016) (“if anything, the *Phillips* standard would result in a more *narrow* claim scope” than the broadest reasonable interpretation (emphasis in original)). Faced with a choice between the Federal Circuit’s *Phillips*-type construction of the challenged claims and the narrower claim scope Petitioner proposes, our rules require us to choose the former.

Accordingly, we maintain the construction of “wherein the mixture does not contain a hair coloring agent” that we adopted in our Institution Decision. We construe “wherein the mixture does not contain a hair coloring agent” as “wherein the mixture applied to the hair does not have a colorant or pigment that is customarily used in hair care products, which changes the color or tone of the hair it is applied to based on visual inspection.”

B. Asserted Anticipation by Ogawa

Petitioner asserts that claims 1–6, 8, and 10 of the '419 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Ogawa. Pet. 25–45.

1. Ogawa

Ogawa relates to “[h]air dye compositions” that “do not give off an intensely irritating odor and have low irritating property.” Ex. 1002, at [57]. The “hair dye composition” of Ogawa comprises “a chelating agent” that has “no particular limitation . . . insofar as it has the ability to chelate metal ions . . . and is commonly used in cosmetic preparations.” *Id.* at 2:1–14, 2:61–3:3. Examples of such chelating agents include “ethylenediaminetetraacetic acid, . . . ascorbic acid, [and] maleic acid,” among other compounds. *Id.* Ogawa’s compositions may or may not contain oxidation dye intermediates; when they do not, they are referred to as “hair bleaches.” *Id.* at 3:28–35. Regardless of whether the compositions are for hair dyeing or for hair bleaching, they take the form of “a first dye pack or a first bleach pack” that is “mix[ed] . . . with an oxidizing agent upon use.” *Id.* at 4:23–39. Consistent with these disclosures, Ogawa discloses mixing a “first bleach pack” comprising 0.5 weight percent ascorbic acid and 0.3 weight percent tetrasodium ethylenediaminetetraacetate with “a second pack” comprising hydrogen peroxide. *Id.* at 6:20–25, 7:3–31. Ogawa discloses that this mixture was applied to hair. *Id.* at 5:40–46 (disclosing applying mixture to “a black tress,” then ranking “[t]he lightness of the tress”), 7:7–9 (disclosing ranking mixture of Example 3 “[i]n a manner similar to Example 1”). In claim 1, Ogawa discloses applying to hair a mixture of a first pack comprising an unspecified chelating agent and a second pack comprising

hydrogen peroxide. *Id.* at 7:44–8:16. Ogawa separately claims the method of claim 1 with the chelating agent specified as any of ten compounds or any salt of any of those ten compounds, where one compound is maleic acid. *Id.* at 8:34–39. Finally, Ogawa separately claims the method of claim 1 with the unspecified chelating agent present in the first pack at a concentration between 0.01 and 10 weight percent. *Id.* at 8:28–30.

2. Analysis

Petitioner argues that “Ogawa discloses each and every element of claims 1–6, 8, and 10 of the ’419 patent, such that a [person of ordinary skill in the art] could practice the claimed method without undue experimentation.” Pet. 25; Supp. Reply 1 (“Ogawa identically discloses and enables the methods of claims 1-6, 8, and 10 of the ’419 patent, and therefore anticipates those claims.”).

We are not persuaded that Petitioner has shown sufficiently that Ogawa discloses all the limitations of any of the claims of the ’419 patent, arranged as in the claims of the ’419 patent. *See Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010); *Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Here, all the claims of the ’419 patent recite (1) an active agent formulation comprising maleic acid or salts thereof at a concentration between about 0.1 weight percent and about 50 weight percent, (2) mixing the active agent formulation with a bleaching formulation, and (3) applying the mixture to hair, because these are all limitations of claim 1, and all the other claims depend from claim 1. Ex. 1001, 25:42–26:53. Ogawa does teach all of these limitations. Pet. 27–37; Ex. 1002, 2:61–3:3 (listing maleic acid among other chelating agents);

3:4–7 (specifying concentration of unspecified chelating agent as between 0.01 and 10 weight percent); 6:20–26 (defining bleaching formulation having hydrogen peroxide); 7:1–31 (applying mixture of bleaching formulation and formulation containing chelating agents other than maleic acid to hair). But we agree with Patent Owner that finding this disclosure requires combining one portion of Ogawa that discloses applying to hair mixtures of formulations containing chelating agents and hydrogen peroxide with another portion of Ogawa disclosing maleic acid and its salts among a list of chelating agents, and then combining those disclosures with another portion of Ogawa that discloses that an unspecified chelating agent may be present in a particular range of concentrations. *See* Supp. Resp. 1–2, 7. For anticipation, “it is not enough that the prior art reference . . . includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIn*, 545 F.3d at 1371. Petitioner has not shown sufficiently that a person of ordinary skill in the art would “at once envisage” the process that could be carried out by combining these distinct teachings of Ogawa. *See In re Petering*, 301 F.2d 676, 681 (CCPA 1962). Accordingly, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that claims 1–6, 8, and 10 of the ’419 patent are anticipated by Ogawa.

C. Asserted Obviousness over Ogawa, Berkemer, and KR ’564

Petitioner asserts that claims 1–8 and 10 of the ’419 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Ogawa, Berkemer, and KR ’564. Pet. 45–69.

1. *Berkemer*

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, 2:7–14. Berkemer teaches that “[h]air that is repeatedly subject to . . . bleaching . . . 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” of improving the light reflection of the surface of hair, such as treating the hair with tannic, lactic, or citric acid. *Id.* at 1:34–2:5, 2:19–20, 3:23–24.

2. *KR ’564*

KR ’564 “relates to a hair treatment agent comprising mild acid,” which “has the advantages of alleviating and preventing damage caused by chemical treatments such as . . . bleaching.” Ex. 1018, 1. 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 3. “[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.*

3. Analysis

a. Claim 1

Claim 1 recites a two-step method requiring first making a mixture of two formulations and then applying that mixture to hair. Ex. 1001, 25:42–26:5. The mixture must “not contain a hair coloring agent,” and it must contain an active agent “at a concentration ranging from about 0.1% by weight to about 50% by weight.” *Id.* The active agent must be initially present in one formulation, with a bleaching agent present in the other of the two formulations that are mixed to make the mixture, and the active agent must be maleic acid or a salt thereof. *Id.*

Petitioner has made a sufficient showing that Ogawa teaches or suggests all of the limitations recited in claim 1 when maleic acid is used as the chelating agent in the mixture of Ogawa’s Example 3. Ex. 1002, 5:40–46, 6:20–25, 7:1–31. Example 3 teaches mixing equal parts by weight of “the formulation shown in Table 4” and “the formulation shown in Table 2.” *Id.* at 7:3–7. One formulation contains the chelating agents tetrasodium ethylenediaminetetraacetate and ascorbic acid, and the other formulation contains hydrogen peroxide. *Id.* at 6:20–25, 7:11–31. Neither formulation includes a colorant or pigment. *Id.*; *id.* at 7:3 (describing “the formulation shown in Table 4” as a “bleach pack”). The mixture contains 0.4 weight percent of the chelating agents, and Ogawa teaches applying the mixture to hair. *Id.* at 5:40–46, 7:11–31. Elsewhere, Ogawa teaches that the chelating agent also may be maleic acid or any of seven other compounds, rather than the salt of ethylenediaminetetraacetic acid or the ascorbic acid that is disclosed in Example 3. *Id.* at 2:61–3:3.

Patent Owner argues that none of Ogawa, Berkemer, or KR '564 teaches or suggests using maleic acid in a mixture with a bleaching formulation. PO Resp. 22–25. But, as discussed below in Section C.3.f, Petitioner has shown sufficiently that Ogawa itself provides a reason to use maleic acid in its bleaching treatment, and that Berkemer and KR '564 provide an additional reason why a person of ordinary skill in the art would have chosen Ogawa's maleic acid over Ogawa's other chelating agents. Accordingly, we conclude that Petitioner has made a sufficient showing that the combination of Ogawa, Berkemer, and KR '564 teaches or suggests using maleic acid in place of the tetrasodium ethylenediaminetetraacetate and ascorbic acid in the bleaching treatment of Ogawa's Example 3.

Although neither Ogawa's Example 3, nor either Berkemer or KR '564, teaches or suggests any concentration or range of concentrations for maleic acid specifically, the chelating agents are present in the mixture in a combined amount of 0.4% by weight of the mixture, which falls within the range of claim 1. Ex. 1002, 7:1–31. Ogawa, moreover, discloses elsewhere that “a chelating agent” can be “maleic acid” and “may be incorporated preferably in a proportion of from[]0.01 to 10 wt.%" of the first formulation. *Id.* at 2:61–3:5. Because Example 3 teaches mixing the first formulation with an equal weight of the second formulation, the disclosed range of maleic acid concentrations in the mixture of Example 3 would be 0.005 to 5 weight percent, which overlaps the claimed range of 0.1 to 50 weight percent. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Ogawa, Berkemer, and KR '564 teaches or suggests the limitations of claim 1.

b. Claims 2–6

Petitioner argues that Ogawa teaches or suggests the limitations that dependent claims 2–6 add to independent claim 1. Pet. 56–63 (citing Ex. 1002, 2:64–3:7, 4:43–57, 6:20–26, 7:1–31, 8:28–30; Ex. 1008 ¶¶ 164–171, 174–181, 186–192, 195–202, 204; Ex. 1012, 17). Patent Owner does not dispute Petitioner’s arguments with respect to these claims. PO Resp. 98–99. We have reviewed Petitioner’s arguments and the underlying evidence cited in support, and we are persuaded that the evidence of record sufficiently establishes that the combination of Ogawa, Berkemer, and KR ’564 teaches or suggests all the limitations of claims 2–6.

c. Claim 7

Claim 7 depends from claim 1 and recites a limitation requiring that the step of “applying the mixture to the hair” be “repeated one or more times.” Ex. 1001, 25:42–26:5, 26:30–31. Petitioner argues that it was “known in the art” to apply hair bleaching treatments “with a brush in order to minimize contact with the skin” and that application with a brush requires multiple repetitions, “because a brush is not able to effectively deliver the bleaching formulation to more than a small portion of hair at a time.” Pet. 64 (citing Ex. 1008 ¶ 206; Ex. 1012, 17). Patent Owner argues that it is improper for Petitioner to rely on Exhibit 1012, which is not one of the three references (Ogawa, Berkemer, and KR ’564) that form the basis for Petitioner’s asserted ground of unpatentability, and Petitioner fails to identify any portion of those references that teaches or suggests the limitation of claim 7. PO Resp. 98–99.

We are not persuaded by Patent Owner’s argument that it is improper for Petitioner to rely on Exhibit 1012. First, Petitioner identified Exhibit 1012 in the Petition, so it is incorrect to say that Exhibit 1012 did not form part of the basis for Petitioner’s asserted ground of unpatentability. Pet. 64 (citing Ex. 1012, 17). Second, we “may consider a prior art reference to show the state of the art at the time of the invention, regardless of whether that reference was cited in [our] institution decision.” *Genzyme Therapeutic Prods. Ltd. P’ship v. Biomarin Pharma. Inc.*, 825 F.3d 1360, 1369 (Fed. Cir. 2016). Here, Petitioner proffers Exhibit 1012 as evidence of the state of the art, and the exhibit was cited both in the Petition and in our Institution Decision, so we clearly may rely on it. Pet. 64 (“ . . . as known in the art, hair bleaches are typically applied with a brush . . .”); Inst. Dec. 16 (citing Ex. 1012, 17).

The evidence of record shows that “paste bleaches are normally prepared just before use and applied with a brush; skin contact is minimized.” Ex. 1012, 17. There also is evidence that applying a bleaching treatment with a brush requires applying it “more than one time to the hair in order to cover more than a small portion of the hair.” Ex. 1008 ¶ 206. Patent Owner does not dispute this evidence. Accordingly, it is immaterial that none of Ogawa, Berkemer, and KR ’564 teaches or suggests this limitation. As such, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Ogawa, Berkemer, and KR ’564, when read in view of the state of the art at the time of the ’419 patent, teaches or suggests the additional limitation of claim 7.

d. Claim 8

Claim 8 depends from claim 1 and recites a limitation requiring a third step to the claimed method, with that third step being “rinsing, shampooing, or conditioning the hair, or a combination thereof,” and with the third step occurring after the “applying the mixture to the hair” step. Ex. 1001, 25:42–26:5, 26:32–35. Petitioner relies on Ogawa to teach or suggest this limitation. Pet. 65–66 (citing Ex. 1002, 4:32–39, 8:25–27; Ex. 1008 ¶¶ 164–171, 208–209).

Patent Owner does not dispute that Ogawa teaches rinsing or washing its bleaching mixture off the hair after it is applied, but Patent Owner notes that Berkemer teaches leaving its composition on the hair without rinsing it out. PO Resp. 99 (citing Ex. 1004, 2:3–5, 2:19–23, 3:32–4:15). We are not persuaded that the fact that Berkemer teaches leaving its treatment on the hair would have dissuaded the person of ordinary skill in the art from following Ogawa’s teaching to rinse out its treatment. As discussed above, Ogawa teaches using maleic acid in its treatment, and Petitioner relies on Berkemer only to provide an additional reason why the person of ordinary skill in the art would have chosen Ogawa’s maleic acid over the other possible chelating agents Ogawa suggests. A person of ordinary skill in the art, following Ogawa’s process would have understood that, after the mixture was applied to the hair and left “for 1 to 50 minutes, . . . the mixture [would be] washed off” or that “the applied formulation [would be] removed from the hair by washing the hair.” Ex. 1002, 4:32–39, 8:25–27. This would still be true if the person of ordinary skill in the art had relied on Berkemer’s teachings to choose maleic acid from among the chelating

agents Ogawa suggests. As such, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Ogawa, Berkemer, KR '564, and the state of the art at the time of the '419 patent teaches or suggests the additional limitation of claim 8.

e. Claim 10

Petitioner argues that Ogawa teaches or suggests the limitations that dependent claim 10 adds to independent claim 1. Pet. 66–67 (citing Ex. 1002, 4:32–39, 7:44–8:16; Ex. 1008 ¶¶ 164–171, 211). Patent Owner does not dispute Petitioner’s arguments with respect to this claim. PO Resp. 98–99. We have reviewed Petitioner’s arguments and the underlying evidence cited in support, and we are persuaded that the evidence of record sufficiently establishes that the combination of Ogawa, Berkemer, and KR '564 teaches or suggests the additional limitations of claim 10.

f. Reason to Combine

Petitioner relies on the disclosure of Ogawa to teach or suggest all the limitations of claims 1–8 and 10. Pet. 46. As discussed above, Ogawa teaches using any of a number of chelating agents, one of which is the maleic acid⁶ the claims of the '419 patent require. Petitioner argues that the teachings of Berkemer and KR '564 would have provided a person of ordinary skill in the art with a motivation to choose “maleic acid [over

⁶ We use “maleic acid” as shorthand for “maleic acid or salts thereof.” The claims of the '419 patent do not require maleic acid specifically; instead, they require either maleic acid “or salts thereof.” Ex. 1001, 25:44–53. Similarly, Ogawa teaches both organic acids, including maleic acid, and “salts thereof” as chelating agents. Ex. 1002, 2:61–3:1.

Ogawa's other options] as the chelating agent in the methods for bleaching hair disclosed in Ogawa.” *Id.*

Patent Owner argues that Berkemer and KR '564 would not have motivated this choice for several reasons. First, Patent Owner argues that Berkemer's benefits are limited to a treatment carried out at low pH, while Ogawa teaches that the pH must be high during bleaching. PO Resp. 26–27. Second, Patent Owner argues that using Berkemer's acid treatment would neutralize the alkaline environment created by following Ogawa's bleaching method, rendering both methods ineffective. *Id.* Third, Patent Owner argues that a person of ordinary skill in the art would not have expected Berkemer's maleic acid to bond with hair fibers during a bleaching treatment, because the high pH of the bleaching process is above the isoelectric point of the hair, causing the hair fibers to repel “negatively charged molecules, such as maleic acid/substitution products.” *Id.* at 27. Fourth, Patent Owner argues that Berkemer teaches away from using maleic acid in a bleaching treatment like that described in Ogawa, because either the maleic acid or the alkaline bleaching environment would end up neutralized, depending on how much maleic acid was added. *Id.* at 28–29. Fifth, Patent Owner argues that Berkemer's benefits are limited to a leave-on treatment, so a person of ordinary skill in the art would not have had a reason to use Berkemer's maleic acid in a temporary application such as Ogawa's bleaching treatment. *Id.* at 29–30. Sixth, Patent Owner argues that KR '564 does not remedy Berkemer's deficiencies, because KR '564 does not express any preference for maleic acid over either the other options it teaches or those that Ogawa teaches, and it has some of the same

deficiencies as Berkemer, including teaching use at a low pH and not teaching a bleaching formulation. *Id.* at 30–31. Seventh, Patent Owner argues that a person of ordinary skill in the art would not have used maleic acid in a bleaching treatment because of safety concerns, including that “maleic acid should not be used with oxidizers,” such as those present in Ogawa’s bleaching treatment, as well as that maleic acid “is a known skin sensitizer and can cause allergic reactions.” *Id.* at 31–32. Finally, Patent Owner argues that the passage of “nearly a decade” since the publication of KR ’564 without anyone combining the teachings of Ogawa, Berkemer, and KR ’564 is evidence that a person of ordinary skill in the art would not have had a reason to make such a combination. *Id.* at 32.

In deciding whether the preponderance of the evidence supports Petitioner’s position, we note that Ogawa itself teaches using maleic acid in its method. Ogawa identifies maleic acid as one of only ten specifically named organic acids that are illustrative of the chelating agents that may be used. Ex. 1002, 2:61–3:1. In addition, Ogawa claims a method in which the chelating agent is limited to one of these ten organic acids, including maleic acid. *Id.* at 8:34–39. As discussed in detail above, Ogawa also teaches or suggests all the remaining limitations of the challenged claims of the ’419 patent. Thus, Ogawa alone is sufficient to teach the use of maleic acid. See *Merck & Co. Inc. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“That the [reference] discloses a multitude of effective combinations does not render any particular formulation less obvious.”).

Nevertheless, Petitioner also argues that Berkemer and KR ’564 provide an additional reason for a person of ordinary skill in the art to

choose maleic acid from among the ten acids Ogawa lists as illustrative chelating agents. We are persuaded that Petitioner has shown that the teachings of Berkemer and KR '564 would have led a person of ordinary skill in the art to make this choice.

Berkemer discusses the use of maleic acid as preferred over the use of previously known acids, such as tannic, lactic, and citric acids, to treat hair damaged by bleaching. Ex. 1004, 1:34–2:5, 2:12–17, 2:19–37. Unlike treatment with other acids, Berkemer describes treatment with maleic acid as “lead[ing] to an astonishing structural improvement of the hair surface.” *Id.* at 3:23–24. Further, Berkemer describes the improvement of the hair surface resulting from treatment with maleic acid as “permanent,” which is “a substantial advance in comparison with the known methods.” *Id.* at 2:19–23. As for using the maleic acid that Berkemer suggests in a bleaching treatment, as opposed to in a leave-on treatment following bleaching, KR '564 teaches adding any of several organic acids, including maleic acid, “to a permanent wave agent, dyeing agent and the like as an additive.” Ex. 1018, 3. Moreover, as discussed above, Ogawa itself teaches using maleic acid in its process, providing a reason for a person of ordinary skill in the art to have used maleic acid in that process. Berkemer and KR '564 merely provide an additional reason as to why the ordinary artisan would have chosen maleic acid specifically from among the ten acids Ogawa discloses. Thus, it is immaterial that Berkemer does not itself teach or suggest using maleic acid as an additive in a bleaching process.

As for Patent Owner’s arguments (1) that Berkemer’s benefits are limited to a treatment carried out at low pH, while Ogawa teaches that the

pH must be high during bleaching, and (2) that using the acid treatment of Berkemer would neutralize the alkaline environment created by following Ogawa's bleaching method, rendering both methods ineffective, we are not persuaded by the evidence of record. There is some evidence to support Patent Owner's positions, but there is a similar weight of evidence that a person of ordinary skill in the art would have been able and led to adjust the pH of the bleaching process to achieve the desired results. Ex. 1002, 1:44–53 (“under neutral to weak alkaline conditions of pH 6 to pH 8.5,” there is insufficient “bleaching power” available in a particular prior-art process); Ex. 1026, 83:10–18 (“a skilled artisan” is able “to adjust the parameters of a bleaching mixture,” including pH, “to bleach the hair”). In addition, as noted above, Ogawa itself would have provided a person of ordinary skill in the art with a reason to use maleic acid in its bleaching process.

Similarly, although there is some evidence that hair fibers at a pH of 9 to 11 have a net negative charge and that negatively charged hair fibers could repel negatively charged molecules, such as the substitution products of maleic acid, Ex. 2025 ¶ 161, we are not persuaded that a person of ordinary skill in the art would have been dissuaded from using maleic acid on hair in a high-pH environment. 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, 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, 2:19–23; Ex. 1026, 44:16–46:3.

We also are not persuaded that safety concerns would have convinced a person of ordinary skill in the art to avoid using maleic acid in bleaching

treatments. There is evidence that maleic acid itself is a skin sensitizer and can cause allergic reactions and that mixing maleic acid with oxidizers can be dangerous. Ex. 2034, 1, 5, 6. But Ogawa instructs a person of ordinary skill in the art to mix maleic acid with “an oxidizing agent,” and Ogawa, Berkemer, and KR ’564 all instruct a person of ordinary skill in the art to apply maleic acid solutions to the hair. Ex. 1002, 7:44–8:16 (disclosing mixing a first pack containing “a chelating agent” with a second pack containing “an oxidizing agent” and applying the mixture to the hair), 8:34–39 (disclosing that the chelating agent may be “maleic acid”); Ex. 1004, 2:12–13 (teaching treating hair with maleic acid); Ex. 1018, 3 (disclosing a “hair treatment agent comprising,” *inter alia*, “maleic acid”). We are not persuaded that the generic safety concerns to which Patent Owner directs us would overcome the specific instructions of the prior art.

Finally, although Patent Owner argues that KR ’564 does not overcome the deficiencies of Ogawa and Berkemer in providing a reason to combine the teachings of Ogawa and Berkemer, we are not persuaded that there are deficiencies to overcome. As discussed above, Ogawa teaches using any of a small number of organic acids in its hair treatment process, including specifically maleic acid, which would have led a person of ordinary skill in the art to use maleic acid in Ogawa’s process. Further, Berkemer and KR ’564 provide additional reasons why the person of ordinary skill in the art would have selected maleic acid from Ogawa’s short list of compounds. Berkemer’s teaching that maleic acid causes “an astonishing structural improvement of the hair surface” not obtained with other acids provides one reason. Ex. 1004, 3:23–24. To the extent that there

is any question as to whether Berkemer would have led a person of ordinary skill in the art to mix maleic acid into a hair treatment, rather than to apply maleic acid to the hair after the hair treatment has finished,⁷ KR '564 reinforces the teaching of Ogawa that one may mix maleic acid into the hair treatment. Ex. 1018, 3.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that a person of ordinary skill in the art would have had a reason to use maleic acid in the bleaching treatment of Ogawa's Example 3, both because Ogawa teaches doing so and because Berkemer and KR '564 provide additional reasons to choose maleic acid from Ogawa's list of chelating agents.

g. Objective Indicia of Nonobviousness

Patent Owner argues that there is evidence of two objective indicia of nonobviousness of the claims of the '419 patent: "a long-felt and unmet need for a way to protect hair from damage during bleaching treatments that is satisfied by the '419 patent," and [REDACTED] subsequent copying of the hair bleaching methods claimed in the '419 patent." PO Resp. 43–98. We need only consider a single question to determine whether the record supports Patent Owner's argument with respect to long-felt need: whether the long-felt need to which Patent Owner adverts was satisfied by Patent Owner's own products before it was satisfied by the '419 patent. Because we answer this question in the

⁷ There is no such question, because Ogawa teaches mixing maleic acid into its treatment composition. Ex. 1002, 7:44–8:16, 8:34–39.

affirmative, we conclude that the record does not support the existence of any long-felt and unmet need that was “satisfied by the ’419 patent.” As to copying, we conclude that the evidence on this record does not support the determination that Petitioner copied a product that embodies the challenged claims.

(1) Long-Felt and Unmet Need

Patent Owner directs us to evidence of record that the hair-care industry long knew that bleaching hair would damage the hair and that there was no known way to avoid this damage, only ways to treat the damaged hair after the fact. PO Resp. 44–46 (citing Ex. 1004, 1:24–32; Ex. 1008 ¶ 16; Ex. 1012, 10; Ex. 2021 ¶¶ 1, 17, 19–45; Ex. 2025 ¶ 201; Ex. 2045, 6; Ex. 2046, 62:8–12, 63:16–20, 64:12–18, 135:21–25). Patent Owner also argues that the ’419 patent would have satisfied this need, assuming the need had not yet been satisfied at the time of invention of the ’419 patent. *Id.* at 46 (citing Ex. 2025 ¶ 204; Ex. 2046, 240:18–241:4).

Petitioner argues that the “need for a way to protect hair from damage during bleaching treatments,” *id.* at 44, was satisfied not by the ’419 patent but by the earlier commercialization of Patent Owner’s own Olaplex products. Reply 26–28 (citing PO Resp. 46–47). Patent Owner does not dispute either that the Olaplex products satisfied the particular long-felt need at issue here or that the Olaplex products were first commercialized on June 23, 2014. PO Resp. 46–47 (citing Ex. 2023 ¶ 7). Because the ’419 patent is entitled to a priority date in May 2014, however, Patent Owner argues that any satisfaction of the long-felt need by the Olaplex products came only after the satisfaction by the ’419 patent. *Id.* We disagree.

The filing date of the '419 patent was March 31, 2016. Ex. 1001, at [22]. The application that issued as the '419 patent was a continuation of an application filed on May 15, 2015, to which there was a provisional application filed May 16, 2014. *Id.* at [63], [60]. Accordingly, for the '419 patent to be entitled to a priority date in May 2014, the May 2014 provisional application must provide written-description support for the claims of the '419 patent. 35 U.S.C. § 120. The record developed during trial does not permit us to conclude that such support was present in the provisional application.

First, neither party made the provisional application itself part of the record. Patent Owner simply assumes that the '419 patent is entitled to the May 2014 priority date.⁸ PO Resp. 46–47. Petitioner relies on the specification of the '419 patent itself to demonstrate a lack of written-description support for claim 1, implicitly arguing that support was absent in the earlier applications as well. Reply 27–28 (citing Ex. 1001, 16:30–36, 26:1–3; Ex. 1026, 80:16–81:19). We acknowledge that the ultimate burden to prove unpatentability always lies with Petitioner. 35 U.S.C. § 316(e). Petitioner also has the initial burden of production to argue that the

⁸ Even this is unclear from Patent Owner's brief. Instead, Patent Owner says simply that "the Olaplex product line was commercialized *after* the '419 patent priority date." PO Resp. 47 (citing Ex. 2023 ¶ 7). The citation to Exhibit 2023 suggests that Patent Owner's argument is for a priority date earlier than June 23, 2014, on which date the Olaplex products were first commercialized, but Patent Owner never states the specific priority date to which it believes the '419 patent is entitled, nor why it would be entitled to that date.

challenged claims would have been obvious. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015).

On objective indicia of nonobviousness, however, Patent Owner 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 (imposing burden of production on Patent Owner for priority-date issues). There is no evidence in the record that permits us to determine whether there is sufficient written-description support in the provisional application for the claims of the '419 patent, and, therefore, no evidence in the record that permits us to determine whether the '419 patent is entitled to a May 2014 priority date. Patent Owner had the burden of production on this question, and it does not point us to any evidence of record to support its assertion that the '419 patent was entitled to any priority date before the filing date of the application that matured into the '419 patent—that is, before March 31, 2016.⁹

⁹ In its Reply, Petitioner argued that the specification of the '419 patent does not support the full scope of claim 1. Reply 27–28. Although we do not reach the merits of this argument, Patent Owner argued at the oral hearing that it never had an opportunity to respond to it. Tr. 49:5–13. Petitioner made its argument in the Reply, in response to an argument raised—however briefly—for the first time in the Response. Had Patent Owner wished to respond to this argument, Patent Owner could have asked for authorization to file a sur-reply. Patent Owner did not do so, asking only for authorization to file a motion to strike the argument Petitioner made in its Reply. *Id.* at 49:14–18. We denied Patent Owner's request to file such a motion. Paper 62. Patent Owner argues that the option to request a sur-reply—an option that Patent Owner chose not to exercise—may have been insufficient to satisfy the Administrative Procedure Act. Tr. 50:1–14. But the failure of a Patent Owner to request a sur-reply does not amount to the

Thus, we conclude that there is insufficient evidence that the '419 patent satisfied a long-felt and unmet need for a way to protect hair from damage during bleaching treatments.

(2) Copying

Patent Owner argues that Petitioner's products embody the claims of the '419 patent and [REDACTED], suggesting that Petitioner copied the technology of the '419 patent. PO Resp. 47–98.

Petitioner argues that the presence of Yellow 5, Blue 1, and Red 4 in its products, in any amount, removes those products from the scope of the challenged claims, all of which require the mixture “not [to] contain a hair coloring agent.” Ex. 1001, 25:42–26:53; see Reply 25. As discussed above, we construe “wherein the mixture does not contain a hair coloring agent” as “wherein the mixture applied to the hair does not have a colorant or pigment that is customarily used in hair care products, which changes the color or tone of the hair it is applied to based on visual inspection.” Accordingly, we do not agree that the mere presence, in any amount, of Yellow 5, Blue 1, and Red 4 in Petitioner's products removes those products from the scope of the challenged claims.

The presence of those ingredients in amounts sufficient to “change[] the color or tone of the hair it is applied to based on visual inspection,” however, would mean that Petitioner's products did not copy the claims of

denial of “a meaningful opportunity to respond to the grounds of rejection.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1082 (Fed. Cir. 2015).

the '419 patent, and Petitioner argues that the relevant ingredients are present in amounts sufficient to color hair. Reply 25 n.5. We are not persuaded that the evidence supports Petitioner's contention. Petitioner cites two documents marked "Highly Confidential," [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] Ex. 2038, 3; Ex. 2039, 3.

Given this evidence, we are not persuaded that Petitioner's products do not contain enough dye to meet the limitation that "the mixture does not contain a hair coloring agent." We do not conclude that those products necessarily fall within the scope of the claims, although we do note that, other than the sufficient-dye question, Petitioner does not respond to Patent Owner's evidence on this issue.

Assuming *arguendo* that Petitioner's products may fall within the scope of the claims of the '419 patent, concluding that there was copying still requires proof that Petitioner created its products [REDACTED]

[REDACTED]

[REDACTED] *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1568 (Fed. Cir. 1984). [REDACTED]

[REDACTED]

[REDACTED] PO Resp. 96 (citing Ex. 2012; Ex. 2022 ¶¶ 10–17; Ex. 2023 ¶¶ 8–20). [REDACTED]

[REDACTED]
[REDACTED]. Reply 25–26 (citing Ex. 1036, 173, 176–77; Ex. 1041 ¶¶ 11–12).

We are not persuaded that the evidence supports Petitioner’s contention. Petitioner relies on a laboratory notebook that is 178 pages long, with all but eight pages entirely redacted, and with four of those eight pages having some redactions. Ex. 1036. Most importantly, each of the three pages Petitioner cites has significant redactions. *Id.* at 173, 176–77.

[REDACTED]
[REDACTED]
[REDACTED]
Accordingly, we assign very little evidentiary weight to Exhibit 1036. Without assigning significant weight to Exhibit 1036, the preponderance of the evidence suggests that [REDACTED]

[REDACTED]
[REDACTED].
[REDACTED]
[REDACTED]
[REDACTED] as opposed to about Patent Owner’s products, amounts to copying of the kind that is evidence of nonobviousness. Petitioner argues that copying cannot be established without showing that Petitioner copied a patented product, rather than Patent Owner’s technology generally. Reply 24–25 (citing *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)). We agree.

First, Petitioner is correct that *Iron Grip Barbell* says that “copying requires the replication of a specific product.” 392 F.3d at 1325. Although *Iron Grip Barbell* permits showing this through access and substantial similarity, that access and substantial similarity must be to “the patented product (as opposed to the patent).” *Id.* Patent Owner is correct, PO Resp. 97, that *Iron Grip Barbell* did not overrule the older decision in *Vandenberg*, but we do not read *Vandenberg* as permitting a showing of copying through access and similarity to non-public information about a patent rather than to a patented product embodying the patent. Instead, in *Vandenberg*, the appellant “accuse[d the appellee] of ‘slavishly copying’ *their patented device*.” 740 F.2d at 1567 (emphasis added). Here, Patent Owner does not even argue, much less show, that [REDACTED]

[REDACTED] a product that embodied the claims of the ’419 patent. Instead, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] PO Resp. 96.

The evidence of record shows that the [REDACTED]

[REDACTED], not to any

product that embodied the claims challenged here. Ex. 2022 ¶¶ 10–17;

Ex. 2023 ¶¶ 8–20. Accordingly, we are not persuaded that the evidence of record supports a finding of copying of the type that is relevant to the question of the obviousness of the challenged claims of the ’419 patent.

4. *Conclusion*

As discussed above, the evidence of record shows that the prior art taught or suggested to those of ordinary skill in the art all the limitations of claims 1–8 and 10 of the '419 patent. In addition, the person of ordinary skill in the art would have had a reason to combine the teachings of the references to choose the maleic acid of Ogawa over Ogawa's other suggested chelating agents. Ogawa itself provides a reason to use maleic acid in its bleaching treatment, and Berkemer and KR '564 provide an additional reason for using maleic acid in a bleaching treatment. Against this evidence, there is little or no evidence of copying or long-felt and unmet need.

On this evidentiary record, we conclude that Petitioner has established by a preponderance of the evidence that claims 1–8 and 10 of the '419 patent are obvious over the combination of Ogawa, Berkemer, and KR '564.

D. Asserted Obviousness over Kitabata, Berkemer, and KR '564

Petitioner asserts that claims 1–8 and 10 of the '419 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Kitabata, Berkemer, and KR '564. Pet. 69–87.

1. *Kitabata*

Kitabata relates to “a two-agent hair dyeing/bleaching composition.” Ex. 1005, at [57]. The “primary agent” comprises “an alkali agent,” and the “secondary agent” comprises “an oxidizing agent.” *Id.* When the composition is used for bleaching hair, the oxidizing agent of the secondary agent may be hydrogen peroxide. *Id.* ¶¶ 4–5. Kitabata discloses adding a “pH adjustor” to the “primary agent,” where the pH adjustor is “selected

from the group consisting of polycarboxylic acids and their salts.” *Id.*

¶¶ 13–16. Kitabata teaches that “[t]here are no particular restrictions on the polycarboxylic acids so long as they are carboxyl acids commonly used as pH adjustors in cosmetics.” *Id.* ¶ 39. Among a list of 14 exemplary polycarboxylic acids, Kitabata teaches the use of “maleic acid.” *Id.*

2. Analysis

a. Claim 1

Claim 1 recites a two-step method requiring first making a mixture of two formulations and then applying that mixture to hair. Ex. 1001, 25:42–26:5. The mixture must “not contain a hair coloring agent,” and it must contain an active agent “at a concentration ranging from about 0.1% by weight to about 50% by weight.” *Id.* The active agent must be initially present in one formulation, with a bleaching agent present in the other of the two formulations that are mixed to make the mixture, and the active agent must be maleic acid or a salt thereof. *Id.*

Petitioner has made a sufficient showing that Kitabata teaches or suggests all of the limitations recited in claim 1 when maleic acid is used as the pH adjustor in the mixture of Kitabata’s primary and secondary agents. Kitabata discloses “a two-agent hair dyeing/bleaching composition” with a “primary agent” and a “secondary agent.” Ex. 1005, at [57]. The mixture can be used as a “bleaching agent”; in this case, the mixture contains no hair dye. *Id.* ¶¶ 5, 43. The primary agent contains “at least one first pH adjustor selected from the group consisting of polycarboxylic acids and their salts.” *Id.* ¶¶ 13–16. The amount of the pH adjustor in the primary agent “is preferably 0.1–10 wt %.” *Id.* ¶ 40. The secondary agent contains hydrogen

peroxide. *Id.* ¶ 5. The mixture is made by mixing the primary agent and the secondary agent in a ratio between 2:1 and 1:3 by weight. *Id.* ¶ 61. Once the mixture is made, it is applied to hair. *Id.* ¶ 71.

Patent Owner argues that none of Kitabata, Berkemer, or KR '564 teaches or suggests using maleic acid in a mixture with a bleaching formulation. PO Resp. 34–36. But, as discussed below in Section D.2.f, Petitioner has shown sufficiently that Kitabata itself provides a reason to use maleic acid in its bleaching treatment, and that Berkemer and KR '564 provide an additional reason why a person of ordinary skill in the art would have chosen Kitabata's maleic acid over Kitabata's other pH adjustors. Accordingly, we conclude that Petitioner has shown by a preponderance of the evidence that the combination of Kitabata, Berkemer, and KR '564 teaches or suggests using maleic acid in carrying out the method of Kitabata.

Although neither Kitabata nor either Berkemer or KR '564 teaches or suggests any concentration or range of concentrations for maleic acid specifically, the Examples of Kitabata teach that the pH adjustor is present in the mixture of the primary and secondary agents in an amount of at least 0.75 percent by weight. Pet. 75–76 (citing Ex. 1005 ¶ 76, Table 1; Ex. 1008 ¶¶ 237–41). Moreover, Kitabata discloses elsewhere that “the pH adjustor” can be “maleic acid” and “is preferably” present at a concentration of “0.1–10 wt%” of the first formulation. *Id.* ¶¶ 39–40. Given that Kitabata also teaches mixing the primary agent and the secondary agent at a ratio of between 2:1 and 1:3 by weight, the disclosed range of maleic acid concentrations in the mixture would be 0.025 to 6.67 weight percent, which overlaps the claimed range of 0.1 to 50 weight percent. *Id.* ¶ 61.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kitabata, Berkemer, and KR '564 teaches or suggests the limitations of claim 1.

b. Claims 2–6

Petitioner argues that Kitabata teaches or suggests the limitations that dependent claims 2–6 add to independent claim 1. Pet. 78–83 (citing Ex. 1005 ¶¶ 40, 49, 53, 72–89; Ex. 1008 ¶¶ 245–52, 256–59, 261–63, 265–66, 268–69). Patent Owner does not dispute Petitioner’s arguments with respect to these claims. PO Resp. 98–99. We have reviewed Petitioner’s arguments and the underlying evidence cited in support, and we are persuaded that the evidence of record sufficiently establishes that the combination of Kitabata, Berkemer, and KR '564 teaches or suggests all the limitations of claims 2–6.

c. Claim 7

Claim 7 depends from claim 1 and recites a limitation requiring that the step of “applying the mixture to the hair” be “repeated one or more times.” Ex. 1001, 25:42–26:5, 26:30–31. Petitioner argues that it was “known in the art” to apply hair bleaching treatments “with a brush in order to minimize contact with the skin” and that application with a brush requires multiple repetitions, “because a brush is not able to effectively deliver the bleaching formulation to more than a small portion of hair at a time.” Pet. 83–84 (citing Ex. 1008 ¶¶ 271–272; Ex. 1012, 17). Patent Owner argues that it is improper for Petitioner to rely on Exhibit 1012, which is not one of the three references (Kitabata, Berkemer, and KR '564) that form the basis for Petitioner’s asserted ground of unpatentability, and Petitioner fails to

identify any portion of those references that teaches or suggests the limitation of claim 7. PO Resp. 98–99.

We are not persuaded by Patent Owner’s argument that it is improper for Petitioner to rely on Exhibit 1012. First, Petitioner identified Exhibit 1012 in the Petition, so it is incorrect to say that Exhibit 1012 did not form part of the basis for Petitioner’s asserted ground of unpatentability. Pet. 64 (citing Ex. 1012, 17). Second, we “may consider a prior art reference to show the state of the art at the time of the invention, regardless of whether that reference was cited in [our] institution decision.” *Genzyme*, 825 F.3d at 1369. Here, Petitioner proffers Exhibit 1012 as evidence of the state of the art, and the exhibit was cited both in the Petition and in our Institution Decision, so we clearly may rely on it. Pet. 64 (“ . . . as known in the art, hair bleaches are typically applied with a brush . . .”); Inst. Dec. 16 (citing Ex. 1012, 17).

The evidence of record shows that “paste bleaches are normally prepared just before use and applied with a brush; skin contact is minimized.” Ex. 1012, 17. There also is evidence that applying a bleaching treatment with a brush requires applying it “more than one time to the hair in order to cover more than a small portion of the hair.” Ex. 1008 ¶ 206. Patent Owner does not dispute this evidence. Accordingly, it is immaterial that none of Kitabata, Berkemer, and KR ’564 teaches or suggests this limitation. As such, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kitabata, Berkemer, and KR ’564, when read in view of the state of the art at the time of the ’419 patent, teaches or suggests the additional limitation of claim 7.

d. Claim 8

Claim 8 depends from claim 1 and recites a limitation requiring a third step to the claimed method, with that third step being “rinsing, shampooing, or conditioning the hair, or a combination thereof,” and with the third step occurring after the “applying the mixture to the hair” step. Ex. 1001, 25:42–26:5, 26:32–35. Petitioner relies on Kitabata to teach or suggest this limitation. Pet. 84–85 (citing Ex. 1005 ¶ 71; Ex. 1008 ¶¶ 274–275).

Patent Owner does not dispute that Kitabata teaches rinsing or washing its bleaching mixture off the hair after it is applied, but Patent Owner notes that Berkemer teaches leaving its composition in the hair without rinsing it out. PO Resp. 99 (citing Ex. 1004, 2:3–5, 2:19–23, 3:32–4:15). We are not persuaded that the fact that Berkemer teaches leaving its treatment on the hair would have dissuaded the person of ordinary skill in the art from following Kitabata’s teaching to rinse out its treatment. As discussed above, Kitabata teaches using maleic acid in its treatment, and Petitioner relies on Berkemer only to provide an additional reason why the person of ordinary skill in the art would have chosen Kitabata’s maleic acid over the other possible chelating agents Kitabata suggests. A person of ordinary skill in the art, following Kitabata’s process and further relying on Berkemer’s teachings to choose maleic acid from among the chelating agents Kitabata suggests, would have understood that, after the mixture was applied to the hair and “allowed to stand for a prescribed period of time,” it would be “rinsed off.” Ex. 1005 ¶ 71. This would still be true if the person of ordinary skill in the art had relied on Berkemer’s teachings to choose maleic acid from among the pH adjustors Kitabata suggests. As such, we

determine that Petitioner has shown by a preponderance of the evidence that the combination of Kitabata, Berkemer, KR '564, and the state of the art at the time of the '419 patent teaches or suggests the additional limitation of claim 8.

e. Claim 10

Petitioner argues that Kitabata teaches or suggests the limitations that dependent claim 10 adds to independent claim 1. Pet. 85–86 (citing Ex. 1005 ¶¶ 5, 76; Ex. 1008 ¶¶ 245–252, 277–279). Patent Owner does not dispute Petitioner's arguments with respect to this claim. PO Resp. 98–99. We have reviewed Petitioner's arguments and the underlying evidence cited in support, and we are persuaded that the evidence of record sufficiently establishes that the combination of Kitabata, Berkemer, and KR '564 teaches or suggests all the limitations of claim 10.

f. Reason to Combine

Petitioner relies on the disclosure of Kitabata as teaching or suggesting the limitations of claims 1–8 and 10. Pet. 69. As discussed above, Kitabata teaches using any of a number of pH adjustors, one of which is the maleic acid¹⁰ the claims of the '419 patent require. Petitioner argues that the teachings of Berkemer and KR '564 would have provided a person of ordinary skill in the art with a reason to choose “maleic acid as the pH

¹⁰ As in the Ogawa/Berkemer/KR '564 ground, we use “maleic acid” as shorthand for “maleic acid or salts thereof.” The claims of the '419 patent do not require maleic acid specifically; instead, they require either maleic acid “or salts thereof.” Ex. 1001, 25:44–53. Similarly, Kitabata teaches both organic acids, including maleic acid, and their salts as pH adjustors. Ex. 1005 ¶ 39.

adjustor required in Kitabata's methods for bleaching hair." *Id.* at 69–70. Thus, this asserted ground of unpatentability presents very much the same arguments as in the Ogawa/Berkemer/KR '564 ground. As in that ground, a single reference (there, Ogawa; here, Kitabata) teaches a bleaching process that can use any of a number of organic acids, one of which specifically is maleic acid. In both grounds, the most important issue is whether Berkemer and KR '564 would have provided a person of ordinary skill in the art with an additional reason to choose maleic acid from the list of named organic acids for use in the bleaching process that each of Ogawa and Kitabata teaches.

As befits a ground so similar to the ground discussed above, Patent Owner raises the same arguments with respect to this ground that we discussed above. PO Resp. 35–43. For the reasons discussed above, we do not find those arguments persuasive, and we find that Berkemer and KR '564 would have provided an additional reason for a person of ordinary skill in the art to have selected maleic acid from among the fourteen pH adjustors that Kitabata suggests.

g. Objective Indicia of Nonobviousness

Patent Owner raises the same two objective indicia of nonobviousness discussed above: "a long-felt and unmet need for a way to protect hair from damage during bleaching treatments that is satisfied by the '419 patent," and [REDACTED] and subsequent copying of the hair bleaching methods claimed in the '419 patent." PO Resp. 43–98. For the reasons discussed above, we find that the record developed during trial does not demonstrate evidence of either a long-felt

and unmet need that was satisfied by the '419 patent or copying of a product embodying the challenged claims of the '419 patent.

3. Conclusion

As with the Ogawa/Berkemer/KR '564 ground discussed above, the evidence of record regarding this ground shows that the prior art taught or suggested to those of ordinary skill in the art all the limitations of claims 1–8 and 10 of the '419 patent. In addition, the person of ordinary skill in the art would have had a reason to combine the teachings of the references by choosing the maleic acid of Kitabata over Kitabata's other suggested chelating agents. Against this evidence, there is little or no evidence of copying or long-felt and unmet need.

On this evidentiary record, we conclude that Petitioner has established by a preponderance of the evidence that claims 1–8 and 10 of the '419 patent are obvious over the combination of Kitabata, Berkemer, and KR '564.

E. Motions to Exclude

Both parties filed Motions to Exclude Evidence and Oppositions to the opposing party's Motion to Exclude Evidence. Paper 72 (Petitioner's Motion); Paper 73 (Patent Owner's Motion); Paper 79 (Patent Owner's Opposition); Paper 80 (Petitioner's Opposition).

1. Patent Owner's Motion to Exclude

Patent Owner seeks to exclude part, or all, of 17 exhibits. We discuss each exhibit below.

a. Exhibits 1004 and 1018

Patent Owner argues that each of Exhibits 1004 and 1018 should be excluded in its entirety. Paper 72, 1–3. Exhibit 1004 is the English translation of Berkemer, and Exhibit 1018 is the English translation of KR '564.

Regarding Exhibit 1004, Patent Owner argues that “[t]he reliability of [the translation] is doubtful,” because the person who certified the translation had difficulty at deposition translating particular words. *Id.* at 2 (citing Ex. 2053, 29:21–31:7, 34:3–18, 35:12–36:10). We are not persuaded that this warrants excluding Exhibit 1004. The person who certified the translation was not the person who performed the translation. Ex. 2053, 16:11–13. Accordingly, it is not clear that his lack of expertise in the minutiae of translation bears on the accuracy of the translation itself.

Patent Owner also argues that Petitioner’s expert declarant did not know what certain terms appearing in the English translation of Exhibit 1004 meant. Paper 72, 2. Whatever this says about the declarant’s qualifications, it is not clear that it has any bearing on the accuracy of the translation itself.

Patent Owner raises the same arguments with respect to Exhibit 1018 that it raises with respect to Exhibit 1004. We find those arguments unpersuasive for the same reasons we found their Exhibit 1004 counterparts to be unpersuasive.

Although Patent Owner’s arguments regarding Exhibits 1004 and 1018 relate to the accuracy of the translations, Patent Owner asks us to exclude them “under F.R.E. 801–802 as hearsay, F.R.E. 901 for lack of proper authentication, and for failure to comply with Rule 42.63(b).” *Id.* at

3. Even if we were to accept Patent Owner’s argument that these translations are unlikely to be completely accurate, Patent Owner does not explain why a lack of accuracy amounts to hearsay or improper authentication. *Id.* As for failure to comply with 37 C.F.R. § 42.63(b), which requires “an affidavit attesting to the accuracy of the translation,” any failure to file the required affidavit for Exhibit 1004 was remedied when Petitioner filed Exhibits 1019 and 1020, and Exhibit 1018 included a declaration. Ex. 1018, 12. Accordingly, we deny Patent Owner’s motion to exclude Exhibits 1004 and 1018.

b. Exhibit 1007

Patent Owner asks us to exclude Exhibit 1007 as incomplete. Paper 72, 2–3. We do not rely on Exhibit 1007 in this decision. Accordingly, we dismiss Patent Owner’s motion to exclude Exhibit 1007 as moot.

c. Exhibit 1040

Patent Owner asks us to exclude paragraphs 4–13 of Exhibit 1040. We do not rely on any of these paragraphs in this decision. Accordingly, we dismiss Patent Owner’s motion to exclude Exhibit 1040 as moot.

d. Exhibit 2046

Patent Owner asks us to exclude the portion of Exhibit 2046 starting at page 247, line 33, and ending at page 248, line 6, as well as the portion of Exhibit 2046 starting at page 248, line 19, and ending at page 251, line 22. We do not rely on this testimony in this decision. Accordingly, we dismiss Patent Owner’s motion to exclude Exhibit 2046 as moot.

e. Exhibit 1027

Patent Owner asks us to exclude the portion of Exhibit 1027 starting at page 99, line 1, and ending at page 100, line 20. We do not rely on this testimony in this decision. Accordingly, we dismiss Patent Owner's motion to exclude Exhibit 1027 as moot.

f. Exhibit 1036

Patent Owner asks us to exclude Exhibit 1036 as incomplete and as hearsay. We do rely on Exhibit 1036, as discussed above. Even when considering Exhibit 1036, however, we decide the issue to which this evidence is relevant, copying of the invention of the '419 patent, in Patent Owner's favor. Thus, excluding Exhibit 1036 would not change the result. Accordingly, we dismiss Patent Owner's motion to exclude Exhibit 1036 as moot.

g. Exhibit 1041

Patent Owner asks us to exclude paragraphs 4, 8, 11, and 12 of Exhibit 1041. We do not rely on paragraphs 4 or 8 in this decision. We rely on paragraphs 11 and 12 in considering the issue of copying, which we decide in Patent Owner's favor. Thus, excluding paragraphs 11 and 12 would not change the result. Accordingly, we dismiss Patent Owner's motion to exclude Exhibit 1041 as moot.

h. Exhibits 1021–1024, 1038, 1039, 1042, and 1043

Patent Owner asks us to exclude Exhibits 1021–1024, 1038, 1039, 1042, and 1043. We do not rely on any of these Exhibits in this decision. Accordingly, we dismiss Patent Owner's motion to exclude Exhibits 1021–1024, 1038, 1039, 1042, and 1043 as moot.

i. Exhibit 1012

Patent Owner asks us to exclude Exhibit 1012 because it is not one of the identified references that forms the basis for any of the asserted grounds of unpatentability on which we instituted trial. Paper 72, 13–14. As discussed above, we “may consider a prior art reference to show the state of the art at the time of the invention, regardless of whether that reference was cited in [our] institution decision.” *Genzyme*, 825 F.3d at 1369. Here, Petitioner proffers Exhibit 1012 as evidence of the state of the art, and the exhibit was cited both in the Petition and in our Institution Decision. Pet. 64 (“... as known in the art, hair bleaches are typically applied with a brush ...”); Inst. Dec. 16 (citing Ex. 1012, 17). Accordingly, we deny Patent Owner’s motion to exclude Exhibit 1012.

j. Conclusion on Patent Owner’s Motion to Exclude

We deny Patent Owner’s motion to exclude the following exhibits: Exhibit 1004, Exhibit 1012, and Exhibit 1018. We dismiss as moot Patent Owner’s motion to exclude the following exhibits: Exhibit 1007, Exhibits 1021–1024, Exhibit 1027, Exhibit 1036, Exhibits 1038–1043, and Exhibit 2046.

2. *Petitioner’s Motion to Exclude*

Petitioner moves to exclude part, or all, of 16 exhibits. We discuss each exhibit below.

a. Exhibit 2021

Petitioner asks us to exclude Exhibit 2021 because it contains opinion testimony of a person who is not a person of ordinary skill in the art. We have considered Exhibit 2021, but only in the context of deciding whether

there is evidence of a long-felt and unmet need satisfied by the '419 patent, an issue on which we find in favor of Petitioner. Thus, excluding this evidence would not change the result. Accordingly, we dismiss Petitioner's motion to exclude Exhibit 2021 as moot.

b. Exhibits 2022 and 2023

Petitioner asks us to exclude Exhibits 2022 and 2023 because they are irrelevant to the issues in this case. We have considered both these exhibits, but only in the context of deciding whether there is evidence of any objective indicia of nonobviousness, an issue on which we find in Petitioner's favor. Thus, excluding this evidence would not change the result. Accordingly, we dismiss Petitioner's motion to exclude Exhibits 2022 and 2023 as moot.

c. Exhibit 2025

Petitioner moves to exclude paragraphs 46, 60–63, and 198–268 of Exhibit 2025. We do not rely on paragraphs 46, 60–63, 198–200, 202, 203, or 205–268 in this decision. We rely on paragraphs 201 and 204, but only in the context of deciding whether there is evidence of a long-felt and unmet need satisfied by the '419 patent, an issue on which we find in favor of Petitioner. Thus, excluding this evidence would not change the result. Accordingly, we dismiss Petitioner's motion to exclude Exhibit 2025 as moot.

d. Exhibit 2027

Petitioner moves to exclude Exhibit 2027 as hearsay. We do not rely on this Exhibit in this decision. Accordingly, we dismiss Petitioner's motion to exclude Exhibit 2027 as moot.

e. Exhibit 2034

Petitioner moves to exclude Exhibit 2034 as not properly authenticated. We have considered Exhibit 2034, but only in the context of deciding whether there was a reason to combine the teachings of Ogawa or Kitabata with those of Berkemer and KR '564, an issue on which we find in favor of Petitioner. Thus, excluding this evidence would not change the result. Accordingly, we dismiss Petitioner's motion to exclude Exhibit 2034 as moot.

f. Exhibits 2035 and 2036

Petitioner moves to exclude Exhibits 2035 and 2036 as not properly authenticated. We do not rely on these Exhibits in this decision. Accordingly, we dismiss Petitioner's motion to exclude Exhibits 2035 and 2036 as moot.

g. Exhibit 2037

Petitioner moves to exclude Exhibit 2037 as not properly authenticated. We do not rely on this Exhibit in this decision. Accordingly, we dismiss Petitioner's motion to exclude Exhibit 2037 as moot.

h. Exhibits 2038–2040

Petitioner moves to exclude Exhibits 2038–2040 as irrelevant to the issues in this case. We have considered these exhibits, but only in the context of deciding whether there is evidence of any objective indicia of nonobviousness. Although we find that there is some evidence of copying, this is only one factor in deciding the obviousness of the challenged claims, an issue on which we find in Petitioner's favor. Thus, excluding this

evidence would not change the result. Accordingly, we dismiss Petitioner's motion to exclude Exhibits 2038–2040 as moot.

i. Exhibits 2041–2044

Petitioner moves to exclude Exhibits 2041–2044 as not properly authenticated. We do not rely on these Exhibits in this decision. Accordingly, we dismiss Petitioner's motion to exclude Exhibits 2041–2044 as moot.

j. Conclusion on Petitioner's Motion to Exclude

We dismiss as moot Petitioner's motion to exclude the following exhibits: Exhibits 2021–2023, Exhibit 2025, Exhibit 2027, and Exhibits 2034–2044.

F. Pending Motions to Seal

There are eight pending motions to seal. Paper 29; Paper 38; Paper 45; Paper 54; Paper 74; Paper 78; Paper 88; Paper 90. Collectively, these motions seek to seal Papers 27, 37, 44, 55, 70, 72, 77, 80, 85, and 86, as well as Exhibits 1024, 1027, 1028, 1036, 1041, 2010, 2012, 2017, 2018, 2022, 2023, 2025, 2038, 2039, 2040, 2047, 2048, 2049, 2050, 2056, and 3001. In addition, Papers 45 and 54 request the entry of protective orders governing the handling of confidential and highly confidential information in this proceeding.

We have reviewed each of the motions to seal and the proposed protective orders, and we agree that good cause exists to seal each of the requested papers and exhibits. Accordingly, we grant each of the pending motions to seal. We also hereby enter the proposed protective orders. The protective order proposed as Addendum B to Paper 45 and as the addendum

to Paper 54, which is our default protective order, shall govern the treatment of confidential information generally. Where information is designated as highly confidential, the protective order proposed as Addendum A to Paper 45 shall govern the treatment of this information.

The record will be maintained undisturbed, with the papers and exhibits listed above remaining sealed, pending the outcome of any appeal taken from this decision. At the conclusion of any appeal proceeding, or if no appeal is taken, the sealed documents will be made public. *See* 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 upon confidential information appearing in several papers and exhibits. Within ten days of the issuance of this decision, the parties shall file a joint motion to seal the present decision, 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 of the issuance of this decision, this decision shall become publicly available.

CONCLUSION

Petitioner has not shown by a preponderance of the evidence that claims 1–6, 8, and 10 are anticipated by Ogawa. Petitioner has shown by a

preponderance of the evidence that claims 1–8 and 10 would have been obvious either over the combination of Ogawa, Berkemer, and KR '564 or over the combination of Kitabata, Berkemer, and KR '564.

We have considered Patent Owner's Motion to Exclude, and we deny it with respect to Exhibits 1004, 1012, and 1018. We dismiss as moot Patent Owner's Motion to Exclude with respect to Exhibits 1007, 1021–1024, 1027, 1036, 1038–1043, and 2046. We have considered Petitioner's Motion to Exclude, and we dismiss it as moot.

We have considered each of the pending motions to seal and motions for protective order. We grant these motions, enter the parties' proposed protective orders, and seal each of the requested documents. The sealed documents 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. Before the documents are made public, either party may file a motion to expunge any sealed document not identified in our Final Written Decision.

ORDER

It is hereby

ORDERED that Petitioner has proven by a preponderance of the evidence that claims 1–8 and 10 of U.S. Patent No. 9,498,419 B2 are unpatentable;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 328(b), upon expiration of the time for appeal of this decision, or the termination of any such appeal, a certificate shall issue canceling claims 1–8 and 10 of U.S. Patent No. 9,498,419 B2;

FURTHER ORDERED that Patent Owner's Motion to Exclude is denied with respect to Exhibits 1004, 1012, and 1018;

FURTHER ORDERED that Patent Owner's Motion to Exclude is dismissed as moot with respect to Exhibits 1007, 1021–1024, 1027, 1036, 1038–1043, and 2046;

FURTHER ORDERED that Petitioner's Motion to Exclude is dismissed as moot;

FURTHER ORDERED that the parties' pending motions for entry of protective orders are granted;

FURTHER ORDERED that the parties' pending motions to seal are granted;

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 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

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

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