

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEENAH, INC.,
Petitioner,

v.

JODI A. SCHWENDIMANN,
Patent Owner.

IPR2020-01363
Patent 6,410,200 B1

Before JEFFREY W. ABRAHAM, MICHELLE N. ANKENBRAND, and
Avelyn M. Ross, *Administrative Patent Judges*.

ABRAHAM, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Neenah, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of U.S. Patent No. 6,410,200 B1 (Ex. 1001, “the ’200 patent”). Pet. 1. Jodi A. Schwendimann (“Patent Owner”) filed a Preliminary Response (Paper 7).

On February 8, 2021, we instituted *inter partes* review of all of the challenged claims based on all of the grounds identified in the Petition. Paper 8 (“Inst. Dec.”). Subsequently, Patent Owner filed a Response (Paper 12, “PO Resp.”), Petitioner filed a Reply (Paper 18, “Reply”), and Patent Owner filed a Sur-reply (Paper 20, “Sur-reply”).

We held a consolidated oral hearing for this proceeding and related proceeding IPR2020-01361 on November 9, 2021, and have entered a transcript of the hearing into the record. Paper 26 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the ’200 patent are unpatentable.

II. BACKGROUND

A. *Related Proceedings*

The parties identify the following lawsuits involving the ’200 patent: *Jodi A. Schwendimann et al. v. Neenah, Inc. et al.*, Case No. 1:19-cv-01363 (D. Del.) and *Jodi A. Schwendimann et al. v. Siser North America, Inc.*, Case No. 1:19-cv-01364 (D. Del.) (which have been consolidated with Case No. 1:19-cv-00361, referred to as the “Delaware Lawsuit”); and *Jodi A. Schwendimann et al. v. Stahls’, Inc.*, Case No. 2:19-cv-12139-BAF-MKM

(E.D. Mich.). Pet. 1; Paper 4, 2. Patent Owner also identifies IPR2020-01361 involving related U.S. Patent No. 6,723,773. Paper 4, 2.

B. The '200 Patent (Ex. 1001)

The '200 patent, titled "Polymeric Composition and Printer/Copier Transfer Sheet Containing the Composition," issued on June 25, 2002. Ex. 1001, codes (45), (54). The '200 patent relates to a polymeric composition, a transfer sheet comprising the polymeric composition that can be used in electrostatic printers or copiers, and a method for transferring an image from the sheet to a textile, such as a shirt. Ex. 1001, 1:13–23, 4:4–7. The '200 patent explains that its image transfer sheet can include a substrate, a release layer, an optional barrier layer, and an optional image-receiving layer. Ex. 1001, 2:58–62. The '200 patent further explains that its polymeric composition is "useful as a release layer (i.e., transfer layer) in an imaging material," and discloses embodiments wherein the release layer comprises a film-forming binder, an elastomeric emulsion, a water repellant and a plasticizer, or an acrylic binder, a wax emulsion, and a retention aid. Ex. 1001, 2:58–60, 8:61–63, 15:60–62.

One example of a method for transferring an image from the image transfer sheet to a textile disclosed in the '200 patent includes placing the coated substrate in a laser copier or printer to provide an image on top of the image receiving layer, placing the image side of the printed sheet against the textile, applying heat and pressure to the non-image side of the substrate to transfer the release layer and image receiving layer, allowing the substrate to cool, and removing the substrate from the textile. Ex. 1001, 4:40–48.

According to the '200 patent, the release layer is

highly suited for compatibilizing the stringent requirements of the electrostatic imaging process with the requirements of heat

transfer image technology to provide a product having good image quality and permanence under the demanding conditions of textile application, wear and wash resistance in use, and adhesion to wash resistance on decorated articles.

Ex. 1001, 11:7–13.

C. Illustrative Claims

Petitioner challenges claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the '200 patent. Of the challenged claims, claims 1, 19, 29, 57, 64, and 70 are independent. Claims 1, 29, and 57 are illustrative and are reproduced below.

1. A coated transfer sheet comprising:
a substrate having a first and second surface; and
at least one release layer overlaying said first surface, said release layer comprising a film-forming binder, an elastomeric emulsion, a water repellant and a plasticizer.

Ex. 1001, 35:38–43.

29. A method of applying an image to a receptor element which comprises the steps of:
 - (i) imaging a coated transfer sheet, wherein said transfer sheet comprises:
a substrate having a first and second surface, and
a release layer, wherein said release layer is coated on the first surface of the substrate;
said release layer comprising: a polymeric composition comprising:
(a) a film-forming binder, (b) an elastomeric emulsion, (c) a plasticizer, and (d) a water repellant;
 - (ii) positioning the front surface of the transfer sheet against said receptor element,

- (iii) applying energy to the rear surface of the imaging system to transfer said image to said receptor element,
- (iv) optionally allowing the substrate to cool, and
- (v) removing the transfer sheet from the substrate.

Ex. 1001, 37:48–65.

57. A coated transfer sheet comprising:
- a substrate having a first and second surface; and
 - at least one release layer overlaying said first surfaces said release layer comprising at least three separate components:
 - a first component comprising a film-forming binder which melts in the range of from about 65° C. to about 180° C.;
 - a second component comprising a wax dispersion; and
 - a third component comprising a retention aid to aid in the binding of an applied colorant.

Ex. 1001, 39:53–64.

D. Reviewed Unpatentability Challenges

We instituted *inter partes* review of the challenged claims on the following grounds of unpatentability:

Claim(s)	35 USC § ¹	Reference(s)/Basis
1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	102	Kronzer-769 ²
1, 2, 6, 11, 19–21, 29,	102	Kronzer-179 ³

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the application from which the ’200 patent issued was filed before this date, the pre-AIA versions of §§ 102 and 103 apply.

² WO 96/34769, published Nov. 7, 1996 (Ex. 1009).

³ US 5,798,179, issued Aug. 25, 1998 (Ex. 1010).

Claim(s)	35 USC § ¹	Reference(s)/Basis
57, 58, 64, 70		
1, 2, 11, 19–21, 29, 57, 58, 64, 70	102	Hiyoshi ⁴
6	103	Hiyoshi, Kronzer-179
1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	102	Taniguchi ⁵
1, 2, 6, 11	102	Oez ⁶

E. Testimonial Evidence

Petitioner filed a Declaration of Robert A. Wanat, Ph.D. (Ex. 1007, “Wanat Declaration”) with its Petition. Petitioner also filed a Declaration of Robert A. Wanat, Ph.D. in Support of Petitioner’s Reply (Ex. 1085, “Wanat Reply Declaration”).

Patent Owner filed a Declaration of Christopher Ellison, Ph.D. (Ex. 2005) with its Patent Owner Response. Petitioner deposed Dr. Ellison and filed the transcript of the deposition as Exhibit 1081 in this proceeding.

III. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review

⁴ US 5,362,548, issued Nov. 8, 1994 (Ex. 1011).

⁵ US 5,981,077, issued Nov. 9, 1999 (Ex. 1012).

⁶ WO 97/41489, published Nov. 6, 1997 (Ex. 1013 (original language); Ex. 1014 (English translation)).

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

To anticipate, a reference must “show all of the limitations of the claims arranged or combined in the same way as recited in the claims.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Although the elements must be arranged or combined in the same way as the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., the identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Further, to be anticipating, a prior art reference must be enabling and must describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000); *In re Paulsen*, 30 F.3d 1475, 1479 (Fed. Cir. 1994).

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when presented, objective

evidence of nonobviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To show obviousness, it is not enough to merely show that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). “This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR*, 550 U.S. at 418–419.

On the other hand, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). However, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined or modified the prior art references. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *see also Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017) (“In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason why a person of skill in the art would

⁷ The parties have not asserted or otherwise directed our attention to any objective evidence of nonobviousness. *See generally* PO Resp.; Pet.

have made the combination.”); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (citing *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014)).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of invention. *Graham*, 383 U.S. at 17. Petitioner contends as follows:

A person of ordinary skill in the art (“POSITA”) for the purposes of the ’200 patent would have at least a Bachelor’s degree in chemistry, chemical engineering, polymer science, or material science with at least three years of experience in polymer coating technologies, or an Associate’s degree in chemistry, chemical engineering, or material science, or a similar field, with approximately five years of experience relating to polymer coating technologies.

Pet. 14. Petitioner further asserts that “[a]dditional education (e.g., masters or Ph.D. in chemistry, chemical engineering, polymer science, or material science) might substitute for experience, while significant experience in the field of polymer coating technologies might substitute for formal education.”

Pet. 14.

Patent Owner contends that a person of ordinary skill in the art would have “a bachelor’s degree in Chemistry, Chemical Engineering, Imaging Technology or Materials Science and Engineering with at least one year of experience in coating technologies and imaging technologies, or at least five

years of work experience in the field of coating technologies and imaging technologies.” PO Resp. 9.

Patent Owner acknowledges that its definition differs from Petitioner’s definition, but states that the differences are “not determinative of the issues in this proceeding,” and that “the cited prior art references do not anticipate the Challenged Claims regardless of which description of the level of ordinary skill in the art is applied.” PO Resp. 9.

In light of the record before us, we adopt Patent Owner’s proposal regarding the level of one of ordinary skill in the art. The parties’ proposals are not materially different, and Petitioner does not dispute Patent Owner’s contention that any differences are not determinative of the issues in this proceeding. *See generally*, Reply. Additionally, Patent Owner’s proposal is similar to the level of skill in the art we adopted in other proceedings addressing similar technology. *See, e.g.*, IPR2020-00629, Paper 39, 12–13. Furthermore, we find that the prior art of record reflects the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). Under that standard, we construe claims “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* Furthermore, we expressly construe the claims only to the extent necessary to determine whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad*

Ocean Motor Co. Ltd., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

The parties dispute the meaning of the terms “film-forming binder,” “elastomeric emulsion,” “plasticizer,” “water repellant,” “wax dispersion,” and “retention aid.” Pet. 14–22; PO Resp. 10–16.

Petitioner contends that these terms “are used in the ’200 patent as labels to refer to broad categories of suitable polymers/materials,” and that “[t]he breadth of these terms is demonstrated by the numerous examples of well-known polymers/materials explicitly set forth in the specification.” Pet. 14–15. Petitioner directs us to the portions of the ’200 patent specification that list examples of film-forming binders (Ex. 1001, 8:61–9:9, 12:2–5, 12:44–13:29), elastomeric emulsions (Ex. 1001, 2:46–54, 14:56–15:28), water repellants (Ex. 1001, 10:50–56), plasticizers (Ex. 1001, 10:37–46, 15:29–38), wax dispersions (Ex. 1001, 10:47–11:6), and retention aids (Ex. 1001, 9:57–10:8). Pet. 15–22. Petitioner also contends that nothing in the claims themselves requires any particular amount of these materials, or that these materials perform any particular function, and that importing additional limitations into the claim would be improper. Pet. 16–22.

In our Institution Decision, we agreed with Petitioner that the claims simply require the presence of the recited polymers/materials, and do not require a specific amount or that the polymers/materials perform a specific function. Inst. Dec. 10–15 (declining to adopt Patent Owner’s proposed construction that requires each material to be present “in **a sufficient amount to actually provide the desired characteristic**” because it would

result in importing limitations into the claims). For purposes of the Institution Decision, we did not adopt specific constructions for each term, but determined that the claims at least encompass the explicit examples of the polymers/materials recited in the '200 patent Specification. Inst. Dec. 10–15.

Patent Owner asserts that we should “abandon” our preliminary determination on claim construction because the claims require the recited materials to perform a particular function. PO Resp. 13–15; Sur-reply 1–4. Patent Owner contends the plain language of the claims supports its assertion:

The claims do not refer to specific materials, or classes of materials, but instead recite materials by their function in the composition. A “film-forming binder” is a material that “form[s]” a “film” and “bind[s]” (*i.e.*, creates adhesion). An “elastomeric emulsion” is a material that provides “elastomeric” properties. A “water repellant” is a material that “repel[s]” or resists “water.” A “plasticizer” is a material that provides plasticity, *i.e.*, softens another material or materials. A “retention aid” is a material that “aid[s]” in “retention.” If an identified material does not perform the function that defines the claim limitation, it cannot meet that limitation.

PO Resp. 14 (alterations in original).

Patent Owner also contends that the “specification of the ‘200 Patent does, in fact, require a particular function as a part of the definition or understanding of the [claim] terms.” PO Resp. 13 (quoting Ex. 1001, 11:44–46 (stating that the film-forming binder and acrylic dispersion “**provide** adhesion of the release layer and image to the receptor element”), 11:50–52 (stating that the elastomeric emulsion “**provides** the elastomeric properties such as mechanical stability, flexibility, and stretchability”), 11:55–57 (stating the water repellant “**provides** water resistance and repellency”),

11:62–63 (stating the plasticizer “**provides** plasticity and antistatic properties) (emphasis added by Patent Owner)); *see also* Sur-reply 2–4 (citing additional portions of the Specification discussing the claimed materials).

Additionally, Patent Owner disagrees that the recited materials in the claims at least encompass the explicit examples of the polymers/materials recited in the '200 patent Specification because it “suggests that the explicit examples will **always** act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellant.” PO Resp. 14. Based on testimony from Dr. Ellison, Patent Owner asserts that whether any given material will act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellant “depends entirely on the compound of which it is a part and the conditions of that composition.” PO Resp. 14–15 (quoting Ex. 2005 ¶ 27). Using polyethylene glycol (PEG), one of the plasticizers listed in the '200 patent, as an example, Patent Owner states that PEG

is **potentially** a plasticizer and may be used in some applications for that purpose, but does not **always** act as a plasticizer or softening agent. [Ex. 2005 ¶ 27.] PEG will only act as a softening agent, and will only be a plasticizer, if the composition of the compound of which it is a part enables that function. *Id.* In other compounds, PEG simply is not a plasticizer, and will not act as a softening agent, because of the nature of the materials with which it is combined. *Id.*

PO Resp. 15. Patent Owner emphasizes that chemical compounds and reactions are unpredictable, and asserts that the only way for a person of ordinary skill in the art to know for certain whether a material will act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellant is to test the compound, or, in the context of prior art references, is if the

reference expressly discloses that the material performs a particular function. PO Resp. 15–16.

Finally, Patent Owner notes that on February 9, 2021, the day after we issued the Institution Decision, the District Court for the District of Delaware issued a Claim Construction Order⁸ in the Delaware Lawsuit construing the disputed terms. PO Resp. 11–12. Patent Owner contends that we should apply Delaware district court’s constructions in this proceeding. PO Resp. 11–12. According to Patent Owner, the district court’s constructions reflect the fact that the claims recite the required materials by their function in the composition. PO Resp. 14 (providing the example that a material is a “water repellent” only if it “provides water resistance”); Sur-reply 1–2. Patent Owner also states that the district court declined to include a list of exemplary materials in its constructions and urges that we do the same. PO Resp. 12 n.1, 13–14.

In its Reply, Petitioner maintains that the claims require only a composition including the recited components, not that the components impart any specific function or property on the composition as a whole. Reply 4. Petitioner contends that Patent Owner incorrectly characterizes the district court’s constructions as being consistent with Patent Owner’s position. Reply 4 n.1. Petitioner explains that the district court rejected Patent Owner’s “improper attempts to read-in ‘sufficient amounts’ of each material to ‘actually provide the desired characteristic,’” and agreed with Petitioner that the claims only require components that are “capable of providing” the identified characteristics. Reply 3 (quoting Ex. 1041, 14).

⁸ The Claim Construction Order from the Delaware Lawsuit appears in the record as Exhibit 1041 and Exhibit 2003.

Petitioner also contends that Patent Owner did not dispute that the claimed components cover at least the exemplary materials listed in the Specification. Instead, according to Petitioner, Patent Owner “only argued that including these lists in each construction was ‘neither necessary nor desirable’ and might confuse the jury,” and the district court agreed. Reply 3 (citing Ex. 1063, 80, 84–85; Ex. 1041).

Additionally, Petitioner argues that there is no support in the Specification for Patent Owner’s argument that PEG (or any other exemplary materials listed in the specification) only qualifies as a plasticizer if it actually softens the composition in which it is used. Reply 5. Petitioner further argues that “the specification makes clear that the exemplary materials are suitable plasticizers because those materials act as softening agents,” and that a person of ordinary skill in the art would have understood that the Specification makes clear that the exemplary materials listed in the ’200 patent provide functions/properties described. Reply 5, 5 n.3.

We begin our analysis by looking at the language of the claims. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“First, we look to the words of the claims themselves . . . to define the scope of the patented invention.”). Claim 1 recites a “release layer comprising a film-forming binder, an elastomeric emulsion, a water repellant and a plasticizer.” Ex. 1001, 35:40–43. Claim 29 recites a “release layer comprising: a polymeric composition comprising: (a) a film-forming binder, (b) an elastomeric emulsion, (c) a plasticizer, and (d) a water repellant.” Ex. 1001, 37:56–59. Claims 19 and 64 recite a release layer comprising at least three components, the first component comprising a film-forming binder, the second component comprising a wax dispersion, and a third

component comprising a retention aid. Ex. 1001, 36:60–67 (claim 19), 40:44–49 (claim 64). Claims 57 and 70 recite a release layer comprising at least three separate components, the first component comprising a film-forming binder, the second component comprising a wax dispersion, and “a third component comprising a retention aid to aid in the binding of an applied colorant.” Ex. 1001, 39:56–64 (claim 57), 42:18–24 (claim 70).

The language of the claims themselves demonstrates that there is no express requirement of a specific amount of a film-forming binder, elastomeric emulsion, water repellant, plasticizer, wax dispersion, or retention aid in any of the independent claims. Nor is there an express requirement in any of the independent claims that the film-forming binder, elastomeric emulsion, water repellant, plasticizer, or wax dispersion perform a particular function. Similarly, there is no express requirement in independent claims 19 and 64 that the retention aid perform a particular function.

By way of contrast, claims 57 and 70 do expressly require that the retention aid helps with binding an applied colorant. Patent Owner does not address the fact that certain claims explicitly require that the retention aid “aid[s] in the binding of an applied colorant,” whereas other claims do not. Instead, Patent Owner argues that *all* claims that recite a retention aid must include a retention aid that performs a specific function, i.e., aids in retention. PO Resp. 14. According to the Federal Circuit, however, “when a patent claim ‘does not contain a certain limitation and another claim does, that limitation cannot be read into the former claim.’” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1326 (Fed. Cir. 2003). Therefore, because independent claims 57 and 70 explicitly recite that the

retention aid “aid[s] in the binding of an applied colorant,” whereas claims 19 and 64 do not, it would be improper to read the functional requirement of aiding in the binding of an applied colorant into claims 19 and 64. The express recitation of a functional requirement in some claims but not others also suggests that when the inventors desired the claims to require the recited materials to perform a specific function, they expressly included that functional requirement in the claims themselves.

Thus, based on the language of the claims, we agree with Petitioner that Patent Owner’s position—that the claims recite materials by their function in the composition—is improper because it requires importing limitations into the claims. Pet. 14–22; Reply 3–5; PO Resp. 13–14.

We turn next to the Specification of the ’200 patent. *Vitronics*, 90 F.3d at 1582 (“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’”). It is undisputed that the Specification of the ’200 patent lists examples of film-forming binders, elastomeric emulsions, water repellants, plasticizers, wax dispersions, and retention aids that are suitable for use in the claimed invention. Pet 14–22; PO Resp. 14; Sur-reply 4–5. When describing these exemplary materials, the Specification does not require that they provide a specific function in the claimed release layer.

For example, with regard to the film-forming binder, the ’200 patent states

the film forming binder is selected from the group consisting of polyester, polyolefin and polyamide or blends thereof. More preferably, the film forming binder is selected from the group consisting of polyacrylates, polyacrylic acid, polymethacrylates, polyvinyl acetates, co-polymer blends of vinyl acetate and

ethylene/acrylic acid co-polymers, ethylene-acrylic acid copolymers, polyolefins, and natural and synthetic waxes.

Ex. 1001, 8:64–9:6. The '200 patent contains similar discussions of elastomeric emulsions (Ex. 1001, 2:47–54), water repellants (Ex. 1001, 10:51–56), plasticizers (Ex. 1001, 10:37–46), wax dispersions (Ex. 1001, 10:57–64), and retention aids (Ex. 1001, 9:59–10:8).

Patent Owner nevertheless argues that the Specification “require[s] a particular function as a part of the definition or understanding of the terms.” PO Resp. 13. To support this assertion, Patent Owner directs us to portions of the Specification that purportedly recite what function the film-forming binder, elastomeric emulsion, water repellent, and plasticizer *must* “provide.” PO Resp. 13 (citing Ex. 1001, 11:44–46 (film-forming binder), 11:50–52 and 13:32–34 (elastomeric emulsion), 11:55–57 (water repellent), and 11:62–63, 15:30–31, and 15:34–35 (plasticizer)); Sur-reply 2–4 (using citations to Ex. 1002 that correspond to Ex. 1001, 11:44–12:1 (film-forming binder), 11:50–52 and 13:32–35 (elastomeric emulsion), 11:55–57 and 13:61–14:2 (water repellent), and 11:62–63 and 15:29–36 (plasticizer)). At most, however, these statements in the Specification describe the specific function of the film-forming binder, elastomeric emulsion, water repellent, and plasticizer in Release Layer 1, a preferred embodiment of the invention. *See* Ex. 1001, 11:20–24. Similar language does not appear in the earlier portions of the Specification listing the suitable examples of the recited materials. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (“Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using

words or expressions of manifest exclusion or restriction.”) (internal quotation marks and citation omitted).

Notably, Patent Owner provides no citation that describes what function the retention aid “provides” in Release Layer 1. *See* PO Resp. 13 (providing a table that does not include retention aid). Instead, for retention aid, Patent Owner directs us to the portion of the Specification that states retention aids “may be incorporated for the purpose of aiding in the binding of the applied colorant.” Sur-reply 4 (quoting Ex. 1002, 9:5–10, which corresponds to Ex. 1001, 9:54–58); Pet. 21 (citing Ex. 1001, 9:54–10:8). The phrase “may be incorporated for the purpose of” is permissive, and undermines Patent Owner’s argument that the Specification *requires* a retention aid perform a specific function in the recited composition. Similar permissive language appears in the portions of the Specification discussing plasticizers and water repellants. Ex. 1001, 10:35–37, 10:47–50. These portions also include lists of exemplary plasticizers, water repellants, and retention aids. Ex. 1001, 9:54–10:8; 10:37–46, 10:51–56.

The inclusive, permissive language in the Specification that these materials *may* be included to impart a particular property also undermines Patent Owner’s other arguments. *See* PO Resp. 14–15 (referring to the unpredictable nature of the chemical arts and arguing that whether any given material will act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellent “depends entirely on the compound of which it is a part and the conditions of that composition”); 15–16 (arguing that the only way for a person of ordinary skill in the art to know for certain whether a material will act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellent is to test the compound, or, in the context of prior art references, is

if the reference expressly discloses that the material performs a particular function). The Specification does not contain any qualifications regarding whether the examples of the claimed materials listed in the Specification act as plasticizers, elastomeric emulsions, film-forming binders, retention aids, or water repellants in a composition. Nor does the Specification contain any discussion of testing necessary to determine whether a material will act as a plasticizer, elastomeric emulsion, film-forming binder, retention aid, or water repellant in a composition.

In view of the foregoing, we agree with Petitioner that the Specification uses the claim terms to refer to broad categories of suitable polymers/materials as opposed to requiring the materials perform specific functions in the release layer, as Patent Owner contends. Pet. 15. Thus, we determine that the Specification supports a construction of the disputed terms that includes the examples listed in the Specification.

Pursuant to 37 C.F.R. § 42.100(b), we have considered the Delaware district court's Claim Construction Order, and find it to be consistent with our determination. For example, the district court agreed with Petitioner that

“nothing in the claim language requires that any of these materials ‘impart’ any ‘desired characteristics’ to the release layer.” Indeed, “[n]othing in the claims refers to—let alone requires—any ‘amount’ of any of the recited materials. Likewise, nothing in the specification suggests that . . . any other material in the claims [] is required to be present in any particular amount.” . . . [Patent Owner's] construction threatens to limit the claims to the disclosed embodiments, which here would be improper.

Ex. 1041, 14. Additionally, although the court did not expressly include all of the exemplary materials in its construction, we discern nothing in the district court's decision suggesting that the materials listed in the

Specification are not examples of the claimed materials.⁹ Accordingly, we disagree with Patent Owner that the district court constructions are consistent with Patent Owner's constructions, or that the Claim Construction Order provides a basis to abandon the constructions adopted in our Institution Decision.

In view of the foregoing, based on the language of the claims themselves, as well as the Specification of the '200 patent, we determine that the claimed "film-forming binder," "elastomeric emulsion," "water repellant," "plasticizer," "wax dispersion," and "retention aid" would at least encompass the explicit examples recited in the '200 patent Specification. *See Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998) ("The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.").

D. Anticipation by Kronzer-769 (claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70)

Petitioner contends Kronzer-769 anticipates claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70. Pet. 23–38. Petitioner directs us to portions of Kronzer-769 that purportedly disclose all the limitations in the challenged claims. Pet. 23–38; Reply 12–15. Petitioner also relies on the declaration testimony of Dr. Wanat to support its arguments. Ex. 1007; Ex. 1085.

⁹ Indeed, as Petitioner explains (Reply 3), Patent Owner argued against including a list of examples in the construction of the terms because "such a list may mislead the jury, if it concludes—despite the statement that these are mere examples—that the accused products must include one of the listed materials." Ex. 1063, 84–85. There is no such danger here.

1. Kronzer-769 (Ex. 1009)

Kronzer-769 relates to a multilayer heat transfer material for transferring images to articles of clothing, such as T-shirts. Ex. 1009, 1:6–12, 4:12–15. According to Kronzer-769, “the first layer may be a film or a nonwoven web[,] [t]he second layer is composed of a first thermoplastic polymer [and t]he third layer is composed of a second thermoplastic polymer.” Ex. 1009, 4:15–20. The third layer may also contain a release agent and a plasticizer. Ex. 1009, 4:24, 4:35–5:8. Kronzer-769 further explains that other additives may be included in the thermoplastic polymers including acrylic copolymers, ethylene-vinyl acetate copolymers, lubricants, petroleum-based waxes, amide and ester waxes, and silicone oils. Ex. 1009, 8:35–9:10.

2. Claim 1

a) Whether Petitioner has shown that Kronzer-769 discloses all elements of claim 1

Petitioner argues Kronzer-769 discloses a “printable heat transfer material” comprising three layers and forming these layers by coating. Pet. 24 (citing Ex. 1009, 14:15–25, 19:18–20). Petitioner further argues that Kronzer-769 discloses that its first layer “has first and second surfaces” and “may be a cellulosic nonwoven web, such as a paper.” Pet. 24–25 (citing Ex. 1009, code (57), 4:12–30, 5:18–32). Petitioner thus contends that Kronzer-769 discloses a “coated transfer sheet comprising[] a substrate having a first and second surface,” as claim 1 requires.

Claim 1 further requires “at least one release layer overlaying said first surface.” Ex. 1001, 35:40. Petitioner contends Kronzer-769 discloses a third layer that includes a release agent, and “explains that ‘upon transfer the release splits from [the substrate] and form[s] a protective coating over the

transferred image.” Pet. 25 (quoting Ex. 1009, code (57), 4:22–25, 2:32–34, 20:29–34). Petitioner also contends that Kronzer-769 teaches that this third layer/release layer overlays the first layer. Pet. 25 (citing Ex. 1009, code (57), 4:12–25).

Finally, claim 1 requires the release layer comprises a film-forming binder, an elastomeric emulsion, a water repellant, and a plasticizer. Ex. 1001, 35:41–43. According to Petitioner, “Kronzer-769 discloses a specific example of its third layer (Example 7F), which includes all of the claimed polymers/materials within this single release layer.” Pet. 25 (citing Ex. 1007 ¶¶ 128–129).

Additionally, Petitioner contends that Kronzer-769 discloses a release layer having a film-forming binder because Kronzer-769 teaches that the second thermoplastic polymer in its third layer can include polyacrylates, polymethacrylates, an ethylene-acrylic acid copolymer, or an ethylene vinyl acetate copolymer, and the '200 patent states that the film-forming binder is “more preferably . . . selected from the group consisting of polyacrylates, polyacrylic acid, polymethacrylates . . . ethylene-acrylic acid copolymers.” Pet. 26 (quoting Ex. 1001, 8:64–9:9). Petitioner also notes that both Kronzer-769 and the '200 patent teach that Michem Prime 4983 is a suitable film-forming binder. Pet. 26 (citing Ex. 1001, 11:25–35; Ex. 1009, 16:9–12).

Petitioner argues that Kronzer-769 also discloses a release layer including an “elastomeric emulsion” because Kronzer-769 indicates its third layer is “typically formed from an emulsion or dispersion,” and can include acrylonitrile-butadiene-styrene copolymers, ethylene-vinyl acetate copolymers, polyurethanes, nitrile-butadiene rubbers, or latex, which are all

materials the '200 patent includes among its list of exemplary elastomeric emulsions. Pet. 27 (citing Ex. 1001, 2:47–54, 3:29–34).

Petitioner argues that Kronzer-769 discloses a release layer including a “water repellant” because Kronzer-769 teaches that the third layer can include polyurethane or additives such as “petroleum-based waxes, mineral and vegetable oils, low molecular weight polyethylene, and amide and ester waxes . . . and the like.” Pet. 28 (quoting Ex. 1009, 8:35–9:7 and citing Ex. 1009, 17:5–30). Petitioner contends a person of ordinary skill in the art would have understood that polyurethane and/or waxes are materials that resist and repel water, and asserts that the '200 patent considers polyurethanes and wax dispersions to be examples of water repellant materials. Pet. 28 (citing Ex. 1001, 10:49–56).

Petitioner also argues that Kronzer-769 discloses a release layer that includes a “plasticizer,” and the plasticizer is “any material which softens the high glass transition temperature polymer (*i.e.*, the second thermoplastic polymer) of which the third layer is composed.” Pet. 28–29 (citing Ex. 1009, code (57), 4:35–5:2, 9:33–10:33).

Patent Owner argues that “Petitioner has not met its burden of proving that Kronzer discloses a polymeric composition that contains a water repellant and an elastomeric emulsion.” PO Resp. 19.

With regard to water repellency, Patent Owner does not dispute that Kronzer-769 discloses its third layer may contain waxes or polyurethanes. PO Resp. 21–24. Instead, Patent Owner argues that Kronzer-769 does not state or teach that the waxes and polyurethanes in the compositions provide water resistance. PO Resp. 21–24. Patent Owner asserts that “[b]ecause of the unpredictable nature of chemical compositions and chemical reactions,

persons of skill in the art cannot readily anticipate whether waxes and polyurethanes will provide water resistances in a particular composition without experimentation or the teachings of a reference that discusses the particular composition.” PO Resp. 22 (citing Ex. 2005 ¶ 115). Patent Owner presents similar arguments regarding Petitioner’s assertion that Kronzer-769 discloses an elastomeric emulsion. PO Resp. 24–25 (not disputing that Kronzer-769 discloses that its third layer can include latex or polymer blends, but arguing that a person of ordinary skill in the art cannot determine whether the identified materials will provide elastomeric properties in a particular composition without experimentation or express disclosure in a reference).

Patent Owner’s arguments are based on its proposed construction of the terms water repellant and elastomeric emulsion, which requires demonstrating the materials provide water resistance and elastomeric properties in the composition itself.¹⁰ For the reasons discussed above, we do not adopt Patent Owner’s construction. Instead, we determine that the terms “water repellant” and “elastomeric emulsion” include at least the examples listed in the Specification of the ’200 patent. As Petitioner points out, the ’200 patent includes waxes and polyethylene in its list of water repellants, and includes acrylonitrile-butadiene-styrene, ethylene-vinyl acetate, and poly (vinyl chloride) in its list of elastomeric emulsions.

¹⁰ Patent Owner also argues that Kronzer-769 does not anticipate the challenged claims because it does not enable a release layer with a water repellant. PO Resp. 23. Patent Owner, however, acknowledges that this argument is only applicable under Patent Owner’s proposed construction of the claim terms. Tr. 44:25–45:4. Because we do not adopt Patent Owner’s proposed construction, we do not address Patent Owner’s enablement arguments.

Pet. 27–28 (citing Ex. 1001, 2:47–54 (exemplary elastomeric emulsions), 10:49–56 (exemplary water repellants)). It is undisputed that Kronzer-769 teaches that its third layer can include polyethylene or waxes, as well as acrylonitrile-butadiene-styrene, ethylene-vinyl acetate, or poly (vinyl chloride). Pet. 25, 27–28; Ex. 1007 ¶¶ 128–129, 141–142, 146–147; Ex. 1009, 7:29–35, 8:35–9:7, 13:14–16, 16:1–17:30, 19:4–5, 31:1–27. As a result, contrary to Patent Owner’s assertion, Petitioner persuades us that Kronzer-769 discloses a third layer comprising a water repellent and an elastomeric emulsion.

Patent Owner does not dispute Petitioner’s contentions that Kronzer-769 discloses the remaining limitations in claim 1. *See* PO Resp. 21–29; Ex. 1081, 121:16–25, 123:22–124:12. We have reviewed Petitioner’s arguments and evidence, and agree—based on the information provided in the Petition—that Kronzer-769 discloses the remaining limitations in claim 1.

b) Whether Petitioner has shown that Kronzer-769 discloses the required elements as arranged in the claim

Patent Owner also argues that Kronzer-769 does not anticipate claim 1 because Petitioner has not shown that Kronzer-769 discloses the required elements as arranged in the claim as a single embodiment. PO Resp. 19, 26. This argument is unavailing. Claim 1 requires a release layer comprising four components. In order for a reference to disclose every limitation “in the same way as arranged” in claim 1, the reference must disclose all four components in the same release layer. As Petitioner points out, Kronzer-769 teaches that its third layer (the release layer) may include all four claimed components. Pet. 26–29 (citing Ex. 1009, 2:32–34, 4:35–5:8, 7:29–35, 8:35–9:7, 9:33–10:33, 13:14–16, 15:25–35, 16:1–17:30, 16:9–12, 19:4–5,

20:29–34, 22:14–15, 24:2–4, 26:5, 38:37, 30:20; Ex. 1007 ¶¶ 99, 137–139, 141–144, 146–150). Thus, the present facts are distinguishable from those in cases such as *In re Arkley* that Patent Owner cites, because here the various disclosures *are* “directly related to each other” as they describe the ingredients contained in the same third layer. PO Resp. 16–17 (citing *In re Arkley*, 455 F.2d 586, 587 (C.C.P.A. 1972)); *see also Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344 (Fed. Cir. 2016) (noting that “a reference need not always include an express discussion of the actual combination to anticipate,” but “may still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination”).

Thus, contrary to Patent Owner’s arguments, the portions of Kronzer-769 that Petitioner directs us to are not “multiple embodiments” from which Petitioner and Dr. Wanat “pick, choose, and combine various disclosures.” PO Resp. 27; Sur-reply 11–12. Nor does Petitioner treat the claims “as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning.” *Therasense Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010) (quoting *Lindemann Maschinenfabrik GMBH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1459 (Fed.Cir.1984)); *see* PO Resp. 17. Instead, because Petitioner demonstrates persuasively that Kronzer-769’s third layer comprises all four of the recited components, Petitioner maintains the “part-to-part relationships set forth in the claims.” *Therasense*, 730 F.2d at 1459.

Additionally, as noted above, Petitioner directs us to Example 7F of Kronzer-769, asserting that Example 7F contains a release layer comprising

the components claim 1 requires. Pet. 25 (citing Ex. 1007 ¶¶ 128–129). Specifically, Dr. Wanat explains that Example 7F contains (1) a film-forming binder—component 2P-K, which is Michem Prime 4983, an ethylene-acrylic acid dispersion; (2) an elastomeric emulsion—component 2P-W, which is Geon 352, a poly(vinyl chloride) latex; (3) a water repellant/wax dispersion—component O-C, which is Micropowders MPP 635VF, described as a high density polyethylene wax; and (4) a plasticizer—component PL-N, which is Santicizer 160, a butyl benzyl phthalate. Ex. 1007 ¶ 129 (citing Ex. 1009, 16:9–12, 17:3–4, 17:29–30, 18:22–23, 18:33–34, 31:1–27).

Patent Owner argues that Petitioner has not shown that Example 7F contains a water repellant or elastomeric emulsion because Petitioner fails to prove that the materials that Petitioner maps to the water repellant and elastomeric emulsion in Example 7F actually provided water resistance or elastomeric properties in the Kronzer-769 composition. PO Resp. 28–29; Sur-reply 9–11. Patent Owner’s argument, however, similar to those discussed above, is based on Patent Owner’s proposed construction of water repellant and elastomeric emulsion, which we do not adopt.

Patent Owner otherwise does not dispute Petitioner’s arguments and evidence, or Dr. Wanat’s testimony, that component 2P-K (an ethylene-acrylic acid dispersion) is a film-forming binder, component 2P-W (a poly(vinyl chloride) latex) is an elastomeric emulsion, component O-C (a high density polyethylene wax) is a water repellant, and component PL-N (a butyl benzyl phthalate) is a plasticizer. Pet. 25–28; Ex. 1007 ¶¶ 128–129; Ex. 1085 ¶¶ 25, 39, 49; Ex. 1081, 121:16–25 (Dr. Ellison testifying during cross-examination that he formed no opinion on whether Kronzer-769 has a

film-forming binder), 123:22–124:12 (Dr. Ellison testifying that he formed no opinion about whether Kronzer-769 has a plasticizer); *see also* Ex. 1001, 10:37–40 (listing aromatic compounds such as phthalates as exemplary plasticizers); Ex. 1001, 8:66–9:4 (listing ethylene-acrylic acid copolymers as exemplary film-forming binders); Ex. 1001, 2:47–54 (listing poly(vinyl chloride) as an exemplary elastomeric emulsion); Ex. 1001, 10:50–53 (listing polyethylene as an exemplary water repellant). Accordingly, we determine Petitioner has demonstrated persuasively that Example 7F is a single embodiment that includes the required elements as arranged in claim 1 of the '200 patent.

For all of the foregoing reasons, we determine Petitioner has demonstrated, by a preponderance of evidence, that Kronzer-769 anticipates claim 1 of the '200 patent.

3. *Claim 29*¹¹

Independent claim 29 recites a method of applying an image to a receptor element comprising the steps of (1) imaging a coated transfer sheet that comprises a substrate and a release layer, (2) positioning the front surface of the transfer sheet against the receptor element, (3) applying energy to the rear surface of the imaging system to transfer the image to the receptor element, (4) optionally allowing the substrate to cool, and (4) removing the transfer sheet from the substrate. Ex. 1001, 37:48–65.

Petitioner contends that Kronzer-769 discloses each step recited in claim 29, and directs us to portions of Kronzer-769 that support its contentions. Pet. 29–32. Patent Owner does not dispute Petitioner's

¹¹ We address claim 29 before claim 19 because of the similarities between claim 29 and claim 1.

arguments or evidence that Kronzer-769 discloses the method steps claim 29 requires and, therefore, has forfeited any arguments based on claim 29's method steps. *See generally* PO Resp. 19–29; *cf. NuVasive*, 842 F.3d at 1381 (explaining that a patent owner waives an argument presented in the preliminary response if it fails to renew that argument in the patent owner response during the instituted trial).

We have considered Petitioner's arguments and evidence, and determine that Petitioner has demonstrated persuasively that Kronzer-769 discloses the method steps of claim 29. As Petitioner explains, Kronzer-769 discusses "allow[ing] consumers to transfer enlargements of their own photographs to T-shirts and other fabrics." Ex. 1009, 3:21–24; Pet. 29. Additionally, we agree with Petitioner that Kronzer-769 teaches the use of thermal transfer printing to form an image on a transfer sheet, placing the printed paper image-side down on a T-shirt, applying heat, and removing the paper substrate. Ex. 1009, 20:29–35; Pet. 30–32 (explaining that Kronzer-769 discloses the steps in claim 29 and noting that claim 29 does not require allowing the substrate to cool before removing the transfer sheet).

Claim 29 also requires that the release layer of the coated transfer sheet comprises a polymeric composition comprising a film-forming binder, an elastomeric emulsion, a plasticizer, and a water repellant. Ex. 1001, 37:55–58. Petitioner notes that these limitations are the same as the limitations in claim 1, and asserts that Kronzer-769 discloses each limitation in claim 29 for at least the same reasons discussed above for claim 1. Pet. 30. Patent Owner presents the same arguments for both claim 1 and 29. PO Resp. 21–29. For the same reasons discussed above with regard to claim

1, we find Petitioner has demonstrated persuasively that Kronzer-769 discloses a release layer comprising a film-forming binder, an elastomeric emulsion, a plasticizer, and a water repellant.

We are also persuaded by Petitioner's undisputed arguments and evidence that Kronzer-769 discloses that the release layer is coated on the first surface of the substrate and discloses a polymeric composition having the four components discussed above, as claim 29 requires. Pet. 30; Ex. 1009, 14:32–15:23; Ex. 1007 ¶ 157.

For all of the foregoing reasons, we determine Petitioner has demonstrated, by a preponderance of evidence, that Kronzer-769 anticipates claim 29 of the '200 patent.

4. Claim 19

Claim 19, similar to claim 1, recites a coated transfer sheet comprising a substrate having a first and second surface, and at least one release layer overlaying said first surface. Ex. 1001, 36:58–60. Petitioner contends, and Patent Owner does not dispute, that Kronzer-769 discloses these limitations in claim 19 for the same reasons discussed above with regard to claim 1. Pet. 32–33. For the same reasons discussed above, we agree with Petitioner that Kronzer-769 discloses these limitations in claim 19.

Claim 19 differs from claim 1 in that it requires the release layer comprises “at least three separate components,” a first component comprising a film-forming binder which melts in the range of from about 65° C to about 180° C, a second component comprising a wax dispersion, and a third component comprising a retention aid. Ex. 1001, 36:60–67.

Petitioner contends Kronzer-769 discloses a release layer including a film-forming binder with a melting point within the claimed range because a

person of ordinary skill in the art “would have understood that the ‘film-forming binder’ disclosed in Kronzer-769, and specifically the ethylene acrylic acid copolymer (*e.g.*, Michem Prime 4983) would have a melting range of about 103-108°.” Pet. 33 (citing Ex. 1007 ¶¶ 169–170).

Additionally, Petitioner notes that the ’200 patent refers to Michem Prime 4983 as a suitable film-forming binder. Pet. 33 (citing Ex. 1001, 12:44–63).

Petitioner also contends that Kronzer-769 discloses a release layer including a retention aid because Kronzer-769 discloses that the third layer may be formed from a latex, and lists examples of suitable latexes including ethylene-vinyl acetate, polyacrylates, and poly(vinyl chloride). Pet. 34. Petitioner states that the ’200 patent includes latex polymers and vinyl copolymer blends such as “ethylene-vinyl acetate[,] . . . polyacrylate and other polyacrylate-vinyl copolymer blends” as examples of retention aids. Pet. 34–35 (quoting Ex. 1001, 9:54–10:7); Ex. 1007 ¶ 177.

Patent Owner does not dispute Petitioner’s arguments or evidence regarding these limitations in claim 19 and, therefore, has forfeited any arguments based on these limitations. *Cf. NuVasive*, 842 F.3d at 1381. We have reviewed Petitioner’s arguments and evidence, and agree—based on the information provided in the Petition and the ’200 patent—that Kronzer-769 discloses the film-forming binder and retention aid components recited in claim 19.

Petitioner next contends that Kronzer-769 discloses a release layer including a wax dispersion because Kronzer-769 teaches its third layer can be formed from an emulsion or dispersion, and can comprise additives such as petroleum-based waxes, polyethylene waxes, and ester waxes. Pet. 33–34 (citing Ex. 1009, 9:5–7, 17:5–30, 19:4–5; Ex. 1007 ¶¶ 172–173). Petitioner

explains that the '200 patent states that the claimed “wax dispersion” can include petroleum waxes, and synthetic waxes such as polyethylene and oxidized polyethylene waxes. Pet. 34 (quoting Ex. 1001, 10:51–56).

Patent Owner does not dispute Petitioner’s contention that Kronzer-769 discloses an image transfer sheet comprising a wax dispersion. Instead, Patent Owner argues that Kronzer-769 does not disclose a *suitable* image transfer sheet that contains any wax dispersion. PO Resp. 26. According to Patent Owner,

This is because, as discussed above, all of the examples in Kronzer-769 that used wax were not successful. Thus, the Examples in Kronzer-769 that involved wax did not result in printable material **suitable for use** as a dye diffusion thermal transfer printable heat transfer material. Petitioner has failed to demonstrate a reasonable likelihood of success in showing that Kronzer-769 discloses a suitable image transfer sheet containing any wax.

PO Resp. 26.

Claim 19, however, simply recites a “coated transfer sheet,” and therefore does not require a coated transfer sheet that is “suitable” for a particular use. Thus, even if we were to agree with Patent Owner’s assertion regarding unsuccessful examples in Kronzer-769, where no particular result is reported, the failure to achieve a favorable outcome does not negate anticipation. *Gleave*, 560 F.3d at 1335–1336 (“[W]here the claims themselves do not require a particular activity, we have no call to require something more from the anticipating reference.”); *see also Shering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1380 (Fed. Cir. 2003) (“Anticipation does not require the actual creation or reduction to practice of the prior art subject matter.”); *Bristol-Meyers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1377–1378 (Fed. Cir. 2001) (rejecting appellant’s argument that the

prior art reference “cannot anticipate the claims because [it] is a failed experiment”).

Patent Owner also argues that Petitioner has not shown that Kronzer-769 discloses the required elements as arranged in the claim as a single embodiment. PO Resp. 26–29. This argument, however, is no more convincing here than it was when considered in the context of claim 1. As discussed above, Petitioner explains sufficiently how Kronzer-769 teaches that its third layer (the release layer) may include all three claimed components. Pet. 33–35. Accordingly, we disagree with Patent Owner’s contention that Petitioner directs us to “multiple embodiments” from which Petitioner and Dr. Wanat “pick, choose, and combine various disclosures.” PO Resp. 27; Sur-reply 11–12.

For all of the foregoing reasons, we determine Petitioner has demonstrated, by a preponderance of evidence, that Kronzer-769 anticipates claim 19 of the ’200 patent.

5. *Claim 57*

Independent claim 57 is identical to claim 19 with the exception that it requires the third component of the release layer to comprise “a retention aid to aid in the binding of an applied colorant.” Ex. 1001, 39:63–64.

For the portions of claim 57 that are the same as claim 19, Petitioner relies on the same evidence and arguments it presented for claim 19. Pet. 32–36. For the retention aid limitation in claim 57, Petitioner directs us to Kronzer-769’s statement that the printable material is “especially suitable for use as a dye diffusion thermal transfer printable heat transfer material . . . [where] dye diffusion thermal transfer printing generally results in colors which stay brighter during the heat transfer process.” Pet. 35 (quoting

Ex. 1009, 4:3–11). Petitioner argues that based on this disclosure, a person of ordinary skill in the art “would have understood this to mean that any of the retention aids discussed directly above, such as the latexes, plasticizers, and adhesion-transfer aids disclosed in Kronzer-769, aid with the retention of a colorant (*e.g.*, dye/ink) that is applied (*e.g.*, printed on) to the transfer sheet and transferred to the receptor element.” Pet. 35–36 (citing Ex. 1007 ¶ 180).

Patent Owner does not separately address this limitation in claim 57 and, therefore, has forfeited any arguments based on this uncontested limitation. *See generally* PO Resp. 20–42; *cf. NuVasive*, 842 F.3d at 1381. Instead, Patent Owner relies on the same arguments discussed above with regard to claims 1, 19, and 29. PO Resp. 26–29.

We have reviewed the information Petitioner provides, including the relevant portions of the Wanat Declaration, and agree with Petitioner’s undisputed arguments and evidence that Kronzer-769 discloses the retention aid limitation of claim 57. Additionally, for the same reasons discussed above, we are persuaded by Petitioner’s arguments and evidence demonstrating that Kronzer-769 discloses the remaining limitations of claim 57. We, therefore, find Petitioner has established, by a preponderance of evidence, that Kronzer-769 anticipates claim 57.

6. *Claims 64 and 70*

Independent claim 64 is similar to claim 57, but does not require that the film-forming binder melts in a certain temperature range. Ex. 1001, 40:42–49. Independent claim 70 is similar to claim 19, but requires “at least one retention aid to aid in the binding of an applied colorant.” Ex. 1001, 42:15–24. Petitioner argues that Kronzer-769 discloses each limitation of

claims 64 and 70, relying on the same arguments it presented for similar limitations in claims 1, 19, and 57. Pet. 32–36. Patent Owner likewise relies on the same arguments discussed above regarding claims 1, 19, and 57.

We have reviewed the information Petitioner provides, including the relevant portions of the Wanat Declaration, and, for the reasons discussed above, agree with Petitioner’s arguments and evidence that Kronzer-769 discloses all of the limitations of claims 64 and 70. Accordingly, we determine Petitioner has demonstrated, by a preponderance of evidence, that Kronzer-769 anticipates claims 64 and 70 of the ’200 patent.

7. Dependent Claims

Claims 2, 6, and 11 depend from claim 1, claims 20 and 21 depend from claim 19, and claim 58 depends from claim 57. Petitioner directs us to portions of Kronzer-769 that purportedly disclose the limitations in these claims. Pet. 36–38. Patent Owner does not address the dependent claims in its Patent Owner Response or Sur-reply and, therefore, has forfeited any arguments based on these uncontested claims. *See generally* PO Resp.; Sur-reply; *cf NuVasive*, 842 F.3d at 1381. We have considered Petitioner’s arguments and evidence, and determine Petitioner has directed us to evidence demonstrating persuasively that Kronzer-769 teaches all of the limitations in claims 2, 6, 11, 20, 21, and 58. As a result, Petitioner has demonstrated by a preponderance of evidence that Kronzer-769 anticipates claims 2, 6, 11, 20, 21, and 58 of the ’200 patent.

8. Conclusion

For all of the foregoing reasons we determine Petitioner has demonstrated by a preponderance of evidence that Kronzer-769 anticipates claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the ’200 patent.

E. Remaining Unpatentability Challenges

Having determined that Petitioner establishes by a preponderance of the evidence that Kronzer-769 anticipates claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the '200 patent, we do not address Petitioner's additional grounds challenging these same claims. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner "is entitled to a final written decision addressing all of the claims it has challenged"); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. 2020) (nonprecedential) ("We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.").

IV. CONCLUSION

After reviewing the complete record developed during the course of the trial, we conclude that Petitioner has satisfied its burden of demonstrating, by a preponderance of the evidence, that claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the '200 patent are unpatentable.¹²

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

It is hereby

ORDERED that, Petitioner established by a preponderance of evidence that claims 1, 2, 6, 11, 19–21, 29, 57, 58, 64, and 70 of the '200 patent are unpatentable; and

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.

In summary:

Claim(s)	35 U.S.C.	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	§ 102	Kronzer-769	1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	
1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	102	Kronzer-179 ¹³		
1, 2, 11, 19–21, 29, 57, 58, 64, 70	102	Hiyoshi		
6	103	Hiyoshi, Kronzer-179		
1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	102	Taniguchi		

¹³ As explained above, we do not reach this ground, or any of Petitioner's other remaining grounds, in view of our determination that the challenged claims are unpatentable as anticipated by Kronzer-769.

Claim(s)	35 U.S.C.	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1, 2, 6, 11	102	Oez		
Overall Outcome			1, 2, 6, 11, 19–21, 29, 57, 58, 64, 70	

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