

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEENAH, INC.,
Petitioner,

v.

JODI A. SCHWENDIMANN,
Patent Owner.

IPR2020-01361
Patent 6,723,773 B2

Before JEFFREY W. ABRAHAM, MICHELLE N. ANKENBRAND, and
AVELYN M. ROSS, *Administrative Patent Judges*.

ROSS, *Administrative Patent Judge*.

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

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I. INTRODUCTION

Neenah, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 10, 12, and 14 of U.S. Patent No. 6,723,773 B2 (Ex. 1002, “the ’773 patent”). Pet. 1. Jodi A. Schwendimann (“Patent Owner”) filed a Preliminary Response (Paper 7).¹

Upon consideration of the Petition, Preliminary Response, and the parties’ evidence, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail with respect to at least one claim of the ’773 patent. Paper 8 (“Decision on Institution” or “DI”). Thus, pursuant to the Supreme Court’s decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018), and USPTO Guidance,² we instituted review of all challenged claims on all asserted grounds. *Id.*

Following institution of trial, Patent Owner filed a Patent Owner Response (Paper 12, “PO Resp.”), Petitioner filed a Reply (Paper 18, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 20, “Sur-reply”). In support of their respective positions, Petitioner relies on the testimony of Dr. Robert A. Wanat (Ex. 1007, “Wanat Declaration”; Ex. 1085, “Wanat Reply Declaration”) and Patent Owner relies on the testimony of Dr. Christopher Ellison (Ex. 2005, “Ellison Declaration”; Ex. 1081, “Ellison Deposition”).

¹ Petitioner identifies Neenah, Inc. and Avery Products Corporation as real parties in interest. Pet. 1. Patent Owner identifies Jodi A. Schwendimann as the real party in interest. Paper 4, 2 (Patent Owner’s Mandatory Notices).

² In accordance with USPTO Guidance, “if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition.” *See* USPTO, Guidance on the Impact of *SAS* on AIA Trial Proceedings (April 26, 2018) (available at <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>) (“USPTO Guidance”).

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A consolidated oral hearing for this proceeding and related proceeding IPR2020-01363 was held on November 9, 2021, and a transcript of the hearing is included in 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) and 37 C.F.R. § 42.73. For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 10, 12, and 14 of the ’773 patent are unpatentable.

A. Related Proceedings

Petitioner identifies the pending lawsuit between the parties, styled *Jodi A. Schwendimann v. Neenah, Inc.*, Case No. 1:19-cv-00361-LPS (D. Del.) (the “Delaware Lawsuit”) as a related proceeding in which Patent Owner asserts the ’773 patent. Pet. 1; *see* Paper 4, 2. Petitioner also states that it contemporaneously filed a petition for *inter partes* review against U.S. Patent No. 6,410,200 (“the ’200 patent”). Pet. 1–2; Paper 4, 2; *see* IPR2020-01363, Paper 1.

Patent Owner further identifies *Schwendimann et al. v. Stahls’, Inc.*, Case Number 19-12139-BAF-MKM in the United States District Court for the Eastern District of Michigan as an additional “[j]udicial matter[] that would affect, or be affected by, a decision in the proceeding.” Paper 4, 2.

B. The ’773 Patent (Ex. 1002)

The ’773 patent, titled “Polymeric Composition and Printer/Copier Transfer Sheet Containing the Composition,” issued on April 20, 2004. Ex. 1002, codes (45), (54).³ The ’773 patent describes polymeric

³ The ’773 patent is a divisional of the ’200 patent, which claims priority to U.S. Provisional Application No. 60/127,625. Ex. 1002, codes (62), (60).

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compositions that include “a film forming binder, an elastomeric emulsion, a water repellent, and a plasticizer.” *Id.* at 8:17–20; *see also id.* at 2:35–37 (identifying an acrylic dispersion as the film-forming binder), 31:65–67 (claim 1), 32:41–48 (claim 10), 32:65–33:6 (claim 14). “The polymeric composition of the present invention is useful as a release layer (i.e., transfer layer) in an imaging material” where the imaging material may be used to transfer images to textiles, such as T-shirts. *Id.* at 2:56–58.

C. Illustrative Claim

Petitioner challenges claims 1, 10, 12, and 14 of the ’773 patent. Of the challenged claims, claims 1, 10, and 14 are independent. Claim 1 is illustrative of the subject matter of the ’773 patent and is reproduced below.

1. A polymeric composition comprising an acrylic dispersion, an elastomeric emulsion, a water repellent and a plasticizer.

Ex. 1002, 31:65–67.

D. Prior Art and Asserted Grounds of Unpatentability

Petitioner contends that claims 1, 10, 12, and 14 are unpatentable based on the following grounds:

Petitioner explains that “[t]he specifications for the ’773 patent and the ’200 patent are substantively identical, and, therefore, for consistency and ease of reference, all citations . . . are made to the specification of the ’200 patent.” Pet. 5 n.1. In this Decision, we cite to the Specification of the ’773 patent.

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Claims Challenged	35 U.S.C. §	Reference/Basis
1, 10, 12, 14	102 ⁴	Kronzer-769 ⁵
1, 10, 12, 14	102	Kronzer-179 ⁶
1, 10, 12, 14	102	Hiyoshi ⁷
1, 10, 12, 14	102	Oez ⁸
1, 10, 12, 14	102	Rao ⁹
1, 10, 12, 14	102	Girgis ¹⁰
1, 10, 12, 14	102	Schwarcz ¹¹

Pet. 4. We granted the Petition and instituted an *inter partes* review on the above-identified grounds. DI 4–5, 21.

⁴ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 102, effective March 16, 2013. Given that the application from which the ’773 patent issued was filed before this date, the pre-AIA version of § 102 applies.

⁵ Kronzer, WO 96/34769, published November 7, 1996 (Ex. 1009, “Kronzer-769”).

⁶ Kronzer, US 5,798,179, issued August 25, 1998 (Ex. 1010, “Kronzer-179”).

⁷ Hiyoshi et al., US 5,362,548, issued November 8, 1994 (Ex. 1011, “Hiyoshi”).

⁸ Oez, WO 97/41489, published November 6, 1997 (Ex. 1013, “Oez”). In this decision, our references to Oez are to Exhibit 1015, which is an English-language translation of Oez with line numbering.

⁹ Rao et al., US 5,460,874, issued October 24, 1995 (Ex. 1031, “Rao”).

¹⁰ Girgis et al., US 4,762,750, issued August 9, 1988 (Ex. 1030, “Girgis”).

¹¹ Schwarcz, US 4,002,794, issued January 11, 1977 (Ex. 1032, “Schwarcz”).

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II. ANALYSIS

A. *Legal Standards*

To prevail in its challenge, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “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 an *inter partes* review petition 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 an *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 at 832. 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).

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

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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 v. John Deere Co., 383 U.S. 1, 17 (1966). Petitioner contends that

[a] person of ordinary skill in the art (“POSITA”) for the purposes of the ’773 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. 10. 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.”

Id.

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. 11.

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. 11.

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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* Pet. 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., Neenah, Inc. v. Avery Products Corp.*, IPR2020-00629, Paper 39 at 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” or “acrylic dispersion,” “elastomeric emulsion,” “plasticizer,” “water repellent,” and “wax dispersion.” Pet. 11–19; PO Resp. 12–17.

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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. 11.¹² 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, corresponding to Ex. 1002 (the ’733 patent), 8:21–31, 11:23–26, 11:58–12:44), elastomeric emulsions (Ex. 1001, 2:46–54, 14:56–15:28 corresponding to Ex. 1002, 2:46–54, 13:63–14:31), water repellants (Ex. 1001, 10:47–11:6 corresponding to Ex. 1002, 9:65–10:22), and plasticizers. Pet. 19–25. 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. 13–19.

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. DI 7–13 (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

¹² Petitioner cites to the specification for the ’200 patent in the Petition. *See generally* Pet. (citing Ex. 1001). But, as requested (DI 3), both Petitioner and Patent Owner cite to the Specification of the ’773 patent in subsequent filings.

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claims at least encompass the explicit examples of the polymers/materials recited in the '200 patent Specification. *Id.*

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. 12–15; Sur-reply 1–3. 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 repellent” 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. 15 (alterations in original).

Patent Owner also contends that the “specification of the ‘773 Patent does, in fact, require a particular function as a part of the definition or understanding of the [claim] terms.” PO Resp. 14–15 (quoting Ex. 1002, 10:59–61 (stating that the film-forming binder and acrylic dispersion “**provide** adhesion of the release layer and image to the receptor element”), 10:65–67 (stating that the elastomeric emulsion “**provides** the elastomeric properties such as mechanical stability, flexibility and stretchability”), 11:3–5 (stating the water repellent “**provides** water resistance and repellency”), 11:9–10 (stating the plasticizer “**provides** plasticity and antistatic properties”) (emphasis added by Patent Owner)); *see also* Sur-reply 2–4

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(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 '773 patent Specification because it “suggests that the explicit examples will **always** act as a plasticizer, elastomeric emulsion, film-forming binder, or water repellent.” PO Resp. 16. 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 repellent “depends entirely on the compound of which it is a part and the conditions of that composition.” *Id.* (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.*

Id. 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 repellent is to test the compound, or, in the context of prior art references, if the reference expressly discloses that the material performs a particular function. PO Resp. 16–17.

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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 Order¹³ in the Delaware Lawsuit construing the disputed terms. *Id.* at 13. Patent Owner contends that we should apply Delaware district court’s constructions in this proceeding. *Id.* at 14. 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. *Id.* at 15–16 (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 Delaware district court declined to include a list of exemplary materials in its constructions and urges that we do the same. PO Resp. 14 n.1, 15–16.

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. Pet. Reply 4. Petitioner contends that Patent Owner incorrectly characterizes the district court’s constructions as being consistent with Patent Owner’s position. *Id.* at 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. *Id.* at 3 (quoting Ex. 1041, 14). Petitioner also contends that Patent Owner did not dispute that the claimed components cover at least the exemplary materials listed in the

¹³ The Claim Construction Order from the Delaware Lawsuit appears in the record as Exhibit 1041 and Exhibit 2003.

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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. *Id.* (citing Ex. 1063, 80, 84–85; Ex. 1041; PO Resp. 14 n.1).

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. *Id.* at 4–5. 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 ’773 patent provide functions/properties described. *Id.* at 5 n.3.

We begin our analysis by looking at the language of the claims. *Vitronics Corp. v. Conceptoronic, 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 “polymeric composition comprising an acrylic dispersion, an elastomeric emulsion, a water repellent and a plasticizer.” Ex. 1002, 31:65–67. Claim 10 recites a “polymeric composition comprising a film forming binder, an elastomeric emulsion, a water repellent and a plasticizer,” and further requires that the film-forming binder is one of the recited ingredients. *Id.* at 32:41–48. Claim 14 recites “a polymeric composition comprising: a film-forming binder, an elastomeric emulsion, a water repellent and a plasticizer,” where the elastomeric emulsion is one of the recited ingredients. *Id.* at 32:65–33:6.

The language of the claims themselves demonstrates that there is no express requirement of a specific amount of a film-forming binder or acrylic

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dispersion, elastomeric emulsion, water repellant, or plasticizer, in any of the independent claims. Nor is there an express requirement in any of the independent claims that the film-forming binder or acrylic dispersion, elastomeric emulsion, water repellant, or plasticizer perform a particular function.

Furthermore, claims 10 and 12 require that the “film-forming binder is at least one selected from the group consisting of polyacrylates, poly-acrylic 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.” *Id.* at 32:46–48, 32:54:–59. And claim 14 requires that the “elastomeric emulsion is selected from the group consisting of polybutadienes, polyurethanes, styrene-butadiene polymers, styrene-butadiene-styrene polymers, acrylonitrile-butadiene-styrene polymers, acrylonitrile-ethylene-styrene polymers, polyacrylates, polychloroprene, ethylene-vinyl acetate polymers, and poly(vinyl chloride).” *Id.* at 32:67–33:5. Therefore, the claims themselves identify the specific ingredients corresponding to the claimed components without requiring any particular function.

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. 10–19; Pet. Reply 3–5; PO Resp. 14–16.

We turn next to the Specification of the ’773 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 ’773 patent lists examples of film-forming binders, elastomeric

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emulsions, water repellants, plasticizers, wax dispersions, and retention aids that are suitable for use in the claimed invention. Pet 10–19; PO Resp. 16–17; Sur-reply 4–5. When describing these exemplary materials, the Specification does not require that the materials provide any specific function in the claimed polymeric composition.

For example, with regard to the film-forming binder, the '773 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. 1002, 8:20–28. The '773 patent contains similar discussions of elastomeric emulsions (*id.* at 2:46–52), water repellants (*id.* at 9:65–10:13), and plasticizers (*id.* at 9:54–63).

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. 14. To support this assertion, Patent Owner directs us to portions of the Specification that purportedly recite what function the film-forming binder, elastomer emulsion, water repellent, and plasticizer *must* “provide.” *id.* at 14–15 (citing Ex. 1002, 10:59–61 (film-forming binder and acrylic dispersion), 10:65–67 and 12:47–49 (elastomeric emulsion), 11:3–5 (water repellent), and 11:9–10 and 14:34–38 (plasticizer)); Sur-reply 2–4 (citing Ex. 1002, 10:49–11:15 (film-forming binder and acrylic dispersion), 10:50–11:15 and 12:45–49 (elastomeric emulsion), 10:59–11:15 and 13:7–14 (water repellent), and 10:59–11:15 and 14:33–39 (plasticizer)). At most, however, these statements in the Specification describe the specific function

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of the film-forming binder, elastomeric emulsion, water repellent, and plasticizer in Release Layer Formulation 1, a preferred embodiment of the invention. *See* Ex. 1002, 10:35–40. 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) (“[E]ven 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).

The Specification of the ’773 patent explains that plasticizers and water repellants “may be included [or incorporated] in order to soften hard polymer[s]” or “improve the wash/wear resistance,” respectively. Ex. 1002, 9:53–10:6. The phrase “may be included [or incorporated] in order to” is permissive, and undermines Patent Owner’s argument that the Specification requires a plasticizer and a water repellent to perform a specific function in the recited composition.

The inclusive, permissive language in the Specification undermines Patent Owner’s argument that due to the unpredictable nature of the chemical arts, 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.” PO Resp. 16. It also undermines Patent Owner’s argument 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/acrylic dispersion, or water repellent is to test the compound, or, in the context of prior art references, if the reference expressly discloses

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that the material performs a particular function. PO Resp. 15–17. 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/acrylic dispersions, or water repellants. 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/acrylic dispersion, or water repellent.

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 polymeric composition, as Patent Owner contends. Pet. 11. 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 this 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 (citations omitted) (first and second alteration in original).

Additionally, although the court did not expressly include all of the

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exemplary materials in its construction, we discern nothing in the court’s decision suggesting that the materials listed in the Specification are not examples of the claimed materials.¹⁴ Accordingly, we disagree with Patent Owner that the district court constructions are consistent with its 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 ’773 patent, we determine that the claimed “film-forming binder” or “acrylic dispersion,” “elastomeric emulsion,” “water repellent,” and “plasticizer” would at least encompass the explicit examples recited in the ’773 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, 10, 12, and 14)

Petitioner contends claims 1, 10, 12, and 14 are unpatentable as anticipated by Kronzer-769. Pet. 19. Petitioner directs us to portions of Kronzer-769 that purportedly disclose each of the limitations in the challenged claims. *Id.* at 19–26. Petitioner also relies on the declaration testimony of Dr. Wanat to support its arguments. *See id.*

¹⁴ Indeed, as Petitioner explains (Pet. 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.

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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 a] third layer is composed of a second thermoplastic polymer.” *Id.* The third layer may also contain a release agent and a plasticizer. *Id.* at 4:24, 4:35–5:8. Kronzer-769 further explains that other additives include, e.g., acrylic copolymers, ethylene-vinyl acetate copolymers, lubricants, petroleum-based waxes, amide and ester waxes, and silicone oils. *Id.* at 8:35–9:10.

2. *Analysis of Claim 1*

Petitioner contends that Kronzer-769 teaches the polymeric composition of the ’773 patent because “[e]ach layer comprises one or more polymers and/or materials such as first and second ‘thermoplastic polymers,’ which may include resins, waxes, rubbers and other copolymers.” Pet. 19–20 (citing Ex. 1009, 6:1–7:18, 15:24–17:4; Ex. 1007 ¶¶ 121–123). Petitioner argues that the third layer of Kronzer-769 comprises a second thermoplastic polymer that “may include polyacrylates and polymethacrylates” thereby describing the claimed “film-forming binder.” *Id.* at 20 (citing Ex. 1009, 7:7–14, 15:24–17:4; Ex. 1007 ¶ 125). According to Petitioner, Kronzer-769’s third layer also “can include a ‘polymeric adhesion-transfer aid’ that ‘may be an ethylene-acrylic acid copolymer or an ethylene vinyl acetate copolymer’” in the form of an acrylic dispersion. *Id.* at 21–22 (citing Ex. 1009, 5:2–8, 16:9–12, 22:14–15, 24:2–4, 26:5, 28:37, 30:20; Ex. 1007 ¶ 128).

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Petitioner further asserts that “Kronzer-769’s third layer is ‘typically formed of an emulsion or dispersion’” and “can include polymer blends such as ‘**acrylonitrile-butadiene-styrene copolymers, poly(E-caprolactone), ethylene-vinyl acetate copolymers . . . polyurethanes . . . nitrile-butadiene rubbers . . . and the like.**’” *Id.* at 22 (citing Ex. 1009, 19:4–5, 7:29–35; Ex. 1007 ¶ 130). According to Petitioner, “Kronzer-769 discloses that ‘the third layer may be formed from latex’” and the ’773 patent makes clear that both nitrile-butadiene rubber and latex are elastomeric emulsions. *Id.* at 23 (citing Ex. 1009, 13:14–16, 16:1–17:3; Ex. 1002, 2:48, 12:45–46; Ex. 1007 ¶¶ 131–132). Petitioner contends that Kronzer-769, therefore, discloses the claimed “elastomeric emulsion.” *Id.*

Furthermore, Petitioner asserts Kronzer-769’s third layer may include polyurethanes and other additives like “petroleum-based waxes, mineral and vegetable oils, low molecular weight polyethylene, and amide and ester waxes . . . and the like” and polyurethanes and waxes were known water repellants. *Id.* at 24 (citing Ex. 1009, 7:32, 8:35–9:7, 15:25–35, 17:5–30; Ex. 1007 ¶¶ 135–136). Additionally, argues Petitioner, “Kronzer-769 explicitly discloses that the third layer includes ‘a plasticizer’” within its third layer. *Id.* at 25 (citing Ex. 1009, Abstract, 4:35–5:2, 9:33–10:33; Ex. 1007 ¶ 138).

Patent Owner contends Petitioner has failed to meet its burden of proving that Kronzer-769 anticipates the challenged claims of the ’773 patent. *See* PO Resp. 21–31. In particular, Patent Owner argues that Kronzer-769 fails to disclose a material that provides water resistance or a material that provides elastomeric properties. *Id.* at 24–29. In addition, Patent Owner asserts that Petitioner has not shown that Kronzer-769

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discloses every limitation of the challenged claims “**as arranged in the claim.**” *Id.* at 29. We address Patent Owner’s arguments below.

- a) *whether Kronzer-769 discloses use of a material that provides water resistance or elastomeric properties*

Patent Owner argues that “Petitioner has not met its burden of proving that Kronzer[-769] discloses a polymeric composition that contains a water repellent and an elastomeric emulsion” because Petitioner has not shown that the materials identified provide either water resistance or elastomeric properties. PO Resp. 21, 24–39.

With regard to water repellency, Patent Owner does not dispute that Kronzer-769 discloses its third layer may contain waxes or polyurethanes. *Id.* at 24–25. Instead, Patent Owner argues that Kronzer-769 does not state or teach that the waxes and polyurethanes in the compositions provide water resistance. *Id.* at 25. 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.” *Id.* (citing Ex. 2005 ¶ 115). Patent Owner presents similar arguments regarding Petitioner’s assertion that Kronzer-769 discloses an elastomeric emulsion. PO Resp. 27–29 (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).

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Patent Owner's arguments are based on its proposed construction of the terms water repellent and elastomeric emulsion, which requires demonstrating the materials provide water resistance and elastomeric properties in the composition itself.¹⁵ For the reasons discussed above, we do not adopt Patent Owner's construction. Instead, we determine that the terms "water repellent" and "elastomeric emulsion" include at least the examples listed in the Specification of the '773 patent. As Petitioner points out, the '773 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. Pet. 22–24 (citing Ex. 1001, 2:47–54 and 13:29–34 corresponding to Ex. 1002, 2:46–52 and 12:45–49 (exemplary elastomeric emulsions); Ex. 1001, 10:49–56 corresponding to Ex. 1002, 9:65–10:6 (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. 22–24; Ex. 1007 ¶¶ 130–132, 135–136; Ex. 1009, 7:29–35, 8:35–9:7, 13:14–16, 15:25–35, 16:1–17:30, 19:4–5, 31:1–27. As a result, contrary to Patent Owner's assertion, Petitioner persuasively demonstrates that Kronzer-769 discloses a third layer comprising a water repellent and an elastomeric emulsion.

¹⁵ Patent Owner also argues that Kronzer-769 does not anticipate the challenged claims because it does not enable a polymeric composition with a water repellent. PO Resp. 26. 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.

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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 Kronzer-769 discloses a polymeric composition as arranged in the challenged claims*

Patent Owner’s argument 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 is unavailing. PO Resp. 29. Claim 1 requires a polymeric composition 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 polymeric composition. As Petitioner points out, Kronzer-769 teaches that its third layer (the release layer) may include all four claimed components. Pet. 20–25 (citing Ex. 1009, 4:19–25, 4:35–5:8, 7:7–14, 7:29–35, 8:35–9:7, 9:33–10:33, 13:14–16, 15:24–17:35, 19:4–5, 20:29–34, 22:14–15, 24:2–4, 26:5, 38:37, 30:20; Ex. 1007 ¶¶ 126–128, 130–132, 135–136, 138). 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. 18–19 (citing *In re Arkley*, 455 F.2d 586, 587 (CCPA 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

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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. 29; 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. 18–19. 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, Petitioner directs us to Example 7F of Kronzer-769, asserting that Example 7F contains a third layer comprising the components claim 1 requires. Pet. Reply 12–14 (citing Ex. 1007 ¶¶ 128–129; Ex. 1085 ¶¶ 30, 35–37, 42, 44–51; Ex. 1009, 31:1–27, 17:3–4, 17:29–30). 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 repellent/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.

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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. 30–31; Sur-reply 11–14. 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/acrylic dispersion, 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. Reply 12–13; Ex. 1007 ¶¶ 127–130, 140; 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. 1002, 9:54–63 (listing aromatic compounds such as phthalates as exemplary plasticizers), 8:18–28 (listing ethylene-acrylic acid copolymers as exemplary film-forming binders), 2:46–52 (listing poly(vinyl chloride) as an exemplary elastomeric emulsion), 10:1–6 (listing polyethylene as an exemplary water repellant). Accordingly, we determine Petitioner has demonstrated persuasively that Example 7F is a