NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

E.I. DU PONT DE NEMOURS AND COMPANY,
Plaintiff-Appellant

v.

MACDERMID PRINTING SOLUTIONS, L.L.C.,
Defendant-Appellee

2015-1777

Appeal from the United States District Court for the District of New Jersey in No. 3:06-cv-03383-MLC-TJB, Judge Mary L. Cooper.

Decided: August 19, 2016

CHARLES E. LIPSEY, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Reston, VA, argued for plaintiff-appellant. Also represented by HOWARD WARREN LEVINE, AARON GLEATON CLAY, Washington, DC; MARY K. FERGUSON, Boston, MA; JENNIFER SWAN, JEFFREY DANIEL SMYTH, Palo Alto, CA; MATTHEW JOSEPH RICCIARDI, CHARLES D. OSSOLA, Vinson & Elkins LLP, Washington, DC.

JOHN RICHARD HORVACK, JR., Carmody Torrance Sandak & Hennessey LLP, New Haven, CT, argued for defendant-appellee. Also represented by FATIMA LAHNIN.

Before PROST, *Chief Judge*, PLAGER and LOURIE, *Circuit Judges*.

LOURIE, *Circuit Judge*.

E.I. du Pont de Nemours & Co. ("DuPont") appeals from the decision of the United States District Court for the District of New Jersey granting summary judgment that claims 1, 6, 22, 30, 33, 36, 39–41, and 48 of U.S. Patent 6,773,859 ("the '859 patent") are invalid as obvious, and that claims 1, 3–4, and 7–8 of U.S. Patent 6,171,758 ("the '758 patent"), as construed by the district court, were not infringed by MacDermid Printing Solutions, L.L.C. ("MacDermid"). *See E.I. du Pont de Nemours & Co. v. MacDermid Printing Sols., L.L.C.*, No. 06-3383, 2014 WL 4657300 (D.N.J. Sept. 17, 2014) ("*Summary Judgment Order*"); *E.I. du Pont de Nemours & Co. v. MacDermid Printing Sols., L.L.C.*, No. 06-3383, 2010 WL 988549 (D.N.J. Mar. 15, 2010) ("*Claim Construction Order*"). Because the district court did not err in granting summary judgment of invalidity of the '859 patent or in granting summary judgment of noninfringement of the '758 patent, we *affirm*.

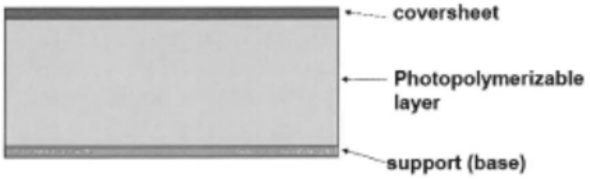
BACKGROUND

A

DuPont owns the '859 patent, directed to a process of making a flexographic printing plate used to print images on flexible materials. The '859 patent claims priority from a provisional application filed on March 6, 2001, '859 patent, Certificate of Corr. dated July 26, 2005; *see also E.I. du Pont de Nemours & Co. v. MacDermid Printing Sols., L.L.C.*, 525 F.3d 1353, 1362–63 (Fed. Cir. 2008), and

was considered by the district court to have a date of invention on or before June 9, 1999, *Summary Judgment Order*, 2014 WL 4657300, at *9.

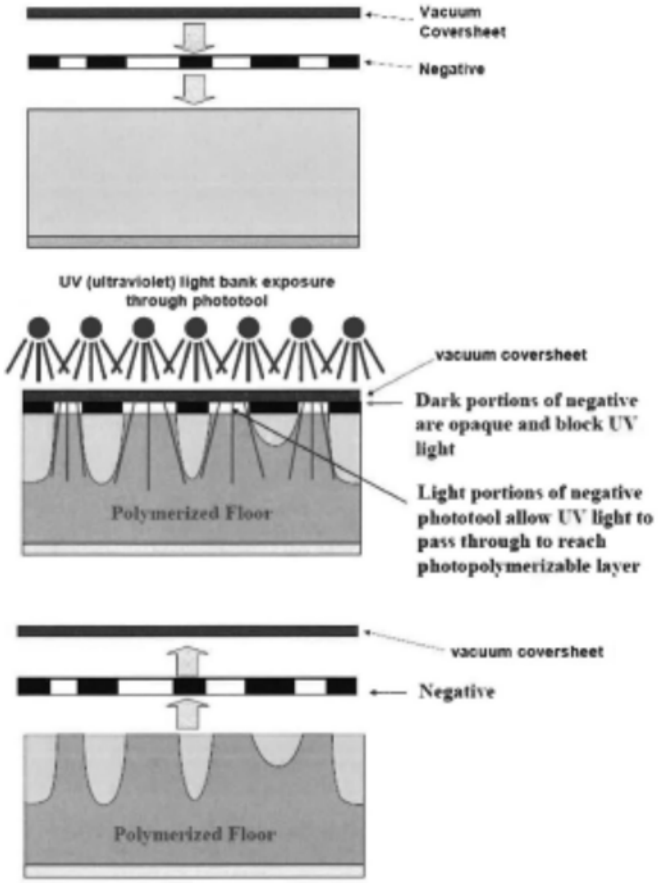
A flexographic printing plate bearing the image to be printed is typically prepared from an "imaging" process and a "development" process. As shown below, a flexographic printing plate consists of multiple layers, including a base support layer and a photopolymerizable layer, which contains photoinitiators, monomers, and elastomeric binders. During the imaging process, selected areas of the photopolymerizable layer are exposed to ultraviolet ("UV") light, which causes the exposed areas to polymerize. The unpolymerized material is then removed in the development process, leaving the polymerized material on the plate, which forms the relief image to be printed.



Joint App. ("J.A.") 3692.

As of June 1999, there existed two methods for imaging: analog and digital. *Summary Judgment Order*, 2014 WL 4657300, at *16. Analog imaging was first developed in the 1950s. In analog imaging, a sheet bearing a negative of the image to be printed is placed on top of the photopolymerizable layer. A transparent coversheet is then placed over the negative. The plate is then exposed to UV light, which passes through the transparent areas of the negative and causes the exposed portions of the photopolymerizable layer to polymerize. The opaque areas of the negative block the UV light and thus prevent the photopolymerizable layer underneath those areas from polymerizing. After the removal of the coversheet and negative, the unpolymerized portions of the photopolymerizable layer are removed in the development

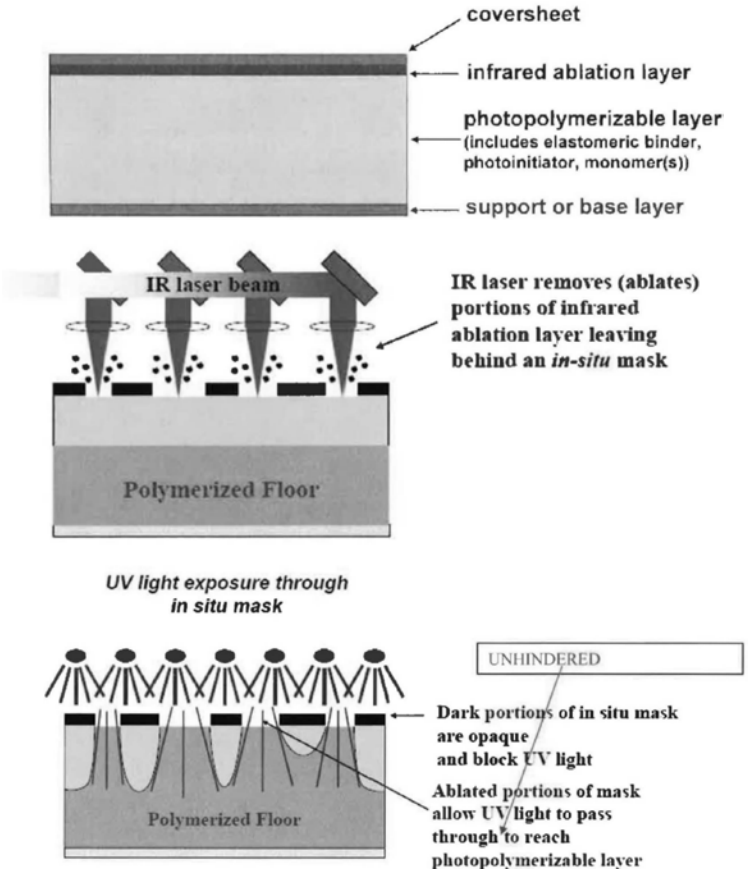
process, leaving only the relief image. The analog imaging process is illustrated below.



J.A. 3692–93.

In 1992, DuPont developed the digital imaging technology, in which a thin, opaque infrared ablation layer is applied over the photopolymerizable layer. That ablation layer can block UV light, but can be removed by an infrared laser. Thus, one difference between a digital plate and an analog plate is that a digital plate has an ablation layer. In digital imaging, the image to be printed is digitized and stored in a computer. The computer then guides an infrared laser to imagewise remove, or ablate,

select portions of the ablation layer. That process creates an in-situ mask directly on top of the photopolymerizable layer. The plate is then exposed to UV light, and the openings in the in-situ mask allow the UV light to pass through, such that the exposed portions of the photopolymerizable layer undergo polymerization. The unpolymerized material, together with the ablation layer above it, is then removed in the development process. The digital imaging process is illustrated below.



J.A. 3697–99.

The "development" process follows the "imaging" process. As of June 1999, there existed the following development techniques: solvent, water, air knife, and thermal.

Summary Judgment Order, 2014 WL 4657300, at *16. According to DuPont, solvent and thermal development methods have been known since at least the 1960s. Appellant's Br. 2. The solvent development method uses chemical solvents to wash and remove the unpolymerized portions of the photopolymerizable layer. According to DuPont, although solvent development requires the use of chemical solvents, which posed certain environmental risks, the combination of analog imaging and solvent development has been widely used for decades. *Id.* at 11–12. When DuPont developed digital imaging in the 1990s, it initially used the solvent method to develop the digitally imaged plates. That combination of digital imaging and solvent development is described in DuPont's U.S. Patent 5,262,275 ("Fan"), J.A. 2421–29, which is prior art to the '859 patent.

In contrast, the thermal development method uses heat to soften or liquefy the unpolymerized portions of the photopolymerizable layer, and then uses absorbent material, such as paper or felt, to blot away the unpolymerized material. The prior art, including U.S. Patent 5,175,072 ("Martens"), J.A. 2182–99, describes the combination of analog imaging and thermal development.

DuPont's '859 patent claims a process for making a flexographic printing plate that combines digital imaging and thermal development techniques. Claim 30 is illustrative of the '859 patent claims at issue in this appeal. Reproduced in independent form, claim 30 reads:

> 30. A process for making a flexographic printing plate comprising:
>
> 1) providing a photosensitive element comprising: at least one photopolymerizable layer on a support comprising an elastomeric binder, at least one monomer, and a photoinitiator, and at least *one thermally removable layer disposed above the photo-*

polymerizable layer, wherein the thermally removable layer is

(a) an actinic radiation opaque layer comprising (i) at least one infrared absorbing material, (ii) a radiation opaque material, wherein (i) and (ii) can be the same or different, and at least one binder having a softening or melting temperature less than 190° C;

2) imagewise exposing the photopolymerizable layer to actinic radiation forming polymerized portions and unpolymerized portions; and

3) *thermally treating* the element of step 2) by heating to a temperature sufficient *to remove the thermally removable layer* and to remove the unpolymerized portions of the photopolymerizable layer and form a relief.

'859 patent col. 43 ll. 14–40, col. 46 ll. 26–27 (emphases added). Thus, step 1(a) of the claimed method requires a digital plate with an ablation layer that is *thermally removable*. Step 2 refers to the digital imaging process, and step 3 refers to the thermal development process, in which *both* the unpolymerized photopolymerizable material and the ablation layer above it are *thermally* removed. According to DuPont, it commercialized its digital thermal technology as Digital Cyrel® FAST in 2001. Appellant's Br. 21.

B

DuPont also owns the '758 patent, directed to a flexographic printing plate having a very low degree of distortion during thermal development, the plate comprising a "dimensionally stable" polymeric substrate. '758 patent, at [57] (abstract); *id.* col. 1 ll. 51–60. The '758 patent

issued in January 2001 from an application filed in 1994. Claim 1 reads as follows:

> 1. A photosensitive plate suitable for use as a flexographic printing plate comprising a *dimensionally stable*, flexible, *polymeric substrate* and a photosensitive elastomer layer, wherein the plate has a thermal distortion in both the machine and the transverse directions which is less than 0.03% when the plate is exposed to actinic radiation and, after exposure, is developed at temperatures between 100 and 180º C.

Id. col. 8 ll. 18–25 (emphases added). Claims 3–4 and 7–8 all depend, directly or indirectly, from claim 1.

The specification of the '758 patent teaches that the dimensional stability of the polymeric substrate "may be controlled through a *special annealing process*," *id.* col. 2 ll. 56–59 (emphasis added), and then describes the annealing process in detail, *id.* col. 2 l. 59–col. 3 l. 40. The specification also describes four examples, in which all of the annealed plates showed less thermal distortion than the unannealed control plates. *Id.* col. 5 l. 26–col. 7 l. 67. Moreover, the specification teaches that the substrate "*optionally* may be surface treated for better adhesion" and cites two prior art patents as disclosing such an optional adhesive bonding process. *Id.* col. 3 l. 66–col. 4 l. 5 (emphasis added). During prosecution, the patentee relied on the special annealing process, and characterized it as "critical" and "important" in order to overcome inherent anticipation and obviousness rejections. *E.g.*, J.A. 2303–04, 2346–47, 2348, 2365, 2367.

C

In April 2006, DuPont sued MacDermid in the United States District Court for the District of Colorado, alleging that MacDermid infringed the '859 and '758 patents.

DuPont, 525 F.3d at 1355; *Summary Judgment Order*, 2014 WL 4657300, at *1. In July 2006, the case was transferred from the District of Colorado to the District of New Jersey. *DuPont*, 525 F.3d at 1355.

The district court construed the "dimensionally stable" limitation in claim 1 of the '758 patent. *Claim Construction Order*, 2010 WL 988549, at *5–9. The parties disputed whether "dimensionally stable" should be construed as requiring the "special annealing process" described in the '758 patent, and the court agreed with MacDermid that "dimensionally stable" is so limited. *Id.* at *5, *7. The court reasoned that the specification "repeatedly highlights the importance of annealing" in achieving the claimed dimensional stability, and that during prosecution, the applicants "repeatedly emphasized the whole notion of annealing" in order to overcome prior-art-based rejections. *Id.* at *7. The court therefore adopted MacDermid's proposed construction of "dimensionally stable," which is:

> A flexible polymeric substrate whose dimensional stability has been controlled through a special annealing process, namely an annealing process that: (1) is in addition and subsequent to the heat treating steps associated with manufacturing the polymeric film, (2) is not the process of bonding the photosensitive elastomer layer to the polymeric substrate, and (3) comprises: (i) heating the substrate to a temperature above its glass transition temperature but below its melting temperature and at or greater than the temperature to which the substrate is later subjected during thermal development, (ii) at tensions of less than 200 psi, and (iii) for a time greater than the time required to bring the film to the annealing temperature, such that a specially annealed substrate has less thermally induced distortion than a non-specially annealed substrate.

Id. at *5, *9.

MacDermid then filed motions for summary judgment of, *inter alia*, invalidity of the '859 patent and noninfringement of the '758 patent. The district court granted summary judgment in favor of MacDermid on both issues. *Summary Judgment Order*, 2014 WL 4657300, at *1.

The district court granted summary judgment that claims 1, 6, 22, 30, 33, 36, 39–41, and 48 of the '859 patent would have been obvious over the cited prior art, including Martens and Fan.[1] *Id.* at *9–20. The court found that Martens teaches a process for developing an analog plate using heat, *id.* at *10, and that Fan "was the first digital imaging patent," which teaches developing a digital plate using solvents, *id.* at *11. The court found that the process claimed in the '859 patent utilizes not only "the same technology and processes pertaining to digital imaging" as disclosed in Fan, but also "the same process of thermal development" as disclosed in Martens. *Id.* at *13.

The district court then found that there were "several reasons that would have prompted a person of ordinary skill to combine digital imaging technology and thermal development technology in the same way as the '859 patent." *Id.* at *16. In particular, the court found that:

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[1] In the district court, MacDermid also cited the following patent references to support its obviousness motion: (1) European Patent EP 0 741 330, U.S. Patent 5,888,697, and U.S. Patent 5,925,500, as purportedly teaching digital imaging; and (2) European Patent EP 0 665 471, International Patent Application Publication WO96/14603, U.S. Patent 3,264,103, U.S. Patent 5,279,697, U.S. Patent 5,322,761, and U.S. Patent 5,925,500, as purportedly teaching thermal development. J.A. 2937–38. But the district court primarily relied on Fan and Martens in its obviousness analysis.

(1) there existed only two imaging and four development techniques, *id.*; (2) the prior art taught that digital imaging has certain benefits over analog imaging, and that thermal development has certain advantages over solvent development, *id.*; (3) thus, a person of ordinary skill would have been motivated "to combine digital imaging and thermal development in one sequential process to gain the benefits of both," *id.*; (4) DuPont detailed the benefit of digital imaging in a 1997 article, describing digital plates as "truly superior," and also detailed the benefit of thermal development at an April 1999 tradeshow, touting thermal development as "revolutionary," *id.* at *16–17 (internal quotation marks omitted); and (5) thus, market forces would have "created a strong incentive" for a person of ordinary skill to combine "the revolutionary thermal process . . . with the truly superior digital plates," and "one only needed to place a truly superior digital plate (after imagewise exposure) into a revolutionary thermal process," or alternatively, "to upgrade an analog-thermal plate in a known manner to . . . a digital-thermal plate," *id.* at *17 (internal quotation marks omitted).

The district court considered objective evidence of nonobviousness in the record, but found such evidence insufficient to preclude summary judgment. *Id.* at *18–19. The court criticized DuPont for "sensationaliz[ing]" the commercial success of its digital thermal Cyrel product because its own expert stated in his declaration that "marketplace acceptance of Cyrel was not immediate," and that "only through working with initial customers . . . DuPont was able to develop a market for thermally developed plates over time." *Id.* at *18 (internal quotation marks omitted). The court also criticized DuPont's commercial success evidence on the bases that (1) DuPont provided percentage growth of yearly sales, "but fail[ed] to put those figures into context"; (2) DuPont presented evidence that Cyrel generated over $90 million in sales from 2001 to 2006, but failed to "document more revealing

statistics, such as its profits"; (3) DuPont failed to mention that all thermally developed plates, including those other than Cyrel, accounted for only 13% of the overall U.S. market for flexographic printing plates; and (4) DuPont's dominant position in the flexographic printing plate market "reduce[d] the impact" of its proffered evidence of commercial success. *Id.* at *18–19. The court thus concluded that DuPont failed to adequately establish a nexus between the claimed invention and its purported commercial success. *Id.* at *19.

The district court also rejected DuPont's argument of long-felt (seven years from 1992 to 1999) but unmet need because DuPont failed to establish a palpable need for digital thermal plates that existed for a long time. *Id.* Lastly, the court considered DuPont's evidence of industry praise, namely, the Flexographic Technical Association's Technical Innovation Award for DuPont's Cyrel product. The court acknowledged that the award "may be at least some evidence of industry praise," but nevertheless concluded that it was "vastly insufficient to overcome MacDermid's strong showing of obviousness." *Id.* The court therefore concluded that the asserted claims of the '859 patent are invalid as obvious. *Id.* at *20.

The district court next considered MacDermid's motion for summary judgment of noninfringement of the '758 patent. *Id.* at *20–25. MacDermid argued that its accused Digital CST plate did not contain a "dimensionally stable" substrate because the manufacturing process of the accused plate did not involve the "special annealing process" required by the claims under the district court's construction. *Id.* at *20. DuPont sought to rely on an adhesive drying process used by MacDermid's contractor, Kimoto, to establish that the "dimensionally stable" limitation was met, but MacDermid introduced evidence to show that the adhesive drying process was not a "specially annealing process" that "controls" the "dimensional stability" of the substrate. *Id.*

The district court reasoned that under its construction of "dimensionally stable," the process of bonding the photosensitive layer to the polymeric substrate is not a "special annealing process." *Id.* at *23. It then found that Kimoto's adhesive drying process is part of the bonding process, and thus not an annealing process. *Id.* The court therefore granted summary judgment of noninfringement of claims 1, 3–4, and 7–8 of the '758 patent. *Id.*

Following the district court's grant of summary judgment, DuPont moved for entry of final judgment under Federal Rule of Civil Procedure 54(b). The district court granted DuPont's motion and entered final judgment. DuPont timely appealed to this court. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

When reviewing a district court's grant of summary judgment, we apply the law of the regional circuit in which the district court sits, here, the Third Circuit. *Teva Pharm. Indus. Ltd. v. AstraZeneca Pharm. LP*, 661 F.3d 1378, 1381 (Fed. Cir. 2011). The Third Circuit "review[s] an order granting summary judgment de novo, applying the same standard" used by the district court. *Azur v. Chase Bank, USA, Nat'l Ass'n*, 601 F.3d 212, 216 (3d Cir. 2010) (quotation omitted). Summary judgment is appropriate when, drawing all justifiable inferences in the nonmovant's favor, "there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247–48 (1986). DuPont challenges the district court's grants of summary judgment of invalidity of the '859 patent and of noninfringement of the '758 patent. We review each of those decisions in turn.

A

Obviousness is ultimately a question of law premised on underlying issues of fact, including: (1) the scope and

content of the prior art; (2) the level of ordinary skill in the pertinent art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence such as commercial success, long-felt need, and the failure of others. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). A patent claim is invalid as obvious if an alleged infringer proves that the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time of invention to a person having ordinary skill in the art. 35 U.S.C. § 103(a) (2006). Patents are presumed to be valid, and overcoming that presumption requires clear and convincing evidence. 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011).

DuPont argues that the district court failed to draw reasonable inferences in its favor. DuPont asserts that the district court improperly relied on "market forces" and hindsight in finding a reason to combine digital imaging and thermal development. DuPont contends that digital imaging generated high quality plates, but that prior art thermal processes yielded poor quality plates. DuPont notes that Fan, the first digital imaging patent, teaches only solvent development. Thus, DuPont continues, a skilled artisan would not have had a reason to use digital imaging to obtain a high quality image and then degrade that image with thermal development. DuPont also contends that Martens's thermal process is not the same as the claimed process because Martens does not describe a thermally removable ablation layer. DuPont argues that one would not have reasonably expected that the thermal process would successfully remove the ablation layer bound to the photopolymerizable layer necessary for digital imaging. DuPont additionally argues that the district court failed to properly consider the objective evidence, including unexpected results, copying by Mac-

Dermid, commercial success, long-felt but unmet need, and industry praise.

MacDermid responds that the district court correctly found "several reasons" for a skilled artisan to combine digital and thermal technologies, including market forces, limited prior art options of the imaging and development processes, and known benefits of digital imaging and thermal development. MacDermid also points to printed publications prior to March 6, 2000, the § 102(b) critical date, which explicitly describe combining digital imaging and thermal development. MacDermid notes, moreover, that DuPont's digital-solvent plates sold before the § 102(b) critical date contain the same opaque infrared ablation layer as its later-marketed digital-thermal plates. Finally, MacDermid responds that the district court properly considered the objective evidence before reaching its ultimate conclusion of obviousness, and that DuPont's objective evidence was sparse and without the required nexus.

We agree with MacDermid that the asserted claims of the '859 patent would have been obvious at the time of the invention over the cited prior art. It is undisputed that digital imaging and thermal development are techniques known in the prior art. In the district court, DuPont conceded that "the prior art contained various 'digital solvent' references (*e.g.*, [Fan] . . . , DuPont's DPU plate, and MacDermid's CBU plates) that disclosed steps 1(a) and 2" of the claimed method, and also "contained various 'analog thermal' references (*e.g.*, [Martens] . . .) that disclosed one or more layers above a photopolymerizable layer." J.A. 7397. DuPont maintains, however, that the prior art does not teach or suggest the *thermally removable* ablation layer of step 1(a). DuPont also argues that a person of ordinary skill in the art would not have had a reason to carry out the claimed process of thermally developing a digitally imaged plate, and would not have

had a reasonable expectation of success in doing so. We disagree.

The district court correctly found that a person of ordinary skill in the art would have had a reason to combine digital imaging and thermal development in the same way as claimed in the '859 patent. DuPont does not dispute that there were a finite number of options of imaging and development methods. Thus, a person of ordinary skill only needed to traverse finite prior art options by substituting one known technique for another.

More importantly, the prior art highlights the advantages of digital imaging over analog imaging. In a 1997 article, entitled "The Digital Difference," J.A. 4193, published five years after the digital-solvent technology was invented, DuPont's inventors reported that "digital plates print with finer highlights while retaining deeper shadows, and with lower dot gain than conventional printing throughout the tonal range," J.A. 4196. They described digital imaging as "truly superior," "gaining worldwide acceptance," and "a fundamental technology improvement that enables expansion of the flexographic printing process into . . . new markets," noting that orders for digital plates and digital exposure devices were "steadily increasing." J.A. 4193, 4196, 4197.

The prior art also describes the advantages of thermal development over solvent development. Martens, a patent issued in December 1992, teaches that those advantages include "a substantial reduction of plate making steps, plate making process time, and the elimination of potentially toxic by-product waste streams in plate making." Martens at 4:23–34. Martens also describes actual examples that produced "excellent" images after thermal development. *Id.* at 21:67–22:2, 26:21–22. Moreover, in April 1999, DuPont detailed the benefits of its Cyrel® FAST thermal technology at a U.S. tradeshow, describing the technology as "revolutionary," "a great leap

forward," and a "breakthrough technology" that "reduce[s] platemaking time." J.A. 3420. DuPont emphasized that, as compared to solvent development, the thermal method reduced platemaking time from over 3 hours to 1 hour and produced "high quality" plates. *Id.*

Accordingly, the prior art teaches significant benefits of both digital imaging and thermal development over their counterparts, providing a reason for a person of ordinary skill to combine them in one sequential process. Indeed, in a January 2000 article, published more than one year before the earliest application filing date, and thus qualifying as prior art under 35 U.S.C. § 102(b) (2006),[2] a DuPont consultant stated that "[d]igitally imaged plates will become the standard for high-quality flexo," and that "Next on the horizon is Cyrel FAST, reportedly the first *thermal, dry-processed* flexo platemaker on the market. Regular or *digitally imaged plates are processed without solvents or liquids*." J.A. 3427 (emphases added). That article thus explicitly and unambiguously teaches combining digital and thermal technologies, thus laying to rest any doubt whether there would have been a reason to combine those technologies.

We are unpersuaded by DuPont's arguments to the contrary. DuPont only relies on its expert's declaration and identifies no prior art that disparages the claimed combination. DuPont argues that the thermal method produced poor quality images, and thus it had languished

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[2] This court and our predecessor court have held that art considered to be a statutory bar under § 102(b) qualifies as prior art under § 103(a). *See, e.g.*, *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1344 (Fed. Cir. 2007); *LaBounty Mfg., Inc. v. ITC*, 958 F.2d 1066, 1071 (Fed. Cir. 1992); *In re Kaslow*, 707 F.2d 1366, 1374 (Fed. Cir. 1983); *In re Ownby*, 471 F.2d 1233, 1236 (CCPA 1973); *In re Foster*, 343 F.2d 980, 988–90 (CCPA 1965).

for decades since the 1960s. But, as the record shows, in the 1990s, right before the 1999 date of invention, several prior art references, including Martens and DuPont's own public disclosures, promoted the thermal process. Even if it were true that the thermal process was not the best method for producing high quality images, the legally proper question is whether the thermal process would be a suitable option in *some* respects, not necessarily in *every* respect. Here, the prior art teaches the benefits of thermal development over solvent development, including environmental and time-saving benefits. There is therefore no genuine issue of material fact that a person of ordinary skill would have had a reason to combine digital imaging and thermal development.

We also agree with MacDermid that a person of ordinary skill in the art would have had a reasonable expectation of success in combining digital imaging and thermal development as claimed by the '859 patent. As indicated, DuPont conceded that the prior art "digital" references teach steps 1(a) and 2 of the claimed method, and that the prior art "thermal" references teach the thermal removal of multiple layers. DuPont also admitted that its prior-art digital-solvent plates have the same chemical composition as its digital-thermal plates. J.A. 3384–85, 3237. Although the prior art did not *explicitly* teach the thermal removal of the ablation layer in a digital plate, the record shows that prior art digital plates already included ablation layers with binders that softened and flowed at thermal development temperatures, and thus are in fact thermally removable. Accordingly, there would have been a reasonable expectation that the thermal process would successfully remove the ablation layer bound to the photopolymerizable layer.

This is not a case where a skilled artisan needed "to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which

parameters were critical or no direction as to which of many possible choices is likely to be successful." *In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988). Nor is this a case where a skilled artisan "was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it." *Id.*

Notably, the claims at issue do not require any special condition for digital imaging or thermal development. With a reason to combine digital and thermal technologies, a skilled artisan needed only to begin from an existing digital plate, to imagewise expose it, and then to thermally develop the plate in known ways to practice the claimed process. Thus, the claimed process would at least have been obvious to try. There is therefore no genuine issue of material fact that a person of ordinary skill in the art would have had a reasonable expectation of success in combining digital and thermal techniques.

DuPont lastly contends that secondary considerations created a triable issue precluding summary judgment. Because this appeal arises from a grant of summary judgment, as with other issues, we review the objective evidence *de novo*, drawing all justifiable inferences in favor of DuPont. Fed. R. Civ. P. 56(a). In district court litigation, courts must consider all objective evidence before reaching the ultimate conclusion of obviousness. *In re Cyclobenzaprine Hydrochloride Extended-Release Patent Litig.*, 676 F.3d 1063, 1076 (Fed. Cir. 2012). "The objective considerations, when considered with the balance of the obviousness evidence in the record, guard as a check against hindsight bias." *Id.* at 1079. The burden of persuasion remains on the patent challenger to prove obviousness. *Id.* at 1077–78.

DuPont argues that the district court failed to properly consider the objective evidence, including unexpected

results, copying, commercial success, long-felt but unmet need, and industry praise. On a careful review of the record, we agree with MacDermid that DuPont's purported evidence of unexpected results, copying, and long-felt but unmet need is sparse. Moreover, drawing all justifiable inferences in favor of DuPont, we conclude that the proffered objective evidence, including commercial success and industry praise, is insufficient to create a genuine issue of material fact to preclude summary judgment.

As discussed, the record contains strong evidence that a skilled artisan would have had a reason to combine two known technologies and would have had a reasonable expectation of success in doing so. Indeed, DuPont itself promoted the digital and thermal technologies as technological breakthroughs in prior art publications. Thus, in view of the record as a whole, even drawing all justifiable inferences in favor of DuPont, the objective evidence is insufficient to preclude summary judgment on the ultimate legal conclusion of obviousness.

We therefore affirm the grant of summary judgment of invalidity of the '859 patent.

B

We now turn to the district court's grant of summary judgment of noninfringement of the '758 patent. To determine infringement, a court first construes the scope and meaning of the asserted patent claims, and then compares the construed claims to the accused product or process. *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1129 (Fed. Cir. 2011). "The proper construction of a patent's claims is an issue of Federal Circuit law." *Id.* We review a district court's ultimate claim construction *de novo* and any underlying factual determinations involving extrinsic evidence for clear error. *Teva Pharm. U.S.A., Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841–42 (2015). Here, because the district court relied solely on the intrinsic record in construing the challenged claim

term, and because the intrinsic record alone determines the proper construction, we review the district court's construction *de novo*. *See Shire Dev., LLC v. Watson Pharm., Inc.*, 787 F.3d 1359, 1364, 1368 (Fed. Cir. 2015) (citing *Teva*, 135 S. Ct. at 840–42).

Infringement is a question of fact. *Absolute Software*, 659 F.3d at 1129–30. "On appeal from a grant of summary judgment of non-infringement, we determine whether, after resolving reasonable factual inferences in favor of the patentee, the district court correctly concluded that no reasonable jury could find infringement." *Id.*

1

The words of a claim "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). The court looks to the intrinsic record, including "the words of the claims themselves, the remainder of the specification, [and] the prosecution history," as well as to extrinsic evidence when appropriate, to construe a disputed claim term. *Id.* at 1314.

DuPont argues that the district court erred in construing "dimensionally stable" by importing a "special annealing" *process* limitation into a *product* claim and by imposing further requirements that the annealing process take place after the manufacturing of the polymeric film and be separate from the bonding process. DuPont argues that there was no disclaimer or disavowal during prosecution because it merely discussed the annealing process to show that the inherency rejection was improper.

MacDermid responds that the district court did not impermissibly read process limitations into the product claims. MacDermid argues that the "special annealing process" is a necessary limitation because the patentee emphasized during prosecution that the "special anneal-

ing process" is essential to the claimed invention. MacDermid argues, moreover, that the specification makes clear that the annealing process is the invention, whereas the bonding process is optional and disclosed by the prior art.

We agree with MacDermid that the district court did not err in construing "dimensionally stable" as requiring a "special annealing process" that controls the dimensional stability of the polymeric substrate, as described in the patent specification. During prosecution, the applicants relied solely on that annealing process to overcome prior-art-based anticipation and obviousness rejections and repeatedly characterized the annealing process as "important" and "critical." J.A. 2303, 2348, 2367. Those statements constitute a disclaimer of the claim scope.

We are unpersuaded by DuPont's argument that its prosecution statements were made merely to show that the examiner failed to establish that the prior art plates, which were not annealed, inherently possess the claimed dimensional stability. As noted, the applicants sought to overcome both inherency and obviousness rejections, and it repeatedly emphasized that the annealing process is "important" and "critical." The applicants did so to secure issuance, and succeeded. In view of the disclaimer in the publicly available intrinsic record, DuPont cannot now attempt to recapture the disclaimed subject matter.

We therefore conclude that the "dimensionally stable" limitation requires that the polymeric substrate be prepared from the special annealing process that controls the dimensional stability of the substrate. We need not, and do not, address whether the district court erred in requiring that the annealing process be separate from the bonding process because, as indicated *infra*, our affirmance of the grant of summary judgment of noninfringement does not turn on that issue.

2

DuPont next argues that, even under the district court's construction, the court erred in granting summary judgment of noninfringement because it resolved factual disputes in favor of MacDermid as to whether the accused process, namely, Kimoto's adhesive drying process, is a "special annealing process." MacDermid responds that it was entitled to summary judgment because DuPont relied solely on one sentence in its expert report, stating that the Kimoto process is not a bonding process, to establish that the Kimoto process is an annealing process. MacDermid notes that DuPont's expert later conceded that the Kimoto process is for bonding, not other purposes.

MacDermid additionally argues that the record supports alternative grounds for affirming the grant of summary judgment of noninfringement, including DuPont's failure to establish that the dimensional stability of the accused substrate is "controlled" by a "special annealing process." DuPont responds that MacDermid's alleged alternative grounds involve disputed issues of fact, not law, and thus must be decided by a jury on remand.

We agree with MacDermid and affirm the grant of summary judgment of noninfringement on the alternative ground that DuPont failed to establish that the dimensional stability of the accused substrate is controlled by the accused Kimoto adhesive drying process.

In the district court, MacDermid presented evidence that the dimensional stability of the accused substrate was not improved by Kimoto's adhesive drying process. DuPont did not put forth any contrary evidence on this issue. In opposition to MacDermid's motion for summary judgment, DuPont filed an expert declaration attempting to provide, for the first time, an analysis and opinion that the Kimoto process controlled dimensional stability. J.A. 7275–79. The district court struck DuPont's newly disclosed evidence, J.A. 13283–94, and DuPont does not

challenge that evidentiary ruling on appeal. Thus, without evidence that the Kimoto process controls the dimensional stability of the accused substrate, no reasonable jury could find that MacDermid infringes the asserted claims.

We therefore affirm the grant of summary judgment of noninfringement of the '758 patent.

CONCLUSION

We have considered DuPont's remaining arguments and find them unpersuasive. For the foregoing reasons, we conclude that the asserted claims of the '859 patent would have been obvious in view of the prior art and that the asserted claims of the '758 patent were not infringed. We therefore affirm the judgment of the district court.

AFFIRMED