IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

E. I. DU PONT DE NEMOURS AND COMPANY, Plaintiff, v. UNIFRAX I LLC, Defendant.	Civil Action No. 14-1250-RGA

MEMORANDUM OPINION

Richard L. Horwitz, Esq., David E. Moore, Esq., Bindu A. Palapura, Esq., POTTER ANDERSON & CORROON LLP, Wilmington, DE; Adam K. Mortara, Esq. (argued), Christopher D. Landgraff, Esq. (argued), Sharon Desh, Esq. (argued), BARTLIT BECK HERMAN PALENCHAR & SCOTT LLP, Chicago, IL, attorneys for Plaintiff.

Frederick L. Cottrell, III, Esq., Kelly E. Farnan, Esq. (argued), Jason J. Rawnsley, Esq., Katharine Lester Mowery, Esq., RICHARDS, LAYTON & FINGER, P.A., Wilmington, DE; Joseph G. Curatolo, Esq., Salvatore A. Sidoti, Esq. (argued), CURATOLO SIDOTI CO. L.P.A., Cleveland, OH, attorneys for Defendant.

January 13, 2016

Richard G. Andrews

ANDREWS, U.S. DISTRICT JUDGE:

Presently before the Court is the issue of claim construction of several terms in U.S. Patent No. 8,607,926 ("the '926 patent"). The Court has considered the parties' Joint Claim Construction Brief. (D.I. 74). The Court heard oral argument on December 7, 2015. (D.I. 78 [hereinafter, "Tr."]).

I. BACKGROUND

On October 1, 2014, Plaintiff E. I. du Pont de Nemours and Company filed this action against Defendant Unifrax I LLC, alleging infringement of the '926 patent. (D.I. 1). The '926 patent is addressed to a composite flame barrier laminate for thermal and acoustic blankets used in aircraft structures. (D.I. 66-2 at 2).

II. LEGAL STANDARD

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). "'[T]here is no magic formula or catechism for conducting claim construction.' Instead, the court is free to attach the appropriate weight to appropriate sources 'in light of the statutes and policies that inform patent law.'" *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Of these sources, "the 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." *Phillips*, 415 F.3d at 1315 (internal quotation marks and citations omitted).

> "[T]he words of a claim are generally given their ordinary and customary meaning. . . . [The ordinary and customary meaning is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application."

Id. at 1312–13 (internal quotation marks and citations omitted). "[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314 (internal citations omitted).

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court's construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings based upon consideration of extrinsic evidence, which "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips*, 415 F.3d at 1317–19 (internal quotation marks and citations omitted). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

"A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (internal quotation marks and citation omitted).

III. PATENT AT ISSUE

Claim 1 of the asserted '926 patent is the sole independent claim. It reads:

> 1. A multilayer laminate for use as a flame barrier layer for an aircraft comprising in order (i) a polymeric film layer capable of withstanding a temperature of at least 200 C for at least 10 min,
>
> (ii) an adhesive layer having an areal weight of from 2 to 40 gsm capable of activation at a temperature of from 75 to 200 degrees C., and
>
> (iii) an inorganic refractory layer;
>
> wherein the inorganic refractory layer of (iii) comprises platelets in an amount of 100% by weight with a dry areal weight of 15 to 50 gsm and a residual moisture content of no greater than 10 percent by weight.

('926 patent, 9:6–17).

Claim 2 of the '926 patent reads:

> 2. The laminate of claim 1 wherein the inorganic refractory layer comprises vermiculite.

(*Id.* at 9:18–19).

IV. CONSTRUCTION OF DISPUTED TERMS

1. laminate

   a. *Plaintiff's proposed construction*: Non-limiting

   b. *Defendant's proposed construction*: Limiting; composite of separate pre-formed layers joined by lamination

   c. *Court's construction*: Limiting; a product made up of bonded layers of thin sheets

In their joint claim construction brief, the parties dispute whether the term "laminate" in the preamble to independent claim 1 is a separate claim limitation. (D.I. 74 at 16, 19). DuPont has since stated that, although it objects to Unifrax's proposed construction, it does not object to a limiting construction of "laminate" *per se*. (D.I. 76 at 1). Unifrax argues that the claim language and the specification support its proposed construction of the limiting term "laminate." (D.I. 74 at 19).

A claim preamble is not construed as a limitation "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (internal quotation marks omitted). A preamble is construed as a limitation "if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." *Id.* (internal quotation marks omitted).

DuPont maintains that the claimed invention is structurally complete without the preamble because the claim body recites three layers "in order," the middle layer being an "adhesive layer." (D.I. 74 at 23). Unifrax argues that a "review of the entirety of the patent" demonstrates that "laminate" is limiting because it provides necessary structure for the claimed invention. (*Id.* at 19–20).

The term "laminate" is limiting because it gives "life, meaning, and vitality" to the claim and imparts a structure that is not present in the recitation of the layers in the body of the claim. The patent repeatedly refers to the invention as a laminate. ('926 patent, (title); (abstract); 1:14 (field of invention); 1:31 (summary of invention)). The claim body does not disclose a complete structure because it does not describe the adhesive layer as actually adhering anything. (*See id.* at 9:10–12). One of ordinary skill in the art would know that the the claimed layers of the invention are adhered with their surfaces (as opposed to, for example, their edges) in contact because the claimed invention is a "laminate." I therefore conclude that the preamble term "laminate" is a claim limitation.

In support of its proposed limiting construction, Unifrax argues that the only processes disclosed in the specification to form the laminate are of separate, pre-formed layers joined by lamination. (Tr. at 111). The processes that are or are not disclosed in the patent are not

particularly germane, however, because the claimed invention is an apparatus, not a process. Additionally, the specification discloses that, in some of the examples, "[s]amples of the adhesive coated polymeric film were then bonded to the refractory layer on a release paper in the double-belt laminator with the adhesive contacting the exposed refractory surface, to form 3-layer composite laminate." ('926 patent, 7:6–10). The specification thus discloses an adhesive layer "coated" onto the polymeric film layer so that the resulting "3-layer composite laminate" is made of only two "separate, pre-formed" layers. (*See* Tr. at 117). Unifrax's proposed construction is, at least on its face, inconsistent with this description in the specification. "Laminate" is not limited to material formed by "separate, pre-formed layers joined by lamination."

At my request, the parties submitted technical dictionary definitions of "laminate" to inform the appropriate affirmative construction. (D.I. 75, 76, 77). The technical definition in the ASTM Dictionary of Engineering Science & Technology (10th ed. 2005), submitted by DuPont (D.I. 76 at 5), is not materially different from the definition in the Oxford Dictionary of Mechanical Engineering (2013), submitted by Unifrax (D.I. 75-1 at 2). The extrinsic evidence thus suggests that the noun form of "laminate" means a product (or body) made up of bonded layers of material (or thin sheets).

For the reasons stated above, I construe the term "laminate" to be limiting and to mean "a product made up of bonded layers of thin sheets."

2. in order

   a. *Plaintiff's proposed construction*: Plain and ordinary meaning

   b. *Defendant's proposed construction*: In direct contact in sequence

   c. *Court's construction*: Plain and ordinary meaning

The parties dispute whether the limitation that the claimed layers be "in order" requires that the layers be "in direct contact." (D.I. 74 at 26). DuPont argues that the term "needs no construction because it is not scientific or technical—it is easily understood." (*Id.* at 27). DuPont maintains that the plain and ordinary meaning of "in order" as that term is used in the patent does not require direct contact between the claimed layers. (*Id.*). Instead, DuPont argues, "[l]aypersons understand the plain and ordinary meaning of 'in order' to mean in 'sequence or succession in space or time.'" (*Id.* at 32 (quoting Merriam-Webster Unabridged Online Dictionary 2(a)(1), http://unabridged.merriam-webster.com/unabridged/order (last visited Oct. 22, 2015))).

DuPont also contends that Unifrax's proposed construction is inconsistent with (1) the disclosure in the specification (*id.* at 27); (2) the language of the claim (*id.* at 28); and (3) the prior art of record (*id.* at 27). First, DuPont contends that Unifrax's proposed construction is inconsistent with the disclosure in the specification because the specification contemplates additional layers, including a "lightweight open weave fabric scrim" laid onto the refractory layer or placed between two refractory layers. (*Id.* at 27 (citing '926 patent, 3:58–62)). Second, DuPont contends that Unifrax's proposed construction is inconsistent with the language of the claim, which uses the open transition "comprising." (*Id.* at 28). DuPont argues that because the word "comprising" allows for additional, unrecited elements, the claim accommodates the possibility of additional layers between the claimed layers. (*Id.*). Third, DuPont contends that Unifrax's proposed construction is inconsistent with the term as it is used in the prior art. (*Id.* at 27). According to DuPont, where the prior art requires that layers be in direct contact, the art expressly states that requirement using the term "adjacent," which does not appear in the '926 claim at issue. (*Id.*).

Unifrax argues that neither of the embodiments that disclose a lightweight open weave fabric scrim discloses such a scrim positioned between the polymer film layer and the adhesive layer or between the adhesive layer and the inorganic refractory layer. (*Id.* at 35). Instead, Unifrax argues, the embodiments provide that a scrim may be added on the surface of the inorganic refractory layer opposite the adhesive layer or that a scrim may be added between two inorganic refractory layers. (*Id.* at 35 n.11). In response to DuPont's contention that the open-ended claim transition "comprising" contemplates the possibility of additional layers between the claimed layers, Unifrax acknowledges that "[t]he term 'comprising' suggests that additional layers may be positioned adjacent to the outer facing surface of the polymer film or the inorganic refractory layer." (*Id.* at 36). Unifrax argues, however, that despite the presence of the transition "comprising," the claim does not permit additional layers between either the polymer film or the inorganic refractory layer and the adhesive layer. (*Id.*). Unifrax also objects to DuPont's reliance on third party prior art for the proposition that layers may be "adjacent" or "non-adjacent" because "nothing in the prosecution history or in the specification of the '926 patent states that the claimed layers may be 'non-adjacent.'" (*Id.* at 31).

Unifrax argues that the Court should adopt its proposed construction of "in order" because the patent requires the layers to be in direct contact. (*Id.* at 28). Unifrax argues, first, that the claim itself "necessarily requires that the layers be in direct contact and in sequence, without any intervening layers, so that the adhesive layer can bond the polymeric film to the inorganic refractory layer." (*Id.*). Unifrax argues, second, that the overall structure of the claims requires that the layers be in direct contact because dependent claims 4, 8, and 9 each claim varying levels for "the adhesive bond between the inorganic refractory layer and the polymeric film." (*Id.* at 28 n.7). Unifrax argues, third, that the specification supports its proposed

construction because Figure 1 of the specification depicts the three claimed layers in direct contact with one another. (*Id.* at 29). Unifrax maintains that the specification also discloses that the "in order" limitation requires that the layers be in direct contact because it describes the adhesive bond as one that bonds the adhesive layer "to the polymeric film layer and the refractory layer." (*Id.*; *see, e.g.*, '926 patent, 2:30–31; 2:43–53; 2:66–3:1; 6:38–41; 7:6–10; 7:17–21; 7:50–5; 8:17–26).

DuPont responds that Unifrax has not identified any embodiments that require that the claimed layers be in direct contact without any intervening layers. (D.I. 74 at 33). DuPont further responds that the claim limitation that the layers must be adhesively bonded does not mean that the layers must be in direct contact. (*Id.*). DuPoint argues that "bonded" means simply "held together by an adhesive." (*Id.* (quoting Merriam-Webster Unabridged Online Dictionary 2, http://unabridged.merriam-webster.com/unabridged/bonded (last visited Oct. 22, 2015))). DuPont also argues that prior art in the intrinsic record demonstrates that a patent will expressly state that two items must be "in contact" if they must be in contact. (*Id.* (citing D.I. 66-6 at 8)). Finally, DuPont argues that even if the specification discloses only layers in direct contact, that would not support Unifrax's construction because "a narrow disclosure in the specification does not necessarily limit broader claim language." (*Id.* (quoting *Intamin, Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007) (internal quotation marks omitted))).

The term "in order" requires no construction. The fact that the claim contemplates an adhesive bond does not necessarily mean that the layers must be in direct contact without any intervening layers. The specification is consistent with an adhesive bond that is present even if there are intervening layers. That the dependent claims claim varying adhesive bond strengths

between the inorganic refractory layer and the polymeric film layer is likewise consistent with the plain and ordinary meaning of the term "in order." Prior art cited in the patent explicitly states that layers are in direct contact when it invokes that limitation. (D.I. 66-6 at 8, ¶ [0073]). The fact that Figure 1 depicts the three claimed layers in direct contact with each other does not support Unifrax's proposed limitation over the plain and ordinary meaning. Thus, I conclude that "in order" should be given its plain and ordinary meaning. Unifrax cannot argue that the plain meaning includes being "in direct contact."

3. inorganic refractory layer

   a. *Plaintiff's proposed construction*: A layer whose purpose includes flame and heat resistance

   b. *Defendant's proposed construction*: Layer containing only inorganic materials

   c. *Court's construction*: Layer containing inorganic materials and whose purpose includes flame and heat resistance

The parties' dispute with respect to the proper construction of "inorganic refractory layer" relates solely to whether the "inorganic refractory layer" contains "only" inorganic materials. (D.I. 74 at 37, 42; Tr. at 77, 78–79). Aside from that, the parties agree to a combination of their proposed constructions. (Tr. at 77–79).

DuPont argues that nowhere in the patent, its prosecution history, or in the patent family is it stated that the inorganic refractory layer contains "only" inorganic materials. (D.I. 74 at 37). Indeed, DuPont maintains that Unifrax does not cite anything that states that the inorganic refractory layer contains "only" inorganic materials. (*Id.* at 41–42). DuPont notes that, contrary to limiting the refractory layer to "only" inorganic materials, the specification provides that "[t]he refractory layer may comprise some residual dispersant arising from incomplete drying of the platelet dispersion during manufacture." (*Id.* at 37 (alteration in original) (quoting '926

patent, 3:24–26) (internal quotation marks omitted)). DuPont argues that the patentees contemplated that the residual dispersant could contain organic materials because the patent describes MicroLite HTS-XE, which contains organic dispersant, as an example of an acceptable vermiculite dispersion. (Tr. at 83–84; *see* '926 patent, 3:47–51). Unifrax responds that "DuPont does not advance any argument that the 'residual dispersant' is anything other than inorganic. . . . [N]either the '926 patent nor its prosecution history provide any guidance on what constitutes any 'residual dispersant' and whether such dispersant is other than inorganic." (D.I. 74 at 40). Unifrax further argues that DuPont cannot rely on the specification's mention of MicroLite HTS-XE to argue that the patent discloses the use of organic dispersant because the patentees disclaimed MicroLite HTS-XE as an appropriate component of the inorganic refractory layer. (Tr. at 84–85).

Unifrax's proposed inclusion of the word "only" collapses the dispute about this term into the dispute regarding the 100% by weight composition of the inorganic refractory layer. Whether the patentees disclaimed refractory layers that do not contain "only" inorganic materials is resolved by reference to the "100% by weight" disputed claim term, discussed below. Thus, I conclude that the proper construction of "inorganic refractory layer" does not include the word "only" and otherwise combine the parties' proposed constructions.

4. platelets

   a. *Plaintiff's proposed construction*: Plain and ordinary meaning. Alternatively, material having a width in diameter greater than its thickness.

   b. *Defendant's proposed construction*: Thin, flat inorganic oxide material having a width substantially greater than its thickness

   c. *Court's construction*: Small, plate-like materials

DuPont and Unifrax agree that "platelets" are small, plate-like material. (Tr. at 130–131). The parties disagree regarding whether the meaning of "platelets" in the claim is further limited to "inorganic oxide" material. (D.I. 74 at 43, 45; Tr. at 131).

With respect to whether "platelets" are inorganic oxide materials, DuPont argues that the modifier "inorganic" in the claim belongs to the layer, not the platelets. (D.I. 74 at 47). DuPont's position is "that the term 'platelet' describes the structure or the size of the material . . . [and not] the composition of the material." (Tr. at 133). Unifrax argues that both the claim and the specification disclose that platelets are limited to inorganic oxide materials. (D.I. 74 at 45). Specifically, Unifrax notes that platelets comprise the claimed inorganic refractory layer and that the preferred platelets disclosed in the specification are all inorganic. (D.I. 74 at 45–46). Unifrax also argues that the "specification is clear that the inorganic materials are oxides" because vermiculite is disclosed as a preferred platelet material and vermiculite comprises oxides. (*Id.*).

The word "inorganic" in the claim modifies "refractory layer," not "platelet." ('926 patent, 9:13–15). In the specification, the term "platelet" most often appears without the modifiers "inorganic" or "inorganic oxide." (*See, e.g.*, *id.* at 3:21–26, 3:31, 3:51–56, 4:14–20). The word "inorganic" immediately precedes the word "platelet" twice. (*Id.* at 3:32–33, 58–59). The first reference to "inorganic platelets" occurs in the context of a discussion of preferred embodiments. (*Id.* at 3:27–34). The specification's only reference to "inorganic oxide platelets" just after that disclosure of several suitable examples of "inorganic platelets." (*Id.* at 3:34–37). The specification therefore discloses "[t]he inorganic platelets" and the "inorganic oxide platelets" as examples of suitable platelets. The second reference to the "inorganic platelet layer" is ambiguous with respect to whether "inorganic" modifies "platelet" or "layer." (*Id.* at

3:58–62). Further, assuming that Unifrax is right that, to constitute an "inorganic refractory layer," the platelets used must be inorganic (*see* D.I. 74 at 46), that limitation would nevertheless apply to the layer, not to the platelets. I therefore conclude that the proper construction of "platelets" does not include the "inorganic oxide" limitation.

5. 100% by weight

a. *Plaintiff's proposed construction*: There is no carrier material such as resin, adhesive, cloth or paper in addition to the inorganic platelets. There may be some residual dispersant arising from incomplete drying of the platelet dispersion.

b. *Defendant's proposed construction*: Plain meaning – no construction is necessary

c. *Court's construction*: There is no carrier material such as resin, adhesive, cloth, or paper in addition to the inorganic platelets. There may be some residual dispersant arising from incomplete drying of the platelet dispersion.

The parties dispute the meaning of "100%" as it applies to the platelet content of the claimed inorganic refractory layer. (D.I. 74 at 49). DuPont argues that the Court should adopt its proposed construction of "100% by weight" because the '926 patentees acted as their own lexicographers in defining "100%." (*Id.*). DuPont maintains that Unifrax's construction "impermissibly would exclude every embodiment of the '926 patent, since metaphysical 100% purity is not an achievable state." (*Id.* at 60). Unifrax contends, on the other hand, that the patentees did not expressly define "100%" and that the term should be given its plain and ordinary meaning. (*Id.* at 54). Unifrax objects to DuPont's characterization of its proposal, arguing that the plain and ordinary meaning of "100%" would not necessarily preclude the presence of impurities or "one particle of dust, [or] one droplet of moisture, [or] one molecule of a residual dispersant." (Tr. at 16). Unifrax also argues that the Court should reject DuPont's proposed construction because it seeks to include subject matter disclaimed during prosecution

and makes the term less clear to a jury than the plain language without a construction would be. (D.I. 74 at 52, 56).

I think that the parties' dispute boils down to whether the platelets are 100% of the inorganic refractory layer or 100% relative to carrier material in the inorganic refractory layer. The relevant intrinsic evidence supports DuPont's proposed construction, according to which "100% by weight" means 100% platelets relative to carrier material. First, the '926 specification discloses a refractory layer comprising 100% platelets and "some residual dispersant." ('926 patent, 3:25). Second, the parent '826 application and '027 patent suggest that one of ordinary skill in the art would understand "100% by weight" to mean "no carrier material." Third, the '926 patentees' disclaimer over Tompkins supports DuPont's proposed construction. Fourth, DuPont's proposed construction more clearly communicates patentees' intended meaning than does the claim term without construction.

i. '926 patent

DuPont argues that its proposed construction is consistent with the '926 specification, which states:

> The refractory layer comprises platelets. Preferably at least 85% of the layer comprises platelets, more preferably at least 90% and most preferably at least 95%. In some embodiments, platelets comprise 100% of the layer. The refractory layer may comprise some residual dispersant arising from incomplete drying of the platelet dispersion during manufacture.

(D.I. 74 at 59 (quoting '926 patent, 3:21–27)). DuPont maintains that the fact that the last sentence of this passage grammatically modifies all of the embodiments that precede it supports its argument that "100%" platelets excludes the presence of carrier materials but permits the presence of residual dispersant. (*See* Tr. at 53).

Unifrax responds that the quoted passage of the '926 patent does not support DuPont's proposed construction. (D.I. 74 at 55). Unifrax maintains that the "passage does not specifically state that an embodiment containing 100% platelets can contain anything other than platelets and, instead, is discussing many embodiments, some of which contain less than 100% platelets and which were disclaimed during prosecution." (*Id.* at 55–56). Unifrax thus argues that, because the specification's mention of residual dispersant applies only to the disclaimed embodiments, DuPont's proposed construction must be rejected. (*Id.* at 53).

The grammatical and most natural reading of this passage is that "[t]he refractory layer may comprise residual dispersant" refers to all the embodiments mentioned in the paragraph, including the embodiment in which platelets comprise 100% of the layer. Additionally, if DuPont's construction were rejected, the language of the claim itself would seem to require that the layer be made up of 110% by weight. ('926 patent, 9:13–17). That the claim would be indefinite on its face under a construction other than DuPont's also lends some support to DuPont's construction.

The '926 patent supports DuPont's proposed construction of "100% by weight" as permitting some residual dispersant.

ii. Parent of the '926 patent

DuPont argues that its proposed construction is mandated by an express definition of "100% platelet" in the specification of the '027 patent, the parent to the '926 patent. (D.I. 74 at 49–50). DuPont implicitly acknowledges that the '926 patent does not explicitly define "100%." (*See id.* at 49). Nevertheless, DuPont argues that the meaning of "100%" in the '926 patent is set forth in the '027 patent because a parent specification is intrinsic evidence where it "addresses a limitation in common with the patent in suit." (*Id.* (quoting *Advanced Cardiovascular Sys., Inc.*

v. Medtronic, Inc., 265 F.3d 1294, 1305 (Fed. Cir. 2001) (internal quotation marks omitted))). The '027 specification states: "In one embodiment of this invention, the inorganic platelet layer contains 100% platelets i.e. there is no carrier material such as resin, adhesive, cloth or paper. However, there may be some residual dispersant arising from incomplete drying of the platelet dispersion." ('027 patent, 2:32–36). This text is also found in the published application for the '027 patent (the "'826 application"). (D.I. 66-5 at 19, ¶ [0014]). DuPont contends that the text in the '826 application is intrinsic evidence because the '826 application is identified both in the prosecution history of the '926 patent and as prior art of record on the face of the '926 patent. (D.I. 74 at 57).

Unifrax contends, first, that the definition in the '027 patent is not intrinsic evidence to the '926 patent because it does not "address[] a limitation in common with the patent in suit."[1] (*Id.* at 54 (quoting *Advanced Cardiovascular Sys., Inc.*, 265 F.3d at 1305 (internal quotation marks omitted))); *see also ResQNet.com v. Lansa, Inc.*, 346 F.3d 1374, 1383 (Fed. Cir. 2003). The disputed claim term is not common to the '027 patent and the '926 patent. In fact, no claim of the '027 patent includes either the phrase "100% by weight" or "100% platelets." (*See* '027 patent, 6:60–8:17). In addition, Unifrax argues that one of skill in the art "would conclude that any definition allegedly ascribed by DuPont to the '100% by weight' in the parent patent no longer applies in the continuation-in-part application" because patentees intentionally omitted from the '926 specification the purported definition on which DuPont now relies. (D.I. 74 at 61–62). DuPont's position with regard to this point is that "[t]he patentees repeated the definition in

[1] Unifrax also argues that DuPont's position is inconsistent with its statements to this Court in connection with the motion to dismiss. (D.I. 74 at 54 n.15). DuPont's previous statements that the claim does not cover a laminate comprising an inorganic refractory layer that has 5-25% by weight resin is not inconsistent with its current position that the claim covers a laminate comprising an inorganic refractory layer containing residual dispersant. (*See id.* at 60).

material part in the continuation, and did not need to re-state that resin, adhesive, cloth and paper are excluded in order for 100% to have a consistent meaning across both patents." (*Id.* at 58).

The statement, "In one embodiment of this invention, the inorganic platelet layer contains 100% platelets i.e. there is no carrier material such as resin, adhesive, cloth or paper. However, there may be some residual dispersant arising from incomplete drying of the platelet dispersion," is intrinsic evidence of the meaning of "100%" in the '926 patent. First, the statement in the '826 application is intrinsic evidence of the meaning of "100%" in the '926 patent because the '826 application is listed as prior art on the face of the '926 patent. *See Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231 (Fed. Cir. 2011) ("[P]rior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence." (internal quotation marks omitted)). Second, the statement in the '027 patent is intrinsic evidence because the '027 patent bears a formal familial relationship to the '926 patent and the statement is relevant to the meaning of "100%" in the '926 patent. *See Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167–68 (Fed. Cir. 2004) (describing the lack of a formal relationship between two patents as a reason the court did not have "free license to use the contents" of one patent and its prosecution history to construe the claims of the other patent); *Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1384 (Fed. Cir. 1999) (considering a statement in the parent application in construing the continuation-in-part patent because the "subject matter [wa]s common to the continuation-in-part application, and [the statement] was correctly viewed as applying to the common subject matter"); *U.S. Water Servs., Inc. v. Novozymes A/S*, 2015 WL 4634352, at *6 (W.D. Wis. July 29, 2015) ("Intrinsic evidence includes the patent and its prosecution history, related patents and their prosecution histories, and the prior art that is cited or incorporated by reference in the patent-in-suit and prosecution history."), *appeal filed* (Fed. Cir. Sept. 2, 2015). Although the

'826 application and the '027 patent do not share the disputed '926 patent claim term "100%," they both claim inventions that comprise a layer that comprises platelets and illuminate the meaning of "100%" as it pertains to such a layer. As in *Wang Laboratories*, the statement relates to common subject matter among the '826 application, the resulting '027 patent, and the continuation-in-part '926 patent. 197 F.3d at 1384. Thus, I conclude that the statement is intrinsic evidence of the meaning of "100%" by weight platelets.

Although the intrinsic evidence supports DuPont's proposed construction, DuPont's construction does not meet the exacting standards for finding lexicography. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir.) *cert. denied*, 135 S. Ct. 719 (2014). The '027 patent and '826 application define "100% platelets," not the disputed '926 claim term "platelets in an amount of *100% by weight*." ('027 patent, 2:32–34; '926 patent, 9:14–15 (emphasis added)). Further, as DuPont conceded at oral argument, the second sentence of its proposed construction is superfluous. (Tr. at 26). Additionally, although the definition of "100% platelets" appears in the '027 patent, the term does not appear in the '027 patent claims. The Federal Circuit has previously declined to consider the prosecution histories of related patents for purposes of claim construction where the patents did not contain the same claim limitation. *See ResQNet.com, Inc.*, 346 F.3d at 1383 (declining to construe claim terms in the patent-in-suit as identical to similar claim terms in other patents not sharing the genealogy of the patent-in-suit because the patents did not have the disputed language in common); *Advanced Cardiovascular Sys., Inc.*, 265 F.3d at 1305–06 (declining to consider the prosecution histories of two sibling patents in construing the terms of another sibling patent where there were no claim terms common between the patent-in-suit and the sibling patents); *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1315 (Fed. Cir. 2001) (declining to consider "a

singular reference" in an information disclosure statement in the prosecution history of the parent of the patent-in-suit because "none of the claims of the [parent] contain the same limitation that [the court was] construing").

The circumstances present here, unlike those present in the cases in which the Federal Circuit declined to consider evidence found in related patents, suggest that the definition of "100%" in the '027 patent and the application thereto apply as well to the '926 patent. That patentees omitted the definition of "100% platelets" from the '926 specification does not suggest that they intended a change of the meaning of "100%" between the '027 and the '926 patent. The '926 patent specification is not a near-copy of the '027 specification in which patentees omitted only the explanation in the '027 specification that "100% platelets" means "no carrier material." That patentees wrote a new specification for the '926 patent, drawing from the '027 patent more in substance than in language, weakens the inference that, by omitting the statement, patentees intended to change the meaning of "100%."

Thus, the '826 application and '027 patent support DuPont's proposed construction of "100% by weight" platelets as meaning the quantity of platelets relative to carrier material.

iii. '926 patentees' disclaimer over Tompkins

The exchange between patentees and the patent examiner over the Tompkins prior art supports DuPont's proposal that "100%" means "no carrier material." During prosecution, the examiner rejected claim 1 of the '926 patent because Tompkins taught a refractory layer with a platelet concentration less than 100%. (*See* D.I. 66-4 at 15–16). Patentees amended claim 1 to insert language stating that the inorganic refractory layer comprises platelets in an amount of 100% by weight. (*Id.* at 30). Accepting the amendment and allowing claim 1, the examiner explained that altering the concentration of platelets in the inorganic refractory layer to 100%

would not have been obvious to one of ordinary skill in light of Tompkins. (*Id.* at 48–49). Unifrax contends that DuPont's present proposed construction is an attempt to reclaim the subject matter it expressly disclaimed during prosecution, namely, refractory layers that contain less than platelets in an amount of 100% by weight due to the presence of "residual dispersant." (D.I. 74 at 54).

DuPont does not dispute that during prosecution, to avoid the Tompkins prior art, the '926 patentees disclaimed embodiments comprising an inorganic refractory layer containing platelets in an amount less than 100% by weight. (*See id.* at 57). Nevertheless, DuPont argues that the patentees did not disclaim inorganic refractory layers that contain residual dispersant. (*Id.*). Patentees amended claim 1 to claim a laminate "wherein the inorganic refractory layer . . . comprises platelets in an amount of 100% by weight . . . and a residual moisture content . . . ." (D.I. 66-4 at 30). The examiner allowed the claim as amended. (*Id.* at 48). That the appended wherein clause includes reference both to "100%" platelets and residual moisture suggests that patentees did not disclaim refractory layers that contain anything at all other than platelets. Additionally, in requesting that the examiner reconsider the rejection of claim 1, patentees described having "overcome the deficiency of Tompkins et al. of the platelet layer being brittle and too heavy" without a carrier layer by finding "a solution wherein in a multilayer structure the platelet concentration is 100%." (*Id.* at 31). That patentees viewed their invention as having solved, in particular, the need for a carrier layer in Tompkins supports DuPont's position that "100%" in the context of the patent means "no carrier layer." The disclaimer to avoid Tompkins merely limited the scope of the claimed layers to those in which no supporting network was necessary, i.e., to those containing no carrier material such as resin, adhesive, cloth, or paper in addition to the inorganic platelets. (*See* D.I. 74 at 57). Thus, the disclaimer had no effect on the

permissibility of non-carrier materials such as residual moisture or dispersant being present in the refractory layer. (*Id.* at 50, 57).

The exchange between patentees and the examiner over Tompkins supports DuPont's position that, because patentees disclaimed only inorganic refractory layers containing any amount of carrier material, the Court should adopt DuPont's proposed construction of "100% by weight."

iv. Clarity of construction

Unifrax argues that the Court should reject DuPont's proposed construction because it makes the term "100% by weight" less clear to a jury than the plain language standing on its own would be. (D.I. 74 at 56, 62). Unifrax argues that the Court should not construe the term because it is clear on its face and because adopting DuPont's proposed construction would require the Court to later construe "carrier material" and "residual dispersant." (*Id.* at 62). DuPont responds that adopting its proposed construction would clarify the term and would not necessitate additional construction. (*Id.* at 60).

I acknowledge the possibility that the Court's present construction of "100% by weight" may yield questions in the future regarding the meaning of other terms. The parties and the Court can address those questions if and when they arise. The purpose of claim construction is to "determin[e] the meaning and scope of the patent claims asserted to be infringed," not to resolve all disputes between the parties, present and future. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995), *aff'd* 517 U.S. 370 (1996).

For the reasons stated above, I construe "100% by weight" to mean: "There is no carrier material such as resin, adhesive, cloth, or paper in addition to the inorganic platelets. There may be some residual dispersant arising from incomplete drying of the platelet dispersion."

6. vermiculite

a. *Plaintiff's proposed construction*: Hydrated magnesium aluminosilicate micaceous mineral found in nature as a multilayer crystal comprising by (dry) weight, on a theoretical oxide basis, about 38-46% SiO_2, about 16-24% MgO, about 11-16% Al_2O_3, about 8-13% Fe_2O_3, and the remainder generally oxides of K, Ca, Ti, Mn, Cr, Na, and Ba including MicroLite 963 and MicroLite HTS-XE available from W.R. Grace or Specialty Vermiculite Corporation.

b. *Defendant's proposed construction*: An inorganic hydrated magnesium aluminosilicate micaceous mineral

c. *Court's construction*: Hydrated magnesium aluminosilicate micaceous mineral found in nature as a multilayer crystal and typically comprising by (dry) weight, on a theoretical oxide basis, about 38-46% SiO_2, about 16-24% MgO, about 11-16% Al_2O_3, about 8-13% Fe_2O_3, and the remainder generally oxides of K, Ca, Ti, Mn, Cr, Na, and Ba.

The parties dispute whether "vermiculite" includes MicroLite 963 and MicroLite HTS-XE, available from W.R. Grace or Specialty Vermiculite Corporation. (Tr. at 89, 93–94). DuPont maintains that its proposed construction comes directly from the specification and is found, in full form, in the prosecution history and patent family. (D.I. 74 at 63–64). DuPont argues that the Tompkins prior art demonstrates that "[t]hose of skill in the art understand that vermiculite is defined by its typical properties, including its availability from W.R. Grace of Cambridge (now part of Specialty Vermiculite Corporation)" because Tompkins "used almost precisely the same definition of vermiculite as the '926 specification and DuPont's proposed construction." (*Id.* at 64–65). DuPont also argues that the Court should reject Unifrax's proposed construction insofar as it limits vermiculite to an "inorganic" hydrated magnesium aluminosilicate micaceous mineral. (*Id.* at 67). DuPont notes that the definition of vermiculite in the specification does not include the term "inorganic." (*Id.*; Tr. at 97). Further, DuPont argues that the patentees used "vermiculite" interchangeably with "aqueous dispersion of MicroLite," which, the parties agree, can comprise organic materials. (Tr. at 90, 97–98; *see* '926

patent, 4:64–66 ("The vermiculite grade was a high solids version of an aqueous dispersion of MicroLite® 963 having an as supplied solids content of 7.5 percent.")).

Unifrax responds that, again, DuPont's proposed construction seeks to recapture subject matter disclaimed during prosecution by: (1) including reference to commercial products available from W.R. Grace and (2) omitting the word "inorganic." (D.I. 74 at 65). According to Unifrax, the commercially available products, specifically MicroLite HTS-XE, would yield an inorganic refractory layer containing less than 100% platelets by weight. (*See* D.I. 74 at 66; Tr. at 90). Unifrax also argues that "vermiculite" should be limited to the "inorganic" mineral because the '926 patent specification uses "vermiculite" to mean the 100% inorganic mineral, not aqueous dispersions of that mineral. (D.I. 74 at 68; Tr. at 99–100). Unifrax maintains that "[t]he mineral 'vermiculite' does not contain the other additives found only in the commercially available formulated dispersions." (D.I. 74 at 68).

Unifrax's arguments go to the meaning of "100% by weight" rather than to the meaning of "vermiculite." The term "vermiculite" does not appear in independent claim 1, the subject of the rejection that resulted in the prosecution disclaimer that Unifrax argues supports its proposed construction. (*See* D.I. 66-4 at 30). Further, the '926 patentees overcame the examiner's rejection without any reference to vermiculite. (*See id.* at 31). That the patentees disclaimed compositions that contain less than 100% platelets therefore does not bear on the meaning of "vermiculite." Additionally, because the word "inorganic" does not appear in the discussion of vermiculite in the specification, I exclude it from the Court's construction.

Contrary to DuPont's proposed construction, the specification does not state that "vermiculite" includes MicroLite 963 and MicroLite HTS-XE. Instead, it states that "[s]uitable vermiculite materials" include MicroLite 963 and MicroLite HTS-XE. ('926 patent, 3:47–51).

The patent explains that "[t]he dispersion was obtained from W.R. Grace and Co., Cambridge, Mass." (*Id.* at 4:66–67). Thus, there and elsewhere the specification distinguishes between "vermiculite" on one hand and "vermiculite dispersion" and "vermiculite materials" on the other. (*See, e.g.*, *id.* at 4:63–66; 5:1–2). Additionally, I do not understand the sentence beginning "The vermiculite grade was a high solids version of an aqueous dispersion of MicroLite® 963 . . . ." to equate "vermiculite" with an aqueous dispersion of MicroLite® 963. Close reading of the passage of Tompkins cited by DuPont further supports the distinction. (*See* D.I. 66-9 at 14:39-64 ("Vermiculite is . . . . Vermiculite typically comprises . . . . Aqueous vermiculite particle dispersions are available, for example, from W.R. Grace of Cambridge, Mass."))). I therefore conclude that the claim term "vermiculite," read in the context of the specification, refers to the mineral and not to the dispersion.

For the reasons stated above, I adopt DuPont's proposed construction, excluding the reference to MicroLite 963 and MicroLite HTS-XE.

7. wherein the inorganic refractory layer of (iii) comprises platelets in an amount of 100% by weight with a dry areal weight of 15 to 50 gsm and a residual moisture content of no greater than 10 percent by weight

a. *Plaintiff's proposed construction*: Not indefinite

b. *Defendant's proposed construction*: Indefinite

c. *Court's construction*: Not suitable for resolution at this time

Unifrax argues that the claim term "wherein the inorganic refractory layer of (iii) comprises platelets in an amount of 100% by weight with a dry areal weight of 15 to 50 gsm and a residual moisture content of no greater than 10 percent by weight" is indefinite. (D.I. 74 at 71). A claim is indefinite if "read in light of the specification delineating the patent, and the prosecution history, [it] fail[s] to inform, with reasonable certainty, those skilled in the art about

the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). "There is an indefiniteness problem if the claim language might mean several different things and no informed and confident choice is available among the contending definitions." *Interval Licensing LLC v. AOL Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (internal quotation marks and citation omitted), *cert. denied*, 136 S. Ct. 59 (2015). "The internal coherence and context assessment of the patent, and whether it conveys claim meaning with reasonable certainty, are questions of law." *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1342 (Fed. Cir. 2015).

Unifrax argues that the term is internally inconsistent because it states that the layer comprises both "platelets in an amount of 100% by weight" and "a residual moisture content of no greater than 10 percent by weight." (D.I. 74 at 72). Unifrax contends that "[n]othing in the specification or the claims informs one how the inorganic refractory layer may contain 100% by weight platelets and also include additional amounts of material to exceed 100% by weight." (*Id.*). Unifrax again notes that DuPont specifically disclaimed embodiments that have a platelet concentration less than 100%. (*Id.*). "Consistent with this amendment, DuPont additionally cancelled then-pending claim 10, '[t]he refractory layer of claim 2 wherein the layer further comprises cations.'" (*Id.* (citing D.I. 66-4 at 30) (alteration in original); *see* D.I. 66-5 at 8). Based on the patentees' cancellation of claim 10 at the same time they amended claim 1, Unifrax argues that "[a] 100% by weight inorganic refractory layer would exclude the addition of the cations to the inorganic refractory layer." (D.I. 74 at 72). Because, according to Unifrax, the exchange with the examiner demonstrates that nothing other than 100% platelets may be within the inorganic refractory layer, the claim term is indefinite. (*Id.*).

Unifrax also argues that the term is indefinite under DuPont's proposed construction. (Tr. at 59). Unifrax notes that the claim describes a layer comprised of platelets "100% by weight" and sets forth a specific areal weight for the layer. (*Id.*; '926 patent, 9:13–17). Unifrax maintains that the term thereby renders the claim indefinite because it leaves open the percent of the layer that must be platelets. (Tr. at 59–60). That is, if the "100% by weight" limitation is met solely by the absence of carrier material, there is no meaningful limitation prescribing how much of the inorganic refractory layer must be composed of platelets.

DuPont responds that the claims are not indefinite using its proposed construction of "100% by weight." (D.I. 74 at 73). DuPont contends that its proposed construction of 100% "presumes the presence of residual moisture content, among other things, which is consistent with both the open transition word 'comprising' and the remainder of the claim language." (*Id.* at 74). DuPont also argues, in response to Unifrax's inference regarding abandoned claim 10, that a 100% by weight inorganic refractory layer would not exclude the addition of cations because cations are not carrier materials. (*Id.*). DuPont argues that Unifrax has failed to satisfy its burden to put forth clear and convincing evidence that a person of ordinary skill in the art would not understand the claim limitation. (*Id.* at 74 n.20). Consequently, according to DuPont, "Unifrax's failure to provide evidence [such as expert testimony] requires rejection of its indefiniteness argument." (*Id.*).

Because I have adopted DuPont's proposed construction, I consider only whether the term is indefinite under that construction. Contrary to Unifrax's interpretation of claim 1, DuPont argues that claim 1: (1) does not state the actual weight of the inorganic refractory layer (Tr. at 63); (2) states that the platelets comprising the layer have a dry areal weight of 15 to 50 gsm (Tr. at 63–64); and (3) states that the layer has a residual moisture content of no greater than

10% of the weight of the layer (Tr. at 64, 67). That the claim admittedly does not set forth a requirement with respect to what percent of the refractory layer must constitute platelets or what the total weight of the layer is may make the claim broad. It does not, however, make the claim internally inconsistent. Additional evidence would be necessary to determine whether the claim informs one of skill in the art, with reasonable certainty, about the scope of the invention. Whether the disputed term renders the claim indefinite is therefore not amenable to resolution at this time.

V. CONCLUSION

Within five days the parties shall submit a proposed order consistent with this Memorandum Opinion and suitable for submission to the jury.