

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HUHTAMAKI FLEXIBLE PACKAGING GERMANY GMBH & CO. KG,
Petitioner

v.

ADAPA FLEXIBLES DENMARK SLAGELSE A/S,
Patent Owner

Case No. PGR2023–00008
U.S. Patent No. 11,260,624 B2

PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE

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I. INTRODUCTION

Patent Owner's expert, Dr. McCarthy, testified that the "tie layer" as used in the '624 patent claims is "something that provides sufficient adhesion between the base layer and the coextrusion layer." EX1032, 99:14-100:18. Consistent with that definition, all the '624 patent claims recite "coextruding a tie layer and a [COC] contact layer" onto an aluminum "base layer," wherein the "tie layer comprises one or more layers." Dependent claim 11 further specifies that "the tie layer comprises an acrylic acid layer and a polyethylene layer."

Riis similarly defines a "tie layer" as "a layer or material placed on one or more layers to promote the adhesion of that layer to another surface." EX1004, ¶[0020]. Riis teaches an exemplary multilayer film (Example 5) produced by coextruding an acrylic acid layer (EAA), a polyethylene layer (LDPE), and a COC layer onto an aluminum foil layer. Dr. McCarthy agreed (1) that Riis's EAA layer is adhered on one side to the aluminum foil layer and on the other to the LDPE layer and (2) that Riis's LDPE layer is adhered on one side to the EAA layer and on the other side to the COC contact layer. EX1032, 176:9-19. Thus, under the proper construction of "tie layer," it is undisputed that Riis teaches a tie layer comprising an acrylic acid layer (EAA) and a polyethylene layer (LDPE). Indeed, Riis teaches a multilayer film identical to that of claim 11 of the '624 patent. Pet., 32-34, 40.

Patent Owner resorts to an incorrect, overly narrow construction to support its argument that Riis's LDPE layer is not the claimed "tie layer." As Patent Owner admits, a POSITA would have understood "that a polyolefin bulk layer [—LDPE is a polyolefin—] **can** serve as a 'tie' layer." POR, 44 (emphasis in original). Yet, according to Patent Owner, "when referencing a layer functionally, and though the layer may serve other secondary functions, one skilled in the art would understand and refer to a layer by its primary purpose for the target application." POR, 9 (emphasis added). Patent Owner provides no evidentiary basis for this construction aside from its expert's conclusory testimony. EX1032, 188:3-190:11. And, contrary to Patent Owner's suggestion, Dr. Spontak never testified about the meaning a POSITA would have applied to the term "tie layer." POR, 49-51. Only by relying on its incorrect claim construction can Patent Owner argue that the LDPE in Riis's Example 5 does not meet the claimed "tie layer" because its primary purpose is as a "bulk layer."

As detailed below, Patent Owner's remaining obviousness arguments turn on this incorrect claim construction. And even if correct, those arguments fail to appreciate the full disclosure of the prior art and instead point to Riis's preferred embodiments—rather than Example 5 relied on by Petitioner—to allege that Riis does not render obvious the claims of the '624 patent. Patent Owner's additional

arguments regarding level of skill in the art, indefiniteness, and motivation to combine fail on the facts and the law.

II. THE BOARD SHOULD REJECT PATENT OWNER’S OVERLY NARROW CONSTRUCTION OF “TIE LAYER” AND FIND THAT RIIS’S 0.65 MIL LDPE LAYER MEETS THE CLAIMED “TIE LAYER”

Patent Owner’s rebuttal arguments turn on whether the Board construes “tie layer” to require that a layer of a film have a primary purpose of providing sufficient adhesion between the base layer and the coextrusion layer. That construction finds no basis in the intrinsic evidence. The Board should reject Patent Owner’s attempt to manufacture a nonobviousness position from conclusory expert testimony.

Dr. McCarthy testified that the plain and ordinary meaning of the term “tie layer” as used in the ’624 patent claims is “something that provides sufficient adhesion between the base layer and the coextrusion layer.” EX1032, 99:14-100:18. This is consistent with the ’624 patent: “According to the disclosure the tie layer is selected to provide sufficient adhesion between the base layer and the coextrusion layer.” EX1001, 4:35-37. This is also consistent with Riis: “The term ‘adhesive layer,’ or ‘tie layer,’ refers to a layer or material placed on one or more layers to promote the adhesion of that layer to another surface.... [A]n adhesive layer can have any suitable composition that provides a desired level of adhesion with the one or more surfaces in contact with the adhesive layer material.” EX1004, ¶[0020]. As

its name implies, a tie layer is simply a layer that provides adhesion between layers or surfaces.

Patent Owner seeks to limit the scope of tie layer to the primary purpose of the layer. Such a construction is overly narrow; “[c]ommon sense teaches [] that familiar items may have obvious uses *beyond their primary purposes*.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (emphasis added). No documentary evidence uses this “primary purpose” terminology or synonymous language. Nothing in the specification or claims of the ’624 patent suggests that the tie layer is limited to a primary purpose. It suggests the opposite: “The tie layer may [also] give melt strength and support the coextrusion coating of both the tie layer and the contact layer.” EX1001, 4:37-39. Nor does anything in Riis teach that the tie layer is limited to a primary purpose. Riis also teaches the opposite: “a polyolefin bulk layer can serve as an adhesive or tie layer.” EX1004, ¶[00135]; *see also id.*, ¶¶[0065], [0069], [0074] (teaching that LDPE is particularly suitable for an “interior, exterior, intermediate or tie layer” and can provide other advantageous characteristics such as stiffness, heat sealability, improve machinability, cost, flexibility, and barrier properties); *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804 (Fed. Cir. 1989) (a prior art reference is relied upon for all that it teaches). Dr. McCarthy advances this “primary purpose” rationale based purely on his opinion and provides no supporting

or corroborating evidence of such use other than his own. See EX2014, ¶¶83, 94, 97, 100, 109, 155, 156, 159, 160, 188, 195, 205.

Any assignment of a “primary purpose” by Patent Owner is arbitrary and based solely on subjective intent, not on the layer’s functionality. Dr. McCarthy’s testimony demonstrates the flaw in Patent Owner’s construction:

Q: So the entire definition of primary purpose depends on the person who made the film’s intention for that layer? Is that what you’re saying?

A: Not the person who made the film but the inventor who designed the film.

EX1032, 126:14-19; *see also id.*, 119:15-121:14 (testifying that, in view of the ’624 patent, an aluminum foil layer would be a base layer but, in view of Riis, he could not determine the primary purpose because Riis labels the aluminum foil layer as both an oxygen barrier and a moisture barrier). And Dr. McCarthy relies on this subjective intent to opine that Riis’s 0.65 mil LDPE layer is not the claimed “tie layer”:

Q: Do you agree that as of December 29, 2015, a POSA would have understood that LDPE is a suitable thermoplastic for a tie layer?

A: Again, it would depend on the definition of tie layer. It would not be a multifunctional tie layer, so it wouldn’t be suitable for Riis’ definition of it.

Q: Would it be suitable for the ’624 patent’s definition?

A: Possibly.

EX1032, 149:12-21.

Patent Owner's arguments incorrectly focus on semantics, not polymer science. The nomenclature given to a layer, whether based on an assigned primary purpose or other purpose, does not rob the layer of functionality not associated with the asserted nomenclature. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (holding although prior art elements must be arranged or combined in the same way as in the claim, "the reference need not satisfy an *ipsissimis verbis* test," identical terminology is not required); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Here, all that is required of the claimed tie layer is to provide sufficient adhesion between layers. EX1001, 4:35-46; EX1004, ¶[0020]. Riis discloses exactly that—LDPE can provide adhesive functionality in a multilayer film. EX1004, ¶¶[0069], [0074]. According to Riis, LDPE, along with other polymers, can provide bulk characteristics while also functioning to act as an adhesive between two layers. EX1004, ¶[00135]. Even Dr. McCarthy admitted that Riis's 0.65 mil LDPE layer provides the requisite adhesion to function as the claimed "tie layer":

Q: First I want to understand, the EAA layer that is .17 mil is adhered on one side to the aluminum foil and on the other side to the .65-mil LDPE layer, correct?

A. That is correct.

Q. And then I want to look at this polyethylene layer. So this .65-mil LDPE layer is adhered on one side to the .17-mil EAA layer and on the other side to the .43-mil COC layer, correct?

A: That is correct.

EX1032, 176:9-19.

Dr. McCarthy relies on his erroneous rationale that a polymer's primary purpose is dictated by the inventor's subjective intent without regard for common sense teaching a skilled artisan that familiar items may have obvious uses beyond their primary purposes, and in contravention of the full disclosure of the prior art. The Board should find that Riis's 0.65 mil LDPE layer, like the polyethylene layer of claim 11, constitutes the claimed "tie layer."

III. EVEN UNDER PATENT OWNER'S INCORRECT CLAIM CONSTRUCTION, RIIS'S EXAMPLE 5 INCLUDES A TIE LAYER COMPRISING AN EAA LAYER AND AN LDPE LAYER AND RENDERS OBVIOUS THE CHALLENGED CLAIMS

Patent Owner enumerates several purported arguments regarding why the primary purpose of the 0.65 mil LDPE layer of Riis's Example 5 is not a "tie layer," all of which are wrong.

A. Riis Never Labels Example 5's LDPE Layer a "Bulk Layer."

Patent Owner asserts that Example 5's LDPE layer primarily functions as a "tie layer" by relying on Riis's Figure 1 labeling "layer 2" a "polyolefin bulk layer." POR, 44-45. But the Petition relied on the embodiment of Riis's Example 5 for disclosing LDPE as part of the coextrusion layer rendering the challenged claims obvious. Nowhere does Riis label the 0.65 mil LDPE layer of Example 5 as a bulk layer. And even with respect to Figure 1, Riis expressly states: "It will be understood that a film as described herein may have any number of one or more layers and that

the six-layered film depicted in FIG. 1 is shown for purposes of example. In some embodiments, a polyolefin bulk layer can serve as an adhesive or tie layer.” EX1004, ¶[00135].

B. Riis Teaches That a “Bulk Layer” Can Also be a “Tie Layer,” and It was Well Known in the Art to Use LDPE as a Tie Layer.

Patent Owner admits that a POSITA would have understood that a polyolefin bulk layer can also serve as a “tie” layer. POR, 44. Dr. McCarthy agrees that LDPE is a type of polyethylene and that polyethylene is a polyolefin. EX1032, 101:7-15. Indeed, it was well known in the art that LDPE functions as a tie layer. For example, in PGR2022-00001, Dr. McCarthy relied on a textbook authored by Morris, which he described as “a 709-page text that covers a wide range of topics related to multilayer structures, including their designs, selection of their materials, and their methods of manufacturing as a primary reference.” EX1029, ¶45. Morris teaches that LDPE has multiple functions in flexible packaging including as (1) a sealant, (2) a tie-layer adhesive, and (3) a structural layer. EX1036, 72¹, Table 4.2. Indeed, under the heading “Tie Resins and Adhesives,” Morris describes LDPE as “the workhorse resin used to bond to aluminum foil, paper, and other substrates in extrusion lamination.” EX1036, 89.

¹ Petitioner cites to the textbook pagination generally found at the top corner of each respective page.

Dr. McCarthy’s argument that Riis’s Example 5 LDPE layer cannot be a tie layer because LDPE “is not suitable to bond polar materials to non-polar materials” lacks credibility. Morris explained that extruding LDPE at temperatures above 300°C—temperatures that fall within the ’624 patent’s preferred range of 240-330°C for performing the coextrusion—produces polar groups and “provide[s] a moderate level of adhesion to polar substrates.”²EX1036, 89; EX1001, 13:19-20. Indeed, Morris taught as much in a 2002 patent: “typically LDPE can either be extrusion-coated or laminated onto a polar substrate.” EX1031, 1:24-25, *see also id.*, 1:17-22. Even the ’624 patent contradicts Dr. McCarthy’s testimony. The ’624 patent indicates that the tie layer may comprise COC, EX1001, 5:19-22, but Dr. McCarthy testified that COC is not multifunctional and would therefore not be suitable to bond to polar materials, EX1032, 143:18-20, 145:22-147:18. Dr. McCarthy’s opinion on this issue is directly contradicted by the documentary evidence. A POSITA would have understood that Example 5’s LDPE layer of Riis could bond to polar materials and consequently constitutes the claimed “tie layer.”

² Despite his previous reliance on Morris, Dr. McCarthy disagreed that it was well known in the art to use LDPE to bind to polar materials such as aluminum, demonstrating his lack of credibility on this issue. EX1032, 23:12-24:5.

C. Patent Owner's Thickness Arguments Lack Support, Lead to Absurd Results When Taken to Their Logical Conclusion, and Ignore That Riis's Example 5 Meets the Thickness-Dependent Loading Ranges of the Challenged Claims

Patent Owner asserts that the thickness of the LDPE layer—0.65 mil—indicates to a POSITA that the LDPE layer primarily functions as a bulk layer. Patent Owner points to Riis's preference that the tie layer be between 2% and 10% of the overall thickness of the multilayer film. POR, 46-47 (citing EX1004, ¶[0071]). According to Patent Owner, because Example 5's 0.65 mil LDPE layer represents 21.38% of the overall film thickness, a POSITA would not consider it a tie layer. POR, 46-47. Put another way, according to Patent Owner, a layer's thickness "relative to the overall thickness of a multilayer film" defines the layer's primary purpose. POR, 46. The cherry-picking of narrow preferred embodiments by Patent Owner does not represent the full teachings that a skilled artisan would understand and appreciate when reading Riis.

Interpreting the scope of "tie layer" as used in the '624 patent claims based on Riis's thickness preference is contrary to law and undercuts Patent Owner's "primary purpose" argument. *In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971); see also *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) ("Common sense teaches [] that familiar items may have obvious uses beyond their primary purposes."). As Dr. McCarthy testified, the total thickness of Riis's Example 5 is 3.04 mil. EX2014, ¶92 n.1. Thus, adding more layers to Riis's Example 5 (as Riis

teaches)³ or increasing the thickness of other layers of Riis's Example 5 (as Riis teaches)⁴ would reduce the relative thickness of the LDPE layer to within the 2-10% preferred relative thickness. Taken to its logical conclusion, according to Patent Owner, a layer's primary purpose can change solely based on changes in thickness of other layers in a multilayer film.

Patent Owner also argues that a POSITA "would understand that a thicker tie layer (relative to the overall thickness of the multi-layer film) is more prone to delamination and is less mechanically stable." POR, 47. Patent Owner provides no support other than Dr. McCarthy's conclusory testimony.⁵ But Dr. McCarthy's testimony on this point is not credible. For example, Dr. McCarthy testified that "one of the identifications of a bulk layer is that it is thicker, has a higher thickness than that of a tie layer," EX1032, 21:20-22, but this statement has no basis in Riis.

³ Riis's Example 5 has eight layers, but Riis teaches that "[f]ilms of 6, 7, 8, 9 or more layers are contemplated." EX1004, ¶[00157].

⁴ Riis's Example 5 includes a second LDPE layer having a 0.42 mil thickness that Patent Owner alleges is a bulk layer. EX1004, ¶[00174], POR, 44. Increasing that layer to 7 mil (stated upper limit of a bulk layer) would increase the total laminate thickness by 6.58 mil, resulting in a 9.62 mil overall laminate thickness. Thus, the first LDPE layer having a 0.65 mil thickness would then represent 6.76% of the overall thickness.

⁵ The cited testimony of Dr. Spontak generically states that "if you start to make that – that adhesive layer thicker and thicker, you might find that now the mechanical properties can be compromised" and says nothing about Riis's Example 5. EX2015, 80:10-16 (emphasis added).

Furthermore, Patent Owner's thickness arguments ignore that a POSITA would have understood Riis's Example 5 to teach the loading ranges of the challenged claims. Because it is measured in g/m^2 , loading depends on the thickness of a layer (1 mil = 0.001 inch) and the density of the polymer from which that layer is made. Patent Owner does not dispute that a POSITA would have understood that Riis's Example 5 includes an EAA layer with a loading of 3.97 to 4.15 g/m^2 and an LDPE layer with a loading of 15.11 to 15.34 g/m^2 . POR, 58. Nor does Patent Owner dispute that these loading ranges fall within the claimed loading ranges for "the tie layer," "the entirety of the tie layer," or "the plurality of [the tie] layers" of 7 to 20 g/m^2 . Patent Owner cannot show that the function of an LDPE layer—which meets the claimed "polyethylene layer" (e.g., claim 11) and the claimed loading ranges—functions differently in Riis than it does in the '624 patent.⁶

D. Patent Owner's Teaching Away Arguments Are Legally Incorrect

Teaching away requires that a reference criticize, discredit, or otherwise discourage the solution claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). A mere preference does not constitute a teaching away from non-preferred alternatives. *UCB, Inc. v. Actavis Labs. UT, Inc.*, 65 F.4th 679, 692 (Fed. Cir. 2023);

⁶ At deposition, Dr. McCarthy was unable to answer whether the '624 Patent indicates that the loading range of the claimed tie layer is tied to its functionality, which it is not. See EX1032, 32:22-38:20.

see also Bayer Pharma AG v. Watson Labs., Inc., 874 F.3d 1316, 1327-28 (Fed. Cir. 2017) (finding that where an option is less favored, but is nonetheless a workable option, does not rise to the level of “teaching away”). Even Riis cautions against limiting its disclosure in such a manner. EX1004, ¶45 (explaining the use of “preferred” or “preferably” “does not imply that other embodiments are not useful, and is not intended to exclude other embodiments from the scope of the inventive technology”).

None of the evidence Petitioner cites satisfies this legal standard and instead merely points to preferences and alternative embodiments. POR, 51-53. And because Dr. McCarthy did not apply the correct legal standard in his analysis, his testimony regarding teaching away is entitled to little weight. *See, e.g.*, EX1032, 82:11-19 (basing teaching away on preferred embodiments), 86:12-22 (basing teaching away on labeling of layers by the inventors); 83:12-17 (failing to address any disparagement by Riis). Dr. McCarthy did not even consider the prior art based on the plain and ordinary meaning he assigned to a “tie layer.” *Compare* EX1032, 99:22-100:18 (providing the plain and ordinary meaning of tie layer), *with id.*, 38:16-20 (assigning functionality to a layer based on the prior art’s definition).

First, Patent Owner’s alleged teaching away from multiple adjacent tie layers merely reflects optional or preferred embodiment of Riis. POR, 51. Indeed, the only cited support is Riis’s teaching that “a multifunctional layer is preferably formulated

to aid in the adherence of one layer to another layer without the need of using separate adhesives.” EX1004, ¶[00071]. (emphasis added). Patent Owner expressly acknowledges that Riis teaches that the use of a single multifunctional adhesive layer “is preferred.” POR, 51. It is axiomatic to the law of obviousness that preferred embodiments do not constitute a teaching away from a broader disclosure or even non-preferred embodiments. *In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971)

Second, Patent Owner asserts that Riis teaches away from using an LDPE layer adjacent to an EAA layer because LDPE is nonpolar. POR, 51-52. However, as noted above, Dr. McCarthy’s testimony on this point is not credible; LDPE was known to bond to polar materials. *Supra* § III.B. Indeed, Dr. McCarthy agreed that Riis teaches using an LDPE layer adjacent to an EAA layer. EX1032, 84:4-85:21 (agreeing that “Riis is teaching one of skill in the art to make Example 5”); *see also id.*, 85:22-86:11 (“You are not providing an opinion that Riis is teaching away from making Example 5, correct? A. That is correct.”).

Third, Patent Owner’s argument that Riis teaches away from having an LDPE layer primarily serve as a tie layer merely rehashes its flawed claim construction for “tie layer” and its incorrect assertion that LDPE cannot bind polar materials. Patent Owner also asserts that Riis teaches away because it lacks an express disclosure “that an LDPE layer can serve as a tie layer.” POR, 52. A lack of teaching one way or the other cannot be a teaching away. And, as already discussed, it is undisputed that Riis

teaches that a polyolefin bulk layer can function as a tie layer and that polyethylene is a polyolefin.

Fourth, Patent Owner propounds attorney argument regarding Riis's teaching that "[i]n some embodiments a peelable tie layer may be used." See POR, 53 (citing EX1004, ¶20). Patent Owner fails to explain the significance of these alternative embodiments with respect to teaching away.

Example 5 of Riis discloses a film identically configured as the exemplary structures disclosed by the '624 patent, including providing a coextrusion layer of EAA, LDPE, and COC. *In re Clarke*, 809 F. App'x 787, 791-92, 794 (Fed. Cir. 2020) (finding that "[a]ny difference [between the prior art and the claims] resides merely in the language [the prior art] uses to describe the structure rather than in the structure itself."). Dr. McCarthy agrees that Riis is teaching a POSITA to make Example 5. Thus, Riis does not teach away from the claimed solution of the '624 patent. Pet. 32-34, 40.

IV. PATENT OWNER'S PROPOSED LEVEL OF ORDINARY SKILL IN THE ART IS OVERLY NARROW AND LITIGATION DRIVEN

Patent Owner's proffer of the level of ordinary skill in the art is overly narrow and unsupported. See POR, 21-23. Patent Owner asserts that a skilled artisan is required to have experience "using coextrusion processing techniques" and that without the necessary "hands-on" experience, one would not be a skilled artisan. See POR, 22. However, Patent Owner does not demonstrate why "hands-on" experience

is necessary in view of Petitioner's proffered definition of a skilled artisan,⁷ nor does Patent Owner demonstrate how any substantive difference between the level of skill applied by Dr. Spontak and that asserted by Dr. McCarthy renders any of Dr. Spontak's testimony erroneous. *See Owens Corning v. CertainTeed Corp.*, IPR2014-01403, Paper 35 at 13-14 (PTAB Mar. 8, 2016). The two levels of skill put forth by Dr. Spontak and Dr. McCarthy are not substantially different and in fact overlap significantly. *See id.* (citing *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)); *see also In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); and *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Patent Owner's attempt to disqualify or otherwise discredit Dr. Spontak's testimony based upon the assertion that he "has not performed coextrusion personally and does not have any hands-on experience" with film coextrusion improperly ignores Dr. Spontak's relevant experience and imparts an impermissibly high bar for skill in the art. The '624 patent does not attribute any inventive concept or notable solution to the coextrusion steps, explaining that "[t]he coextrusion layer may be coated to the aluminum layer by a coextrusion system generally known in

⁷ Dr. McCarthy's deposition testimony on this matter demonstrates that his opinion should be entitled little weight. When presented with his sworn testimony defining the level of skill in another PGR related to multilayer films that lacked any requirement for experience with film processing techniques, he immediately responded that was an omission and he should have required one year of experience with the related film processing techniques. EX1032, 195:18-196:14.

the art.” EX1001, 13:11-12; *see also* EX1003, ¶¶68-70 (describing the known and conventional nature of film manufacture coextrusion, lamination, and heat-sealing techniques). Dr. Spontak qualifies as a POSITA under either definition proposed by the parties. *See* EX1003, ¶¶6-12; EX1010, 1-5, 8; *see generally* EX2015, 16:9-25:22, 19:9-16, 20:3-15, and 22:14-25 (providing specific experience regarding coextrusion techniques applicable to film manufacturing); *see also Indivior Inc. v. Dr. Reddy’s Lab., S.A.*, 930 F.3d 1325 (Fed. Cir. 2019) (finding a POSITA with a principal background in one area may be part of a team with others “of relevant experience in manufacturing and optimizing various types of film products”).

Moreover, unlike Dr. McCarthy, Dr. Spontak offers corroborating evidence for his opinions that are consistent with the prior art of record and his cross-examination testimony. The Board should therefore accord full weight and credibility to Dr. Spontak’s testimony as supported by the entire record. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1358 (Fed. Cir. 2018) (“The PTAB is entitled to weigh the credibility of the witnesses.”). This is particularly true where the disclosures of the prior art are readily discernable to the Board.

V. RELIANCE ON THE BAREX® TRADEMARK RENDERS CLAIMS 1-13 INDEFINITE

Patent Owner’s reliance on the Barex® standard (at POR, 25-30) renders the term “aggressive chemical-resistant film” indefinite, because a skilled artisan would be unable to determine the metes and bounds of an aggressive chemical-resistant

film based upon a trademark source designation. Patent Owner sets forth the requirements to constitute an aggressive chemical-resistant film by lexicographically defining the term in reference to a standard that is based on a trademark, Barex®. EX1001, 12:16-22. Because this reference designates only the source and fails to define the actual chemical composition, it is untethered to any specific meaning. This is consistent with the Board’s opinions finding that use of a trademarked term to define the metes and bounds of the claim itself, rather than to merely identify a source of goods, renders a claim indefinite. *See, e.g., Ex Parte Locke*, Appeal No. 2008-5853, at *17 (B.P.A.I. Feb. 10, 2009) (finding that recitation of a term which implicates a trademark designation as an identifier of the goods is indefinite); *see also Eli Lilly & Co. v. Apotex, Inc.*, 837 Fed. Appx. 780, 784-85 (Fed. Cir. 2020) (“Trade names are not anchored to a single specific meaning and thus can introduce potential vagueness into patent claims.”). Because Patent Owner’s definition of the claimed limitation is in reference to a vague meaning and lacks “reasonable clarity, deliberateness, and precision,” the term “aggressive chemical-resistant film” renders the claims indefinite. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (quoting *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994)).

The purpose of Section 112(b) is to provide adequate notice to others of the metes and bounds of the invention in order to avoid infringement, but there is nothing

in the record of the '624 patent to indicate with clarity the materials that fall under aggressive chemical-resistant films covered by Barex®. Other than acknowledging the base polymer of Barex® as “a polyacrylonitrile (PAN) based film,” the '624 patent does not disclose any well-known or identifiable features of Barex® that would inform a POSITA of an accepted standard at the time of the claimed invention. *See generally* EX1001. Patent Owner has failed to provide such necessary disclosure to ascertain the scope of an “aggressive chemical-resistant film” as defined by Barex®.

VI. A SKILLED ARTISAN WOULD HAVE LOOKED TO WYPYCH AND TATARKA TO IDENTIFY SPECIFIC POLYMERS AND THEIR ASSOCIATED PROPERTIES FOR CONSTRUCTING RIIS'S EXAMPLE 5

Patent Owner's arguments regarding the combination of Riis with Wypych and Tatarka do not address whether a skilled artisan would be motivated to look to the teachings of Wypych and Tatarka to provide material properties as stated in the Petition. Patent Owner instead asserts that Ground II and Ground III are indistinguishable from each other and that the Petition “fail[s] to put forth *any* arguments regarding a motivation to combine/modify Riis, Wypych and Tatarka.” POR, 7 (emphasis added). Patent Owner's main argument against Ground III is that the same analysis from Ground II applies. POR, 69-75.

Contrary to Patent Owner's arguments, the Petition articulates a clear rationale to combine the teachings of Riis with Wypych and Tatarka to provide a

rationale of how a skilled artisan would select polymers showing material properties.

See Pet. 53-54, 60-64. A POSITA would be motivated to look to Wypych and Tatarka to determine material properties of exemplary polymers disclosed by Riis, as both Wypych and Tatarka provide relevant material properties, processing parameters, and commercial sources of the same polymers disclosed by Riis. Pet. 60-61. The Petition also sets forth that looking to materials like Wypych and Tatarka to select appropriate polymers for desired film attributes was known in the art. Pet. 62-63 (citing EX1003, ¶¶235-238) (providing why a POSITA would recognize the polymers and specific commercially identified polymers in Riis and identify other suitable commercial sources to obtain polymers for desired film attributes). Additionally, there is a reasonable expectation of success in using Wypych and Tatarka to provide material properties of commercial polymers, the same commercial polymers suggested by Riis's disclosure. Pet. 63-64 (citing EX1003, ¶240; EX1004, ¶¶93, 95, 97; EX1005, 7, 10, 21); 65-66 (providing the same for Tatarka). Patent Owner's assertion that the Petition does not provide a rationale to combine for Ground III plainly fails.

VII. CONCLUSION

Even Patent Owner's expert admits that the 0.65 mil LDPE layer of Riis's Example 5 functions to adhere to an EAA tie layer on one side and a COC contact layer on the other side. Thus, it is undisputed that at least one purpose of the 0.65

mil LDPE layer is to provide adhesion between these layers. Accordingly, the Petition demonstrates that Riis's 0.65 mil LDPE layer meets the claimed "tie layer" and that Riis's Example 5, either alone or in combination with Wypych and Tatarka, renders the challenged claims obvious.

Date: December 5, 2023

Respectfully submitted,

/s/ Ryan Levy

Ryan D. Levy, Reg. No. 58,618
Patterson Intellectual Property Law, P.C.
rdl@iplawgroup.com
Counsel for Petitioner

CERTIFICATION OF SERVICE (37 C.F.R. §§ 42.6(e) and 42.105(a))

The undersigned hereby certifies that, on December 5, 2023, true and correct copies of the foregoing **PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE** and all associated exhibits were served in their entirety on Patent Owner via email as follows:

Steven A. Avena
Holland & Hart LLP
1800 Broadway, Suite 300
Boulder, CO 80302
saavena@hollandhart.com

Timothy P. Getzoff
Holland & Hart LLP
1800 Broadway, Suite 300
Boulder, CO 80302
tgetzoff@hollandhart.com

Jeffrey R. Roeser
Holland & Hart LLP
1800 Broadway, Suite 300
Boulder CO 80302
jrroeser@hollandhart.com

By: /s/ Ryan D. Levy

Ryan D. Levy (Reg. No. 58,618)
Patterson Intellectual Property Law, P.C.
1600 Division Street, Suite 500
Nashville, TN 37203
rdl@iplawgroup.com
Tel.: (615) 242-2400
Fax: (615) 242-2221

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this Reply complies with the type-volume limitation of 37 C.F.R. § 42.24(c)(1). The word count application of the word processing program used to prepare this Reply indicates that Petitioner's Reply to Patent Owner's Response contains 5,007 words, excluding the parts of the Petition exempted by 37 C.F.R. § 42.24(a).

Dated: December 5, 2023

/s/ Ryan D. Levy

Ryan D. Levy
Reg. No. 58,618