

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
f/k/a DANAPAK FLEXIBLES A/S,
Patent Owner

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

**PETITIONER’S SUR-REPLY IN OPPOSITION OF PATENT OWNER’S
REVISED MOTION TO AMEND**

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Cases

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<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398, (2007)	11

Exhibit List

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1001	U.S. Patent No. 11,260,624 to Christensen <i>et al.</i>
1002	U.S. Patent No. 11,260,624 Prosecution History
1003	Declaration of Richard J. Spontak, Ph.D.
1004	WIPO International Pub. No. 2015/123211 A1 to Riis <i>et al.</i>
1005	Wypych, G. (2012), Handbook of Polymers, ChemTec Publishing
1006	Adams, U.S. Pat. App. Pub. 2005/0037162
1007	Bowen et al., U.S. Patent No. 6,120,860
1008	Tatarka et al., U.S. Patent No. 9,452,593
1009	U.S. Patent Appl. No. 15/780,999 Application File History
1010	Curriculum Vitae of Richard J. Spontak, Ph.D.
1011	Dow NUCREL™ 3990 Product Data Sheet
1012	Dow LDPE 4012 Product Data Sheet
1013	U.S. Patent No. 8,003,179 to Merial <i>et al.</i>
1014	U.S. Patent Appl. Pub. No. 2006/0198973 to Jester
1015	U.S. Patent Appl. Pub. No. 2018/0354702 to Liu <i>et al.</i>
1016	Plastics News: Topas and MSM Make Progress on Barex Replacements
1017	Topas Advanced Polymers: TOPAS COC is Commercial Alternative to Barex
1018	Declaration of Julie Glascock
1019	Topas Cyclic Olefin Copolymers - March 2006 Brochure
1020	Declaration of Samuel A. Raque

Exhibit No.	Description
1021	U.S. Patent Appl. Pub. No. 2009/0208685 to Rivers <i>et al.</i>
1022	Topas COC 8007F-400 Safety Data Sheet (2015)
1023	Topas COC 8007F-400 Safety Data Sheet (2017)
1024	Dr. Detlev Schulz Declaration
1025	WO 2012/037180 to Bonekamp <i>et al.</i>
1026	Reproduction of Fig. 2 – U.S. Patent No. 11,260,624 to Christensen <i>et al.</i>
1027	Diagram #1 of 4-layer multilayer film
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1029	PGR2022-00001 – EX1003 – Declaration of Stephen McCarthy Ph.D.
1030	U.S. Patent No. 10,889,093 to Wang
1031	U.S. Patent No. 6,903,161 to Morris
1032	Deposition of Dr. Stephen McCarthy
1033	U.S. Patent App. Pub. No. 2017/0348246 to Tohara <i>et al.</i>
1034	U.S. Patent App. Pub. No. 2008/0286512 to Holzmuller <i>et al.</i>
1035	WO 2009/105205 to Rivers <i>et al.</i>
1036	The Science and Technology of Flexible Packaging - Morris
1037	Second Declaration of Richard J. Spontak, Ph.D.
1038	Third Declaration of Richard J. Spontak, Ph.D.
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1041	Transcript of Third Deposition of Dr. Stephen McCarthy

I. INTRODUCTION

Patent Owner initiated the motion to amend process to present new claim language it believed to be patentable over the Petition's prior art, yet the majority of Patent Owner's Reply to Petitioner's Opposition asserts arguments regarding whether LDPE is a tie layer. Patent Owner introduces belatedly new evidence and arguments as to the plain and ordinary meaning of a tie layer that is nonresponsive to the motion to amend process. Patent Owner has asserted that the LDPE layer disclosed in Riis is not a tie layer since its Preliminary Response but is now seeking to introduce new evidence that is improper at this stage of the proceeding. *See* PO Prelim. Resp., 47–51. Despite the nonresponsive arguments based on new evidence, Patent Owner's analysis fails to inform the Board or a POSITA of the requirements of a “primary purpose” of a tie layer and thus fails to rebut the prima facie case of obviousness of both the substitute and original claims.

Where Patent Owner does address grounds related to the Revised Motion to Amend (“RMTA”), Patent Owner hinges patentability of substitute claims 16–18 on the unsupported and uncorroborated opinion of its expert that a POSITA would not combine the prior art. Patent Owner relies on the Board to take the opinions of its expert for truth, with no supporting evidence, whereas Petitioner and its expert provides supporting and corroborating evidence as to the unpatentability of the substitute claims. Patent Owner has not presented sufficient evidence nor any legal

authority for finding the RMTA substitute claims patentable in view of Petitioner's Opposition to Patent Owner's RMTA.

II. PATENT OWNER PRESENTS OLD ARGUMENT WITH BELATEDLY PRODUCED EVIDENCE

As an initial matter, Patent Owner now presents arguments directed to unamended limitations—relevant to the patentability of the original claims of the '624 Patent—which fail to respond to the Opposition to the Revised Motion to Amend ("Opp. RMTA"), the Board's Preliminary Guidance ("Prelim. Guidance") or fall within the proper scope of a reply under the Board's rules.¹ 37 C.F.R. § 42.23; Consolidated Trial Practice Guide 73–74 (Nov. 2019), *available at* <https://www.uspto.gov/about-us/news-updates/consolidated-trial-practice-guide-november-2019> ("CTPG") ("reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered."). In its RMTA, Patent Owner amends substitute claim 14 to include the limitations of original claim 8 of the '624 Patent, namely that the tie layer consists of two layers. *Compare* RMTA, 26, with EX1001, Claims 1 and 8. To support its argument that substitute claim 14 is patentable, Patent Owner relies on a recycled argument which it says is "already established in this proceeding," namely that a POSITA would identify the LDPE layer as a bulk layer. RMTA, 17–18.

¹ If the Board credits Patent Owner's argument, then the Board will effectively find the original claims of the '624 Patent patentable. This cannot be the hallmark of responsiveness.

Apparently not content with its argument to this point, Patent Owner now uses its Reply (“PO Reply”) as a last-minute bid to further attack Petitioner’s original combination of prior art with new arguments it has had at least four prior opportunities to assert. *See e.g.*, PO Prelim. Resp., 47; PO Resp., 9–12; *see also generally* MTA; RMTA. Indeed, Patent Owner had access to the prosecution history of U.S. Pat. 11,504,954² (the “’954 Patent”) prior to Institution but elected to conceal reliance on certain aspects of such evidence until now. *See* Prelim. Resp., vi (citing Exhibits 2005 and 2006 as part of the prosecution history of the ’954 Patent); *see also* PO Reply, 1–6 (citing EX2006, EX2019). The Board has found such arguments unrelated to the Petitioner’s Opposition or the Board’s Preliminary Guidance. *See e.g.*, *Apple Inc. v. LBT IP I LLC*, IPR2020-01193, Paper 41 at 54–46 (PTAB Mar. 2, 2022). Because the patentability of whether the tie layer comprises a first and second layer is addressed by briefing outside of the motion to amend, the Board should deny Patent Owner’s RMTA for the same reasons the original claims are shown to be unpatentable.

III. PATENT OWNER’S OLD ARGUMENT DOES NOT LIMIT THE PLAIN AND ORDINARY MEANING OF THE TIE LAYER

Despite the foregoing analysis, Patent Owner’s characterizations of Huhtamaki’s representations to the USPTO fail to limit the plain and ordinary

² U.S. Patent No. 11,504,954 issued from U.S. App. No. 16/516,792 which is cited by Patent Owner in its Reply to Petitioner’s Opposition to the RMTA.

meaning accorded to the tie layer of the '624 Patent. First, Patent Owner presents a disjointed analysis of the '954 Patent prosecution history to assert Petitioner has represented Riis's LDPE layer to be a bulk layer, exclusive of a tie layer. No such representation exists. Second, Patent Owner expands an inventor declaration in a Huhtamaki patent application well beyond its probative scope to fit whatever theory Patent Owner deems necessary. Despite Patent Owner's reliance on Huhtamaki's own patent prosecution arguments, Patent Owner reveals its flawed theory of a layer's "primary purpose" when the very document Patent Owner relies on demonstrates a polymer having exceptional adhesive strength yet is not a tie layer according to Patent Owner. Contrary to Patent Owner's assertions, the prosecution history of Huhtamaki's '954 patent application fails to limit Riis's LDPE layer as anything other than a tie layer suitable to form a multilayer film.

A. Huhtamaki's Prior Office Action Response Provides No Bearing On Riis's Example 5.

Patent Owner attempts to draw an inference between Huhtamaki's prosecution history of the '954 Patent, which recites claims different than those in the '624 Patent or the disclosure of Riis but fails to show how Huhtamaki's representation have bearing upon the film in Example 5 of Riis. PO Reply, 1–2 (citing EX2006). Patent Owner cuts and mischaracterizes quotes to assert "Petitioner explicitly identified that the structure layer in Osborn['s Example 5 film] is the bulk layer." *Id.* at 2 (citing EX2006, 12) (alteration in original) (internal quotations

omitted).

First, Patent Owner's alterations in brackets are misleading and false. Huhtamaki never identifies any structure of Osborn's Example 5 film as a bulk layer. Instead, Huhtamaki explicitly identifies different embodiments of Osborn, one with a polyolefin bulk layer (Osborn 1) and one that reflects the structure in Example 5 (Osborn 2). *See* EX2006, 10 (providing a table comparing films of the prior art with films of the claims at issue); PO Reply, 2 n.6. In addressing the different films, Huhtamaki never refers to the LDPE layer present in Osborn 2 as a bulk layer, recognizing a difference between the "Polyolefin Bulk: PE, LLDPE, m-LLDPE" layer in Osborn 1 and the "LDPE" layer in Osborn 2. EX2006, 10. Patent Owner recognizes the same but infers the illogical conclusion that reference to a bulk layer in Osborn 1 requires reference to a bulk layer in Osborn 2, even though Osborn 2 does not identify a bulk layer and provides a different structure. *See* PO Reply, 2. Patent Owner inserting "Osborn['s Example 5 film]" in its argument that Huhtamaki's prosecution history shows Riis's example 5 to a layer having a bulk layer does not make it so. Patent Owner's attempt to link the two is not supported by the evidence.

Ultimately, Osborn is not the prior art that renders the claims of the '624 Patent obvious—Riis is. Even where Riis discloses the use of polyolefin bulk layers in its inventive films, Riis makes clear that such layers "can serve as an adhesive or

tie layer.” EX1004, ¶135. A POSITA would recognize that such a layer is not limited by any singular purpose. EX2021, 224:4–21.³ Accordingly, any reference by Huhtamaki to film structures in the prior art of Osborn are not limiting upon the clear disclosures of Riis here and the fact that a POSITA would recognize Riis’s 0.65 LDPE layer as one of two layers in the EAA/LDPE tie layer. EX1003, ¶¶194, 253; EX1037, ¶113; EX1038, ¶114.

B. Huhtamaki’s Herb Declaration Fails to Support Patent Owner’s Argument

Patent Owner next mischaracterizes the relevance and substance of an inventor declaration from the ’954 Patent’s prosecution history (the Herb Declaration) to assert Riis’s LDPE is somehow recognized as a bulk layer. Patent Owner misconstrues the conclusion of the Herb Declaration which is probative only to show unexpected adhering properties of a c8 metallocene LLDPE layer.

Patent Owner relies on the Herb Declaration to try to undermine statements made by Petitioner’s expert with respect to the plain and ordinary meaning of a tie layer. Unlike Patent Owner’s definition (see Paper 30, 2 (heading “A”)), Petitioner’s expert, Dr. Spontak, put forth his understanding of the plain and ordinary meaning that agrees with the intrinsic evidence of the ’624 Patent (and further in agreement with the prior art of record). *Compare* EX1001, 4:35-39 with EX1004, ¶20, and

³ EX2021 provides a Volume II of the Deposition of Dr. Richard Spontak. References to page numbers accord with the paginated numbers present on the deposition transcript.

EX2021, 188:12–189:8. Dr. Spontak’s opinion as to the plain and ordinary meaning of a tie layer was first presented in his First Declaration (EX1003, ¶ 129) and has not changed, up to and including his third deposition, namely a tie layer provides sufficient adhesion and limits delamination. EX1037, ¶87; EX2015, 69:18–23; EX2022, 187:24–189:8.

Regarding the substance of the Herb Declaration, it teaches only the surprising result of using certain metallocene polyethylene (c8 m-LLDPE) to tie the COC layer to the EAA layer, and thereby to the aluminum foil. EX2019, ¶¶9–10. In particular, the Herb Declaration conducted tests on two laminates, one that bonds LDPE to COC and one that bonds c8 m-LLDPE to COC, and simply compares the strength required to delaminate each tested layer from the COC. *Id.*, ¶¶10–11. Patent Owner’s attempt to extend the Herb Declaration beyond this comparison should be accorded little weight.

Where the Herb Declaration does address LDPE generally, it states that LDPE can be adhered to COC to create a multilayer film structure; that is all that is required of the ’624 Patent’s tie layer. *Compare* EX2019, ¶10 (“Using regular LDPE allows to create a multilayer structure.”), *with* EX1001, 4:35–37 (“[T]he tie layer is selected to provide sufficient adhesion between the base layer and the coextrusion layer”). Patent Owner downplays this relevant disclosure, because the ’624 Patent merely requires the tie layer to provide sufficient adhesion between layers in order to form

the claimed multilayer film. In other words, if the layer can provide sufficient adhesion to allow a multilayer film to be created, it falls within the scope of the '624 Patent. Patent Owner, and its expert, would have the Board believe that the quantitative values of “strength per length” provided in the Herb Declaration provide some absolute characteristic of the LDPE layer of the experimental film, yet the Herb Declaration was presented for a comparison of those quantitative values to demonstrate relative strength, not absolute strength. Neither the Herb Declaration nor Patent Owner’s expert provides any documentary evidence that the “strength per length” of LDPE in the experimental film is insufficient to provide adhesion to produce a film. In fact, as noted above, the Herb Declaration states the opposite, “[u]sing regular LDPE allows to create a multilayer structure” See EX2019, ¶10.

According to Patent Owner and its expert, even when a polyethylene layer demonstrates extraordinary adhesion and prevents delamination, such a layer is a bulk layer. Despite having no knowledge of the loading values or the COC polymer used in the Herb Declaration experimental films,⁴ Patent Owner’s expert, Dr. McCarthy, asserts that the c8 m-LLDPE layer tested in the Herb Declaration is a bulk layer and not a tie layer,⁵ even though “[t]he bond strength per length between

⁴ EX1041, 11:10–15, 18:19–25, 19:21–24.

⁵ Because Patent Owner’s expert, Dr. McCarthy, views the c8 m-LLDPE layer as a bulk layer, Patent Owner cannot rely upon the structure in the Herb declaration to support the asserted criticality of substitute claims 16–18, which

the C8 metallocene LLDPE layer and the COC layer was so large that any attempt to delaminate the C8 metallocene LLDPE layer and the COC layer resulted in a destruction of the laminate by tearing without achieving a delamination of the C8 metallocene LLDPE layer and the COC layer.” EX2019, ¶11; EX1041, 26:19–21, (“Q. So is the metallocene LLDPE layer a tie layer or a bulk layer? A. A bulk layer.”). Dr. McCarthy’s misunderstanding of what constitutes a tie layer taints his interpretation of the Herb Declaration to such a degree that Dr. McCarthy cannot discern any quantity of adhesion that would be needed to indicate a tie layer over a bulk layer. EX1041, 23:19–24:5 (“Q. So -- so based on that, in order to determine a bulk layer/tie layer, you need to understand the adhesive strength? Is that your -- is that what you're saying? A. That would be one of the definitions of a tie layer versus a bulk layer. Q. Okay. What -- what quantity of adhesion would be needed in order to go from a bulk layer to a tie layer? A. I’m not sure.”); *see also id.*, 22:3–26:21. Dr. McCarthy’s opinions regarding the Herb Declaration are at odds with the evidence of record and thus should be accorded little to no weight.

Accordingly, Patent Owner’s misinterpretation of its newly relied upon evidence does nothing to change how a POSITA would view the exemplary film produced by Riis’s disclosed methods. The acrylic acid and polyethylene layers

Patent Owner has declared do not include a bulk layer. EX1041, 23:11–18; 26:19–21; *see also e.g.*, PO Resp., 12, 59; RMTA, 18 (“serving a bulk purpose (i.e., as a bulk layer, not a tie layer”).

disclosed as part of Riis's EAA/LDPE/COC coextrusion layer would be readily understood to provide sufficient adhesion to allow Riis's disclosure to form a multi-layer aggressive chemical-resistant film and would therefore be understood as two layers of a tie layer.

IV. PATENT OWNER'S ARGUMENTS REGARDING THE COMBINATION OF RIIS AND WYPYCH WITH HOLZMULLER ARE NOT SUPPORTED BY EVIDENCE OF RECORD

To the extent that Patent Owner's arguments regarding substitute claims 16–18 fail to address the combination of Riis and Wypych with Holzmuller, such arguments fail as a matter of law. *See e.g.*, PO Reply, 7–9. For instance, Patent Owner asserts Riis's tie layers cannot provide the loading ranges of substitute claims 16–18, but that is not the asserted combination. *Id.* at 7. Patent Owner also asserts Huhtamaki's prior representations to the USPTO foreclose any modification of thicknesses of Riis's films, but this argument ignores the substance of Huhtamaki's representations to the Office and fails to appreciate that Holzmuller is provided to modify the thicknesses of Riis's loading ranges. *See id.* at 7–8 (citing EX2006, 13); *see also* EX2006, 13.

Patent Owner also hinges its argument against the combination of Riis and Wypych with Holzmuller upon the idea that Riis's LDPE layer cannot qualify as a tie layer. PO Reply, 8–9. Because neither of these arguments address the asserted modification with Holzmuller, these arguments are inapplicable.

Regarding the asserted combination, Patent Owner's arguments are based on unsupported and uncorroborated statements from its expert. *See* PO Reply, 9–11; EX1022, ¶¶102–22. Patent Owner's argument that modifying Riis's film, "an end point of experimentation," is a "backwards approach" flies in the face of obviousness and reduces a POSITA to less than an automaton.⁶ PO Reply, 9–10 (citing EX2022, ¶103); *contra KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."). Taken to its logical conclusion, Patent Owner's argument is that a POSITA would never seek to modify an exemplary embodiment. Further, Patent Owner's argument contradicts Riis's explicit disclosure:

Although the invention has been described with reference to [] specific embodiments, the descriptions are intended to be illustrative and are not intended to be limiting. Various modifications and applications may occur to those skilled in the art without departing from the true spirit and scope of the invention as defined in the appended claims."

EX1004, ¶198.

Contrary to Patent Owner's argument, a POSITA would have a reasonable expectation of success in applying Holzmuller's varied thicknesses of intermediate bonding layers to Riis's two-layer tie layer. EX1038, ¶103. Holzmuller discloses that it is "[b]y the virtue of the multilayered construction of the intermediate layer"

⁶ Dr. McCarthy provides zero evidence to underlying support for this opinion. Patent Owner's and its expert's misunderstandings regarding the skilled artisan further diminish the weight and credibility of its expert and the level of skill Patent Owner asserts is required.

and “[b]y use of the materials according to the invention [that] it is possible to create layer thicknesses in the indicated thickness ranges.” Both of these factors provide for the additive effects taught by Holzmuller. Patent Owner’s argument that Holzmuller’s “joint extrusion techniques” are somehow limiting on the three-layer coextrusion taught by Riis ignores Holzmuller’s clear disclosure of coextrusion techniques. See EX1034, ¶¶24 (disclosing the production of the intermediate layer material “can be carried out as co-extrusion steps”), 26 (“[T]he layers forming the intermediate layer material are co-extruded.”). Accordingly, a POSITA would have had a reasonable expectation of success in adjusting the thicknesses of Riis’s tie layers in at least the preferred and especially preferred ranges taught by Holzmuller. EX1038, ¶¶98–103.

V. CONCLUSION

Accordingly, substitute claims 14, 15, and 20–24 are rendered obvious by Riis and Wypych, substitute claims 16–18 are rendered obvious by Riis, Wypych, and Holzmuller, and substitute claim 19 is rendered obvious by Riis, Wypych, and Rivers.

Date: April 8, 2024

Respectfully submitted,

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Counsel for Petitioner

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

The undersigned hereby certifies that the foregoing **PETITIONER'S SUR-
REPLY IN OPPOSITION OF PATENT OWNER'S REVISED MOTION TO
AMEND** was served in its entirety electronically via e-mail on April 8, 2024, on the
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