

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

---

**FIRST QUALITY RETAIL SERVICES, LLC,  
FIRST QUALITY CONSUMER PRODUCTS, LLC,  
FIRST QUALITY PRODUCTS, LLC  
FIRST QUALITY ENTERPRISES, LLC,**

**Petitioners,**

**v.**

**ESSITY HYGIENE AND HEALTH AB,**

**Patent Owner**

---

**Case No. IPR2024-01487  
U.S. Patent No. 9,308,138**

---

**PETITIONERS' REPLY TO PATENT OWNER'S RESPONSE**

**TABLE OF CONTENTS**

|      |                                                                                                                                                                           |    |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| I.   | INTRODUCTION .....                                                                                                                                                        | 1  |
| II.  | CLAIM CONSTRUCTION .....                                                                                                                                                  | 1  |
| III. | ARGUMENT.....                                                                                                                                                             | 3  |
| A.   | Ground I: Bergstrom-’059 Anticipates .....                                                                                                                                | 3  |
| 1.   | Claim 1[h] .....                                                                                                                                                          | 3  |
| 2.   | Claim 1[e] .....                                                                                                                                                          | 8  |
| B.   | Grounds II and III: Nakazawa-’190 and Glaug-’753 (and Cohen-’429) Render the Challenged Claims Obvious .....                                                              | 9  |
| 1.   | Claim 1 .....                                                                                                                                                             | 10 |
| 2.   | Claim 21 .....                                                                                                                                                            | 18 |
| C.   | Ground IV: Nakazawa-’190 and Ponomarenko-’236 Render the Challenged Claims Obvious.....                                                                                   | 20 |
| 1.   | Claim 1 .....                                                                                                                                                             | 20 |
| 2.   | Claim 2.....                                                                                                                                                              | 24 |
| D.   | Ground V: PO Cannot Have it Both Ways: Either a Hydrophilic Sheet Wrapped Around the Absorbent Material Can Be Part of a “Fluid Flow Control Structure” or it Can’t ..... | 25 |
| IV.  | THE BOARD SHOULD VIEW DR. SHELDON’S TESTIMONY WITH SKEPTICISM .....                                                                                                       | 27 |
| V.   | DR. POURDEYHIMI IS A POSA .....                                                                                                                                           | 28 |
| VI.  | CONCLUSION.....                                                                                                                                                           | 29 |

**TABLE OF AUTHORITIES**

|                                                                                                             | <b>Page(s)</b> |
|-------------------------------------------------------------------------------------------------------------|----------------|
| <b>Federal Cases</b>                                                                                        |                |
| <i>Bayer Pharma AG v. Watson Lab ’ys, Inc.</i> ,<br>874 F.3d 1316 (Fed. Cir. 2017) .....                    | 17             |
| <i>CRFD Rsch, Inc. v. Matal</i> ,<br>876 F.3d 1330 (Fed. Cir. 2017) .....                                   | <i>passim</i>  |
| <i>In re Ethicon, Inc.</i> ,<br>844 F.3d 1344 (Fed. Cir. 2017) .....                                        | 13, 25         |
| <i>Homeland Housewares, LLC v. Whirlpool Corp.</i> ,<br>865 F.3d 1372 (Fed. Cir. 2017) .....                | 9              |
| <i>Honeywell, Int’l Inc. v. 3G Licensing, S.A.</i> ,<br>2024 WL 3594593 (Fed. Cir. 2025) .....              | 7, 18, 23      |
| <i>Kennametal, Inc. v. Ingersoll Cutting Tool Co.</i> ,<br>780 F.3d 1376 (Fed. Cir. 2015) .....             | 13             |
| <i>Kyocera Senco Indus. Tools v. Int’l Trade Comm’n</i> ,<br>22 F.4th 1369 (Fed. Cir. 2022) .....           | 29             |
| <i>In re Merck &amp; Co.</i> ,<br>800 F.2d 1091 (Fed. Cir. 1986) .....                                      | 11             |
| <i>Robert Bosch Tool Corp. v. SD3, LLC</i><br>IPR2016-01755, Paper 15 (P.T.A.B. Mar. 31, 2017) .....        | 6              |
| <i>SCA Hygiene Products Aktiebolag et al</i> ,<br>IPR2017-01902, Paper 51, 22 (P.T.A.B. Feb. 1, 2019) ..... | 13             |
| <i>Syntex (U.S.A.) LLC v. Apotex, Inc.</i> ,<br>407 F.3d 1371 (Fed. Cir. 2005) .....                        | 17             |
| <i>Xerox Corp. v. Bytemark, Inc.</i> ,<br>IPR-2022-00624 Paper 9, 15 (P.T.A.B. Aug. 24, 2022) .....         | 7, 18, 23      |

## **I. INTRODUCTION**

The Petition demonstrates the '138 patent's challenged claims recite well-known and obvious combinations of absorbent article components to manage fluid flow. None of the PO's attempts to save the claims in its Response has merit.

PO's Ground I challenges rely on (1) an improperly narrow claim construction of "perforated" and (2) the assertion that "perforated" in Bergstrom-'059 is not the plain meaning of "perforated" (i.e., pierced through with holes/apertures). Both arguments fail.

With respect to Grounds II–IV, PO contends combining Nakazawa-'190 with either Glaug-'753 or Ponomarenko-'236 contradicts the fundamental purpose of Nakazawa-'190 because Nakazawa-'190 allegedly requires its diffusion sheet to promote fluid flow in both Z-directions. This ignores Nakazawa-'190's disclosure of the diffusion sheet's function.

For Ground V, PO's argument contradicts PO's positions in the parallel district court proceedings where it contends the opposite for infringement purposes. PO cannot have it both ways.

## **II. CLAIM CONSTRUCTION**

PO asserts "perforated polymeric layer" means "a polymeric layer that is pierced through with holes or apertures such that the layer allows the free flow of liquid bodily waste therethrough." Response, 19-23. Because "polymeric layer"

appears in PO's proposed construction, the only term PO actually proposes construing is "perforated." Perforated is a common word and does not require construction. If the Board finds it necessary to construe "perforated" or "perforated polymeric layer," Petitioners agree "perforated" refers to having holes or apertures that are pierced/extend through a layer. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶12-13.

PO's attempt to further require that the perforations must be "large enough that fluid can flow through the layer as intended" (Response, 20), should be rejected. Nothing in the claims or specification requires any particular size. PO argues the holes must be "of sufficient size that one can analyze the open area of the surface of the perforated polymeric layer as described in the specification," and cites disclosure describing microscopic evaluation. Response, 21 (citing EX1001-USP138, 9:46-10:5). But this incorrectly limits the claim to an embodiment and mischaracterizes the specification. For example, the specification describes "alternative methods for determining open area and hole diameter... such as manual methods and methods based on scanning electron microscopy." EX1001-USP138, 10:3-5. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶14-19, 29.

### III. ARGUMENT

#### A. Ground I: Bergstrom-'059 Anticipates

PO only contests whether Bergstrom-'059 anticipates 1[h] and 1[e]. Response, 56-69. PO's arguments fail.

##### 1. Claim 1[h]

Bergstrom-'059 expressly states that forming element 60 may be made of a "perforated plastic film." EX1004-Bergstrom-'059, 10:1-3; EX1022-SheldonDepo., 185:20-187:1 ("[f]orming elements can be plastic films, perforated films, reinforced tissue, reinforced nonwovens."). PO does not dispute that the "plastic film" in Bergstrom-'059 is a "polymeric layer." Response, 57.

Thus, the sole dispute for 1[h] is whether "perforated" in Bergstrom-'059 means "perforated" as claimed in the '138 patent. Response, 57-63. PO's arguments are based on both an improper claim construction of "perforated" and an unfounded interpretation of "perforated" in Bergstrom-'059. Petitioners agree the plain and ordinary meaning of perforated in both Bergstrom-'059 and the '138 patent is a layer having holes through it. *See supra* Section.II; EX1001-USP138, 3:29-34, 3:45-47. PO's contrary arguments fail.

As to PO's incorrect claim construction, as discussed *supra*, the plain meaning of "perforated" is pierced through with holes/apertures. There is no valid basis to import any of PO's additional limitations into the meaning of "perforated" in the '138 patent's claims. However, even under PO's construction, Bergstrom-'059

discloses 1[h] because it would have been understood that Bergstrom-'059's "perforated plastic film" would allow for the "free flow of liquid bodily waste." EX1004-Bergstrom-'059, 9:34:10:3; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶20-23.

PO's remaining arguments — that "perforated" as it appears in Bergstrom-'059 does not carry its plain meaning — misinterpret Bergstrom-'059's disclosure. PO cites no prior decision in which the prior art disclosed claim language ("perforated") *verbatim* but was found not to disclose that claim term. That is PO's request of the Board here and it should be rejected. And, PO's argument that the Petition improperly "take[s] a property of a potential material and extrapolate[s] that to be a property of an entire layer" (Response, 58) is misplaced. Bergstrom-'059 explicitly and unambiguously discloses that the entire forming element 60 can be a "perforated plastic film." EX1004-Bergstrom-'059, 10:1-2; EX1022-SheldonDepo., 185:20-187:1. PO's argument is based on the alternative embodiment that "[c]ombinations of such [disclosed] materials...are also possible." EX1004-Bergstrom-'059, 10:1-4. But it is legal error to ignore one material just because Bergstrom-'059 also discloses alternative embodiments. *See CRFD Rsch, Inc. v. Matal*, 876 F.3d 1330, 1349 (Fed. Cir. 2017).<sup>1</sup> EX1021-Pourdeyhimi-Suppl-Decl., ¶24, 44.

---

<sup>1</sup> PO relies on an inherent disclosure case, *Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, where disclosure of a lofty **composite** was found not inherently

**First**, PO argues that Bergstrom-'059's statement that forming element 60 is "**typically** liquid-impermeable"<sup>2</sup> means it cannot be a "first perforated polymeric layer" because such a layer would be liquid permeable. Response, 58-60. This is contrary to Bergstrom-'059's text. EX1004-Bergstrom-'059, 9:24-30; EX1022-SheldonDepo., 183:8-21. Reading "typically" as "always" would contradict plain English and render "typically" superfluous. "Typically" means in most cases, not always.<sup>3</sup> EX1021-Pourdeyhimi-Suppl-Decl., ¶¶25-26.

**Second**, PO argues that because forming element 60 is "**typically** liquid-impermeable," it is like backsheet 102 and therefore "perforated" means "gas permeable but liquid impermeable." Response, 61-62. This again misstates the text of Bergstrom-'059. Unlike the "typically liquid impermeable" forming element, Bergstrom-'059 states the backsheet "**should be** liquid-impermeable" "[t]o protect

---

to disclose lofty **fibers**. 936 F.3d 1353, 1364 (Fed. Cir. 2019). There is no similar extrapolation here. Bergstrom-'059 discloses expressly "**perforated** plastic films." EX1022-SheldonDepo., 185:20-187:1.

<sup>2</sup> All emphases added.

<sup>3</sup> PO's reliance on Dr. Pourdeyhimi's testimony regarding impermeable (Response 60-61) improperly requires "typically" to be ignored. Moreover, Dr. Pourdeyhimi's testimony was describing **the backsheet of Nakazawa-'190**, a different component of a different reference, and is therefore irrelevant. EX2005-Pourdeyhimi-Depo., 87:19-89:21. During Dr. Pourdeyhimi's entire deposition, PO did not ask about or mention Bergstrom-'059. See *generally* EX2005-Pourdeyhimi-Depo. EX1021-Pourdeyhimi-Suppl-Decl., ¶35.

the wearer's garments from soiling" and only describes materials for it that are "liquid impervious." EX1004-Bergstrom-'059, 11:8-20. And, of course, Bergstrom-'059 never states that the backsheet can be "perforated." Bergstrom-'059, 11:8-20; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶32-34.

**Third**, PO argues that Bergstrom-'059 is "ambiguous" and requires significant modification to anticipate. Response, 62-63. This fails because it is based on PO's mistaken position that forming element 60 is always, rather than "typically," liquid-impermeable. There is no need to modify Bergstrom-'059 because "perforated" is used the same way as it is in the '138 patent—in its plain and ordinary meaning. *Supra*, Section II.<sup>4</sup>

**Fourth**, PO argues that because forming element 60 is included largely to provide a certain stiffness to Bergstrom-'059's absorbent article, it is not a perforated polymeric layer. Response, 59. This fails because it is based on PO's erroneous construction. Moreover, forming element's stiffness-related functions do not

---

<sup>4</sup> PO relies on inapposite cases to argue otherwise. In *Robert Bosch*, the Board found a reference ambiguous because a "single use of the word 'pivoting,'" did not disclose a "reaction system [] configured to pivot the cutting tool at least partially away from the cutting region." IPR2016-01755, Paper 15, 11-12 (P.T.A.B. Mar. 31, 2017). In *Enplas Display Device Corp. v. Seoul Semiconductor Co.*, the reference required modification because the patent challenger's expert did not testify that the reference disclosed all claimed limitations, but rather testified it did not exclude all claimed limitations. 909 F.3d 398, 405 (Fed. Cir. 2018). The reference from *In re Chudik* was specifically incapable of performing a claim limitation. 851 F.3d 1365, 1374-75 (Fed. Cir. 2017).

exclude its fluid-flow functions. In fact, the '138 patent itself explains that the “fluid flow control structure” should have a “relatively high bending stiffness.” EX1001-USP138, 2:63-66. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶27-28.

**Finally**, PO argues that Bergstrom-'059 distinguishes “apertured” films from “perforated” films. Response, 61-62. This lacks any basis. Bergstrom-'059 uses “apertured plastic films” and “perforated plastic films” each once without any discussion of any difference between them. A POSA would have understood that, if there is any difference between “perforated” and “apertured,” it relates to manufacturing, not whether holes are present in the materials. As Dr. Pourdeyhimi explains, because the forming element must have a certain stiffness, it would likely need to be mechanically perforated<sup>5</sup> instead of vacuum apertured to have holes. However, because the topsheet can be thin, it is able to be apertured. EX1021-Pourdeyhimi-Suppl-Decl., ¶-32.

---

<sup>5</sup> “Mechanical perforation” still leads to holes being formed in a material, just through a mechanical process. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶30-31. Mr. Sheldon separately opines that “mechanical perforation” (a term Bergstrom-'059 does not use) refers to softening material but not creating though-holes (EX1022-SheldonDepo., 202:22-203:20). *See also* Response, 61; EX2001 ¶115. He cites no evidence of the term “mechanical perforation” ever being used to describe such a process and therefore his testimony should be given no weight. *Xerox Corp. v. Bytemark, Inc.*, IPR-2022-00624 Paper 9, 15 (P.T.A.B. Aug. 24, 2022) (precedential); *Honeywell, Int'l Inc. v. 3G Licensing, S.A.*, 2024 WL 3594593, 15-16 n.6 (Fed. Cir. 2025).

## 2. Claim 1[e]

The sole dispute with respect to 1[e] is whether Bergstrom-'059's acquisition layer 40 and forming element 60 together are the claimed "fluid flow control structure." Response, 63-68. They are.

**First**, PO argues forming element 60 and acquisition layer 40 are not a "structure" because they are not a "cohesive arrangement of elements to accomplish a particular function." Response, 63-68. Not so. They work together to control the flow of fluid. Petition, 34-35. They do not have "opposite role[s]" as PO contends merely because they do not manipulate fluid the exact same way. Response, 66. PO admits that acquisition layer 40 "acts to . . . *distribute [liquid] evenly to the upper and lower absorbent cores*, 20, 30." Response, 66 (quoting EX1004-Bergstrom-'059, 6:16-21). Similarly, forming element 60 "*makes best use of the upper and lower absorbent cores* 20, 30, *by distributing liquid.*" EX1004-Bergstrom-'059, 9:24-27. A POSA would have understood that when a perforated plastic film is selected for forming element 60, fluid would flow through its perforations in the Z-direction because it is not a barrier. *See supra* Section III.A.1. A POSA also would have known that fluid distributes in the X-Y plane on the liquid-impermeable plastic before flowing through one of the perforations, as described in Bergstrom-'059. Additionally, Bergstrom-'059 shows that forming element 60 and acquisition layer 40 are positioned together. EX1004-Bergstrom-'059, 8:32-33. Because these

elements are located together and perform common fluid control functions, they are a “fluid flow control structure.” EX1021-Pourdeyhimi-Suppl-Decl., ¶¶36-37, 41-43.

**Second**, PO re-raises its argument that forming element 60 is liquid impermeable. Response, 65, 68. As explained *supra* Section III.A.1 that is incorrect.

**Third**, PO improperly contends that for each layer to constitute the claimed “fluid flow control structure,” it must have (a) “a highly porous internal structure,” and (b) edges that “may act as barriers” to prevent fluid flow. Response, 65. PO contends that because forming element does not have “a porous internal structure” and, in one embodiment, forces “fluid to the edges,” it is not part of the claimed “fluid flow control structure.” Response, 68. Neither being internally porous nor having “edge barriers” is in the claim language. *See Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378 (Fed. Cir. 2017). Further, the patent is clear that the “porous internal structure” refers to the claimed “fibrous layer,” which is met by Bergstrom-’059’s acquisition layer 40. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶38-40.

**B. Grounds II and III: Nakazawa-’190 and Glaug-’753 (and Cohen-’429) Render the Challenged Claims Obvious**

PO primarily disputes the motivation to combine Nakazawa-’190 and Glaug-’753 and claim 21. Response, 27-42, 69. PO’s arguments fail.

The combination of Nakazawa-'190 and Glaug-'753 is very straightforward: Nakazawa-'190 discloses almost every limitation of claim 1. The only element not disclosed is the second, non-perforated fibrous polymeric layer of the two-layer fluid flow control structure. Glaug-'753 discloses a two-layer fluid acquisition system where one layer is a perforated polymeric layer made of the same material as Nakazawa-'190's diffusion sheet, and the second layer is a non-perforated fibrous polymeric layer that distributes fluid to the lower absorbent layer. A POSA would have been motivated to add this fluid distribution functionality to Nakazawa-'190 by either adding Glaug-'753's second layer to Nakazawa-'190's diffusion sheet, or by replacing Nakazawa-'190's diffusion sheet with Glaug-'753's two-layer fluid acquisition system. Petition, 59-65; EX1002-Pourdeyhimi-Decl. ¶¶76-192. PO's arguments against this combination ignore the purpose of the diffusion sheet in Nakazawa-'190 and ignore disclosure in Nakazawa-'190 that the diffusion sheet can be made from the same material as the upper layer of Glaug-'753's fluid acquisition system. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶45-47, 78.

**1. Claim 1**

**a. The Combination of Nakazawa-'190 and Glaug-'753 Teaches the Claimed "Fluid Flow Control Structure"**

As explained above, the Petition did not argue that Nakazawa-'190 alone discloses the fluid flow control structure. Petition, 59. Thus, PO's assertion that Nakazawa-'190 alone does not disclose a fluid flow control structure (Response, 27)

is irrelevant. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“[n]on-obviousness cannot be established by attacking references individually where the [unpatentability] is based upon the teachings of a combination of references.”).

And Mr. Sheldon admitted Glaug-'753's two-layer fluid acquisition system meets all the requirements of a “fluid flow control structure” in the claims. EX1022-SheldonDepo., 95:14-16 (Glaug-'753's fluid acquisition system is comprised of two layers), 119:15-122:14 (both layers contribute to fluid flow management and control), 296:20-297:4 (layers are made of the claimed materials).

**b. There is Motivation to Combine**

The evidence demonstrates a POSA would have been motivated to combine or substitute the diffusion sheet of Nakazawa-'190 with the fluid acquisition system of Glaug-'753. Petition, 59-65. PO attempts to refute this evidence by arguing the combination “would change the basic principles for which each were designed to operate, defeating obviousness from the start.” Response, 29. This is allegedly because Nakazawa-'190 requires fluid flow in both Z-directions (away from and toward a wearer's body) and Glaug-'753's fluid acquisition system is *only* capable of moving fluid away from a wearer. Response, 29-37. PO argues the three-dimensional apertured film layer of Glaug-'753's fluid acquisition system acts as a “one-way fluid highway” and is “antithetical” to Nakazawa-'190. Response, 33-35,

36-37; *see* EX1022-SheldonDepo., 72:9-73:8, 89:1-19, 92:2-16, 140:3-7, 141:16-142:5, 158:1-6. PO is wrong.

**First**, contrary to PO's position (Response, 30), Nakazawa-'190 does not disclose that the diffusion sheet must promote fluid flow in both Z-directions. Nakazawa-'190 states the diffusion sheet should have "higher liquid permeability" than the absorbent material above it. EX1008-Nakazawa-'190, [0172]. PO incorrectly interprets this to mean the diffusion sheet must be able to promote fluid flow in both Z-directions. But Nakazawa-'190 explains that a diffusion sheet with higher permeability simply reduces absorption time compared to an absorbent layer without a diffusion sheet, which is exactly what the three-dimensional apertured film does. *Id.*, [0035]-[0037], [0207]; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶51-52, 54.

**Second**, Nakazawa-'190 discloses using the same three-dimensional apertured film as disclosed in Glaug-'753. PO's expert admitted that the "three dimensional apertured film" used as Glaug-'753's first acquisition layer is an apertured film called Aquidry™. EX1006-Glaug-'753, 3:67-4:1; EX1022-SheldonDepo., 103:7-21. EX1021-Pourdeyhimi-Suppl-Decl., ¶53. As PO's expert concedes, Nakazawa-'190 likewise discloses using the "AquiDry" film as a diffusion sheet and that this film works well. EX1008-Nakazawa-'190, [0177], [0207]; EX1022-SheldonDepo., 93:18-94:5. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶53-55.

Mr. Sheldon raises three meritless arguments in an attempt to sidestep this clear disclosure. First, Mr. Sheldon states he does not “see it as a preferred embodiment.” EX1022-SheldonDepo., 93:4-94:5. But, a prior art reference must be read for all that it teaches, not just for preferred embodiments. *See CRFD*, 876 F.3d at 1349; *In re Ethicon, Inc.*, 844 F.3d 1344, 1351 (Fed. Cir. 2017). Second, Mr. Sheldon states that the laboratory test data in Nakazawa-'190 is “very limited.” EX1022-SheldonDepo., 90:15-91:15. But that is nothing more than an admission that it is disclosed, which is legally sufficient. *Cascades Canada ULC et al v. Essity Hygiene and Health Aktiebolag f/k/a SCA Hygiene Products Aktiebolag et al*, IPR2017-01902, Paper 51, 22 (P.T.A.B. Feb. 1, 2019) (finding “fact that an embodiment is disclosed in a single sentence is not a license to ignore that disclosure”). Finally, Mr. Sheldon states he “would not choose that to utilize in a product.” EX1022-SheldonDepo., 89:1-16. That is irrelevant because the asserted prior art references teach it. *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1382-83 (Fed. Cir. 2015) (testing of a disclosed embodiment is not required for it to be as prior art).

**Third**, PO incorrectly argues Dr. Pourdeyhimi's testimony that “once [a generic diffusion sheet] is wet and it's in contact with the absorbent core, it can move up or down depending on where it's located” (Response, 33) supports its position. PO's argument fails because Dr. Pourdeyhimi's testimony is, as discussed above,

that Nakazawa-'190 discloses use of the very apertured film PO criticizes. EX1008-Nakazawa-'190, [0177]. Further, Dr. Pourdeyhimi's testimony is simply a statement that fluid will flow from a diffusion sheet to an absorbent core that it is in contact with, whether that core is located above or below the diffusion sheet. Thus, Dr. Pourdeyhimi's testimony does not support PO's argument. EX1021-Pourdeyhimi-Suppl-Decl., ¶56.

**Fourth**, Dr. Pourdeyhimi's statement that in Glaug-'753 "you don't want fluid to go back to the top layer" does not support PO's position. Response, 34-35. He was discussing Glaug-'753 individually; not in combination with Nakazawa-'190. EX2005-PourdeyhimiDepo., 49:14-50:13. A POSA would have understood that in Glaug-'753, fluid should not flow in the +Z-direction because there is no absorbent core placed above the fluid acquisition system. There is nothing inconsistent with Nakazawa-'190, which shows that an Aquidry film placed between two absorbent cores works well. *See supra* Section III.B.1.b; EX1021-Pourdeyhimi-Suppl-Decl., ¶57.

**Fifth**, PO argues the Petition "misrepresents" that Glaug-'753 teaches a benefit of its fluid acquisition system over the prior art. Response, 35. Not so. Glaug-'753 notes prior art articles "leave something to be desired from the standpoint of fluid retention capacity and fluid transfer into a high capacity core." EX1006-Glaug-'753, 3:19-22. Glaug-'753 teaches that its "fluid acquisition

system” provides numerous benefits, including “optimiz[ing] the fluid penetration rate and volume into the absorbent core” while “minimizing the fluid from exiting the diaper 20 when it is saturated and under high stress.” *Id.*, 9:41-46. Further, the two layers “cooperate to manage, transport, accommodate and/or direct high volumes and high flow rates of urine or other body fluid received from the top sheet target zone into the absorbent core 36 at a rate that the core can handle, despite multiple insults of such fluid.” *Id.*, 6:14-18; *id.*, 4:5-8. EX1021-Pourdeyhimi-Suppl-Decl., ¶58.

*Sixth*, PO argues Glaug-'753's fluid acquisition system would move fluid too quickly to operate effectively. Response, 36. This argument relies only on unsupported conclusions from its expert, based on his own – incorrect – standard for reasonable expectation of success. EX1022-SheldonDepo., 140:18-22 (testifying reasonable expectation of success requires “[s]ome kind of an improvement in performance, in functionality, in consumer desirability”). A POSA would have a reasonable expectation of success in making the proposed combination as the materials are known, it is well-understood how fluid interacts with the materials, and fluid flow is well-understood. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶59-62, 71-73. Further, this argument relies on the incorrect premise that quick fluid flow is undesired in Nakazawa-'190. Nakazawa-'190 specifically wants diffusion sheets to have a “higher liquid permeability” than its absorbent materials, which it defines as

facilitating a lower absorption time when placed above an absorbent material than if the absorbent material were alone. EX1008-Nakazawa-'190, [0035]-[0037]. Thus, moving fluid quickly towards an absorbent layer is a design goal of Nakazawa-'190. EX1002-Pourdeyhimi-Decl., ¶¶186-188.

**c. No Teaching Away**

PO argues Nakazawa-'190 disparages or teaches away from Glaug-'753's two-layer fluid acquisition system because Nakazawa-'190 allegedly has "one disclosure" that "discloses the possibility of having two layers between the upper and lower absorbent cores" and teaches that having two layers "would *impede*, not improve, the flow of excretory fluid." Response, 38 (emphasis in original). PO's position is incorrect and ignores disclosure in Nakazawa-'190, as Mr. Sheldon admitted. EX1022-SheldonDepo., 246:19-247:1.

*First*, contrary to PO's argument (Response, 38), there is more than one relevant disclosure in Nakazawa-'190. PO focuses exclusively on the Figure 15 embodiment. Response, 38-39. But Nakazawa-'190 discloses that any absorbent material shown in any of the figures may be wrapped in a hydrophilic sheet, which would necessarily create multiple layers of material between the two absorbent cores. EX1008-Nakazawa-'190, [0082]; EX1022-SheldonDepo., 248:18-22, 256:2-7. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶48-50.

**Second**, Nakazawa-'190 does not solely disclose that two layers beneath the hole portions in the first absorbent material would impede the flow of excretory fluid. Response, 38. As described above, Nakazawa-'190 discloses embodiments where there are two layers under the hole portions in the first absorbent material. EX1008-Nakazawa-'190, [0082], [0084], [0122]. PO's expert's only response to the clear disclosure is that it is not Nakazawa-'190's "preferred embodiment." That is legally irrelevant. *See CRFD*, 876 F.3d at 1349.

**Third**, PO improperly argues the description of a preferred embodiment constitutes teaching away. Response, 38-39. But "[a] statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination." *Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citations omitted). For a reference to teach away it must "suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *Bayer Pharma AG v. Watson Lab'ys, Inc.*, 874 F.3d 1316, 1327 (Fed. Cir. 2017) (cleaned up). PO has not met this standard.

**d. Cost/Complexity Would Not Affect Motivation**

PO parrots Mr. Sheldon's unsupported conclusory opinions to argue manufacturing cost and complexity would have deterred a POSA from combining Nakazawa-'190 and Glaug-'753. Response, 39. Mr. Sheldon did not provide any

supporting evidence and admitted he did not perform any calculations to support his opinions. EX1022-SheldonDepo., 138:9-12; EX2001-SheldonDecl., ¶¶149-152. This argument is irrelevant and should be ignored. *Xerox Corp.*, IPR-2022-00624, Paper 9, 15; *Honeywell*, 2024 WL 3594593, \*15-16 n.6. EX1021-Pourdeyhimi-Suppl-Decl., ¶63.

Further, Mr. Sheldon testified Glaug-'753's fluid acquisition system would be "fed into the production line as one layer, one unit." EX1022-SheldonDepo., 155:2-11. A POSA would have understood this "unit" could be added in the same manner as Nakazawa-'190's diffusion sheet, thus making manufacturing straightforward and not increasing costs much. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶64-70.

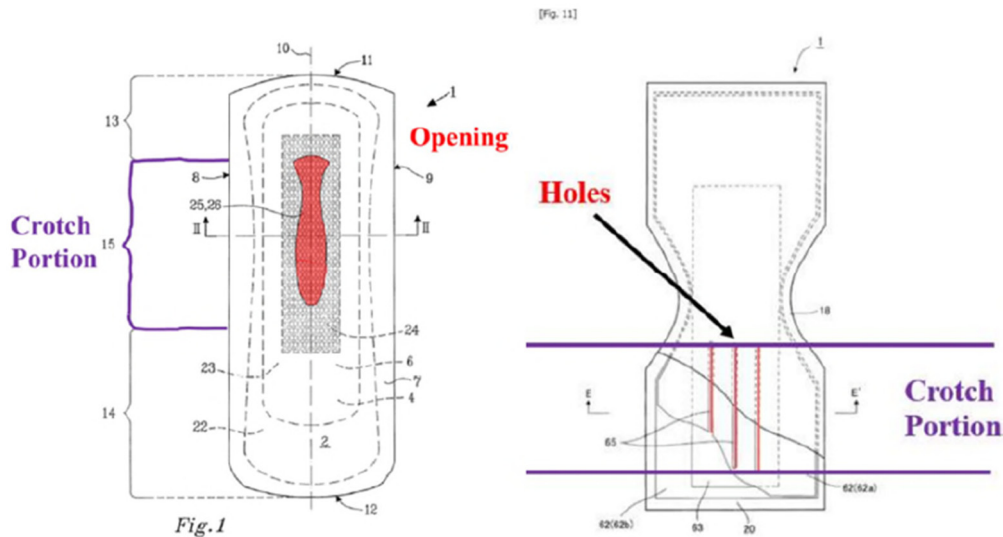
## **2. Claim 21**

PO's two additional arguments regarding claim 21 both fail. Response, 39-41.

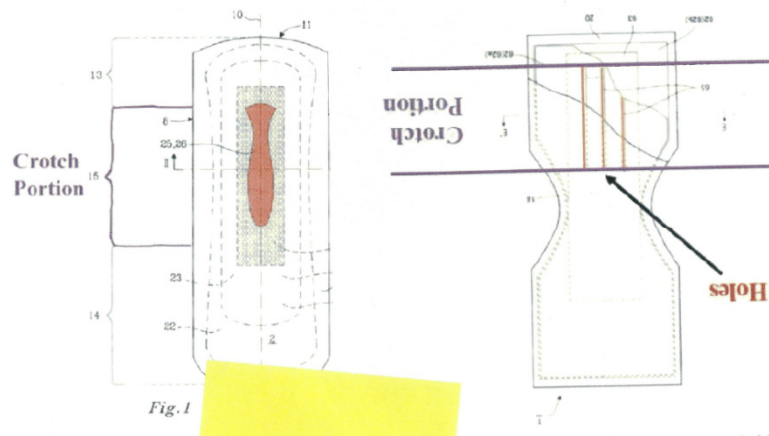
PO first incorrectly asserts Petitioner placed the crotch portion in annotated Figure 11 "where hole portion 65 is, rather than where the actual crotch portion of the article is" "as defined in the '138 Patent." Response, 39-40. Both Nakazawa-'190 and the '138 patent use "crotch portion" to describe the wearer's urination site. EX1001-USP138, 5:59-63; EX1008-Nakazawa-'190, [0032]. Nakazawa-'190 discloses that the absorbent component covers "at least the crotch portion" of an article, and that the placement of hole portions in the absorbent material is

unrestricted. *Id.*, [0053], [0169]. Nakazawa-'190 also discloses a hole that can extend along the length of the entire article, undoubtedly including the entire crotch portion. *Id.*, [0055], Fig. 9B. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶74, 77.

PO's expert's comparison of the location of the crotch portion in both references misleadingly arranges Nakazawa-'190 upside down:



EX2001-SheldonDecl., ¶154. When oriented in the same direction, the crotch portions of Nakazawa-'190 and the '138 patent are in similar locations—where urination occurs:



EX1024-SheldonDepo-ExB. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶75-76.

PO next wrongly argues “[p]utting opening 65 in the crotch portion” would cause side leakage. Response, 41. But Nakazawa-’190 teaches that holes extending through the entire crotch area are advantageous; they improve fit *at the urination site* and “*improve[]* the leakage prevention effect.” EX1008-Nakazawa-’190, [0047]-[0049]. Thus, Nakazawa-’190 contradicts PO’s argument. See Response, 41 (citing Nakazawa-’190, [0049]). EX1021-Pourdeyhimi-Suppl-Decl., ¶¶77.

### **C. Ground IV: Nakazawa-’190 and Ponomarenko-’236 Render the Challenged Claims Obvious**

PO only disputes motivation to combine and claim 2. Response, 42, 48. PO’s arguments fail.

#### **1. Claim 1**

##### **a. There Is Motivation to Combine**

PO wrongly argues a POSA would not have been motivated to combine the references because Nakazawa-’190 requires fluid flow in both Z-directions and

Ponomarenko-'236 discloses an invention related to feces management. Response, 43-47.

**First**, PO incorporates its Ground II arguments about Nakazawa-'190's diffusion layer requiring movement of fluid in both Z-directions. Response, 42-43. These arguments fail. *Supra* Section III.B.1.b; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶79, 81, 93.

**Second**, PO incorrectly argues Ponomarenko-'236 “[s]imilarly to EX1006-Glaug” “discloses fluid flow only in the -Z-direction away from the body.” Response, 43. This misstates both Nakazawa (*Supra* Section III.B.1.b) and Ponomarenko-'236. Ponomarenko-'236 explains its sublayer 30 can “optionally also distribute [fluid] in the X and Y direction of the sublayer (30).” EX1007-Ponomarenko-'236, 7:12-13. And Ponomarenko-'236's perforated polymeric layer (acquisition layer 36) does not have the three-dimensional aperture of Glaug-'753 that PO alleges would not allow backflow in the +Z direction:

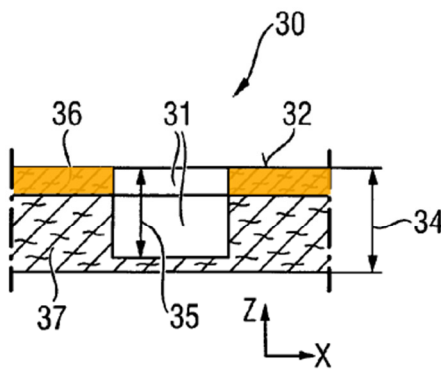


**Fig. 6**

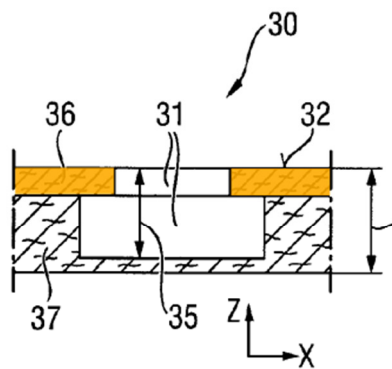


**Fig. 7**

EX1007-Ponomarenko-'236, Figs. 6-7. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶81-82, 88-89, 96.

**Third**, PO argues that because “[P]onomarenko’s invention is an improvement over the prior art for feces management,” a POSA would ignore its fluid management capabilities. Response, 44. PO ignores that diapers ordinarily manage both fluid and feces. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶82-83, 95. It is undisputed that Ponomarenko-'236’s sublayer 30 controls fluid flow in addition to managing feces. EX1007-Ponomarenko-'236, 7:8-19, 6:39-49; EX1022-SheldonDepo., 164:6-11, 165:18-166:5. Limiting Ponomarenko-'236 to its purported inventive aspects is legal error. *See CRFD*, 876 F.3d at 1349.

**Fourth**, PO makes multiple incorrect arguments for why the combination is “illogical and would not work.” Response, 44-48.

PO first argues that if Ponomarenko-'236’s sublayer 30 were placed between the absorbent cores in Nakazawa-'190, feces would interact with the top surface of the absorbent core and cause discomfort. Response, 44-45; *see also id.*, 45-47 (arguing would cause leaks). Not so. It is well known that diapers must manage both feces and fluids. EX1022-SheldonDepo., 164:6-11, 165:18-166:5; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶84-85.

PO next argues placing Ponomarenko-'236’s sublayer 30 below the upper absorbent core in Nakazawa-'190 would cause additional unwanted pressure on the

sublayer during manufacture and use, and this would lead to the sublayer not working. Response, 45. PO relies on Ponomarenko-'236's statement that it is beneficial if the acquisition layers are "pressure resistant even after wetting." *Id.*; EX1007-Ponomarenko-'236, 1:65-2:3. Ponomarenko-'236 notes its sublayer 30 has this advantage, with its response to pressure changing preferably "less than 10%" after wetting. EX1007-Ponomarenko-'236, 8:63-9:1. Mr. Sheldon did not perform any analysis or calculations to quantify the impact of pressure on Ponomarenko-'236's sublayer placed between two absorbent cores and his conclusory opinion should be given no weight. *See* EX2001-SheldonDecl., ¶176; *Xerox Corp.*, IPR2022-00624, Paper 9, 15; *Honeywell*, 2024 WL 3594593, 15-16 n.6; EX1021-Pourdeyhimi-Suppl-Decl., ¶86.

PO additionally argues that because the "use cases for the products and the problems to be solved are very different," there would be no motivation to combine, just "improper hindsight." Response, 45-48. Both Nakazawa-'190 and Ponomarenko-'236 can be diapers, which requires managing both feces and urine. EX1008-Nakazawa-'190, [0029]; EX1007-Ponomarenko-'236, 2:55-59. Thus, at times Nakazawa's article would be changed after the user defecates, and at times Ponomarenko must be able to handle multiple insults of fluid. PO's sole support is Mr. Sheldon's unsupported assertions, which are entitled to no weight. EX1021-Pourdeyhimi-Suppl-Decl., ¶87.

**b. No Teaching Away**

For the reasons explained above, Section III.B.1.c, Nakazawa-'190 does not teach away from two layers below the hole portions of its upper absorbent layer. EX1021-Pourdeyhimi-Suppl-Decl., ¶80.

**c. Cost/Complexity Would Not Affect Motivation**

PO argues a POSA would not have combined the references due to the cost and complexity of adding an additional layer. Response, 48. PO also argues that Ponomarenko-'236's feces management properties would complicate combining them because absorbent material would need to be removed. *Id.* EX1021-Pourdeyhimi-Suppl-Decl., ¶90.

As discussed in Section III.B.1.d, PO's arguments regarding the barriers to adding and replacing layers in absorbent articles fail. Ponomarenko-'236's inventive aspect relating to feces management is irrelevant because references are considered for everything they teach. *See CRFD*, 876 F.3d at 1349. Moreover, a POSA would have understood that no absorbent material would need to be removed from Nakazawa-'190 because Ponomarenko-'236's sublayer can be substituted for Nakazawa-'190's diffusion sheet. EX1021-Pourdeyhimi-Suppl-Decl., ¶¶91-92, 94.

**2. Claim 2**

PO argues Nakazawa-'190's diffusion sheet is selected for "liquid permeability compared to the absorbent" whereas Ponomarenko-'236 "does not compare liquid permeability of any of the materials in sublayer 30 to the absorbent

material.” Response, 48-49. But a POSA would have understood a perforated layer of the high-basis weight cellulose fibers disclosed by Ponomarenko-'236 is more fluid-permeable than its (or Nakazawa-'190's) absorbent cores. EX1021-Pourdeyhimi-Suppl-Decl., ¶97.

PO admits Ponomarenko-'236 states a high basis weight of “preferably even 60 gsm” is preferred for sublayer 30, but dismisses this disclosure because Ponomarenko-'236 does not provide a specific reason for using a high-basis weight material. Response, 49. This does not mean a POSA would not have recognized the benefits. *Ethicon*, 844 F.3d at 1351.

**D. Ground V: PO Cannot Have it Both Ways: Either a Hydrophilic Sheet Wrapped Around the Absorbent Material Can Be Part of a “Fluid Flow Control Structure” or it Can't**

PO argues Nakazawa-'190 does not anticipate the challenged claims solely because it does not disclose a “a non-perforated fibrous polymeric layer” of the claimed “fluid flow control structure.” Response, 50-56. PO has therefore put the panel in a position in which it must decide whether to accept or reject PO's position. *See Memorandum Regarding Final Written Decision Procedures for AIA Trial Proceedings* (Jul. 29, 2025).

The Petition relies on the hydrophilic sheet as being the claimed non-perforated fibrous polymeric layer of the fluid flow control structure. Petition, 92-

93.<sup>6</sup> PO's expert admitted that the "hydrophilic treated nonwoven fabric" taught in Nakazawa-'190 is a non-perforated fibrous polymeric layer. EX1022-SheldonDepo., 254:6-255:7; EX1008-Nakazawa-'190 [0043]; EX1021-Pourdeyhimi-Suppl-Decl., ¶100.

Thus, whether Nakazawa-'190 anticipates the challenged claims comes down to whether a hydrophilic sheet (e.g., industry standard core wrap) wrapped around absorbent material can be one layer of the claimed "fluid flow control structure."<sup>7</sup> Contrary to its infringement position in the district court, in this proceeding, PO argues the hydrophilic sheet cannot be because it does not participate in fluid flow

---

<sup>6</sup> The Response also asserted that Nakazawa-'190 does not disclose that the hydrophilic sheet is on the top surface of the absorbent material in contact with the diffusion sheet 63. Response, 52-53 (discussing Nakazawa-'190, [0082], [0084]). It then incorrectly asserts Petitioners "mislead the Board by doctoring Figure 14A." Response, 52. But, as PO's expert acknowledged, Nakazawa-'190 explicitly states that "***while not shown in the figures***, the absorbent material...***may be entirely wrapped*** in a hydrophilic sheet." EX1008-Nakazawa-'190, [0082]. The annotation is simply showing what Nakazawa-'190 acknowledges is not shown.

<sup>7</sup> The parties agree that Nakazawa-'190's hydrophilic sheet is industry standard core wrap that is included to prevent superabsorbent polymer from leaking out of the absorbent material and helps provide shape stability to absorbent layers. EX1008-Nakazawa-'190, [0041]; EX1022-Sheldon Depo. 265:9-266:18, 268:5-21, 274:7-14, 282:15-19; EX1002-Pourdeyhimi-Decl., ¶280; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶98-99, 101-102. It is this same layer that PO identifies in the accused product as being the non-perforated fibrous polymeric layer of the claimed "fluid flow control structure." EX1014-Complaint at Appendix A.

control.<sup>8</sup> Response, 54. PO cannot have it both ways, contending that industry standard core wrap that surrounds absorbent material is part of a fluid flow control structure for purposes of infringement, while arguing the opposite to preserve validity. The Board must make a finding one way or the other on this issue to resolve Ground V.

#### **IV. THE BOARD SHOULD VIEW DR. SHELDON'S TESTIMONY WITH SKEPTICISM**

As indicated above, much of the Response is supported by no evidence except Mr. Sheldon's uncorroborated testimony. Mr. Sheldon does not include independent documents or evidence demonstrating why his conclusions are correct. Indeed, PO only submitted two additional exhibits with its Response (EX2006, EX2007), and there are numerous opinions Mr. Sheldon offers that have no support apart from his say-so. *See, e.g.*, EX2001-SheldonDecl., ¶71 (costs of material substitution or machine redesign), ¶115 (a POSA would have understood "perforated" in Bergstrom-'059 to be inconsistent with its plain meaning), ¶¶63-64, 68-70 (allegedly necessary changes to machinery or manufacturing when modifying absorbent articles), ¶¶150, 182 (proposed combination would "easily cost hundreds of

---

<sup>8</sup> Petitioner agrees that industry standard core wrap should not be considered part of a fluid flow control structure as it does not manage or control fluid flow in an absorbent article. Petition, 92. This is also the same position PO's expert takes. EX2001-SheldonDecl., ¶196.

thousands or even millions of dollars”). The Board should view such evidence with skepticism and give it little to no weight.

Also, rather than engaging an independent and disinterested expert, PO engaged Mr. Sheldon, who was fired by Petitioner First Quality. EX1022-SheldonDepo., 11:15-12:2; 17:8-18:6. Since being fired, he has testified against First Quality multiple times. *Id.*, 29:21-31:2, 33:18-34:21. He is not disinterested.

## V. DR. POURDEYHIMI IS A POSA

Dr. Pourdeyhimi is undisputedly independent and disinterested. Lacking any legitimate attack on his testimony, PO points to a single exchange during Dr. Pourdeyhimi's deposition to contend he is not a POSA because he allegedly lacks sufficient work experience. Response, 6-8. This erroneously ignores Dr. Pourdeyhimi's 40 years of relevant experience. Dr. Pourdeyhimi has worked on hundreds of projects designing and testing absorbent articles. EX1002-PourdeyhimiDecl., ¶¶7-9; EX2005-PourdeyhimiDepo., 26:7-22, 70:19-71:8 (collaborated with hundreds of companies); *see also* EX1021-Pourdeyhimi-Suppl-Decl., ¶¶3-9. Indeed, Dr. Pourdeyhimi's industry collaborations typically involve enhancing and optimizing existing designs. EX1002-PourdeyhimiDecl., ¶¶7-9; *See also* EX1021-Pourdeyhimi-Suppl-Decl., ¶¶3-11. Thus, although he has not personally designed *an entire product*, he has made countless *design improvements* to absorbent articles. *Id.* That is sufficient “work experience” under the POSA

definition. Dr. Pourdeyhimí also has a very high level of education, which can compensate for “less work experience” under the parties’ definition. EX1002-PourdeyhimíDecl., ¶5.

The *Kyocera* case (Response, 8) supports Petitioner, not PO. *Kyocera* makes clear that an expert must possess sufficient familiarity with the subject matter to offer relevant and reliable opinions from the “vantage point of” a POSA, but is not required to have performed every task that a POSA might perform, as PO alleges. *See Kyocera Senco Indus. Tools v. Int’l Trade Comm’n*, 22 F.4th 1369, 1376-77 (Fed. Cir. 2022). Dr. Pourdeyhimí more than meets this standard.

## **VI. CONCLUSION**

The Board should find all challenged claims of the ’138 patent unpatentable.

Respectfully Submitted,

By: /Alexis Cohen/

Alexis Cohen  
Registration No. 76,998

**CERTIFICATE OF COMPLIANCE**

I hereby certify that the foregoing, Petitioners' Reply to Patent Owner's Response, contains 5,600 words as measured by the word processing software used to prepare the document, in compliance with 37 C.F.R. §42.24(d), excluding the parts of the Reply exempted from the word count by 37 C.F.R. §42.24(c).

/Alexis Cohen/  
Alexis Cohen  
Registration Number 76,998

**CERTIFICATE OF SERVICE**

I hereby certify that, on December 12, 2025, I caused a true and correct copy of the following materials:

- Petitioners' Reply to Patent Owner's Response
- Exhibits 1021-1033
- Petitioners' Updated Table of Exhibits
- Certificate of Compliance Regarding Word Count

to be served via email on the attorneys identified in Patent Owner's Mandatory Notices, (Paper 4), who consented to electronic service.

Lead counsel: Kevin M. Flannery;  
kevin.flannery@dechert.com

Back-up counsel: Martin J. Black;  
martin.black@dechert.com

Back-up counsel: Sharon K. Gagliardi;  
sharon.gagliardi@dechert.com

Back-up counsel: Daniel R. Roberts;  
daniel.roberts@dechert.com

/Cole Uzat/  
Cole Uzat  
*Pro hac vice* to be filed

**PETITIONERS' UPDATED TABLE OF EXHIBITS**

| <b>Document Description</b>                                                                                                                                                                      | <b>Exhibit No.</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| U.S. Patent No. 9,308,138 ("138 patent")                                                                                                                                                         | Exhibit 1001       |
| Declaration of Dr. Behnam Pourdeyhimi                                                                                                                                                            | Exhibit 1002       |
| File History of U.S. Patent No. 9,308,138                                                                                                                                                        | Exhibit 1003       |
| WO 2009/067059 ("Bergstrom-'059")                                                                                                                                                                | Exhibit 1004       |
| U.S. Patent No. 9,066,837 ("Kim")                                                                                                                                                                | Exhibit 1005       |
| U.S. Patent No. 6,455,753 ("Glaug-'753")                                                                                                                                                         | Exhibit 1006       |
| U.S. Patent No. 7,956,236 ("Ponomarenko-'236")                                                                                                                                                   | Exhibit 1007       |
| JP2008-284190 ("Nakazawa-'190) (English translation with Translator Declaration)                                                                                                                 | Exhibit 1008       |
| White C.F., "Engineered structures for use in disposable incontinence products," Proc Inst Mech Eng H. 2003;217(4):243-251 ("White2003")                                                         | Exhibit 1009       |
| Ajmeri J. R. and Ajmeri C.J., "Nonwoven personal hygiene materials and products," In Chapman R (eds) Applications of Nonwovens in Technical Textiles, CRC Press, 2010, pp. 85-102 ("Ajmeri2010") | Exhibit 1010       |
| Gupta B.S. and Smith D. K., "Nonwovens in Absorbent Materials," Textile Science and Technology, 2002, 13, 349-388 ("Gupta-2002")                                                                 | Exhibit 1011       |
| Kosemund et al., "Safety evaluation of superabsorbent baby diapers, Regulatory Toxicology and Pharmacology 2009, 53, 81-89 ("Kosemund 2009")                                                     | Exhibit 1012       |
| Docket Navigator Statistics on Delaware Trials (as of Oct. 16, 2024)                                                                                                                             | Exhibit 1013       |

| Document Description                                                                                                                                                           | Exhibit No.  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <i>Essity Hygiene et al., v. First Quality Products Inc. et al.</i> , 24-cv-00374, Complaint with attachments                                                                  | Exhibit 1014 |
| U.S. Patent No. 7,923,597 (Ponomarenko-'597)                                                                                                                                   | Exhibit 1015 |
| U.S. Pat. App. Pub. No. 2005/026742 (Cohen-'429)                                                                                                                               | Exhibit 1016 |
| Weisemann and Adam, 2011, Handbook of Medical Textiles, Ch. 14, "Absorbent products for personal health care and hygiene" (Woodhead Publishing, ed. V.T. Bartels)              | Exhibit 1017 |
| White, C, 2000, Developments in Absorbent Products and their Impact on the Nonwovens Industry, International Nonwovens Technical Conference, September 26-28, 2000, Dallas Tx. | Exhibit 1018 |
| European Patent No. EP0701805B1                                                                                                                                                | Exhibit 1019 |
| JP2008-284190 (Japanese version)                                                                                                                                               | Exhibit 1020 |
| Supplemental Declaration of Dr. Benham Pourdeyhimi (Pourdeyhimi-Suppl-Decl.)                                                                                                   | Exhibit 1021 |
| Transcript of the Deposition of Mr. Donald Sheldon taken November 21, 2025 (SheldonDepo.)                                                                                      | Exhibit 1022 |
| Exhibit A to the Deposition of Mr. Donald Sheldon taken November 21, 2025 (SheldonDepoExA)                                                                                     | Exhibit 1023 |
| Exhibit B to the Deposition of Mr. Donald Sheldon taken November 21, 2025 (SheldonDepoExB)                                                                                     | Exhibit 1024 |
| Merriam-Webster's Collegiate Dictionary, Eleventh Edition, 2006, "perforated" (Merriam-Webster's)                                                                              | Exhibit 1025 |
| The American Heritage Dictionary, Fourth Edition, 2001, "perforate" (American-Heritage)                                                                                        | Exhibit 1026 |
| Random House Webster's College Dictionary, Second Random House Edition, 1999, "perforated" (Random-House)                                                                      | Exhibit 1027 |

| Document Description                                                                   | Exhibit No.  |
|----------------------------------------------------------------------------------------|--------------|
| U.S. Patent No. 6,852,101 (USP101)                                                     | Exhibit 1028 |
| K. D. Vernon-Parry, Scanning Electron Microscopy: an introduction, 2000 (Vernon-Parry) | Exhibit 1029 |
| M. Patel and D. Bhramhatt, Needle Punching Technology, 2010 (Patel)                    | Exhibit 1030 |
| U.S. Patent No. 4,535,020 (USP020)                                                     | Exhibit 1031 |
| E. Washburn, The Dynamics of Capillary flow, 1921 (Washburn)                           | Exhibit 1032 |
| European Patent Publication No. EP 2 768 456 (EP456)                                   | Exhibit 1033 |