

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: IPR2024-01487

U.S. PATENT NO. 9,308,138

**PATENT OWNER'S SUR-REPLY OPPOSING PETITION FOR
INTER PARTES REVIEW OF CLAIMS 1-5, 7-8, 20-22, AND
24-25 OF U.S. PATENT NO. 9,308,138**

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I. INTRODUCTION

Petitioners' Reply does not cure the fatal defects in the Petition identified by Patent Owner Essity Hygiene and Health AB ("PO"). Despite extensive argument—including *sixty-two pages* of additional expert opinion submitted by Petitioners in Reply on the limitations at issue—Petitioners have failed to meet their burden that any of the five Grounds establishes unpatentability.

PO directly addressed the questions raised by the Board for each Ground, showing how Petitioners obfuscated details in the art that demonstrate the clear novelty of and teaching away from the claimed inventions. Rather than point back to the Petition with conviction, Petitioners seek to further obfuscate the record with scores of pages of additional argument and opinions from an academic expert with admirable materials-science credentials, but one who admittedly never spent a day in the art relevant to the Board's questions.

On Ground I (anticipation by EX1004-Bergstrom), Petitioners attempt to sidestep EX1004-Bergstrom's clear teaching that forming element 60 is "typically liquid-impermeable." They fail to cite any express disclosure in EX1004-Bergstrom explaining how modifying forming element 60 to be liquid-permeable would affect the invention and fail to address that EX1004-Bergstrom uses the word "typically" for definition, not optionality. And in any event, the dispute here is about what the intrinsic record teaches, not whether the word "typically" allows

for countless unexplained and unexplored embodiments. Further, Petitioners extract the word “perforated” entirely out of the context of each of EX1004-Bergstrom and the ’138 Patent, stripping that word of critical nuance to suit their purposes. The intrinsic record supports PO’s construction of “perforated polymeric layer,” which necessarily excludes a layer like EX1004-Bergstrom’s forming element—which at most has perforations that would make such an element like a breathable liquid-impermeable backsheet, not part of a fluid flow control structure as claimed in the ’138 Patent.

On Grounds II-IV (obviousness over EX1008-Nakazawa in view of EX1006-Glaug or EX1007-Ponomarenko), Petitioners ignore the fundamental incompatibility between EX1008-Nakazawa’s bidirectional diffusion architecture and the proposed unidirectional insertions from the secondary art, relying on hindsight reconstruction that would render EX1008-Nakazawa inoperable for its intended purpose. EX1008-Nakazawa’s diffusion sheet 63 serves a specific function—facilitating absorption from both the back surface of the upper absorbent core and the top surface of the lower absorbent core—that is contradicted by Petitioners’ proposed modifications. The Petition focused on the two-core embodiment of EX1008-Nakazawa, where the diffusion layer is placed between two absorbent cores. PO showed, in direct response to the Board’s comments, that EX1008-Nakazawa is plainly designed to direct fluid flow in both Z-directions.

Petitioners now obscure that reality by focusing on other embodiments, including one with a single core. Regardless, the diffusion sheet is always below the core, so the conclusion is irrefutable that EX1008-Nakazawa requires fluid to flow upward (+Z) from the diffusion sheet when there is one core and in both directions (+/-Z) from the diffusion sheet when there are two cores.

And Petitioners acknowledge EX1008-Nakazawa's clear disclosure of *either* a perforated polymeric layer *or* a non-perforated fibrous layer between absorbent cores, not both. In other words, the inventors of EX1008-Nakazawa explored all the layers that relate to claim 1 of the '138 Patent, testing seven such combinations, and never thought to combine them in the way the inventors of the '138 Patent did. That is telling and dispositive; Petitioners' argument is impermissible hindsight.

To be sure, EX1008-Nakazawa expressly teaches away from using two layers beneath an opening, explaining that such an arrangement would impede the flow of fluid. The other disclosures in EX1008-Nakazawa regarding the hydrophilic sheet (or alleged "core wrap" as coined by Petitioners) do not defeat this teaching away, they support it. In addition, neither EX1006-Glaug nor EX1007-Ponomarenko provides a teaching or motivation to overcome EX1008-Nakazawa's teaching away. Petitioners' arguments prove this point, and Dr. Pourdeyhimi's myopic opinions, hyperfocusing on individual layers within an absorbent article and not the arrangement of them, fail to establish invalidity.

On Ground V (anticipation by EX1008-Nakazawa), Petitioners strangely focus on their own infringing products rather than the actual teachings of EX1008-Nakazawa. Petitioners' infringing products are not evidence of record, so Petitioners' fantastical demand that the Board must decide this issue falls of its own weight. And in any event, EX1008-Nakazawa's failure to teach all elements of the inventions claimed in the '138 Patent is dispositive of this Ground.

Thus, Petitioners have not met their burden of invalidity on any Ground, and the challenged claims should be found patentable.

II. CLAIM CONSTRUCTION

Petitioners argue that PO's construction is "improperly narrow" without actually proposing a construction and without necessarily disagreeing with PO's construction. Indeed, Petitioners agree that in the context of the '138 patent "'perforated' refers to having holes or apertures that are pierced/extend through a layer." Petitioners' Reply, Paper No. 18 ("Reply") at 2. Petitioners and their expert further agree that these holes must allow the flow of liquid bodily waste therethrough. See EX1021 (Pourdeyhimi Supplemental Declaration), ¶¶13; *id.*, ¶19 ("fluid will generally pass through a perforated polymeric layer"); EX2005, 90:17-91:6. Petitioners' dispute with PO's claim construction apparently arises from the use of the phrase "free flow," to the extent that phrase "places any requirement on the size of the holes beyond liquid being capable of passing through the pierced

holes.” Reply at 2; EX1021, ¶13.¹

Regardless of whether a “perforated polymeric layer” has any requirement for the size of the holes or “free” flow of fluid, it is clear the parties agree that a perforated polymeric layer in the context of the ’138 patent (1) must be pierced through with holes or apertures and (2) must allow the flow of liquid bodily waste therethrough. Petitioners’ sole dispute is one it has manufactured regarding the word “typically” with no support but their expert’s say so. EX1021, ¶¶25-26.

III. ARGUMENT

A. Ground I: EX1004-Bergstrom’s Forming Element 60 Is Not a First Perforated Polymeric Layer

As explained above, the parties agree that the ’138 Patent’s “perforated polymeric layer” must allow the flow of liquid bodily waste. Yet Petitioners continue to cling to the single use of the phrase “perforated plastic films” in EX1004-Bergstrom, arguing anticipation despite no express teaching of fluid

¹ Dr. Pourdeyhimmi presents several legal arguments disguised as expert opinion. *See, e.g.*, EX1021, ¶15 (“[T]wo examples with different ranges of permissible open areas of the first perforated polymeric layer cannot possibly disclose a requirement of a claim with neither limitation.”); *id.*, ¶16 (“This description again is not limiting on the challenged claims as it describes one embodiment[.]”). These arguments do not appear in Petitioners’ brief; rather, Petitioners use their sixty-two-page supplemental expert declaration to improperly expand their word limit. *See Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12, at 9-10 (Aug. 29, 2014) (informative, expanded panel). The Board should “not consider arguments that are not made in” Petitioners’ Reply but “are instead incorporated by reference” therein. *Id.* at 10.

permeability for EX1004-Bergstrom's forming element 60.

As an initial matter, Petitioners attempt to reframe the argument to "whether 'perforated' in Bergstrom-'059 means 'perforated' as claimed in the '138 Patent." Reply at 3. That is not the dispute. The dispute is whether EX1004-Bergstrom expressly teaches that forming element 60 is a first perforated polymeric layer as described, claimed, and properly construed in the '138 Patent. As set forth herein and in PO's Response, the two elements are entirely different.

Despite Dr. Pourdeyhimi's agreement "that fluid will generally pass through a perforated polymeric layer" (EX1021, ¶19), Petitioners seek to broaden the definition of "perforated polymeric layer" as claimed in the '138 Patent to encompass any layer with microporosity, gas permeability, or stiffness-altering perforations solely to suit their argument. This is a square peg in a round hole and is inconsistent with the specification of the '138 Patent and the teachings of EX1004-Bergstrom. See Patent Owner Response, Paper No. 13 ("Response") at 19-23.

First, Petitioners ignore that EX1004-Bergstrom uniformly uses the word "typically" to define materials of a particular type, not to propose optionality:

- "The absorbent article **typically** comprises a liquid-permeable topsheet and a liquid-impermeable backsheet." EX1004-Bergstrom, 3:13-14.
- "The absorbent core 10 is the component of the absorbent article 100 which

receives and contains most liquid and other bodily exudates and can be of any conventional kind. As such, it **typically** comprises absorbent material.”

Id., 4:26-30.

- “The acquisition layer 40 acts to receive liquid rapidly, to temporarily hold it and to distribute it evenly to the upper and lower absorbent cores 20, 30. As such, it **typically** does not comprise any superabsorbent materials as described above.” *Id.*, 6:17-21.
- “**Typically**, the backsheet 102 is of a liquid impervious material, such as a thin plastic film.” *Id.*, 11:12-13.

EX1004-Bergstrom never describes an absorbent article comprising an absorbent core without absorbent material, an acquisition layer made of superabsorbent material, a liquid-permeable backsheet, or a liquid-permeable forming element. That is because EX1004-Bergstrom uses “typically” to describe “the characteristics that you would expect from” elements of the invention described therein, not to imply optionality. *See* EX2010 (Cambridge Dictionary definition of “typically”).

Second, Petitioners try to use semantics to distinguish forming element 60’s “typically liquid-impermeable” nature from backsheet 102, which “should be” liquid impermeable. Reply at 5. But Petitioners disingenuously ignore the **very next sentence** of EX1004-Bergstrom: “**Typically**, the backsheet 102 is of a liquid

impervious material, such as a thin plastic film.” EX1004-Bergstrom, 11:12-13.

While EX1004-Bergstrom describes forming element 60 and backsheet 102 in similar, liquid-impermeable terms, the ’138 Patent clearly distinguishes its perforated, liquid-permeable first perforated polymeric layer from its breathable, liquid-impermeable backsheet. *Compare* EX1001-USP138, 5:39-40 (“first and second perforated polymeric layers may pass fluid therethrough”) *with* EX1001-USP138, cl. 1 (“fluid impermeable backsheet”).

Third, Petitioners rely on *ipse dixit* logic to equate “perforated” with “liquid permeable” in the context of EX1004-Bergstrom, with no explanation from EX1004-Bergstrom itself of how the invention would work if the “typically liquid-impermeable” forming element 60 were suddenly liquid permeable. Reply at 6. Petitioners simply do not point to a single scientific reason why a POSA would consider forming element 60 to be even optionally liquid permeable based on the express teachings of EX1004-Bergstrom. *See, e.g.*, EX1004-Bergstrom, 9:24-30.

Fourth, Petitioners misunderstand PO’s argument on stiffness. PO is not arguing that “stiffness-related functions” exclude “fluid-flow functions.” Reply at 6-7. But EX1004-Bergstrom expressly ties the properties of being “substantially unaffected by liquid” and “stiffness” to the selection of suitable materials. EX1004-Bergstrom, 9:34-10:5. In other words, EX1004-Bergstrom discloses how certain materials would impact certain properties without discussing any change in

forming element 60's typical liquid impermeability. That silence speaks volumes.

Finally, Petitioners attempt to distinguish “apertured” from “perforated” based on how materials are manufactured. Reply at 7. That is not the distinction EX1004-Bergstrom makes. Rather, EX1004-Bergstrom differentiates its potentially “perforated” forming element from its “apertured” top sheet by explaining that the former is liquid-impermeable while the latter is liquid-permeable. Response at 61-63. Petitioners argue that the use of words “without any discussion of any difference between them” (Reply at 7) means that those words mean the same thing. But that turns a black-letter presumption in patent law—that different words have different meanings—on its head. *See Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998).

Importantly, Petitioners fail to address that EX1004-Bergstrom uses the word “porous” to describe the liquid-impermeable backsheet. *See* EX1004-Bergstrom, 11:15-18. In other words, EX1004-Bergstrom explains that both its typically liquid-impermeable forming element and typically liquid-impermeable backsheet can be made from “porous” or “perforated” films.

For these reasons, Petitioners have not met their burden to demonstrate that EX1004-Bergstrom discloses the “first perforated polymeric layer” limitation of claim 1 of the '138 Patent.

B. Ground I: EX1004-Bergstrom's Forming Element 60 and Acquisition Layer 40 Together Are Not a Fluid Flow Control Structure

Because forming element 60 is not a first perforated polymeric layer, it cannot be part of the fluid flow control structure as claimed in the '138 Patent. Petitioners' arguments fail.

The '138 Patent invariably describes the layers of the fluid flow control structure as working together to pass fluid through them, while EX1004-Bergstrom's forming element 60 is an impermeable barrier to fluid flow that cannot be part of a fluid flow control structure as claimed in the '138 Patent. Response at 63-68. Petitioners cite no contradictory intrinsic evidence. Reply at 8-9. Rather, Petitioners point to pages of expert testimony, including a complex "Lucas-Washburn spreading" equation allegedly showing that fluid will flow in the X-Y plane of the absorbent article "before passing through any perforations in the forming element 60." EX1021, ¶37. This argument emphasizes Dr. Pourdyhimi's myopic focus on single layers within an absorbent article and ignores his own opinion that the layers must "provide the same functionality" to be part of a fluid flow control structure. EX1002, ¶105.

The problem with Petitioners' argument is three-fold. First, it assumes liquid permeability as an inherent property of forming element 60 without any such express teaching. And Petitioners have never argued inherent anticipation. Second,

Petitioners assume liquid permeability despite other perforated but liquid-impermeable layers disclosed elsewhere within EX1004-Bergstrom. EX1004-Bergstrom, 11:12-18. Forming element 60 is no more part of a fluid flow control structure than a backsheet. Third, the argument tacitly abandons Petitioners' sole argument in its Petition on this limitation that forming element 60 is part of a fluid flow control structure because it promotes fluid flow in the X- and Y-directions, with no mention of perforations or fluid flow in the Z-direction. Petition at 34-35; EX1002, ¶¶103-107. The Board should not countenance Petitioners' shifting-sands approach.

Dr. Pourdeyhimi also argues that because both forming element 60 and acquisition layer 40 “may be of rectangular shape,” “may have a high resistance to compression,” “may be ‘non-absorbent,’” “may be ‘attached to each other by means of an adhesive,’” and “may have a ‘relatively high bending stiffness,’” the two layers form a fluid flow control structure. EX1021, ¶40. This is nonsense. Despite Petitioners' attempt to import pages of expert testimony into their Reply, the Reply makes no cogent argument why acquisition layer 40 and forming element 60 together embody the fluid flow control structure described and claimed in the '138 Patent. *See* Reply at 9. Petitioners have failed to meet their burden that EX1004-Bergstrom anticipates claim 1 of the '138 Patent; Ground I fails to demonstrate invalidity of any claim.

C. Grounds II-III: The Combination of EX1008-Nakazawa and EX1006-Glaug Does Not Render the Asserted Claims Obvious

Petitioners downplay the differences between EX1008-Nakazawa, EX1006-Glaug, and the claims of the '138 Patent to argue obviousness. But Petitioners' handwaving, hindsight-driven arguments do not prove any claim of the '138 Patent is obvious.

1. Claim 1

- a) A POSA Would Not Be Motivated to Combine EX1008-Nakazawa and EX1006-Glaug and Would Not Have Had a Reasonable Expectation of Success.

Petitioners agree that EX1008-Nakazawa does not disclose the fluid flow control structure claimed in the '138 Patent. Reply at 10-11. And Petitioners do not argue that EX1006-Glaug's fluid acquisition system 34 "is arranged between said first absorbent layer and said backsheet" as required by claim 1 of the '138 Patent. Thus, Petitioners must prove that a POSA would be motivated to modify EX1006-Glaug's fluid acquisition system 34 and place it between two absorbent cores, in place of EX1008-Nakazawa's diffusion sheet 63 (or to separate the layers of EX1006-Glaug's fluid acquisition system and add one layer to EX1008-Nakazawa's diffusion sheet). A POSA would not have been motivated to combine these disparate references and would not have had a reasonable expectation of success in combining them.

First, Petitioners ignore the plethora of teachings and citations from

EX1008-Nakazawa requiring fluid to flow in both Z-directions. *See* Response at 30-31 (citing portions of EX1008-Nakazawa teaching that, when two absorbent cores are present, diffusion sheet 63 must facilitate absorption of excretory fluid “at the back surface of the first [upper] absorbent material and the top surface of the second [lower] absorbent material”). Petitioners’ reliance on “higher liquid permeability” (Reply at 12) is an irrelevant strawman because it only addresses the rate of fluid flow, not the direction. Regardless, even with respect to the newly cited first absorbent article embodiment of EX1008-Nakazawa, which has a single absorbent core with a diffusion sheet below it, the “higher liquid permeability” of the diffusion sheet causes the article to “absorb excretory fluid from the back surface side of the absorbent material as well.” EX1008-Nakazawa, [0031].

Second, Petitioners and Dr. Pourdeyhimi recognize that EX1008-Nakazawa uses **either** a nonperforated, fibrous polymeric fabric (“diffusion sheet a”) **or** a perforated “AquiDry” material (“diffusion sheet b”) as a single layer. *See* Reply at 12; EX1021, ¶¶53-55; EX1008-Nakazawa, [0062] (“diffusion sheet can be made of a nonwoven fabric **or** porous plastic film”; “fibers and resin that constitute the diffusion sheet can be a polyolefin such as polypropylene or polyethylene”); *id.*, [0176]-[0177]. This is fatal to Petitioners’ case. The inventors of EX1008-Nakazawa apparently had all the elements of the invention of the ’138 Patent in their lab and tested “seven combinations of absorbent materials and diffusion

sheets.” EX1021, ¶54. Yet even with the benefit of EX1006-Glaug in the art years before EX1008-Nakazawa, the inventors of EX1008-Nakazawa were not motivated to combine “diffusion sheet a” and “diffusion sheet b” as a dual-layer structure between two cores. Indeed, they likely understood, as a POSA would have, that EX1006-Glaug taught fluid flow away from the body, defeating EX1008-Nakazawa’s express purpose of absorbing fluid both at the back surface of the upper absorbent core and the top surface of the lower absorbent core. EX2004, ¶33; EX1006-Glaug, 9:45-49; EX1008-Nakazawa, [0075].

The example relied on and highlighted by Dr. Pourdeyhim, Example 7, places “diffusion sheet b” as a single layer between the absorbent cores, and “diffusion sheet a” as a single layer between the lower absorbent core and the backsheet.² Petitioners and Dr. Pourdeyhim admit that either single-layer diffusion sheet arrangement in EX1008-Nakazawa “works well”—obviating the need for improvement or additional layers. Reply at 12; EX1021, ¶54. Petitioners’ proposed combination is thus clearly driven by hindsight, using the teachings of the ’138 Patent to combine and reconstruct references in ways that were unknown and unexplored until the inventions of the ’138 Patent.

² Again reflecting his lack of experience in product design, Dr. Pourdeyhim ignores the impact of a second diffusion sheet below the second absorbent core in the chart he highlights. EX1021, ¶54. He does not even mention it.

Third, Petitioners aver that Dr. Pourdeyhimi testified 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.” Reply at 14. This statement is uncited, but in any event, it does not address what would happen when fluid is in contact with a *fluid flow control structure* (as claimed in the ’138 Patent) or *fluid acquisition system* (as described in EX1006-Glaug). And EX1006-Glaug expressly teaches a POSA that its fluid acquisition system only permits fluid to flow down, away from the wearer, and fluid is deterred from flowing up, towards the wearer, as Dr. Pourdeyhimi agrees. EX1006-Glaug, 2:41-50; *id.* cl. 1; EX2004, ¶32; EX2005, 48:5-50:13.

Fourth, Petitioners provide no explanation why a POSA would be motivated to replace a single layer that “works well” for distributing fluid both towards the wearer into an upper absorbent core and away from the wearer into a lower absorbent core (Reply at 14) with a multi-layer system designed for rapid fluid acquisition only away from the wearer (EX1006-Glaug, 2:41-50). Without this explanation, Petitioners’ argument falls apart.

Fifth, realizing their earlier mistake, Petitioners pivot away from the “faster and higher fluid volume intake” statement in EX1006-Glaug (9:17-49), and now point to other statements about EX1006-Glaug’s purported benefits. Reply at 14-15. But these statements further support PO’s position, because they all refer to

EX1006-Glaug’s sole focus on transporting fluid away from the body and minimizing or eliminating fluid movement towards the wearer, in contrast with EX1008-Nakazawa. See EX2004, ¶¶31-35.

Sixth, Petitioners retreat to their age-old “a layer is a layer” argument for reasonable expectation of success—stating that the materials are all well-known and that fast fluid movement is a goal of both references. Reply at 15-16. As explained by Mr. Sheldon, a POSA examining EX1008-Nakazawa and EX1006-Glaug would find them antithetical, and by combining them the way Petitioners suggest would have expected the product to inefficiently distribute fluid, reduce the rate of absorption at the back surface of the first absorbent material, and cause leaks, rewet, and wearer discomfort. EX2004, ¶34.

b) EX1008-Nakazawa Teaches Away from the Asserted Combination with EX1006-Glaug.

Petitioners’ obviousness arguments fail on motivation to combine and reasonable expectation of success. For the avoidance of doubt, EX1008-Nakazawa also clearly teaches away from Petitioners’ proposed combination. Petitioners’ reliance on ambiguous statements that do not explicitly address the issue at hand are irrelevant.

First, Petitioners argue that “any of the figures may be wrapped in a hydrophilic sheet, which would necessarily create multiple layers of material

between the two absorbent cores.” Reply at 16. “Wrapped” is used loosely in EX1008-Nakazawa’s specification, and none of the paragraphs cited by Petitioners explicitly disclose a hydrophilic sheet or core wrap in contact with diffusion sheet 63 under an opening as required by the claims of the ’138 Patent. See EX1008-Nakazawa, [0082] (no reference to opening); *id.*, [0084] (diffusion sheet must be “exposed in the hole portions 65” despite hydrophilic sheet wrapping upper core); *id.*, [0085]. And even assuming Petitioners are right about passing references to “multiple layers of material between the two absorbent cores,” there is still teaching away because the inventive concept of EX1008-Nakazawa mandates only a single-layer diffusion sheet between absorbent cores. See *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376-77 (Fed. Cir. 2021).

Chemours is highly instructive. In that case (a single-reference obviousness case), a reference taught the benefits of a narrow molecular weight range while disclosing the feasibility of a broad range. *Id.* at 1380 (Dyk, J., concurring). The Board found no teaching away from a broad range due to the discussion of this feasibility. *Id.* at 1376. The Federal Circuit reversed, finding that the reference taught away from broadening the molecular weight range despite some discussion of the feasibility of such an arrangement because broadening the range “would necessarily involve altering the inventive concept” of the reference. *Id.* at 1376-77. So too here; passing and ambiguous references to a hydrophilic sheet that may or

may not create multiple layers between absorbent cores is insufficient to defeat teaching away in view of EX1008-Nakazawa's clear teachings.

Second, Petitioners' further citations prove PO's point. Petitioners additionally cite EX1008-Nakazawa, [0122], which **explicitly** requires that the absorbent material is wrapped in a hydrophilic sheet "except in the region corresponding to the openings in the hole portions 65 in the first absorbent material 62a, as shown in Fig. 24." In other words, in every embodiment where the hydrophilic sheet is described or pictured in combination with the diffusion sheet and the hole portions, there **must** be a gap in the hydrophilic sheet beneath the opening. This is because, without such a gap, the hydrophilic sheet would "imped[e] permeation of excretory fluid from the hole portions to the diffusion sheet." EX1008-Nakazawa, [0085]. Petitioners point to no clear contradictory statements in EX1008-Nakazawa.

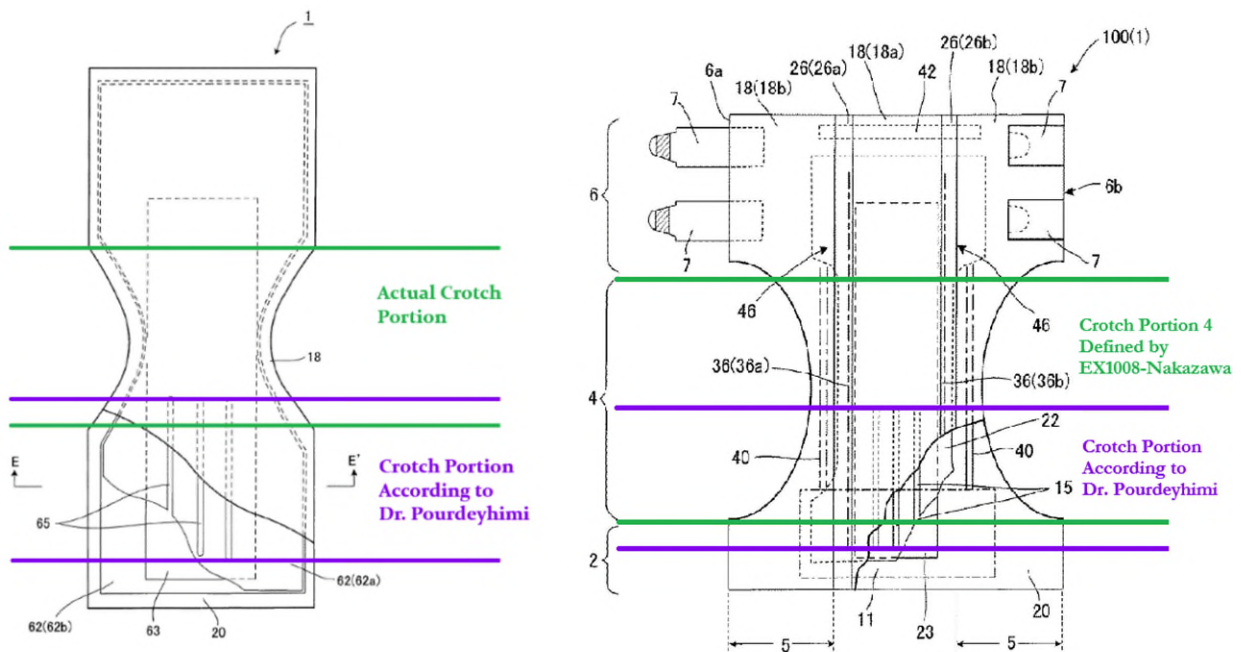
Third, this gap in the hydrophilic sheet is not just the preferred embodiment, it is the only clearly disclosed embodiment. *Bayer* supports PO; EX1008-Nakazawa makes it clear that developing a product with multiple layers between absorbent cores "is unlikely to be productive of the result sought by the applicant." *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F.3d 1316, 1327 (Fed. Cir. 2017).

Petitioners have failed to meet their burden that the combination of EX1008-Nakazawa and EX1006-Glaug renders claim 1 of the '138 Patent obvious.

2. Claim 21

Petitioners' rotated Figure (EX1024-SheldonDepo-ExB) is a failed attempt to fit EX1008-Nakazawa's disclosure to the claims of the '138 Patent. Again, Petitioners and Dr. Pourdeyhimi disingenuously place the crotch portion where the openings 65 are. The issue is not rotation, it is the placement of openings 65 in the front-end portion of the article rather than the crotch portion, as Mr. Sheldon pointed out. EX2001, ¶156 ("By placing the hole portion in the front-end portion of the absorbent article, Nakazawa achieves the stated purpose of conforming the article to the shape of the wearer.").

Figure 26 of EX1008-Nakazawa makes it clear that the crotch portion is exactly where PO and Mr. Sheldon say it is: where the leg cutout indents are. *See* EX1008-Nakazawa, [0034] ("When used as a disposable diaper consisting of a front piece, a crotch portion, and a rear piece, the fit around the legs can be improved to effectively prevent leakage from the leg area."), [0129] ("This style of disposable diaper also has a front piece 2, a crotch portion 4, and a rear piece 6"). A comparison of Dr. Poureyhimi's incorrect proposed crotch portion (left) compared with the crotch portion as expressly defined by EX1008-Nakazawa in Figure 26 (right) is shown below:



Petitioners then raise a new argument: that EX1008-Nakazawa “also discloses a hole that can extend along the length of the entire article, undoubtedly including the entire crotch portion.” Reply at 19 (citing EX1008-Nakazawa, [0055]). But Petitioners fail to explain how such an opening would meet the limitations of claim 1 of the ’138 Patent from which claim 21 depends, including at least that “the opening is surrounded by a closed periphery of first absorbent layer.” This poorly constructed new argument should be ignored.

D. Ground IV: The Combination of EX1008-Nakazawa and EX1007-Ponomarenko Does Not Render the Asserted Claims Obvious

1. Claim 1

- a) A POSA Would Not Be Motivated to Combine EX1008-Nakazawa and EX1007-Ponomarenko and Would Not Have Had a Reasonable Expectation of Success.

As with Petitioners’ proposed combination in Grounds II-III, Petitioners’ arguments with respect to the combination in Ground IV fail because a POSA would not be motivated to combine EX1008-Nakazawa, which requires fluid flow in both Z-directions, with EX1007-Ponomarenko, a reference disclosing improved feces management and conventional fluid management away from the wearer.

First, PO incorporates its arguments with respect to Ground II above and from Patent Owner’s Response.

Second, Petitioners’ argument that EX1007-Ponomarenko’s sublayer 30 can “optionally distribute [fluid] in the X and Y direction” is irrelevant to whether sublayer 30 could achieve fluid flow in the +Z-direction toward the wearer as required by EX1008-Nakazawa. Further, Petitioners’ reference to a lack of a “three-dimensional aperture” in sublayer 30 has no bearing on whether EX1007-Ponomarenko teaches that its sublayer 30 permits fluid flow in the +Z-direction. In any event, Petitioners ignore the caliper or depth 35 of the holes in sublayer 30 (in purple below), which must be at least 2 mm—providing the three-dimensionality Petitioners allege is missing: See EX1007-Ponomarenko, Figs. 6 & 7, 8:53-58:

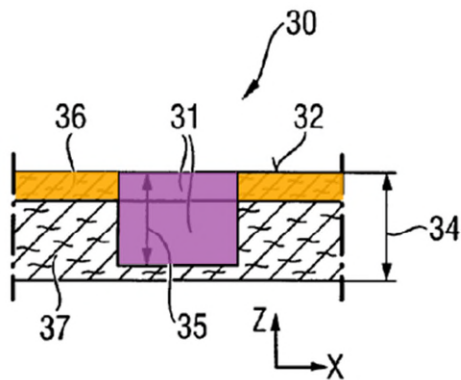


Fig. 6

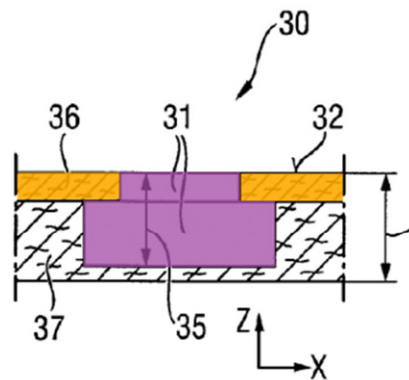


Fig. 7

Third, Petitioners again attack a strawman. PO did not argue that “a POSA would ignore [EX1007-Ponomarenko’s] fluid management capabilities. Reply at 22. Rather, PO argues that EX1007-Ponomarenko is focused on improving feces immobilization and the reference exclusively discusses fluid flow in the context of a conventional acquisition layer from the prior art—that is, fluid flow away from the wearer into an absorbent core. See EX1007-Ponomarenko, 7:8-19. Petitioners fail to address PO’s actual argument on this point.

Fourth, PO’s arguments that the combination of EX1008-Nakazawa and EX1007-Ponomarenko is “illogical and would not work” are sound.

Petitioners’ general argument that “diapers must manage both feces and fluids” (Reply at 22) fails to address how Petitioners’ specific combination would manage feces and fluids. If Ponomarenko’s sublayer 30 were sandwiched between absorbent cores, it would not and could not interface with feces, causing smearing and discomfort. EX2001, ¶175.

With respect to PO's argument that Petitioners' proposed combination would cause unwanted pressure on sublayer 30, EX1007-Ponomarenko provides all the teachings PO needs without independent testing. As Petitioners admit, EX1007-Ponomarenko is concerned with pressure on sublayer 30. EX1021, ¶86 (citing EX1007-Ponomarenko, 1:65-2:3). And it is common sense to a POSA that sandwiching a 3D layer between absorbent cores exerts compressive forces not contemplated or considered by EX1008-Nakazawa or EX1007-Ponomarenko. EX2001, ¶176. Dr. Pourdeyehimi's *ipse dixit* argument that "sublayer 30 can effectively resist pressure" in such an arrangement (EX1021, ¶86) is irrelevant because it ignores the express teachings of the references.

Finally, the problems to be solved in EX1008-Nakazawa and EX1007-Ponomarenko are very different. A POSA would not be motivated to add a complex feces-management sublayer with conventional fluid-management capabilities into a product with a single-layer fluid-management diffusion sheet that Petitioners admit "works well." Reply at 12-14. Complexity for complexity's sake is not obviousness.

b) EX1008-Nakazawa Teaches Away from the Asserted Combination with EX1007-Ponomarenko.

As explained in Patent Owner's Response and Section III.C.1.b above, EX1008-Nakazawa teaches away from using two layers of material beneath hole

portions of EX1008-Nakazawa's upper absorbent core.

For the above reasons, Petitioners have failed to meet their burden that the combination of EX1008-Nakazawa and EX1007-Ponomarenko renders claim 1 of the '138 Patent obvious.

2. Claim 2

Petitioners misunderstand PO's arguments with respect to claim 2; they fail to address PO's argument that a POSA would not have been motivated to substitute the dual-layer, high-basis-weight, feces-isolating sublayer in EX1007-Ponomarenko in place of EX1008-Nakazawa's single-layer, low-basis-weight, fluid-diffusing sheet.

E. Ground V: EX1008-Nakazawa Does Not Anticipate the Asserted Claims

Rather than focus on the evidence before the Board, Petitioners strangely argue that PO's infringement arguments before the district court prove invalidity. This non sequitur allegedly proves that if First Quality infringes, the '138 Patent is invalid. Reply at 25-27. But the Board has no jurisdiction over infringement claims, 35 U.S.C. § 6, and whether First Quality uses "industry standard core wrap" is an issue for the litigation, not evidence before the Board. Reply at 25-27.

More importantly, while Petitioners and Dr. Pourdeyhimi characterize EX1008-Nakazawa's hydrophilic sheet as a "core wrap," PO and Mr. Sheldon do

not agree with that characterization, and Mr. Sheldon never testified that EX1008-Nakazawa's hydrophilic sheet or First Quality's purported core wrap was "industry standard" as Petitioners assert. Rather, he testified that EX1008-Nakazawa's hydrophilic sheet is not part of the claimed fluid flow control structure. *See* EX1022, 266:5-12. Petitioners make no effort to refute PO's arguments or Mr. Sheldon's testimony on that point and thus cannot meet their burden to show EX1008-Nakazawa discloses the "fluid flow control structure" limitation present in every claim of the '138 Patent.

IV. PETITIONERS' CRITICISMS OF MR. SHELDON ARE UNFOUNDED AND IN POOR TASTE

Realizing the weaknesses of their own expert, Petitioners cast aspersions at Mr. Sheldon and hint at ulterior motives. As an initial matter, PO takes exception to Petitioners' accusation that Mr. Sheldon is not "an independent and disinterested expert." Reply at 28. It is insulting to hint that Mr. Sheldon would testify against First Quality because he and his colleagues were let go as part of a corporate acquisition. EX1022-SheldonDep at 17:8-19:17. Mr. Sheldon testified that he was not upset after being let go by First Quality; in fact, Mr. Sheldon testified that First Quality's acquisition of Mr. Sheldon's former employer was "the best thing that happened" for him because it freed him from "working full-time for the absorbent product industry." EX1022-Sheldon Dep at 19:13-17, 37:10-22. Petitioners'

argument is unprofessional, finger-pointing nonsense.

Additionally, Mr. Sheldon explains how a POSA would have understood the prior art cited by Petitioners. That is the purpose of expert testimony. *Unification Techs. LLC v. Micron Tech. Inc.*, No. 2023-1348, 2024 WL 3738401, at *7 (Fed. Cir. Aug. 9, 2024). This stands in contrast to Dr. Pourdeyhimi's declaration, EX1002, which simply travels along with the Petition, citing the same evidence and providing little to no insight into the thought process of a POSA. *See MarkForged Inc. v. Continuous Composites, Inc.*, IPR2022-01431, Paper 7, at 14 (PTAB Jan. 18, 2023) (expert declaration "entitled to little to no weight as it merely parrots the Petition"). Petitioners ignore that Mr. Sheldon addressed the additional references cited by Dr. Pourdeyhimi (*see* EX2001, ¶¶41-72) and in any event, Petitioners cite no authority requiring an expert to cite "additional exhibits" outside of the art relied on in the Petition's grounds.

V. DR. POURDEYHIMI IS NOT A POSA

Dr. Pourdeyhimi admitted at his deposition and in his declaration that he has "not designed an entire article from scratch." EX1021, ¶4; EX2005, 12:15-17. Petitioners and Dr. Pourdeyhimi now argue that, because Dr. Pourdeyhimi has made "design improvements" to layers of absorbent articles, he is a POSA. Reply at 28-29; EX1021, ¶¶3-11. But even now, Dr. Pourdeyhimi only touts his experience improving nonwoven fabric components within absorbent articles. *See*

EX1021, ¶7 (touting publications “defining the structure of a nonwoven product”), ¶8 (“Mr. Sheldon acknowledges my expertise in optimizing nonwoven materials, which are optimized with the entirety of absorbent articles in mind through industry collaborations.”).

Petitioners and Dr. Pourdeyhimi proposed that the definition of a POSA include “two to four years of work experience in product design and testing of disposable absorbent articles, such as diapers, sanitary napkins and incontinence pads.” Petition at 17. They did not propose the definition to be limited to “product design and testing of **materials used in** disposable absorbent articles,” and Petitioners may not just rewrite the definition now. “To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—an expert witness must at least have ordinary skill in the art. Without that skill, the witness’ opinions are neither relevant nor reliable.” *Kyocera Senco Ind. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1376-77 (Fed. Cir. 2022).

VI. CONCLUSION

The Board should find that all Challenged Claims of the ’138 Patent are patentable in view of the deficient grounds presented by Petitioner.

Date: January 23, 2026

Respectfully submitted,

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WORD COUNT CERTIFICATION

The undersigned certifies that this brief complies with the type-volume limitations of 37 C.F.R. §§ 42.24(a)(1)(i) and (b)(1). This brief, excluding a table of contents, a table of authorities, and a certificate of service or word count, or appendix of exhibits or claim listing contains 5593 words as calculated by the “Word Count” feature of Microsoft Word 365, the word processing program used to create it.

The undersigned further certifies that this brief complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This brief has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman, 14-point font.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the Patent Owner Sur-Reply was served on counsel of record on January 23, 2026, by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering a copy via electronic mail to the counsel of record for the Petitioners at the following addresses:

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