

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

VF Outdoor, LLC
Petitioner

v.

Cocona, Inc.
Patent Owner

Patent No. 8,945,287
Inter Partes Review No. IPR2018-00190

PATENT OWNER'S RESPONSE

I. INTRODUCTION

The Board should affirm the patentability of claims 27, 28, 30, 32, 33, and 35-39 (the “Challenged Claims”) of U.S. Patent No. 8,945,287 (the “Patent”) for at least the reason that Petitioner VF Outdoor, LLC has not met its burden of proving unpatentability by a preponderance of the evidence.

The Petition asserts anticipation and obviousness over the Dutta and Halley references, alone or in combination with the Haggquist application. Neither of the primary references to Dutta or Halley, however, disclose key components of the Challenged Claims: (1) “active particles,” (2) “first thickness,” and (3) “second thickness,” and (4) the claimed ratio of first to second thicknesses, as those terms are properly construed under the broadest reasonably interpretation (“BRI”) standard.

The Challenged Claims are also patentable over the obviousness Grounds, Grounds 2 and 4, because the Petition fails to articulate a legally sufficient obviousness rationale or provide any reasonable expectation of success. The Petition, and the Petitioner’s expert fail to appreciate the fundamental difference in the science between the use of super-hydrophilic swelling particles in Dutta and Halley, on the one hand, and surface-active adsorptive particles in the Patent, on the other. A person of ordinary skill in the art (“POSITA”), as confirmed by Cocona’s experts (Exs. 2005, 2006), readily understands these differences, and that Dutta and Halley teach away from the Challenged Claims. Petitioner’s expert doesn’t know

how hydrophilic particles are used in increase water-vapor transport in Dutta and Halley, and that lack of understanding undercuts the entire Petition. Ex. 2007 at 35:4-8.

The Challenged Claims are also patentable over Grounds 2 and 4 because of compelling evidence of secondary considerations of nonobviousness, including licensing, industry praise, and copying. Moreover, Petitioner was in possession of evidence of licensing, praise, and copying of the invention, but Dr. Oelker failed to consider any of that evidence in her Declaration. The Challenged Claims are thus patentable because the Petition failed to consider evidence of secondary considerations.

II. BACKGROUND

A. Background of the Patented Invention

The Patent inventor and founder of Cocona, Dr. Greg Haggquist, has more than 30 years' experience in research and development related to composite materials and the interaction of light with polymer materials. Ex. 2011 at ¶¶2-6. In 2005, Dr. Haggquist started work on reinventing waterproof breathable materials to improve functionality—essentially fabrics with more effective water vapor diffusion. *Id.* at ¶9.

There was no clear way to accomplish more effective water vapor diffusion. Adding anything to the surface of the material membrane would add thickness to the membrane, which broke the first rule in waterproof breathable membranes. Ex. 2011

at ¶¶10-11. A POSITA knew thickness decreases vapor transmission, and so the first rule of waterproof breathable membranes is to never increase thickness. *Id.*; Ex. 1002 at 3:11-22; Ex. 2007 50:15-51:1.

Breaking this rule, Dr. Haggquist made the surprising discovery that if he used the right ratio between the first thickness and the second thickness, he could use active particles to attract water vapor out of the environment and “stack it up” on the membrane in a way that would effectively cause a change in the water vapor concentration gradient across the membrane. This overcame the “thickness” teaching in the art and resulted in breakthrough performance for waterproof breathable materials. Ex. 2011 at ¶¶11-13. Dr. Haggquist’s solution is outlined and claimed in the Patent. *Id.* at ¶¶9-13.

B. Overview of the Patent

The Patent, entitled “Active Particle-Enhanced Membrane and Methods for Making and Using the Same,” issued on February 3, 2015. Ex. 1001. Of the Challenged Claims, claim 27 is the only independent claim, which recites:

A water-proof composition comprising:

a liquid –impermeable breathable cured base material comprising a first thickness;

a plurality of active particles in contact with the liquid-impermeable breathable cured base material, the plurality of active particles comprising a second thickness; and wherein,

the first thickness comprises a thickness of at least 2.5 times larger than the second thickness but less than an order of magnitude larger than the second thickness,

the active particles improve the moisture vapor transport capacity of the composition, and a moisture vapor transmission rate of the water-proof composition comprises from about 600 g/m²/day to about 11000 g/m²/day.

The active particles incorporated in the membrane improve and/or add various desirable properties to the membrane, “such as for example, moisture vapor transport capability, odor adsorbance, anti-static properties, and stealth properties of the membrane.” *Id.* at [57].

III. THE ASSERTED REFERENCES

Petitioner cites to three references in support of the Petition: PCT Pub. No. WO 1995/33007 A1, published December 7, 1995 (“Dutta”; Ex. 1002); PCT Pub. No. WO 2000/70975 A1, published November 30, 2000 (“Halley”; Ex. 1003); and U.S. Patent Pub. No. 2004/0018359 A1, published January 29, 2004 (“Haggquist”; Ex. 1004).

Dutta is titled “Water Vapor Permeable, Air Impermeable Film and Composite Coatings and Laminates.” Dutta centrally claims the use of hydrophilic absorbent particles to increase water vapor transmission rate (“WVTR”) of a nonporous polymeric film. Ex. 1002 at 4:20-28. The hydrophilic absorbent particles disclosed in Dutta swell by absorbing aqueous liquid resulting in the formation of a

gel several thousand times the weight of the original particle. *Id.* at 9:15-18. Dutta discloses non-absorbent particles, including carbon, are “inert” and play no role in vapor transport. Ex. 1002, 9:35-10:7. There is not a single reference in Dutta to using surface-activated particles for vapor transport.

The focus of Halley is to improve abrasion resistance, although Halley states that its invention may also have “other desirable properties.” Ex. 1003 at 1:8-10. Halley incorporates a particulate solid such as carbon (carbon black) particles into a coating for improved tensile strength and abrasion resistance, Ex. 1003 at 2:15-16. There is not a single reference in Halley to using surface-activated particles for vapor transport.

Haggquist is titled “Encapsulated Active Particles and the Methods for Making and Using the Same.” Ex. 1004. Haggquist relates to preserving properties of active particles through use of an encapsulant that may be removable. *Id.* at Abstract. The encapsulant protects active particles from premature deactivation by blocking/inhibiting pores in the active particles. *Id.* at ¶ 13. When the encapsulant is removed, adsorptive capacity is restored. *Id.*

IV. CLAIM CONSTRUCTION

In its Institution Decision, the Board provisionally construed the disputed claim terms as follows: “active particles” as “particles that have the capacity to cause chemical reactions at the surface or physical reactions, such as, adsorb or trap

substances;” “first thickness” as “the thickness of a base material, which base material may include active particles,” and “second thickness” as “the thickness of a plurality of active particles,’ which may be the particle size of the active particles.” Paper 14 at 5-13.

Cocona respectfully asserts that the Board’s preliminary constructions stretch these terms well beyond the broadest *reasonable* interpretation. *See Cuozzo Speed Techs. v. Lee*, 136 S.Ct. 2131, 2144-46 (2016). Cocona’s proposed constructions are consistent with the BRI standard and should be adopted by the Board.

A. Active Particles

The Board’s preliminary construction of “active particles” is unreasonably broad, because it encompasses any particle capable of a physical reaction (*e.g.*, any particle, including absorptive particles). The proper construction is “particles that adsorb or trap substances on their surface.” This construction is taken from the Patent’s specification and is consistent with the BRI standard in view of the intrinsic record.

A person of ordinary skill in the art understands that “active particles” are “active” because they adsorb or trap substances on their surface. Ex. 2005 at ¶¶23-25; Ex. 2006 at ¶¶39-47, 59-61. The Patent specification makes this point directly:

These particles may provide such properties because they are “active.” That is, the surface of these particles may be active. Surface active particles are active because they

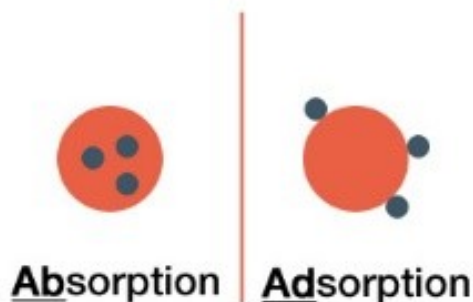
have the capacity to cause chemical reactions at the surface or physical reactions, such as, adsorb or trap substances, including substances that may themselves be a solid, liquid, gas or any combination thereof.

Patent at 4:4-10. (Emphasis added).

Certain types of active particles (such as activated carbon) have an adsorptive property because each particle has a large surface area made up of a multitude of pores (e.g., pores on the order of thousands, tens of thousands, or hundreds of thousands per particle). It is these pores that provide the particle or, more particularly, the surface of the particle with its activity (e.g., capacity to adsorb). For example, an active particle such as activated carbon may adsorb a substance (e.g., butane) by trapping the substance in the pores of the activated carbon.

Id. at 4:12-21. (Emphasis added); *see also* Ex. 1004, ¶28.

Adsorption results from the large surface area provided by activated particles, such as activated carbon. *See* Ex. 1004 at Fig. 1 (depicting the pores of an active particle); Ex. 2001 at ¶¶8-11; *see also* Ex. 2006 at ¶¶39-45. Absorption, on the other hand, is a bulk process—not a surface process—where a fluid or gas is dissolved by a liquid or a solid. Ex. 2001 at ¶¶10-11; *see also* Ex. 2006 at ¶¶39-47. One well-known example of absorption is dissolving salt into water.



The image above depicts the difference between the surface-active process of adsorption (shown on the right) and the bulk dissolution process of absorption (shown on the left). Ex. 2001 at ¶¶ 10-11. A person of ordinary skill in the art understands that adsorption and absorption are two very different processes. *Id.*; Ex. 2005 at ¶¶ 58, 60-61, 78, 90; Ex. 2006 at ¶¶ 39-47, 59-60.

Cocona’s proposed construction of “active particles” as “particles that adsorb or trap substances on their surface” is taken straight from the Patent, is consistent with the understanding of a person of ordinary skill in the art in view of the specification, and should be adopted as the broadest reasonable interpretation.

As a preliminary matter, it should be noted that the Board properly rejected Petitioner’s proposed construction of “active particles” as “particles capable of causing chemical reactions at their surface or capable of physical reactions, including the ability to adsorb, absorb, or trap substances,” which was overly broad and inconsistent with the intrinsic record both in terms of including (1) particles that react by absorption rather than adsorption; and (2) particles that are simply “capable of physical reactions.” Pet. at 13. This was clearly overbroad and has the effect of

reading the word “active” right out of the claims in violation of the canons of claim construction.

Petitioner’s proposed claim construction was based on nothing more than obvious typographical errors in the published Haggquist application that is incorporated in the Patent by reference. One of these is in a claim (one of the 32 published claims), and the rest in the specification. Each mistakenly recited “absorption” instead of (the intended term) “adsorption.” Ex. 2001 at ¶¶12-13. As is readily apparent from any reading of Haggquist, the sole point of that application is to teach active particles for adsorbing substances and the use of an encapsulant to stop or deactivate adsorption. Ex. 1004 at ¶¶4, 7, 13, 28- 29, 31-32, 37-38, 41, 46, 48, 56, 84-86, 80, 92, 94, 99. The encapsulation process is only consistent with adsorptive particles, and not absorptive particles. Ex. 2006 at ¶¶64-65 (“No reasonable POSITA would conclude in view of the numerous references to surface-action and adsorption that Haggquist meant to extend the meaning of active particles to absorptive particles. It simply makes no sense to discuss deactivating absorptive particles by blocking their surface pores.”). As Dr. Haggquist stated, these references to absorption were typographical errors, and would have been recognized by a person of ordinary skill in the art at the time. *See* Ex. 2001 at ¶¶12-13 (references to absorption in paragraph 14 of Haggquist typographical error); Ex. 2006 at ¶¶65-66 (explaining that Haggquist pertains to the encapsulation of surface-active particles,

not absorptive particles which do not rely on surface porosity” and agreeing that the references to “absorption” and “absorptive” particles are clear typographical error). These typographical errors in the specification were corrected in the patent that issued from the Haggquist application through a Certificate of Correction. *See* Ex. 2029-2030. Based on the evidence of record, the typographical error issue has now been resolved.

The Board correctly noted in the Institution Decision that the ‘Patent itself never mentions absorption, absorb, etc. (Paper 14 at 8), and reserved judgment as to whether the mentions in Haggquist are typographical errors. But the Board also raised the question of whether, “[e]ven if they are not typographical errors,” the references to “absorption” in Haggquist modify the definition of “active particles” in the Patent. Paper 14 at 9-10. Cocona respectfully disagrees. Neither the Petition nor the Institution Decision point to any statement showing that the inventor intended to act as his own lexicographer and provided a definition of “active particles” that is different from the ordinary meaning of that term. Paper 1, 14. Moreover, neither the Patent nor Haggquist provide any definitional statement of “active particles” that would expand the scope of that term to include absorbent particles. Such an interpretation is unreasonably broad and reads the word “active” out of the claims.

The Board's preliminary construction also is not consistent with the breadth of the specification or the extrinsic record. "Active particles" are "active" because they have the capacity to adsorb or trap substances on their surfaces. Ex. 2005 at ¶¶24-25; Ex. 2002 at 8; Ex. 2006 at ¶¶39-47, 66; Ex. 2001 at ¶¶8-9. Indeed, Rosato's Encyclopedia defined "activation" as "1. Basically it is any process whereby a substance is treated to develop adsorptive properties." Ex. 2002. As explained by Dr. Haggquist and Dr. Daniels, this adsorption takes place at the surface of the particle. Ex. 2001 at ¶¶8-9; Ex. 2006 at ¶¶39-45. The Patent specification makes this abundantly clear. *See, e.g.*, Ex. 1001 at 4:4-21, 5:59-65; *see also* Ex. 1004 at ¶¶4-5, 7, 28-29, 32, 37-38, 80, 84, 92, 99.

A person of ordinary skill in the art would not consider "any physical reaction" to be within the scope of the claims, unless it is strictly referring to a physical reaction at the surface of the particle. Ex. 2005 at ¶¶30-36; Ex. 2006 at ¶67 ("Based on the plain language of the claim in view of the intrinsic record, 'active particles' should be limited to 'particles that adsorb or trap substances on their surface.' Expanding the meaning of 'active particles' to include non-adsorptive particles such as absorptive particles would contravene the scope of the invention as disclosed in the '287 Patent."). That is the only way that these claims can align with the ordinary meaning of "active" as understood by a POSITA.

In reaching its construction, the Board cites to the specification. *See* Ex. 1001 at 4:4-10. But in looking at the specification, the Board may not ignore the rest of the same statement:

These particles may provide such properties because they are “active.” That is, the surface of these particles may be active. Surface active particles are active because they have the capacity to cause chemical reactions at the surface or physical reactions, such as, adsorb or trap substances, including substances that may themselves be a solid, liquid, gas or any combination thereof ... It is these pores that provide the particle or, more particularly, the surface of the particle with its activity (e.g., capacity to adsorb).

Ex. 1001 at 4:4-21 (emphasis added). Figure 1 of Haggquist illustrates an active particle; it is plain to see that the pores of the active particle are all at the surface:

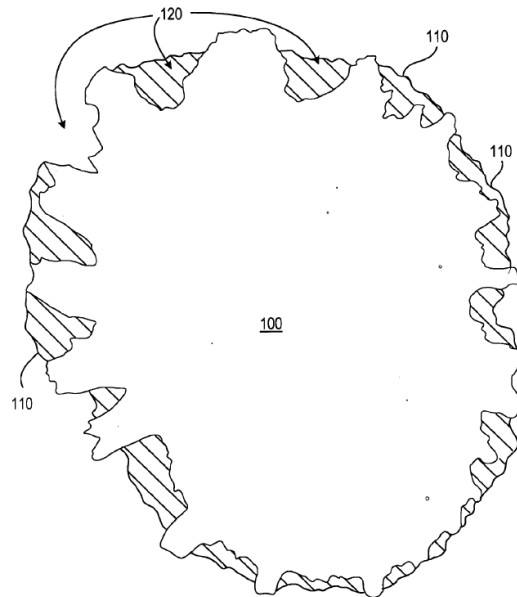


FIG. 1

Ex. 1004 at Fig. 1. Similarly, every embodiment in the Patent speaks to activity at the surface. Ex. 2005 at ¶35; Ex. 1001 at 4:4-21, 4:28-38, 5:30-33, 6:13-17; Ex. 1004 at Fig. 1, ¶¶4-5. The Board’s preliminary construction – “particles that have the capacity to cause chemical reactions at the surface or physical reactions, such as, adsorb or trap substances” – does not properly reflect a reasonable interpretation of the term “active particles” in light of the claim language or specification. Reactions that are not adsorption are not within the scope of the claims. Ex. 2005 at ¶¶23-25, 28-29; Ex. 2006 at ¶¶39-47, ¶62 (“Dr. Oelker improperly broadens the definition of ‘active particles’ to include all particles, including absorptive particles. This is directly contrary to the ‘287 Patent as understood by a POSITA.”).

A person of ordinary skill in the art reading the Patent would understand that reference to “chemical reactions at the surface or physical reactions” is a reference to “chemical or physical reactions at the surface.” Paper 14 at 10; Ex. 2005 at ¶¶30-33; Ex. 2006 at ¶¶62-63, 65-66. Read out of context, however, the words “or physical reaction” could literally open the claim to particles with the capacity to cause any physical reaction (*i.e.*, adsorption, absorption, or anything else), which would apply to any particle. That is the absolute wrong result, as the Board recognized by excluding the word “absorb” from the construction in the first place. Ex. 2005 at ¶30 (“[A] person of ordinary skill in the art would not consider ‘any

physical reaction to be within the scope of the claims unless it is strictly referring to a physical reaction at the surface of the particle.”).

One way to correct the construction would be to change the construction to read “particles that have a capacity to cause chemical or physical reactions at the surface, such as, to adsorb or trap substances.” Cocona respectfully submits that this would be an acceptable way to phrase the broadest reasonable interpretation for “active particles.” Whatever precise language the Board uses, the focus of any construction needs to be on the surface of the particles. Interpreting the term “active parties” in any other way defeats the very purpose of the Patent.

B. First and Second Thicknesses

Claim 27 of the Patent is directed to a two-layer water-proof composition, with the first layer being a liquid-impermeable breathable cured base material, and the second layer being active particles applied to the cured base material:

A water-proof composition comprising:
a liquid-impermeable breathable cured base material
comprising a first thickness;
a plurality of active particles in contact with the liquid-
impermeable breathable cured base material, the plurality
of active particles comprising a second thickness;
...

Ex. 1001 at claim 27 (Emphasis added). Each “thickness” of claim 27 is appropriately understood as a layer or membrane, with the “first thickness” (first

layer, which is a layer of base material) being “in contact with” the “second thickness” (second layer, which is a layer of the plurality of active particles and may or may not include a base material). Ex. 2006 at ¶¶51-54.

The Board’s preliminary constructions of “first thickness” and “second thickness” (1) do not reflect this two-layer configuration (specifically by including the plurality of active particles in the first base-material layer); and (2) construe the thickness of the second layer as (potentially) “the particle size of the active particle.” Paper 14 at 13.

1. *The proper construction of “first thickness” is “first layer or membrane”*

Consistent with the claim language, the intrinsic record makes clear that the “first thickness” is a layer or membrane. Ex. 1001 at Abstract (“The present disclosure relates to active particle-enhanced membrane and methods for making and using the same.”); *Id.* at 2:12-13 (“The present disclosure relates to active particle-enhanced membrane and methods for making and using the same.”).

According to the plain language of the claim, the “cured base material” has a physical dimension referred to as the “first thickness.” A person of ordinary skill in the art would clearly understand that “first thickness” is a physical dimension of the “cured base material” and not of other claim elements. Ex. 2005 at ¶ 38; Ex. 2006 at ¶¶ 51-54, 67-70. The fact that it is “cured” tells a person of ordinary skill that the “base material” has been solidified into a physical layer or membrane to which the

plurality of active particles can be applied, such as a woven material or polyurethane layer. Ex. 1001 at 2:42-46; Ex. 2005 at ¶38; Ex. 2006 at ¶¶51-54, 67-70. A person of ordinary skill in the art understands that the “cured base material” of claim 27 is the layer or membrane (*i.e.*, the “substrate”) on which the “active particles” are applied. Ex. 2005 at ¶39; Ex. 2006 at ¶¶51-54, 67-70. Because it is cured, it has a measurable width (“first thickness”) that does not include the plurality of active particles. Ex. 2006 at ¶68. This is consistent with numerous embodiments in the specification. Ex. 1001 at Abstract; *Id.* at 2:12-15; *Id.* at 2:42-46; *Id.* at Figure 1 at steps 130, 140 (disclosing that active particles and base solution at 130 may be applied to a substrate at step 140). Consistent with these embodiments, claim 27 is directed to a plurality of active particles applied to a cured based material or substrate. Ex. 2006 at ¶¶51-54, 67-70.

In addition to being consistent with the specification, Cocona’s interpretation of “first thickness” as “first layer or membrane” is also consistent with the Haggquist application (Ex. 1004), which discloses numerous embodiments where a layer of active particles is placed in contact with base material often referred to as an “embedding substance.” This means that a second layer (*e.g.*, active particles in a base solution) is applied to a first layer (*e.g.*, to a cured substrate) as shown for example in Figure 1. Ex. 1004 at ¶67-68, 71-72 (“The active particles can be permanently attached to the embedding substance through application of a binding

agent”); *Id.* at ¶78 (“The principles of the present invention can also be incorporated into a xerographic method for treating an embedding substance.”); *Id.* at claim 5 (reciting “A method for incorporating active particles into an embedding substance”); *Id.* at claim 11 (reciting “an air dispersion process, a padding process, a xerographic process, and a solution preparation process”); *see also* Ex. 2006 at ¶¶51-54, 67-70.

The Board’s construction of “first thickness” as “the thickness of a base material,’ which base material may include active particles,” (Paper 14 at 12), ignores the plain language of the claim and numerous embodiments in the specification of the Patent, and conflates the “base solution” that carries the active particles with the “base material” recited by claim 27. Ex. 2005 at ¶¶42-43; Ex. 2006 at ¶¶51-54, 67-70. Based on the claim language and specification, the phrase “which base material may include active particles” should be omitted from any construction, since the specification makes clear that in the 2-layer embodiments, the plurality of active particles comprise the membrane layer separate and apart from the base layer-substrate with the “first thickness.” Ex. 2006 at ¶70. Claim 27 is directed to these 2-layer configurations.

The Petition itself *admits* that the “cured base material” is the substrate to which a layer of active particles is applied. *See, e.g.,* Pet. at 10 (“Claim 27 of the ’287 Patent recites a ‘cured base material,’ which means a non-solution form of a

substrate that was converted from a solution state via any conventional curing technique.”) (Emphasis added). In other words, Petitioners acknowledge that claim 27 recites applying a layer of active particles (which may be carried in a solvent) on a “cured base material” or “substrate.” This aligns with a skilled artisan’s understanding of claim 27 and the ‘287 Patent specification, as discussed above, and directly refutes Petitioner’s and the Board’s claim constructions for “first thickness” and “second thickness.” Patent at Abstract; *Id.* at 2:12-15; *Id.* at 2:42-46; *Id.* at Figure 1; Ex. 1004 at ¶¶67-68, 71-72, 78; *Id.* at claim 5; *Id.* at claim 11; Ex. 2005 at ¶¶42-43. Petitioner’s expert, Dr. Oelker, does likewise. That is, she acknowledges that the “cured base material” is a substrate to which active particles are applied (Ex. 1005 at ¶93). As this cured layer has a physical dimension that can be readily measured, the proper construction of “first thickness” is “first layer or membrane,” which indicates that it is the cured base material before (without) the addition of the plurality of active particles. Ex. 2006 at ¶¶67-70.

The Board’s point about the open-ended nature of the word “comprising” (Paper 14 at 11, 13) does not support including the claimed active particles in the base layer. Each of the first and second layers has a thickness as one of that layer’s respective properties; they have other properties (breathability, liquid-impermeability, etc.) as well.

2. *The proper construction of “second thickness” is “second layer or membrane”*

The broadest reasonable interpretation of “second thickness” is “second layer or membrane,,.” – a construction which provides consistency to the “thickness” claim language. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003) (“unless otherwise compelled ... the same claim term in the same patent or related patents carries the same construed meaning.”). This construction reflects the language of claim 27, which requires both a first measurable thickness and a second measurable thickness, the second thickness (i.e., the “plurality of active particles”) being in contact with the first thickness. Ex. 1001, Patent at Claim 27; *see also* Ex. 2006 at ¶72 (“The base solution with active particles applied as a “layer or film” on a substrate has a physical thickness that can be measured. This is the ‘second thickness.’”); *Id.* at ¶¶71-75. It is also consistent with the embodiments of the Patent that disclose placing a layer of active particles in contact with a base material (often using a solution or liquid suspension of active particles). *See, e.g.*, Ex. 1004 at ¶¶67-68, 71, 78; *Id.* at claim 5 (reciting “A method for incorporating active particles into an embedding substance”); *Id.* at claim 11 (reciting “an air dispersion process, a padding process, a xerographic process, and a solution preparation process”). Ex. 2006 at ¶¶71-75.

Claim 27 clearly states that the plurality of active particles -- the layer with active particles, with or without a solvent -- forms a second layer which is the second

thickness. A person of ordinary skill in the art would understand the plurality of active particles (alone or blended with a solvent) to be a second layer added on top of the cured base layer. Ex. 2005 at ¶47; Ex. 2006 at ¶¶51-54, 67-70, 71-75; *see also, e.g.*, Ex. 1004 at ¶¶67-72, 78; *Id.* at claims 5, 11.

As expert Stephen Callan explains, a person of ordinary skill in the art would not understand the patent to suggest that the second thickness is the “particle size of the active particles” or even understand what that means. “For one thing, ‘thickness’ is not a term that a person of ordinary skill in the art would use to refer to particle size; we would use the term ‘diameter.’” Ex. 2005 at ¶47. “Moreover,” he explains,

if the Board intended “particle size of the active particles” to refer to the size of a single particle, that wouldn’t tell the us anything because we wouldn’t know how many particles were or should be applied or what structure or formation they took on top of the base layer. That is what makes for effective transmission of the moisture, which is the subject of the invention. “Active particles” would not lie down on top of a first thickness like soldiers in marching formation. We are reading this in view of plastics and textile manufacturing facilities that existed at the time of patent application, which means the base material is cured to form a first layer, and the active particles are cured on top of the base material to form a second layer. That is the thickness that matters. Saying the “second thickness” is “the particle size of the active particles” is the microscopic equivalent of saying worldwide, the thickness of the surface of the earth is equal to the thickness of a grain of sand on a beach rather than the thickness between sea level and peaks of mountain ranges.

Ex. 2005 at ¶47; *see also id.* at ¶¶48-50.

A person of ordinary skill in the art would understand “second thickness” to mean “second layer or membrane.” This type of wording is used throughout the polymer industry:

It is very common in the polymer industry and extremely common in the pharmaceutical industry where FDA compliant barrier films that have no additives are used as inner surfaces in the construction of pharmaceutical containers. Interior walls of pharmaceutical containers originate as “base material” walls because of FDA extractive limitation requirements. Outer walls are manufactured using the same “base material” as the inner wall, but include additives that impart increased physical property values. Base material / base material with additive layer constructions are used because of the increased propensity of sheet delamination between layers in multi-layer films when principal polymers of layers in contact have differing chemistries. All of this would be understood by a person of ordinary skill in the art.

Ex. 2005 at ¶48.

Regarding a statement in the file history that “the particle size for the Asbury 5564 powdered coconut activated carbon comprises about 10 microns (the second thickness)[,]” a person of ordinary skill in the art would not understand this to define “second thickness.” See Ex. 2005 at ¶¶51-52. These comments were an effort to identify support for a claim amendment, and nothing more. As to the issued claims, the applicant clearly and specifically stated that “second thickness” refers to the plurality of active particles. As the applicant explained in reference to the ultimately-issued claims, “Applicant has amended independent claims 1, 28, 63 and 68 to include the claim features that the cured base material solution comprises a first thickness and the plurality of active particles comprises a second thickness, with

the first thickness being less than an order of magnitude larger than the second thickness.” Ex. 1007 at 17. This language is abundantly clear and exactly what “second thickness” in the claims would mean to a person of ordinary skill in the art.¹ *See also* Ex. 2006 at ¶73 (“[A] POSITA would not interpret [‘second thickness’] as the size of a single particle. Doing so is inconsistent with the language of the claims and the ‘287 Patent.”); *id.* at ¶75 (“A POSITA would readily understand that an active particle ‘layer or film,’ ‘laminate,’ or ‘membrane’ has a thickness that can be measured. A POSITA reading the claims and the Patent does not need an express definition of ‘second thickness’ because it is readily apparent that the active particle layer has a physical thickness that can be measured. Dr. Oelker’s statement that ‘[a]s such, the active particles do not form a discrete layer that has a measureable thickness’ (Ex. 1005 at ¶ 103) is contrary to the two-layer embodiments disclosed in the patent specification.”).

¹ In fact, as Callan states, a person of ordinary skill in the art would be most likely to read the parenthetical reference to “second thickness” in the phrase “the particle size for the Asbury 5564 powdered coconut activated carbon comprises about 10 microns (the second thickness)” as an effort to point to the location of the active particles – not at all an attempt to define the second thickness. Ex. 2005 at ¶¶51-52. In light of the claim language and the clear, unmistakable statement in the context of the same amendment remarks that “the plurality of active particles comprises a second thickness,” the “second thickness” is the “second layer or membrane” formed by a layer that includes the active particles. *Id.*

Dr. Oelker’s deposition testimony that the “second thickness” of the “plurality of active particles” in claim 27 refers to the characteristics of just one particle is directly contrary to the plain language of the claims and her testimony that the weight of the “active particles” in claim 28 refers to the weight of “all of the particles together.” Ex. 2007 at 25:1-5. Claim 27 and its dependents recite characteristics of all of the active particles together, not of a single particle. *See, e.g.*, Ex. 1001 at claims 28-32 (the active particles together comprise various weights); *Id.* at claims 33-36 (the active particles together confer certain properties). It is axiomatic that a claim term has the same meaning throughout. The language of claim 27 and its dependents makes clear that the “second thickness” in claim 27 refers to the thickness of all of the particles together. Petitioner’s claim construction for “second thickness” violates this rule by treating a “plurality” as just one particle in claim 27.

V. THE CLAIMS ARE PATENTABLE OVER GROUNDS 1-4

In Grounds 1 and 3, Petitioner has failed to show that the alleged anticipatory references to Dutta (Ex. 1002) and Halley (Ex. 1003) disclose “active particles,” a “first thickness,” and a “second thickness” consistent with the broadest reasonable interpretation of those terms. Ground 2, which alleges obviousness over Dutta and Haggquist, fails for at least the reasons given for the denial of Ground 1. Ground 4, which alleges obviousness over Halley and Haggquist, has not been proved for at least the reasons given for Ground 3. For Grounds 3 and 4, Petitioner has also failed

to show a reasonable motivation to combine references in the context of an obviousness analysis. Moreover, the relevant objective indicia prove the nonobviousness of the claims. Petitioner has not met its burden to show that the challenged claims are unpatentable, and Cocona submits that the Petition should be denied in its entirety.

To find a patent unpatentable on anticipation grounds, a petitioner must explain specifically why or how the alleged disclosure anticipates the claim. *Tasco, Inc. v. Pagnani*, IPR2013-00103, Decision Denying Institution at 11 (Paper 6, May 23, 2013); *Google v. EveryMD*, IPR2014-00347, Decision Denying Institution at 17-20 (Paper 9, May 22, 2014) (“Google”); *see also* 37 C.F.R. § 42.104(b) (Petition must identify how the claim is to be construed, how the construed claim is unpatentable, and the relevance of cited evidence).

Petitioner cannot shift its burden to the Board, asking the Board to “sift through” their Petition and references to determine where each element of a claim is found in the art and identify any differences. *Google* at 25. Rather, the Board “will address only the basis, rationale, and reasoning put forth by the Petitioner in the petition, and resolve all vagueness and ambiguity in Petitioner’s arguments against the Petitioner.” *Liberty Mutual Ins. Co. v. Progressive Casualty Ins. Co.*, CBM2012- 00003, Order Denying Grounds at 10, 14 (Paper 8, Oct. 25, 2012) (“Liberty Mutual”). “It would be unfair to expect the Patent Owner to conjure up

arguments against its own patent and just as inappropriate for the Board to take the side of the Petitioner to salvage an inadequately expressed ground proposing an alternative rationale.” *Liberty Mutual* at 14.

Likewise, the Board should ignore arguments presented only in an expert declaration and cited without explanation. The petition, not the declaration, must specify where the claim elements are found in the art. 37 C.F.R. §§ 42.104(b)(4), 42.22(a). The petition must include a detailed explanation of the declaration’s significance, or the Board may exclude or give no weight to the cited declaration. 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(5). These rules prevent a petitioner from avoiding page limits by stuffing its expert declaration with argument.

Here, the Petition fails to show all of the elements of any challenged claim in any single reference and thus fails to prove anticipation; for obviousness, the Petition fails to address the necessary factual inquiries at all – even as to evidence of nonobviousness which was in Petitioner’s possession.

A. The Challenged Claims are Patentable over Ground 1

Dutta does not provide a basis for finding the Challenged Claims unpatentable as it fails to disclose elements of the claims. Dutta in Ground 1 does not disclose each element of Claims 27, 28, 30, 32, and 36-37 of the Patent for at least the reason that Dutta does not disclose “active particles,” a “first thickness,” and a “second thickness” as those terms are properly construed. *See* Ex. 2006 at ¶76. Certainly,

based on what is provided in the Petition, the Petition fails to show how Dutta makes each of these disclosures.

1. The Petition fails to show how Dutta discloses “active particles”

Dutta discloses the use of absorbent particles to achieve improved water vapor transmission. Pet. at 2 (“Dutta explicitly discloses that the MVTR of this membrane can be increased by incorporating into it hydrophilic absorbent particles, such as Sephadex particles.”) (Emphasis added); *Id.* at 22 (citing to Dutta at 4:20-28 for “absorbent particles”); *Id.* at 23 (citing to Dutta at 9:18-22 for “absorbent-type particles”); *Id.* at 24 (citing to Dutta for absorbent particles); *Id.* at 25 (citing to Dutta for absorbent particles); *Id.* at 34 (“Dutta discloses the use of active particles (absorbent particles)...”). The Petition does not assert that Dutta discloses anything more, and specifically does not assert that it discloses the use of adsorptive particles.

The Dutta Abstract, specification, and prosecution history clearly define the Dutta Patent to only apply to the use of hydrophilic absorbent particles. Ex. 1002 at Abstract (“The water vapor transmission rate (WVTR) of a nonporous polymeric film can be increased by incorporating into it absorbent particles.... The material of the invention can be in the form of a waterproof, air permeable, water vapor permeable non-porous polymer film or sheet made of a polymer resin and hydrophilic absorbent particles having absorptive capacity greater than 1 gram of water per gram of dry (water-free) particles.”); *id.* at 4:29-33 (same); *id.* at 5:25-30

(“The polymer film of this invention comprises of a polymer resin and hydrophilic absorbent particles such that the WVTR through the non-porous film of this invention is higher than that through a non-porous film of comparable thickness obtained only from the polymer resin”). A POSITA would understand the super-hydrophilic, absorbent nature of the particles in Dutta to be the key to the Dutta claimed invention – both based on the statements in Dutta and the underlying science. Ex. 2005 at ¶¶58-61, 65-66, 73-75; Ex. 2006 at ¶¶77-78. In other words, the core of the Dutta invention is the ability of the hydrophilic absorbent particles to absorb water. *Id.*; *see also* Ex. 1002 at 5, ll. 10-11 (“by ‘hydrophilic absorbent’ particles is meant that the particles absorb water”); *id.* at 5: 25-30. *See also* Ex. 2004 (Document 10: Reply to First Written Opinion at 4) (“The science behind the present invention is to alter the effective solubility of water vapor in the non-porous polymer film by using highly water absorbent particles uniformly dispersed within the polymer film.”); *id.* at 5 (Dutta distinguishing his own claimed invention from the prior art by saying, “Those [prior art] passages are very general in nature and do not at all suggest use of the absorbent particles that Applicant covers in his claimed invention”). Dutta’s super-hydrophilic, absorbent particles swell when exposed to moisture. *See* Ex. 1002 at 9, ll. 15-18 (“The hydrophilic absorbent particles, as used in the present invention, are particles capable of swelling by absorbing a large volume of an aqueous liquid and assuming the form of a gel several times to several

thousand times its own weight.”). As a person of ordinary skill in the art would understand, that is the mechanism by which Dutta works. The particles absorb moisture, swell, stretch the material, and – by their stretching – create pores in the material that allow the moisture/water to escape. Ex. 2005 at ¶¶58-61; Ex. 2006 at ¶78 (“This swelling – or large change in particle size – is the key to how the invention of Dutta works. A POSITA understands that, in Dutta, the hydrophilic particles swell and thereby stretch the membrane, creating holes or channels that allow water vapor to move across the membrane. The fundamental science of Dutta relies on super-hydrophilic particles swelling with water to create holes in the membrane.”).

It is not surprising, then, that the Petition fails to provide a single citation to Dutta showing active particles – *i.e.*, particles that adsorb or trap substances on their surface. “Active, adsorbent particles ... do not absorb water; they adsorb it – they transport substances such as water by trapping the substances on the surface of the active particle and transporting them out of the membrane.” Ex. 2005 at ¶¶66, 77. A person of ordinary skill in the art would understand these to be very different and mutually-exclusive processes. *Id.*

Petitioner asserts that the Sephadex particles used in Dutta are both absorbent and adsorbent “capable of trapping water and other substances.” Paper 14 at 17 (citing Pet. at 34). This is wrong. Dutta says nothing about activating any particles; moreover, Sephadex particles are highly absorptive particles that swell dramatically

and, in the process, absorb 24 gm/gm of water, which is the basis of Dutta's science. Ex. 2005 at ¶¶65-66. A POSITA at the time of the '287 invention "would clearly understand that [absorption and adsorption] are diametrically opposed scientific pathways and principles. To a polymer scientist, these are in the category of "never the twain shall meet." Ex. 2006 at ¶106.

Similarly, there is no indication in Dutta that the carbon particles it discloses are activated. "Carbon particles are not active particles. Activated carbon particles are active particles." Ex. 2003; 2005 at ¶89 (emphasis in the original); *see also* Ex. 2006 at ¶¶43 (explaining that there is a process required to "activate" particles); *id.* at ¶98 ("Carbon and 'activated carbon' are two very different things. Carbon (without activation) is not an active particle and does not adsorb or otherwise cause a reaction at the surface of the particle."); Ex. 2009-2010. Moreover, Dutta describes all non-super-hydrophilic, non-absorbent particles as "inert." *See* Ex. 2005 at ¶62; Ex. 1002 at 9:36-10. Accordingly, the patentability of the claims should be affirmed under Ground 1 for at least the reason that the Petition fails to show how each element of claims 27, 28, 30, 32, and 36-37 is met by Dutta.

2. *The Petition fails to show how Dutta discloses the "first thickness" and the "second thickness"*

The Board should reach a conclusion that all claims are patentable over Ground 1 for a number of reasons in view of the "first thickness" element. First, Petitioner proposes a construction for "first thickness," which was adopted by the

Board, but fails to show in the Petition how Dutta satisfies even that construction. Petitioner’s claim chart for the “water-proof composition” element of claim 27 appears on page 21 of the Petition:

Claim No.	8,945,287	<i>Dutta or Dutta in view of Haggquist</i>
27	27. A water-proof composition comprising:	<p><u>Dutta</u></p> <ul style="list-style-type: none"> ▪ “The material of the invention can be in the form of a waterproof, air permeable, water vapor permeable non-porous polymer film or sheet made of a polymer resin...” (Ex. 1002 at Abstract (emphasis added).)

As shown above, Petitioner’s claim chart fails to show how Dutta discloses “the thickness of the water-proof composition, which includes the base material and the active particles.” The Petition fails to show how Dutta discloses the “thickness of the water-proof composition” or how the water-proof composition “includes the base material and the active particles,” as alleged by Petitioner. The Petition’s single citation to the Abstract of Dutta fails to specifically show how Dutta discloses the “first thickness” under Petitioner’s proposed construction. Petitioner cannot—as it does here—shift its burden to the Board, asking the Board to “sift through” the Petition and Dutta to determine where each element of claim 27 is found in view of Petitioner’s erroneous claim construction. *Google* at 25. Ground 1 has not been proved on at least this basis.

Second, the Petition fails to specifically show how the “first thickness” element, as properly construed, is met by Dutta.

The Petition states on page 33:

As noted by Table 1 and the descriptions of the Examples in the specification of Dutta, the polyurethane films created from drying and heating include the active particles. (Id. at p. 17:30-38; p. 18:1-21; and p. 23:5-10.) Therefore, Dutta discloses a liquid-impermeable breathable cured base material comprising a first thickness.

Id. (Emphasis added).

The Petition fails to show (or even allege) that Dutta discloses the two-layer invention of claim 27. *See* Pet. at 11, 34 (Petitioner asserts unpatentability on the basis that claim 27 recites a one-layer invention with the “plurality of active particles” in “cured base material”); Ex. 1005 at ¶ 95 (same). Accordingly, the Petition has not established that claim 27 is anticipated by Dutta under a correct interpretation of the claims, and Petitioner’s arguments under Ground 1 should be rejected for at least this reason.

Regardless of the construction, according to the plain language of claim 27, the first and second thicknesses are clearly distinct, with the plurality of active particle comprising the second thickness. The Petition not only fails to treat them as distinct (Pet. at 11, 33 (relying on disclosure from Dutta allegedly showing “base material” combined with “active particles”)), but also fails to specifically show where Dutta discloses a second layer, distinct from the first, comprised of the

“plurality of active particles.” *See* Pet. at 22 (citing to Dutta for the particle size of Sephadex, an absorbent particle); *Id.* at 23 (citing to Dutta for the size of individual “absorbent-type particles”); *Id.* at 24 (citing to Dutta for the size of individual particles). Accordingly, the Board should affirm claim patentability over Ground 1 for at least the reason that the Petition fails to specifically show how Dutta discloses the “first thickness” and “second thickness” elements of the claims.

B. The Challenged Claims are Patentable over Ground 2

In connection with Ground 2, the Petition fails for at least the reasons given with respect to the failure of Ground 1, discussed above. In addition, and significantly, Petitioner fails to show a motivation to combine the references. In fact, a person of ordinary skill in the art at the time of the invention would not have been motivated to combine Dutta and Haggquist, and no such combination would have made the ‘287 Patent obvious. As Callan explained it with respect to both Dutta and Halley,

[I]t just doesn’t work to combine either Dutta or Halley with Haggquist, and a person of ordinary skill in the art at the time of the claimed invention would not have been motivated to do so; just the opposite, a person of ordinary skill would be led away from combining these two completely different sciences. The science of Dutta/Halley and the science of Haggquist work by fundamentally different mechanisms and are mutually-exclusive. A person of ordinary skill in the art would not substitute the super-hydrophilic swelling particles in Dutta and Halley with “inert” particles that Dutta and Halley identify as not swelling. A person of ordinary skill in the art at the time of invention would be discouraged from using non-swelling particles, since swelling is identified as the key characteristic in the Dutta and Halley particles.

Everything about these references teaches that the combination should not be made.

Ex. 2005 at ¶72; *see also* Ex. 2006 at ¶¶87-95. Moreover, to address a point raised by the Board in the Institution Decision, Haggquist does not “disclose[] active particles that can be substituted for the Sephadex particles used in Dutta’s Example 1B,” Paper 14 at 21. Sephadex particles are highly absorptive particles that swell dramatically and, in the process, absorb 24 gm/gm of water. Ex. 2005 at ¶77. Haggquist and the Patent disclose active particles that do exactly the opposite. Active particles do not absorb water; they adsorb it – they transport substances such as water by trapping the substances on the surface of the active particle and transporting them out of the membrane. Ex. 1001 at 4:4-21. A person of ordinary skill in the art would understand these to be very different and mutually-exclusive processes. Ex. 2005 at ¶78. The teachings from one do not apply to the other. Ex. 2006 at ¶ 106 (explaining that the idea that absorptive and adsorptive particles and principles are either “compatible or ... interchangeable, is just wrong.”). It would be “contrary to well-understood and accepted scientific principles to try to combine the two and expect them to work together to increase water vapor transmission rates or for any purpose.” *Id.*

Here, in fact, teachings in Dutta lead directly away from the Patent invention. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009)) (A reference “teaches away” when a person of ordinary skill, upon reading

the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant); *Polaris v. Arctic Cat*, 882 F.3d at 1069 (citing *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1051 n.15 (Fed. Cir. 2016)). These teachings may not be ignored. *Ashland Oil, Inc. v. Delta Resins Refractories, Inc.*, 776 F.2d 281, 296 (Fed. Cir. 1985) (citation omitted). Dutta requires super-hydrophilic, highly-absorbent particles. The ‘287 Patent is directed to non-absorbent, active particles that adsorb rather than absorb. Dutta also teaches that the thickness of the non-porous polymer layer should be kept “at its minimum thickness to obtain maximum WVTR[.]” Ex. 1002 at 3:15-22. Adding active (adsorbent) particles under Haggquist to the Dutta membrane would increase the thickness otherwise present in Dutta, which is what Dutta discourages. Ex. 2005 at ¶80. Similarly, Dutta teaches keeping the surface of the membrane smooth, without particles on the surface. Ex. 1002 at 11:1-4. The ‘287 Patent, on the other hand, teaches exposing active particles on the surface of the membrane to increase WVTR. *See* Ex. 1004 at Figs. 2-5 (disclosing removing encapsulant from active particles on the surface). A person of ordinary skill starting with Dutta would be led away from the invention of the Patent. Ex. 2005 at ¶80.

Dr. Oelker acknowledges that Dutta is “...talking about inert meaning not necessarily influencing the MVTR or WVTR, which was the point of this

disclosure.” Ex. 2007 at 46:8-13; *Id.* at 45:1 to 46:6 (discussing the “inert diluent particles” of Dutta). Dr. Oelker even acknowledges that Dutta considers carbon black an inert particle. *Id.* at 48:2-6. Dr. Oelker’s testimony confirms that a POSITA would not be motivated to swap the super-swelling absorbent particles of Dutta and Halley with surface-active particles. Dr. Oelker also confirms that a POSITA at the time of invention would be lead away from making a waterproof breathable membrane thicker. *Id.* at 50:15 to 51:1 (discussing particle size and stating “You wouldn't want to have a film that’s incredibly thick because maybe then you are not getting a good enough diffusion rate”). Dr. Oelker fails to realize that the invention of claim 27 is not obvious, and that Dr. Haggquist overcame this thickness problem, using a certain thickness ratio of active particle laminate to base material. Dr. Oelker does not know what testing methods were used by Halley (Ex. 2007 at 68:8-20) or whether the results in Halley fall in or out of the error rate. *Id.* at 63:20 64:13. Thus, Petitioners fail to demonstrate motivation to combine to the extent that arguments and conclusions offered are predicated on Dr. Oelker’s flawed opinions.

Here, without the benefit of impermissible hindsight, there is no motivation to combine the references; it simply does not exist. In fact, Dutta teaches that particles that are not super-hydrophilic and highly absorptive are – at best – “inert.” Ex. 1002 at 9:36-10. The whole science behind Dutta discourages the use of active

particles (*e.g.*, they are “inert” because they don’t swell). Ex. 2005 at ¶82²; Ex. 2006 at ¶¶87-95. A person of ordinary skill in the art would not have been motivated to substitute particles that Dutta called “inert” for the hydrophilic absorbent particles that are the key to the Dutta science, and – contrary to Petitioner and Dr. Oelker’s representations – would not have considered the claimed invention obvious over Dutta in view of Haggquist. Ex. 2005 at ¶¶79, 85; Ex. 2006 ¶¶91-93.

C. The Claims are Patentable Over Ground 3

1. *Halley does not disclose “active particles” or ““active particles [that] improve the moisture vapor transport capacity of the composition”*

In connection with Ground 3, the Petition relies on Halley’s disclosure of a “particulate solid,” and specifically carbon particles, to meet the “active particles” of claim 27. Pet. at 51 (citing to Halley at 3:1-7 for a “particulate solid”); *Id.* at 52 (same). Particulate carbon is not an “activated carbon” since it has not been processed to have the porosity necessary for surface action. Ex. 2001 at ¶ 14; Ex. 2005 at ¶¶88-90 (“Carbon particles are not active particles. Activated carbon particles are active particles.”). Halley does not disclose or discuss any activation of particles, surface-active particles, or adsorption. Ex. 2006 at ¶ 98. Carbon soot,

² Along the same lines, Dutta certainly does not disclose or teach an encapsulant for any particles. Indeed, according to Dutta, an encapsulant would be another “inert” particle that plays no role in water vapor transport.² Ex. 2005 at ¶82; Ex. 2006 at ¶ 90.

the only carbon particles specifically disclosed by Halley, is incapable of being processed into activated carbon because its particles are too small. *Id.*

A POSITA would understand that Halley, like Dutta, involves hydrophilic matter (a hydrophilic coating) that operates solely by absorption and swelling, but with the addition of particulate solids added for strength and abrasion resistance. Ex. 1003 at 2:24-27 (regarding the hydrophilic coatings); *id.* at 2:15-16, 3:1-7 (for addition of particulate solids for strength and abrasion resistance). Ex. 2006 at ¶99.

Dr. Oelker's analysis of Halley reflects an incorrect understanding of active particles apparently stemming from an incorrect understanding of absorption versus adsorption. In citing to Halley (Ex. 1005 at ¶ 75), Dr. Oelker does not cite to any reference to adsorbent particles, but instead argues that the reader should assume that Halley's discussion of carbon particles and/or other particulate solids must mean activated particles. Halley, however, never says that, and the other details (soot, absorption, etc.) show that it is not the case. Carbon can be treated in a multitude of ways to exhibit a multitude of desired properties. Without a specific teaching of carbon that is activated to have adsorbent properties, Halley simply does not disclose the technology of the Patent – at least in the respect that the carbon particles are not “active particles” and there are not “active particles [that] improve the moisture vapor transport capacity of the composition,” as required by Claim 27. Ex. 1001 at 12:1-16. Ex. 2006 at ¶102.

This issue is perhaps best illustrated through Halley's examples, which Halley says were made with the hydrophilic coating of U.S. Patent 4,194,041 ("the '041 patent"), with the addition of Black Pearls 2000 Carbon Black in various percentages. See Ex. 1003 at 7:4-24 (examples 1-3). The '041 patent, which is Petitioner's Ex. 1025 here, teaches a hydrophilic film that the patent expressly says operates solely by absorption. As it explains the film used in Halley:

The term "Hydrophilic film" used in this invention is restricted to continuous films, including closed cell, foamed film. These films do not allow the flow of gases or liquids through open pore channels in the materials but do transfer substantial amounts of water through the film by absorbing water on one side of the film where the water vapor concentration is high, and desorbing [*sic*] or evaporating it on the opposite side of the film where the water vapor concentration is low.

If a continuous film of hydrophilic material is exposed to air containing substantial water vapor on one side of the film, and to air containing less water vapor on the other side, the side of the film exposed to the higher water vapor concentration will absorb water molecules which diffuse through the film and are desorbed or evaporated on the side exposed to the lower water vapor concentration....

The hydrophilic materials of this invention are selective in absorbing and transporting water and not surface active agents and organic materials generally, nor do they allow gases such as oxygen and nitrogen to flow through them readily under hydrostatic pressure. They are also resistant to hydraulic flow of liquids, including water. These continuous, hydrophilic films are unique in transporting water solely by the absorption evaporation mechanism.

Ex. 1025 at 3:22-56 (emphasis added). To the extent that Halley teaches any water vapor transmission, it is accomplished by this hydrophilic film through the process of absorption – not through any active (*i.e.* adsorptive) particles as called for by claim 27. Ex. 2006 at ¶100; *see also* Ex. 2005 at ¶94 (viewing Halley as “specifically bann[ing]” use of active particles because of its teachings to use absorptive particles for water vapor transmission).

In fact, even if the carbon black added to the membrane in Halley were activated carbon (which it is not), Halley’s testing shows that the carbon black does not affect water vapor transmission; it certainly does not improve it. *See* Ex. 1003 at Table 2 (showing a decrease in water vapor transmission rates with the addition of carbon black as compared to the Control). Instead, these results show the carbon black particles to be “inert” insofar as water vapor transmission is concerned, which is exactly what is taught in Dutta. *See* Ex. 1002 at 9:36-10:1; Ex. 2006 at ¶101.³

³ Dr. Oelker’s reliance on the Halley Table 3 data for support is misplaced. The fact that Halley does not disclose its experimental conditions, error rates, repeatability, reproducibility, or methods for measurements means that Table 2 must be considered at least as relevant as the Table 3 data cited by Dr. Oelker, and shows that the addition of carbon black, itself, does not improve MVTR/WVTR. Dr. Oelker’s lack of understanding of error in the Halley reference calls into question her ultimate conclusions regarding the Patent and the references cited. Ex. 2006 at ¶ 103.

2. *Halley does not disclose the “first thickness” and the “second thickness”*

Ground 3 fails for a number of reasons in view of the “first thickness” element. As with Ground 1, the Petition fails to show how Halley satisfies the construction that was proposed by Petitioner and adopted by the Board. Petitioner’s claim chart for the “water-proof composition” element of claim 27 appears on page 50 of the Petition:

Claim No.	8,945,287	<i>Halley</i>
1	1. A water-proof composition comprising:	<p><u><i>Halley</i></u></p> <ul style="list-style-type: none">▪ “The present invention relates to a composite material, especially a water-resistant water-vapour-permeable material which has improved abrasion resistance and other desirable properties.” (Ex. 1003 at p. 1:8-10.)▪ “By ‘liquid water resistant’ is meant that the material is <i>waterproof</i> at a water pressure of 13.8 kN/M2.” (<i>Id.</i> at p. 6:27-28 (emphasis added).)

Petitioner’s claim chart fails to show how Halley discloses “the thickness of the water-proof composition, which includes the base material and the active particles.” The Petition fails to show how Halley discloses the “thickness of the water-proof composition” or how the water-proof composition “includes the base material and the active particles,” as alleged by Petitioner. The Petition’s two citations to Halley fail to specifically show how Halley discloses the “first thickness” under Petitioner’s proposed construction. Petitioner cannot—as it does here—shift

its burden to the Board, asking the Board to “sift through” the Petition and Halley to determine where each element of claim 27 is found. *Google* at 25. Petitioner fails to prove Ground 3 on at least this basis.

Second, the Petition fails to show how the “first thickness” element, as properly construed, is met by Halley. The Petition states on page 57:

Therefore, Halley discloses a liquid-impermeable breathable cured base material (cured polyurethane solution) (including particulates) comprising a first thickness (polymeric material of 5-100 microns, 10-200 microns, 70-140 microns, and 80-100 microns).

Id. (Emphasis added).

The Petition fails to show (or even allege) that Halley discloses the two-layer invention of claim 27. Petition at 11, 34 (Petitioner asserts unpatentability on the basis that claim 27 recites a one-layer invention with the “plurality of active particles” in “cured base material”). Regardless of the construction, according to the plain language of Claim 27, the first and second thicknesses are clearly distinct, with the plurality of active particle comprising the second thickness. The Petition, however, not only fails to treat the layers as distinct, but also fails to show where Halley discloses a second layer, distinct from the first, comprised of the “plurality of active particles.” In addition, Halley makes no mention of the criticality of the thickness ratio as between the two layers. *Ex. 2006* at ¶104. Accordingly, the Board

should affirm patentability over Ground 3 for at least the reason that the Petition fails to specifically show how Halley discloses the “first thickness” and “second thickness” elements of the claims.

D. The Challenged Claims are Patentable over Ground 4.

In connection with Ground 4, the Petition fails for at least the reasons given with respect to the denial of Ground 3. In addition, and significantly, Petitioner fails to show a motivation to combine the references. And the evidence shows the contrary – *i.e.*, a person of ordinary skill in the art at the time of the invention would not have been motivated to combine Halley and Haggquist, and no such combination would have made the Patent obvious. Ex. 2005 at ¶72.

First, Petitioner’s argument that both references teach adding particles to a substrate to add performance enhancing characteristics to clothing does not amount to a motivation to combine the references. “[A]dding particles to a substrate to add performance enhancing characteristics, such as moisture management” is common to the entire polymer industry, including paint, molded parts, tires, gaskets, hoses, carpet, decking material, wood laminates, automotive body panels, shoes, cosmetics, paper, ink, computer terminals, garments, clothing, etc.,” and making these types of additions does not provide a link between Halley and Haggquist, especially when Halley requires the use of “solely absorptive particles” and Haggquist requires use of “active particles” specifically banned by Halley science. Ex. 2005 at ¶¶93-94, 96

(regarding adding Aluminum Oxide, Silica Gel, Zinc Oxide, and Titanium Dioxide, which “are common additives used in thousands of products throughout the polymer industry.” Adding these “to a polymeric formulation does not provide obviousness to a link between Halley and Haggquist. Aside from the fact that they are just basic additives, there is no teaching that would lead a person of ordinary skill in the art to use them to combine Halley and Haggquist.)

Second, Halley does not use activated carbon. Halley is very specific to describe at Page 1, line 28 (Background of the Invention) “finely dispersed carbon particles, especially soot particles.” Ex. 2005 at ¶95. Soot is not activated and is not the same thing as activated carbon. *Id.*; Ex. 2006 at ¶¶ 98, 102, 107.

Perhaps most significantly, the Halley technology itself would not be considered by a person of ordinary skill in the art trying to increase water vapor transmission properties/rates. Ex. 2006 at ¶¶ 98, 102, 107. Halley is about abrasion resistance; it teaches nothing about increasing or enhancing WVTR. In this regard, data from Halley does not support any argument that the Halley technology improves moisture vapor transport capacity, as shown by the decrease in MVTR specifically in the Halley Table 2 (fabric & membrane) data:

TABLE 2 (fabric & membrane)

Sample	Particle % wt	MVTR (mean) g/m ² /d	Wash to leak hr	Abrasion to leak (cycles)	Handle (mean)
Control	-	13447	504-672	6000 (1155)	34.8 (1.30)
1	0.3	12851	672-864	26250 (9465)	
2	0.65	12127	504-672	32500 (8660)	30.2 (0.83)
3	1.5	13054	672-864	70,000 (34641)	31.6 (1.67)

Bracketted figures are standard deviations.

Ex. 1003 at Tables 1, 2. Ex. 2005 at ¶91. At best, this teaches that carbon black particles are “inert” insofar as water vapor transmission is concerned, just as taught in Dutta. Ex. 2006 at ¶¶100-101. At worst, it teaches that carbon black has an *adverse* impact on water vapor transmission rates, which (if carbon black were an active particle) goes directly against the ‘287 Patent claims. In addition, data from Table 1 and Table 2 cannot be used because the claim is “from about 600 g/m²/day to 11000 g/m²/day. Results in Table 1 and Table 2 range from 12,127 to 17,274 g/m²/day. Ex. 2005 at ¶91.⁴

⁴ There also is no teaching or suggestion that substituting carbon black or soot with activated carbon would maintain the abrasion resistance properties taught by Halley.

Finally, regarding the idea that “Haggquist discloses systems and methods for protecting the performance enhancing characteristics of the active particles specifically listed in Halley from premature deactivation,” Paper 14 at 27 (citing Pet. At 62), Haggquist’s disclosure of this protection (through encapsulation) is irrelevant to Halley:

Haggquist’s teachings on encapsulants, in particular, would not be applied to Halley in order to improve water vapor transmission. Haggquist’s encapsulants are intended to fill the surface pores of the active particles to prevent premature deactivation. Non-activated particles – *i.e.*, the absorbent particles in Halley – cannot be deactivated. It makes no sense to encapsulate something to protect it from premature deactivation, when it is/was not activated. Indeed, the non-activated particles of Halley would not have surface pores to fill according to the encapsulant process of Haggquist.

Ex. 2006 at ¶108; *see also* Ex. 2005 at ¶97 (Halley particles are not activated, therefore cannot be deactivated.).

One of ordinary skill in the art also would not have considered active particle science explicitly forbidden by Halley to apply to a research path

See Ex. 2006 at ¶107 (citing Ex. 1003 (“A preferred particulate solid is carbon particles”)). There is no teaching or suggestion that Halley would work for its intended purpose if the inactivated carbon disclosed by Halley was swapped with activated carbon. Dr. Oelker’s report fails to provide *any* evidence or reasoning that Halley modified with activated carbon would work for its intended purpose, or that a POSITA would have a reasonable expectation of success for such a modification. *Id.*

based on Halley. Petitioner has provided no motivation to combine Halley and Haggquist, and there are multiple reasons not to:

The idea that both Halley and Haggquist teach introducing particles to a substrate to enhance performance, and that that would make them compatible or make elements of their teachings interchangeable, is just wrong. Halley teaches a hydrophilic film used to transport water “solely by the absorption evaporation mechanism” with the addition of other (inert/non-active) particles for abrasion resistance. Haggquist teaches using active particles to transport water by adsorption. A POSITA with knowledge of these references at the time of the ‘287 invention would clearly understand that these are diametrically opposed scientific pathways and principles. To a polymer scientist, these are in the category of “never the twain shall meet.” There would not be a motivation to combine teachings between these references; in fact, there would be every motivation against combining these teachings.

Ex. 2006 at ¶106. Accordingly, the Petition fails on Ground 4. Ex. 2005 at ¶72 (“it just doesn’t work to combine either Dutta or Halley with Haggquist”); *id.* at ¶98.

VI. THE CLAIMS ARE NOT OBVIOUS IN VIEW OF SECONDARY CONSIDERATIONS

A. Secondary Considerations

Secondary considerations of nonobviousness “must always when present be considered,” and can serve as an important check against hindsight bias. *See In re Cyclobenzaprine Hydrochloride Patent Litig.*, 676 F.3d 1063, 1075-76, 1079 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983)). The Federal Circuit has held that “evidence of secondary considerations may often be the most probative and cogent evidence in the record.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983); *see also Truswal Sys.*

Corp. v. Hydro-Air Eng'g, Inc., 813 F.2d 1207, 1212 (Fed. Cir. 1987) (“That evidence is ‘secondary’ in time does not mean that it is secondary in importance.”); *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 36 (1966) (“[Objective indicia] may also serve to guard against slipping into use of hindsight, and to resist the temptation to read into the prior art the teachings of the invention in issue.” (internal quotation marks and citation omitted)).

B. Nexus

When a patentee shows that the asserted objective evidence is tied to a specific product, and that product is the invention disclosed and claimed, there is a presumption of nexus supporting a finding of nonobviousness. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317 (Fed. Cir. 2016). Here, the Cocona products (referred to as the “2.5L” products or technology) at issue practice claim 27 of the ‘287 Patent. Ex. 2011, ¶¶19-20; Ex. 2006 at ¶¶111-124 (discussing Dr. Daniel’s testing of 2.5L material manufactured to meet claim 27 of the ‘287 Patent).

1. Commercial success—industry praise

“[I]ndustry praise ... provides probative and cogent evidence that one of ordinary skill in the art would not have reasonably expected...” success in the claimed invention. *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013). Here, a panoply of products embody the invention of claim 27, and those products received great accolades from *Petitioner* as well as praise across the performance-wear industry. Exs. 2014-2028; Ex. 2011

at ¶¶ 16, 24-39 (all referenced products practice the Patent). Thus, a presumption of nexus exists with respect to commercial success in the form of industry praise, the various products identified, and the Patent.

2. *Commercial success—licensing*

Commercial success shown through licensing by others provides evidence of nonobviousness. *Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1368 (Fed. Cir. 2004). A nexus between the license taken and the invention disclosed and claim in the Patent supports a finding of nonobviousness. *See Impax Laboratories Inc. v. Lannett Holdings Inc.*, 893 F.3d 1372, 1381 (Fed. Cir. 2018) (Finding of nexus license shown to be attributable to patents issue). In this instance, a clear nexus exists between the prior license taken by Petitioner and the Patent. Ex. 2011 at ¶¶14-18. Petitioner was so impressed with technology of the Patent that it took a license specifically for the invention disclosed and claimed in the Patent; Petitioner launched a product line based on that license (*Id.* at ¶ 16-17), and publicly lauded that technology as being a critical component to the FlashDry product line. *Id.* at 26; Ex. 2015. Likewise, many other licensees have taken licenses of the invention disclosed and claimed in the Patent. Ex. 2012 at ¶¶3, 6.

3. Copying

“The fact that a competitor copied technology suggests it would not have been obvious.” *WBIP*, 829 F. 3d at 1336. “Copying may indeed be another form of flattering praise for inventive features,” *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1311 (Fed. Cir. 2010), and thus evidence of copying tends to show nonobviousness. *See also Windsurfing Int’l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1000 (Fed. Cir. 1986) (“[C]opying the claimed invention, rather than one within the public domain, is indicative of non-obviousness.”). Around the time Petitioner terminated its license of the Patent, Petitioner launched a line of copycat products under the FlashDry brand name. Ex. 2011 at ¶¶ 21-23; Ex. 2006 at ¶¶ 125-126. Petitioner’s products copied the invention disclosed and claimed in the Patent. Ex. 1026 (a subsection of the claim chart for claim 27 of Ex. 1026 is reproduced below for ease of reference).

27	A water-proof composition comprising:	<p>VF Outdoor infringes Claim 27 of the ‘287 Patent. The specific Infringing Products that Cocona asserts infringe this claim are described in Ex. A. For each specific Infringing Product that is asserted as infringing this claim, Cocona incorporates by reference herein the descriptions of those Infringing Products as set forth in Ex. A. Cocona reserves the right to amend and identify additional Infringing Products following claim construction or to the extent that Cocona identifies during discovery additional VF Outdoor products not listed in Ex. A that incorporate the DryVent™ 2.5L fabric or to the extent that Cocona identifies other VF Outdoor products that incorporate similar fabrics that infringe the ‘287 Patent.</p> <p>Cocona contends that the preamble of Claim 27 is not limiting. However, if this Court construes the preamble to be limiting, Cocona contends that VF Outdoor infringes this claim because</p>
a.	a liquid-impermeable breathable cured base material comprising a first thickness;	<p>The DryVent™ 2.5L fabric includes a liquid-impermeable breathable cured base material in the form of a polyurethane (PU) layer that comprises a first thickness. According to VF Outdoor, DryVent™ 2.5L is a waterproof, breathable technology that utilizes a polyurethane (PU) coating that consists of a tri-component, multi-layer formula for waterproof protection, moisture permeability and durability. The durable water repellant finish helps form droplets and repel water from the surface. Each</p>
b.	a plurality of active particles in contact with the liquid impermeable breathable cured base material, the plurality of active particles comprising a second thickness; and	<p>Micrographs of a cross-section of a sample of a DryVent™ 2.5L fabric show a plurality of active particles dispersed throughout a print layer that comprises a second thickness and that is in contact with the liquid impermeable breathable cured polyurethane layer. (See Ex. B, Report of Analysis by Analytical Answers, Report No. 71751, dated October 27, 2016 (the “AA Report”) at p. 4.)</p>

c.	wherein, the first thickness comprises a thickness at least 2.5 times larger than the second thickness but less than an order of magnitude larger than the second thickness,	The polyurethane layer that comprises the first thickness of the DryVent™ 2.5L fabric measures at a thickness of approximately 33 microns. (Ex. B, AA Report at p. 12.) The print layer that comprises the second thickness of the DryVent™ 2.5L fabric measures at a thickness of approximately 4 microns. (<i>Id.</i> at 14.). The polyurethane layer that comprises a first thickness of the DryVent™ 2.5L fabric is more than 2.5 times larger than the print layer that
d.	the active particles improve the moisture vapor transport capacity of the composition, and	The porous active particles in the print layer of the DryVent™ 2.5L fabric contain silicon, oxygen, titanium, calcium, aluminum, and carbon elements. (Ex. B, AA Report at p. 3.) When incorporated into a composition as taught in the ‘287 Patent, active particles improve the moisture vapor transport capacity of a PACC Report”) at p. 5.)composition. (<i>See</i> Ex. C, Drying Rate
e.	a moisture vapor transmission rate of the water-proof composition comprises from about 600 g/m ² /day to about 11000 g/m ² / day.	The moisture vapor transmission rate of the DryVent™ 2.5L fabric is 750-800 g/m ² /24 hours average. (<i>See, e.g.</i> , Ex. A at pp. 2-10, 12, 14.)

C. The Patented Products

The ‘287 Patented technology is the basis for what is known as Cocona’s “2.5-layer” or “2.5L” material or technology – a material including, *inter alia*, a layer of active particles, such as activated carbon, printed or deposited on a base layer, with the thicknesses of the particle layer and the base layer conforming to a certain ratio. Ex. 2011 at ¶13; Ex. 2012 at ¶¶3, 5. Together these provide a waterproof breathable membrane with improved characteristics including improved water vapor transport,

breathability, and comfort for the end user. Ex. 2012 at ¶¶3, 5; Ex. 2011 at ¶13-15 (describing the novel features of the claimed invention, which are incorporated in Cocona’s technology, as well as the performance characteristics of the product); *see also* Ex. 2031 (Cocona’s “tech sheet” pertaining to its 37/5 Technology Laminates, which is a Cocona name for its 2.5 layer technology (a/k/a “2.5L”); Ex. 2006 at ¶¶110-124 (regarding microscopic and elemental analysis of product samples); Second Haggquist Decl. at ¶¶19-20 (regarding the samples provided to Daniels for analysis). Testing showed the 2.5L fabrics made with Cocona’s patented technology provided a dry touch, a more comfortable microclimate and higher effective moisture vapor transport than previous waterproof breathable materials, as well as a durable 2.5L laminate. Ex. 2011 at ¶14.

D. Commercial Success Shown by Licensing of Patented Technology and Praise for the Patented Products Show Non-Obviousness of the ‘287 Patent

Since initial development by Cocona, the ‘287 Patent technology has been extraordinarily well-received by both the performance-wear industry and by consumers. Cocona developed demonstrations and test methods to show the impressive effect of the novel features of claim 27 of the ‘287 Patent—including but not limited to the first thickness, second thickness, and active particles of Claim 27. Ex. 2011 at ¶15. After filing the patent application, Cocona presented those novel features to prospective customers, including The North Face (“TNF”). *Id.* at ¶14. TNF loved the product, and agreed to license Cocona’s technology, which matured

into the ‘287 Patent. *Id.* at ¶16. In fact, TNF was so enamored with Cocona’s technology that TNF launched the FlashDry brand based on the Cocona technology in 2011. *Id.*

The FlashDry product line launched with great success in the marketplace, and great reviews followed. Cocona’s technology raised the industry standard for comfort and performance, achieved through the novel features of claim 27 of the ‘287 Patent. Ex. 2011 at ¶17. As TNF Director of Product, Philip Hamilton, described it, “FlashDry regulates body temperature because of a micro-porous particle we and our vendor added to a printable layer on some laminated textiles. What makes it unique is that we’re using in numerous garments used as head-to-toe layers, from knits to synthetic insulation to waterproof, breathable clothing. In our industry, our competitors haven’t yet been able to use a single high-performance tech that’s appropriate for all garments.” Ex. 2015. The North Face President, Todd Spaletto, called the technology “one of the ‘biggest innovations in the history of [The North Face] company.’” Ex. 2016.

For example, Business Insider returned a review stating, “Every athlete should own this jacket. It acts like a second skin, with body-mapped ventilation and North Face’s FlashDry™ technology that wicks sweat and moisture away from the skin, through the fabric, and eliminates it. This means the FlashDry fabric dries quicker and more efficiently, and will keep you from getting clammy in cold conditions.”

Ex. 2018. Competitor Running touted the remarkable results associated with the entire FlashDry™ line: “The porous particles work with your body to regulate temperature by accelerating moisture removal and dramatically improving dry time. When worn together with other items in the collection, such as a baselayer or jacket, the dry time is even faster than when wearing alone.” Ex. 2014; *see also* Ex. 2017 (review of the TNF Stormy Trail jacket); Ex. 2018 (review of the TNF Apex Jacket); Ex. 2019 (review of the TNF Split Hardshell Jacket); Ex. 2011 at ¶¶25-30 (explaining that all of these products use the novel features of claim 27 of the ’287 Patent).

Cocona’s 2.5-layer or “2.5L” material or technology also took hold with other performance wear manufacturers. Ex. 2016. Going beyond TNF’s incredibly successful FlashDry product line (shown by TNF’s public praise and confidence in the technology licensed from Cocona), Cocona’s patented technology was licensed by numerous other companies seeking to incorporate Cocona’s proven technology into a variety of products. Rave reviews for that technology quickly emerged across a diverse range of products and industries. Exs. 2014-2028; Ex. 2011 at ¶¶24-39. To date, Cocona’s technology has been used under license by a large number of global, high-profile brands including Adidas, Eddie Bauer, Harley Davidson, and Trek, among many others. Ex. 2012 at ¶3; *id.* at ¶6 (for a more complete listing of brands using the patented technology under license). Cocona has marketed the

technology of claim 27 of the ‘287 Patent under the following brand names: Cocona, Cocona Xcelerator, Minerale, AlphaDry, 37.5 Technology. Products under these brand names incorporate the novel features of claim 27 of the ‘287 Patent. Ex. 2011 at ¶18.

Snowmobile giant Polaris, for example, was said to “boast[] that Cocona Xcelerator technology transfers moisture for rapid evaporation faster than any other fabric, and its breathability is competitive with that of any other fabric on the market.” Ex. 2024 (review of Pure-Dry Polaris Gear). Snowboarding’s Slug Magazine explained the “edge” given to Homeschool Snowboarding’s “Line Up” pant: “Above all else, the ‘Cocona Xcelerator’ technology is what sets Homeschool apart from the rest of the recent start-up companies. The technology utilizes a 10,000mm waterproof, micro-porous fabric that, when introduced to body heat, allows water vapors underneath the fabric (i.e. sweat) to rise out, keeping you dry, thus warm.” Ex. 2028. Gear reviewer Bored Yak put it this way: “I know, not everyone has access to the full Cocona Continuum Trifecta (that’s base, mid and shell layers). God knows I wish I did.” Ex. 2026. Gear Junkies’ review of the Cocona Xcelerator Test Jacket offered a runner’s perspective: “‘It breathed really well at all effort levels, from casual fall jogs near my house to a hard run on the approach to Colorado’s Longs Peak,’ says one user.” Ex. 2016. *See also, e.g.*, Ex. 2020 (review of the Sierra Designs Jive jacket); Ex. 2021 (review of the Mavic

Stratos N20 Jacket); Ex. 2022 (review of the Millett Alpine Xcelerator Hardshell jacket); Ex. 2023 (review of the Sierra Design Sonic Outlaw Soft Shell jacket); Ex. 2025 (review of the HC H20 jacket); Ex. 2026 (review of the Homeschool Snowboarding with Teeth 2.5L Shell Jacket); Ex. 2027 (review of the Showers Pass Double Century EX jacket); Ex. 2028 (review of the Homeschool Snowboarding Line Up Pant); Ex. 2011 at ¶¶31-39 (explaining that each of these products uses the novel features of claim 27 of the ‘287 Patent).

The commercial success of the Patent in the form of licenses taken by others is strong evidence of the patent’s nonobviousness, *see Metabolite Laboratories, Inc., supra*, 370 F.3d at 1368, citing *In re Sernaker*, 702 F.2d 989, 996 (Fed. Cir. 1983) (extensive licensing and related purchase histories supports a finding of nonobviousness), as is the praise with which these license products have been received:

Evidence that the industry praised a claimed invention or a product that embodies the patent claims weighs against an assertion that the same claimed invention would have been obvious. Industry participants, especially competitors, are not likely to praise an obvious advance over the known art. Thus, if there is evidence of industry praise of the claimed invention in the record, it weighs in favor of the non-obviousness of the claimed invention.

Apple Inc. v. Samsung Electronics, Co., Ltd., 839 F.3d 1034, 1053 (Fed. Cir. 2016) (citing *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, *supra*, 738 F.3d at 1347 (Fed. Cir. 2013) (“[I]ndustry praise ... provides probative and cogent evidence that one of ordinary skill in the art would not have reasonably expected [the claimed invention].”); *Power–One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1352 (Fed. Cir. 2010) (noting that industry praise, and specifically praise from a competitor, tends to indicate that the invention would not have been obvious)). Sitting here in 2018, in the midst of litigation for infringement, Petitioner may want to say that the Patent claims are obvious. But at the time, it was a very different story. Petitioner, together with the rest of the industry and consumer base, praised Cocona’s technology as a true breakthrough in the performance-wear industry. Such unequivocal, laudatory industry accolades overwhelmingly indicate that – contrary to Petitioner’s arguments today – the invention would not have been obvious.

E. Copying by Competitors, Including (at least) The North Face, Evidences Nonobviousness

In the course of Cocona’s demonstrations of the ‘287 technology and the parties’ subsequent relationship, TNF undisputedly had access to Cocona’s patented technology and learned how to use the technology to make performance fabrics. Ex. 2011 at ¶22. In 2013, TNF began releasing its own “copycat” products to the market under the FlashDry brand name. Ex. 2011 at ¶21; *see also*, e.g., Ex. 1026 (showing comparison between VF’s DryVent 2.5L products and the limitations of claim 27,

among others); Ex. 2006 at ¶¶121-125 (regarding analysis of TNF products). These products were not under license with Cocona, as they were not purchased from Cocona's manufacturer. TNF's conduct, and its refusal to stop, is the basis of the district court litigation between Cocona and VF. Ex. 2011 at ¶¶22-23.

It is said that imitation is the highest form of flattery. In the patent world, imitation (*i.e.*, copying) is considered "another form of flattering praise for inventive features" and thus evidence of copying tends to show nonobviousness. *Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1311 (Fed. Cir. 2010); *WBIP, LLC v. Kohler Co.*, *supra*, 829 F.3d at 1336 ("The fact that a competitor copied technology suggests it would not have been obvious."). Here's TNF's copying of the Cocona licensed products that practice the Patent, based on technology and methods TNF expressly learned from its relationship with Cocona, is compelling evidence of the nonobviousness of the Patent. *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) ("[C]opying requires evidence of efforts to replicate a specific product, which may be demonstrated through internal company documents, direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a replica, or access to the patented product combined with substantial similarity to the patented product."); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1569 (Fed. Cir. 1987) (explaining that

copying by the alleged infringer of the invention, in preference to the prior art, is indicative of non-obviousness”).

Finally, Petitioner neither produced documents in its possession related to its licensed (or imitation) products nor spoke to secondary considerations at all. On that basis, Dr. Oelker’s analysis fails under the *Graham* factors. When this evidence is considered and due weight given, non-obviousness of the claims should be found.

VII. CONCLUSION

For the foregoing reasons, Cocona requests that the Board confirm the patentability of the Challenged Claims.

Dated: October 5, 2018

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was served on the following counsel for Petitioner:

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

The undersigned hereby certifies that the word count for the foregoing
Patent Owner Response is fewer than the 14,000 allowed.

Dated: October 5, 2018

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