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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Corning Incorporated
Petitioner

v.

DSM IP Assets B.V.
Patent Owner

Case IPR2013-00043
Patent 7,171,103 B2

Before MICHAEL P. TIERNEY, JENNIFER S. BISK, and SCOTT E. KAMHOLZ, *Administrative Patent Judges.*

KAMHOLZ, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Petitioner Corning Incorporation ("Corning") filed a petition ("Pet.") to institute an *inter partes* review of claims 1-18 (the "challenged claims") of U.S. Patent 7,171,103 B2 (Ex. 1001) (the "'103 patent"). 35 U.S.C. § 311. Patent Owner DSM IP Assets B.V. ("DSM") timely filed a Preliminary Response ("Prelim. Resp."). Based on the record presented, we conclude that Corning has satisfied the burden to show, under 35 U.S.C. § 314(a), that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims.

Corning contends that the challenged claims are unpatentable under 35 U.S.C. §§ 102 and/or 103 based on the following prior art references: WO 98/21157 (Ex. 1002) ("Szum '157"); U.S. Patent 5,664,041 (Ex. 1003) ("Szum '041"); EP 0 874 021 A1 (Ex. 1004) ("Yamazaki"); and WO 01/49625 (Ex. 1005) ("Winningham"). Corning supports its challenge with declarations by two of its employees, Michael Winningham (Ex. 1006) ("Winningham Decl.") and Inna I. Kouzmina (Ex. 1007) ("Kouzmina Decl."). [1] The specific grounds asserted in the Petition (Pet. 22-55) are summarized in the following table.

[1] DSM asserts that Corning improperly attempts to incorporate details from claim charts included in the Winningham Declaration into its Petition thereby attempting to avoid the page limit requirements. Prelim. Resp. 44-45. Because declaration testimony generally is regarded as evidence, not argument, we are not persuaded that we should disregard any portion of the Winningham Declaration.

Reference(s)	Basis	Claims challenged
Szum '157	§ 102	1-15
Szum '157 and Szum '041	§ 103	1-15
Szum '157 and Yamazaki	§ 103	16-17
Szum '157, Szum '041, and Yamazaki	§ 103	16-17
Szum '157, Yamazaki, and Winningham	§ 103	18
Szum '157, Szum '041, Yamazaki, and Winningham	§ 103	18

For the reasons given below, we institute an *inter partes* review of claims 1-18 on all of the grounds asserted by Corning.

B. The Invention

The '103 patent is entitled "Coated Optical Fibers" and generally relates to coated optical fibers having primary and secondary coatings, and to radiation-curable primary coating compositions. '103 patent col. 1, ll. 14-16. The patent explains that the "soft 'cushioning'" primary coating is usually in contact with the fiber, while the "relatively hard" secondary coating surrounds the primary coating. *Id.* at ll. 23-26. The coatings confer "microbending resistance" on the optical fiber, thereby helping to reduce attenuation of optical power along the fiber. *Id.* at ll. 27-29. The patent is directed in particular to coated optical fibers in which the primary coating provides "good microbending resistance" and simultaneously has a "high cure speed" that will not unduly limit production rates. *Id.* at col. 2, ll. 34-37. Claims 1 and 16, reproduced below, illustrate the claimed subject matter:

1. An inner primary coating composition having:
(a) an in-situ modulus (after cure) of less than 0.6 MPa;
(b) a cure dose to attain 95% of the maximum attainable modulus of less than 0.65 J/cm^2; and
(c) a modulus retention ratio (after cure) of at least 0.6 after hydrolytic aging; wherein said composition comprises:
(i) 20–98 wt. % relative to the total weight of the composition of a radiation curable urethane (meth)acrylate oligomer having polyether polyol backbone;
(ii) 0–80% wt. % relative to the total weight of the composition of one or more reactive diluents;
(iii) 0.1–20 wt. % relative to the total weight of the composition of one or more photoinitiators; and
(iv) 0–5 wt. % relative to the total weight of the composition of additives.

16. A coated optical fiber comprising:
(a) an optical fiber;
(b) a primary coating obtained by curing the coating composition according to claim 1;
(c) a secondary coating, wherein said secondary coating has:
(i) a Tg of about 60° C. or higher;
(ii) an elongation at break of at least 20%; and
(iii) a tensile modulus of at least 500 MPa.

C. Claim Construction

As a step in our analysis for determining whether to institute a trial, we determine the meaning of the claims. Consistent with the statute and the legislative history of the AIA, the Board will interpret claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48766 (Aug. 14, 2012); 37 CFR § 42.100(b). Corning states that the terms of the

challenged claims "are to be given their broadest reasonable interpretation, as understood by one of ordinary skill in the art and consistent with the disclosure" except as specifically construed otherwise. Pet. 20. Corning proposes specific constructions for the following claim terms.

1. 0% Limitations

Corning asserts that limitations (ii) and (iv) of claim 1 (i.e., to the "reactive diluents" and "additives" respectively) are optional because the claimed ranges for these elements extend to 0%, and claim 1 therefore encompasses compositions entirely free of reactive diluents and additives. Pet. 20 (citing Winningham Decl. ¶ 54). Corning also argues that the limitations of claims 7 and 8 are optional because, while they specify particular reactive diluents, the range they recite still encompass 0%. Pet. 20-21.

2. Modulus Retention Radio (After Cure) After Hydrolytic Aging

Corning argues that limitation (c) of claim 1 does not specify "the type of modulus retained after hydrolytic aging" nor "what the hydrolytic aging conditions are." Pet. 21. Corning notes that modulus retention ratio after hydrolytic aging is described at col. 12, line 61 to col. 13, line 2 of the '103 patent. *Id.* We interpret Corning's argument as an assertion that this limitation be interpreted as defined in the '103 patent specification and measured under the hydrolytic aging conditions specified in the '103 patent specification.

3. Tensile Modulus

Corning argues that limitation (iii) of claim 16 requires that the secondary coating have a tensile modulus of at least 500 MPa but "does not recite any procedures for defining tensile modulus." Pet. 21. Corning notes that the '103 patent describes a test for measuring tensile modulus at col. 9, line 45 to col. 11, line 3. *Id.* Corning argues that tensile modulus is defined as "the ratio of

tensile stress to tensile strain per cross-sectional area." Pet. 22. We interpret Corning's argument as an assertion that this limitation be interpreted as "the secondary coating has a ratio of tensile stress to tensile strain per cross-sectional area of at least 500 MPa as measured by the process described at col. 9, line 45 to col. 11, line 3 of the '103 patent specification."

DSM does not address, specifically, these proposed interpretations. Prelim. Resp. 43. According to DSM, it is unnecessary, for purposes of this decision, to construe any claim terms. *Id.* DSM, however, generally "objects to Corning's proposed claim constructions to the extent that they do not correspond to the broadest reasonable interpretation as understood by a person of ordinary skill in the art and consistent with the specification and other intrinsic evidence of the '103 Patent." *Id.*

Corning's proposed interpretations, summarized above, do not appear unreasonable at this stage of the proceeding. Because these definitions are not specifically challenged by DSM, we adopt them for purposes of this decision.

II. ANALYSIS

A. Overview

In its Petition, Corning asserts that the subject matter in the challenged claims is unpatentable over the prior art and suggests that the claims were allowed during prosecution simply because many of the claim limitations were in the form of inherent properties not recited explicitly in the prior art. Pet. 3-4. To support this position, Corning presents testimony of Inna I. Kouzmina, who states that she is a scientist employed by Corning with advanced degrees in Chemistry and about 14 years of experience in research and development of optical fiber coatings. Kouzmina Decl. ¶¶ 1-3. Kouzmina declares that she prepared several

compositions disclosed in the prior art and tested these samples for the properties recited in the '103 patent claims. Kouzmina Decl. ¶ 4. Kouzmina's testimony includes details about the conditions used and procedures followed to prepare the samples (¶¶ 5-21), the testing of the samples and the results obtained (¶¶ 22-50), and statements concerning the molecular weight of urethane (meth)acrylate oligomers (¶ 50) and of polypropylene glycol (¶ 51).

Corning also presents the testimony of Dr. Michael Winningham, who states that he is a Research Manager for Corning with both an M.S. and Ph.D. in Chemistry and over 15 years of relevant experience. Winningham Decl. ¶¶ 1-3. Winningham states that he reviewed the Kouzmina Declaration and provides testimony that the sample creation and testing was done in a manner consistent with good scientific practices and procedures. *Id.* at ¶ 57. Winningham discusses each sample in detail, opining that the procedures used to create each sample were either the same as set forth in the reference or the functional equivalent, with any differences being "nominal" ones which would not alter the relevant properties of the resulting sample. *Id.* at ¶¶ 58-63. Winningham then discusses the testing of the samples and opines that each test was a valid method for determining the relevant property and that any difference in the testing procedures used by Kouzmina from any tests described in the references was nominal and would result in essentially the same values. *Id.* at ¶¶ 64-85. Winningham then echoes the statements by Kouzmina regarding molecular weight of the urethane (meth)acrylate oligomers and polypropylene glycol. *Id.* at ¶ 86.

DSM responds that Corning's Petition must be denied. Prelim. Resp. 1. DSM asserts that Corning has improperly based its anticipation argument on a combination of references by relying upon certain teachings from Szum '041 in preparing samples for testing. *Id.* Also in connection with Corning's anticipation

argument, DSM asserts that Corning's "significant departures in formulating and testing the alleged prior art" are not explained and render the resulting test data defective. *Id.* DSM asserts that Corning has not satisfied its burden of showing any of the asserted obviousness grounds because (*a*) Corning bases each of these challenges on *ex post facto* testing, *id*. at 1-2, (*b*) Corning has not shown that a person of ordinary skill in the art would have been motivated to combine the art relied upon to reach the claimed invention, *id.* at 2, and (*c*) Corning has not shown that a person of ordinary skill in the art would have had a reasonable expectation of success, *id.* at 2-3. DSM argues that Corning's reliance on the Yamazaki and Winningham references does not cure the deficiencies of the combination of Szum '157 and Szum '041. *Id.* at 3.

B. Anticipation of claims 1-15 by Szum '157

1. Overview of Szum '157

Szum '157 discloses "a system for coating an optical glass fiber comprising a radiation-curable inner primary coating composition and a radiation-curable outer primary coating composition." Abstr. Szum '157 discloses several inner primary coating compositions, the ingredients of which are listed in Table 15. Szum '157 at 119-121. Among the compositions listed in Table 15 are Examples 10-1 and 10-2. *Id.* at 119. These examples are reported as containing the following components, with the numbers indicating percent by weight of the total composition:

Component	Ex. 10-1	Ex. 10-2
Oligomer H-I-PPG3025-I-H*	49.38	0
Oligomer H-I-PPG4025-I-H*	0	49.38
Ethoxylated nonylphenol acrylate ester	40.32	40.32

Lauryl acrylate	6	6
Thiodiethylene bis(3,5-di-*tert*-butyl-4-hydroxy)hydrocinnamate	.3	.3
Diphenyl (2,4,6-tri-methyl-benzoyl) phosphine oxide and 2-hydroxy-2-methyl-1-phenyl-1-propanone	3	3
Gamma-mercaptopropyltrimethoxysilane	1	1

[*] H:Hydroxyethylacrylate; I:Isophoronediisocyanate (Szum '157 at 123).

Id. Szum '157 discloses optical fibers coated with an inner primary coating and a "commercially available outer primary coating." Szum '157 p. 18, ll. 19-21.

2. Anticipation

Corning asserts that Szum '157 anticipates claims 1-15 because Examples 10-1 and 10-2 are each "inner primary coating compositions" that include all the chemical components within the ranges required by the claims, Pet. 26-27, 29-32, and inherently possess all the material properties required by the claims, as demonstrated by Kouzmina's testing, *id.* at 23-26, 28-29.

a. Claim 1

With regard to the chemical components required by claim 1, Corning argues that both H-I-PPG3025-I-H and H-I-PPG4025-I-H meet limitation (i) because they are both urethane (meth)acrylate oligomers having polyether polyol (specifically polypropylene glycol) backbones and that are radiation-curable by virtue of their acrylate end groups. Pet. 26-27 (citing Winningham Decl. ¶ 94). Corning also argues that both examples meet limitation (iii) because they include photoinitiator diphenyl (2,4,6-tri-methyl-benzoyl) phosphine oxide. Pet. 27 (citing

Winningham Decl. ¶ 94).[2] As discussed above, Corning argues that limitations (ii) and (iv) are optional, because their ranges include 0 percent by weight. Pet. 27-28.

With regard to the material properties limitations (a), (b), and (c) of claim 1, Corning acknowledges that Szum '157 does not recite these properties and instead argues that Ms. Kouzmina's evidence demonstrates these properties to be inherent in the compositions of Examples 10-1 and 10-2. Pet. 23-26.

DSM does not dispute Corning's arguments concerning disclosure of the chemical components by Szum '157. Rather, DSM argues that Corning has not shown inherent disclosure of the material properties in Szum '157. Specifically, DSM argues that Kouzmina's evidence must be discounted because of "significant" departures from the procedures described in Szum '157 for synthesizing Examples 10-1 and 10-2. Prelim. Resp. 15-20. DSM also argues that Kouzmina "completely ignored" some of the procedures set forth in the '103 patent for testing limitation (a) and that the resulting "altered test conditions" do not allow one to evaluate whether Kouzmina's samples necessarily possess the property as claimed. Prelim. Resp. 11-14. DSM further argues that Corning has failed to show anticipation because Corning inappropriately relied upon a secondary reference when testing limitation (a). Prelim. Resp. 8-11. We address each material property limitation in turn.

[2] Diphenyl (2,4,6-tri-methyl-benzoyl) phosphine oxide is the same compound as 2,4,6-trimethylbenzoyldiphenylphosphine oxide, which is identified as a photoinitiator in the '103 patent at col. 5, ll. 6-7.

(1) "An in-situ modulus (after cure) of less than 0.6 MPa"

Corning argues that it "has used the conditions described in the '103 patent specification to test *in situ* modulus values of a primary coating composition (after cure) using an optical fiber coated with the primary coating compositions of Examples 10-1 and 10-2." Pet. 23. Ms. Kouzmina states that tests were conducted "in accordance with the procedures set forth in the '103 patent at 12:15–59" to measure the *in situ* modulus of the primary coatings. Kouzmina Decl. ¶ 22. Of note is that the '103 patent calls for measuring the "*in situ* modulus" of the primary coating by applying the primary coating and a "commercial secondary coating" to a glass optical fiber, and then subjecting the coated fiber to testing. '103 patent, col. 12, ll. 15-21. Because of this requirement, and because Szum '157 does not expressly disclose any secondary coatings (except to refer generally to a "commercially available outer primary coating" at p. 18, ll. 19-21), and on the assertion that claim 1 "does not require any particular secondary coating composition … to test for *in situ* modulus (after cure)," Corning employed Examples 2 and 4 from Szum '041 as secondary coatings for the testing. Pet. 23-24 (citing Winningham Decl. ¶ 90).

Kouzmina states that she prepared four samples— the four possible combinations of using either Example 10-1 or Example 10-2 as the inner primary coating and either Example 2 or Example 4 as the secondary coating— and that each sample exhibits an in situ modulus of less than 0.6 MPa. Kouzmina Decl. ¶¶ 23-28.

Notwithstanding DSM's arguments, which we address below, we find that Corning has presented sufficient evidence to create a reasonable likelihood that it

will prove by a preponderance of the evidence that Examples 10-1 and 10-2 of Szum '157 inherently possess this material limitation.

DSM argues that Corning improperly relied on a combination of references in its anticipation challenge. Prelim. Resp. 8-11. In particular, DSM argues that because Szum '157 does not specify any secondary coatings, Corning's resort to a separate reference to identify one violates a basic canon of anticipation, which is that all claim limitations must be found, expressly or inherently, within a single reference. *Id.* Implicit in DSM's argument is that the secondary coating is a limitation of claim 1 by virtue of its use in measuring the in situ modulus. DSM is mistaken in this argument. Indeed, DSM argues that Corning's inherent anticipation theory "requires that the coated optical fibers tested by Corning must necessarily have been disclosed in Szum '157." Prelim. Resp. 10. We disagree.

Claim 1 is directed to an inner primary coating composition, not to a coated optical fiber. *Cf.* claim 16, which *is* directed to a coated optical fiber and expressly recites a secondary coating. That the'103 patent calls for testing the in situ modulus of the inner primary coating composition when it is incorporated into a coated optical fiber does not change this fact. The issue instead is whether the inner primary coating compositions disclosed by Szum '157 inherently possess the in situ modulus material property of limitation (a). Corning may rely on evidence extrinsic to Szum '157 to show that Szum '157's compositions inherently possess this property or any other property, so long as the extrinsic evidence establishes that the property is "necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991).

DSM's argument that Kouzmina "completely ignored" some of the procedures set forth in the '103 patent for testing limitation (a) does not convince

us that Corning's Petition fails to demonstrate a reasonable likelihood that claim 1 is unpatentable. The only alteration DSM identifies is in the secant modulus of the secondary coatings used during the in situ modulus test. *See* Prelim. Resp. 12-13. Yet we agree with Corning that claim 1 imposes no particular limitation on the secondary coating used for that testing, *see* Pet. 23, and DSM has not explained how or why claim 1 should be construed to include such a limitation.[3] The evidence Corning has submitted appears— at least on its face— to support Corning's contention that Examples 10-1 and 10-2 possess limitation (a). We therefore conclude that Corning has demonstrated a reasonable likelihood that these claims are unpatentable.

DSM's argument that Kouzmina diverged significantly from Szum '157 in the conditions under which Examples 10-1 and 10-2 were synthesized similarly does not convince us that Corning has failed to demonstrate a reasonable likelihood that claim 1 is unpatentable. Corning's expert Winningham gives his "professional opinion" that Kouzmina accurately reproduced Examples 10-1 and 10-2 and that any differences in synthetic procedure were inconsequential.[4] DSM identifies with specificity a number of synthetic parameters that differ between

[3] DSM argues that a person of ordinary skill in the art would understand that the "in situ modulus" value is measured in the manner described in the Specification of the '508 patent. Prelim. Resp. 11-12. DSM does not argue, however, that the "in situ modulus" limitation should be construed as to require testing by the disclosed method.

[4] *See* Winningham Decl. ¶ 58 ("Any differences in the procedures described in Szum '157 and Szum '041 and those described in the Kouzmina Declaration, including amounts, are nominal and, in my professional opinion, would not alter the essential properties of the resulting composition."); ¶¶ 60-61 (giving Winningham's "professional opinion" that the Kouzmina Declaration "describe[s] the accurate reproduction" of Examples 10-1 and 10-2 from Szum '157).

Szum '157 and Kouzmina, including type of polypropylene glycol used, reactant weight ratios, reaction time, and reaction temperature. Prelim. Resp. 16-17. DSM submits a chemistry textbook excerpt and research papers as evidence purporting to show the general importance of those parameters. Prelim. Resp. 17-18 (citing Ex. 2001-2003). DSM argues that Corning has failed to show that it truly duplicated Examples 10-1 and 10-2 from Szum '157, and has therefore failed to show that its testing data necessarily reflects inherent properties of the prior art. Prelim. Resp. 17-20. DSM dismisses Winningham's purported professional opinions about the fidelity of Kouzmina's synthetic procedure as "the conclusory assertion[s]" of "an employee witness." Prelim. Resp. 17, 10. We find, on this record, that Corning has proffered sufficient evidence.

(2) "A cure dose to attain 95% of the maximum attainable modulus of less than 0.65 J/cm^2"

Kouzmina states that she tested Examples 10-1 and 10-2 of Szum '157 for the recited cure dose "in accordance with the procedures set forth in the '103 patent at 9:21-43." Kouzmina Decl. ¶ 29. Kouzmina summarizes the procedure she followed in paragraph 30, and the results are presented in paragraph 31, Table B. The measurement for each example is less than 0.65 J/cm^2 and meets the limitation. Kouzmina Decl. ¶ 31; Pet. 25. DSM does not directly dispute these findings. As above, the evidence Corning has submitted appears to support the contention that Examples 10-1 and 10-2 of Szum '157 inherently possess limitation (b).

(3) "A modulus retention ratio (after cure) of at least 0.6 after hydrolytic aging"

Corning argues that it tested Examples 10-1 and 10-2 of Szum '157 for modulus retention using "the specific conditions described in the '103 patent" at

col. 12, l. 61 to col. 13, l. 2. Pet. 25; Kouzmina Decl. ¶ 37. The procedure Kouzmina followed is summarized in paragraph 38, and the results are presented in paragraph 39, Table C. The modulus retention ratio reported for each example is at least 0.6 and meets the limitation. Pet. 26. DSM does not directly dispute these findings. As above, the evidence Corning has submitted appears to support the contention that Examples 10-1 and 10-2 of Szum '157 inherently possess limitation (c).

For these reasons, we conclude that there is a reasonable likelihood that Corning will prevail in proving anticipation of claim 1 by Szum '157 by a preponderance of the evidence.

b. Claims 2-15

Claims 2-15 each depend from claim 1 (except claim 6, which depends from claim 5). Claims 2-4 specify ranges of average molecular weight for the urethane (meth)acrylate. Claim 5 specifies a range of average molecular weight for the polyether polyol. Claim 6 specifies that the polyether polyol is polypropylene glycol. Claims 7 and 8 specify reactive diluents. Claim 9 specifies photoinitiators. Claim 10 specifies additives. Claims 11 and 12 specify glass transition temperature (Tg). Claims 13-15 specify in-situ moduli (after cure).

Corning addresses anticipation of claims 2-15 by showing either that the results discussed above in relation to claim 1 also satisfy the narrower limitations of the dependent claims or by reporting additional testing. Pet. 24-25, 28-32; Kouzmina Decl. ¶¶ 22-52. With particular reference to claims 11 and 12, Corning presents evidence that the Tg of Example 10-1 when tested according to the protocol in the '103 patent yields a value of –35.2°C. Pet. 28-29; Kouzmina Decl. ¶ 36. This value is within the range recited in claim 11 but not that of claim 12. Corning additionally presents Tg measurement data carried out

according to a different protocol which they term "*in situ*" Tg and describe in paragraphs 46-50 of the Kouzmina Declaration. When measured using the "*in situ*" protocol, Example 10-1 has a Tg of –54.6°C and Example 10-2 has a Tg of –56.5°C. Pet. 29; Kouzmina Decl. ¶ 50 (Table F). Both "*in situ*" measurements are within the ranges of claims 11 and 12. Corning argues that its use of the "*in situ*" measurement is justified because claims 11 and 12 do not specify a particular protocol that is to be followed in measuring Tg. Pet. 28.

Aside from claim 12, DSM does not directly dispute these findings with respect to the dependent claims beyond its more general argument discussed above. We have reviewed Corning's evidence in relation to each dependent claim and find that the evidence appears to support the contentions that Examples 10-1 and 10-2 of Szum '157 inherently possess the limitations of dependent claims 2-10 and 13-15.

With regard to claim 12, DSM argues that "*in situ*" Tg is a "different property" from Tg and that Corning's evidence shows, at best, that Tg only "sometimes falls below –45°C," which is insufficient to prove, as required for anticipation, that the composition *necessarily* possesses the claimed property. Prelim. Resp. 14-15. We have considered these arguments but conclude that they do not establish that Corning has failed to demonstrate a reasonable likelihood that the challenged claims are unpatentable. In particular, DSM does not explain how or why the claim should be construed to exclude Tg measurements other than the one that is disclosed in the '103 patent.

For these reasons, we conclude that there is a reasonable likelihood that Corning will prevail in proving anticipation of claims 2-15 by Szum '157 by a preponderance of the evidence.

C. Obviousness

Corning challenges all claims for obviousness on various grounds, each of which we will address in turn below. We first address, however, an argument DSM makes against all of Corning's obviousness contentions.

DSM argues that Corning has not established obviousness over any reference or combination of references because the contentions rely on *ex post facto* testing. Prelim. Resp. 20-23. DSM contends that "[a]ny obviousness assertion based on inherency necessarily requires that the inherent property would have been obvious to a person of ordinary skill in the art in view of the teachings of the prior art, not based on information developed after the time of the invention." Prelim. Resp. 22. DSM cites a number of cases in support of its argument, including *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993) (quoting *In re Spormann*, 363 F.2d 444, 448 (C.C.P.A. 1966)), *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1576 (Fed. Cir. 1986), *overruled on other grounds by Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.,* 383 F.3d 1337, 1343 (Fed. Cir. 2004) (en banc), *In re Grasselli*, 713 F.2d 731, 739 (Fed. Cir. 1983)), and *In re Gruskin*, 234 F.2d 493, 498 (C.C.P.A. 1956). Prelim Resp. 21-22, 29.

DSM's position overstates the limits on the use of inherent disclosure in establishing obviousness. Ample case law establishes that inherent disclosure may be relied upon in finding that subject matter would have been obvious at the time of its invention. *E.g., In re Napier,* 55 F.3d 610, 613 (Fed. Cir. 1995). It is not a requirement that the inherent properties were known at the time of invention. *E.g.*, *In re Huai-Hung Kao*, 639 F.3d 1057, 1072 (Fed. Cir. 2011) (affirming holding of obviousness even where "the only claim element not expressly disclosed in the prior art was the previously-unknown, yet inherent, … property."); *In re Kubin*,

561 F.3d 1351, 1357-58 (Fed. Cir. 2009) (quoting *In re Wiseman,* 596 F.2d 1019, 1023 (C.C.P.A. 1979) as "rejecting the notion that 'a structure suggested by the prior art, and, hence, potentially in the possession of the public, is patentable… because it also possesses an inherent, but hitherto unknown, function which [patentees] claim to have discovered.'"). Unknown properties of the prior art may not, however, be relied upon to provide the rationale for modifying or combining the prior art to reach the claimed subject matter. *See In re Newell,* 891 F.2d 899, 901, (Fed.Cir.1989) ("a retrospective view of inherency is not a substitute for some teaching or suggestion which supports the … combination"). This is what is meant by the passage "obviousness cannot be predicated on what is unknown" that DSM quotes from *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993) quoting *In re Spormann*, 363 F.2d 444, 448 (C.C.P.A. 1966)). Prelim. Resp. 11-12.

The other cases DSM cites do not support its argument. In *Kloster*, the finding of non-obviousness was affirmed because the inherent property was "particularly essential" to obtaining the benefit of the claimed invention, and the challenger failed to show that the essential nature was known at the time of invention. *Kloster,* 793 F.2d at 1575-76 (citing *In re Spormann*, 363 F.2d at 448). That is not the case here. In *Grasselli*, the court reversed a finding of obviousness because the evidence of record failed to establish inherency in the first place, not because the supposedly inherent property was unknown at the time of invention. *Grasselli*, 713 F.2d at 739. *Gruskin* is inapposite; the court there reversed an obviousness rejection not for being premised on an unknown inherent property but rather for failure of the prior art to "suggest[] or disclose[]" the appellant's "unobvious and unexpected results." *In re Gruskin*, 234 F.2d at 499.

Here, Corning does not *predicate* its obviousness challenges on the undisclosed latent properties. That is, Corning does not argue that the latent

properties *themselves provide the rationale* for combining prior-art references to reach the claimed subject matter. Corning instead predicates the obviousness of combination upon express teachings in the cited references as well as expert testimony. While Corning acknowledges that the latent properties are recited in the challenged claims and must be accounted for, they do this with evidence purporting to show that the properties were necessarily present in prior-art compositions.

We are not persuaded that DSM's claims are patentable simply because they are limited by latent properties. Because the *ex post facto* testing presented by Corning relates to limitations reciting properties of the claimed composition, we conclude that this evidence may be considered in the obviousness analysis.

1. Obviousness of claims 1-15 over Szum '157 and Szum '041

Corning asserts that the combination of Szum '157 and Szum '041 renders claims 1-15 obvious. Pet. 33. Corning argues that to the extent the secondary coating used to test in situ modulus "mandates that Szum '041 be part of the prior-art rejection," *id.*, it would have been obvious to use a secondary coating from Szum '041 in view of the disclosure in Szum '157 that a "commercially available" secondary coating may be used to prepare a coated optical fiber. Pet. 35 (quoting Szum '157, p.18, ll. 19-21).

In addition to the argument addressed above, DSM argues that Corning has provided "no evidence" that one having ordinary skill "would have been motivated to combine the teachings of Szum '157 and Szum '041 to achieve coated optical fibers and primary coatings having the claimed features." Pet. 31-35 (quotations at 31).

We find this argument unpersuasive. Corning has indeed pointed to evidence that would underpin a rationale to combine: Szum '157 discloses optical

fibers having inner primary and "commercially available" outer primary (i.e., secondary) coatings. *See* Pet. 35; Szum '157, p.18, ll. 19-21. Further, the test for obviousness is not so constrained as to require evidence of "motivation to combine." *See KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 398, 418 (2007) (rejecting the rigid requirement of a teaching, suggestion or motivation to combine known elements in order to show obviousness).

DSM additionally argues that Corning has provided "no evidence showing that a person of ordinary skill in the art would have had a reasonable expectation of combining Examples 10-1 and 10-2 of Szum '157 with Examples 2 and 4 of Szum '041 to successfully result in the claimed subject matter as a whole." Prelim. Resp. 36-39 (quotation at 36). In particular, DSM argues that Corning has not explained how one having ordinary skill would have been led to the particular examples it selected from Szum '157 and '041 out of the "over 13 million potential combinations" of primary and secondary coatings from those references. *Id.* (quotation at 38).

This argument is unconvincing because it distorts the thrust of Corning's obviousness contention regarding claims 1-15. In this challenge, Corning is not proposing to take some features from one reference and combine them with other features from another reference to arrive at the claimed subject matter. Corning is not proposing a modification to Szum '157; there is no dart board of "combinatorial prior art" here. *Cf.* Prelim. Resp. 39 (quoting *In re Kubin*, 561 F.3d at 1359. Instead, Corning relies on Szum '041 merely to identify a secondary coating for the in situ modulus test, not for disclosure of a modification to be made to meet a claim limitation that Examples 10-1 and 10-2 lack. As noted above, Corning is free to marshal whatever admissible evidence it chooses to show that

Examples 10-1 and 10-2 inherently possess the claimed features. *See Continental Can Co. USA v. Monsanto Co.*, 948 F.2d at 1268.

For these reasons, we conclude that there is a reasonable likelihood that Corning will prevail in proving obviousness of claims 1-15 over Szum '157 and Szum '041 by a preponderance of the evidence.

2. Obviousness of claims 16 and 17 over Szum '157 and Yamazaki

Claim 16, as reproduced above, is directed to a coated optical fiber in which the primary coating is "obtained by curing the coating composition according to claim 1," and the secondary coating has three material properties: "(i) a Tg of about 60° C. or higher"; "(ii) an elongation at break of at least 20%"; and "(iii) a tensile modulus of at least 500 MPa."

Corning argues that Szum '157 discloses all elements of claim 16 except a secondary coating that has the specific properties (i)-(iii). Pet. 39-41. Corning argues that while Szum '157 does not identify particular secondary coatings, it does, however, describe desirable properties of secondary coatings suitable for use with the primary coatings it discloses. Pet. 41-43. Corning argues that discussions in Szum '157 recommending the use of monomers "that will promote a high Tg and high dL/L in an outer primary coating" would have led one of ordinary skill in the art to Yamazaki, which discloses such secondary coatings. *Id.* One of ordinary skill would have found it obvious to combine Szum '157 and Yamazaki to reach the subject matter of claim 16, Corning argues, in view of Szum '157's guidance toward Yamazaki-like secondary coatings. Pet. 43. With regard to claim 17, which requires that the primary coating have an elongation at break of at least 75%, Corning relies on experimental testing by Kouzmina purporting to show that Example 10-2 from Szum '157 has an elongation at break of 104% when tested

according to the procedures described in the '103 patent at col. 9, line 45 to col. 11, line 3. Pet. 44-45; Kouzmina Decl. ¶¶ 40-45.

DSM challenges neither Corning's characterization of Yamazaki nor Corning's argument that Szum '157 provides a rationale for its combination with Yamazaki. Instead, DSM argues that Yamazaki "does not cure the deficiencies of Szum ['157]" regarding inherent disclosure of the in situ modulus, cure dose, and modulus retention radio property limitations. Prelim. Resp. 39-40. This argument does not persuade us to deny the petition as to this obviousness challenge, for reasons similar to those discussed above with respect to the anticipation challenge. DSM also argues that Yamazaki "does not provide any motivation to combine" its secondary coatings with Szum '157, nor does it provide one of ordinary skill "any reasonable expectation of successfully making primary coatings having" the inherent property limitations listed above. Prelim. Resp. 40. DSM's arguments do not address the obviousness challenge as Corning has framed it. It is in Szum '157, not Yamazaki, that Corning identifies a rationale for combination. And it is in Szum '157, not Yamazaki, that Corning identifies inherent disclosure of the material properties of the primary coating composition. DSM's arguments are therefore not persuasive.

With respect to claim 17, DSM argues that Corning's reliance on *ex post facto* testing is inappropriate in an obviousness context. We disagree with DSM's contention, as discussed above.

For these reasons, we conclude that there is a reasonable likelihood that Corning will prevail in proving obviousness of claims 16-17 over Szum '157 and Yamazaki by a preponderance of the evidence.

3. Obviousness of claims 16 and 17 over Szum '157, Szum '041, and Yamazaki

This challenge parallels the obviousness challenge of these claims based on Szum '157 and Yamazaki, with Szum '048 added "[t]o the extent the use of the secondary coatings of Examples 2 and 4 of Szum '041 to determine *in situ* modulus values of the primary coatings of Examples 10-1 and 10-2 of Szum '157 mandates that Szum '041 be part" of the challenge. Pet. 45-47 (quotation at 46). DSM makes no specific response to this challenge. For reasons similar to those given above, we conclude that there is a reasonable likelihood that Corning will prevail in proving obviousness of claims 16-17 over Szum '157, Szum '041, and Yamazaki by a preponderance of the evidence.

4. Obviousness of claim 18 over Szum '157, Yamazaki, and Winningham.

Claim 18 depends from claim 16 and requires that the primary coating have "an elongation at break of at least 120%." Corning asserts that Winningham discloses this property in the context of primary coatings that have "very similar chemical compositions" to Examples 10-1 and 10-2 of Szum '157. Pet. 48-50 (quotation at 50). According to Corning, Winningham teaches that the improved adhesiveness that results from the elevated elongation at break helps reduce the occurrence of delaminations. Pet. 49-50. Corning argues that the desirability of this benefit would have led one having ordinary skill in the art to modify Examples 10-1 and 10-2 of Szum '157 to have the claimed elongation at break as disclosed by Winningham. Pet. 51. Corning argues, through Winningham's testimony, that modifying Examples 10-1 and 10-2 to have the claimed elongation at break "would not be expected to have altered the properties" of these coatings to have (a) in situ modulus, (b) cure dose, or (c) modulus retention ratio values

outside the scope of claim 1 (as incorporated into claim 18). Pet. 51; Winningham Decl. ¶ 153.

DSM argues that there is "no disclosure in the prior art—or even in Corning's own *ex post facto* testing" to show that "once the primary coatings of Szum '157 are modified by the teachings of Winningham, those modified primary coatings meet the *in situ* modulus, cure dose, and modulus retention ratio limitations of the claims." Prelim. Resp. 42. DSM argues that "Corning's own testing shows that the composition of the primary coating can substantially affect the value of the *in situ* modulus and other claim limitations."

While we do not necessarily disagree with DSM's contentions, we observe that, on this record, Corning has proffered sufficient evidence in support of its challenge to demonstrate a reasonable likelihood of unpatentability.

5. Obviousness of claim 18 over Szum '157, Szum '041, Yamazaki, and Winningham.

This challenge parallels the obviousness challenge of these claims based on Szum '157, Yamazaki, and Winningham, with Szum '041 added as explained in the challenge to claims 16 and 17. Pet. 52. DSM makes no specific response to this challenge. For reasons similar to those given above, we conclude that there is a reasonable likelihood that Corning will prevail in proving obviousness of claim 18 over Szum '157, Szum '041, Yamazaki, and Winningham by a preponderance of the evidence.

III. CONCLUSION

Corning has demonstrated that there is a reasonable likelihood of its prevailing on at least one of the challenged claims in the '103 patent.

The Petition is granted as to every challenge proposed.

IV. ORDER

For the reasons given, it is

ORDERED that the Petition is *granted* as to claims 1-18.

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '103 patent is hereby *instituted* commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

FURTHER ORDERED that the trial is limited to the grounds proposed in the Petition as to claims 1-18. No other grounds are authorized.

FURTHER ORDERED that an initial conference call with the Board is scheduled for 1 PM Eastern Time on June 13, 2013. The parties are directed to the Office Trial Practice Guide, 77 Fed. Reg. 48756, 48765-66 (Aug. 14, 2012) for guidance in preparing for the initial conference call, and should come prepared to discuss any proposed changes to the Scheduling Order entered herewith and any motions the parties anticipate filing during the trial.

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