

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

COLAS SOLUTIONS, INC.,  
Petitioner,

v.

BLACKLIDGE EMULSIONS, INC.,  
Patent Owner

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Case IPR2016-01032  
Patent 7,918,624 B2

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**SUBMISSION OF NOTICE OF APPEAL**

Via PTAB E2E  
Patent Trial and Appeal Board

Via Hand Delivery  
Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel, 10B20  
Madison Building East  
600 Dulany Street  
Alexandria, VA 22313  
Via CM/ECF  
United States Court of Appeals for the Federal Circuit

Pursuant to 35 U.S.C. §§ 141 and 142 and 37 C.F.R. §§ 90.2(a) and 90.3(a)(1), Petitioner/Appellant, Colas Solutions, Inc., hereby notifies the Board of its Notice of Appeal to the United States Court of Appeals for the Federal Circuit for review of the Final Written Decision (IPR 2016-01032) of the Patent Trial and Appeal Board entered on November 2, 2017. Copies of the Final Written Decision and the Notice of Appeal are attached.

This appeal is being timely filed, i.e. within sixty-three days of the Final Written Decision. *See* 37 C.F.R. § 90.3(a)(1). Simultaneously with this submission, the Notice of Appeal is being filed with the Director of the United States Patent and Trademark Office and the Notice of Appeal and docketing fee of \$500.00 are being electronically filed with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

Respectfully submitted,

Date: December 28, 2017

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COLAS SOLUTIONS, INC.,  
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Case IPR2016-01032  
Patent 7,918,624 B2

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Before MITCHELL G. WEATHERLY, JAMES A. TARTAL, and  
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

GOODSON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

Colas Solutions, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–12, 14–23, and 25 of U.S. Patent No. 7,918,624 B2 (Ex. 1001, “the ’624 patent”). Blacklidge Emulsions, Inc. (“Patent Owner”) filed a preliminary response. Paper 8 (“Prelim. Resp.”). We instituted an *inter partes* review of claims 1–12, 14–23, and 25. Paper 9 (“Dec. on Inst.”).

After institution of trial, Patent Owner filed a Patent Owner Response. (Paper 14, “PO Resp.”), and Petitioner filed a Reply (Paper 22, “Reply”). In addition, Patent Owner filed a Motion for Observation on Cross Examination (Paper 30), to which Petitioner filed a Response (Paper 32). Both parties also filed motions to exclude evidence, and the briefing on those motions included oppositions and replies. *See* Papers 26, 29, 33, 34, 36, and 37. A combined oral hearing in this proceeding and Case IPR2016-01031 was held on August 8, 2017, and a transcript of the hearing is included in the record. Paper 39 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has not shown by a preponderance of the evidence that any of claims 1–12, 14–23, and 25 of the ’624 patent are unpatentable. *See* 35 U.S.C. § 316(e).

### A. Related Matters

The following two district court proceedings both involve the ’624 patent: *Blacklidge Emulsions, Inc. v. Russell Standard Corp.*, Case 1:12-cv-00643 in the U.S. District Court for the Northern District of Ohio, and *Colas Solutions Inc. v. Blacklidge Emulsions, Inc.*, Case 1:16-cv-00548

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in the U.S. District Court for the Southern District of Ohio. *See* Paper 7, 2.

With respect to related proceedings at the Board, Case IPR2016-01031 involves U.S. Patent No. 7,503,724 (“the ’724 patent”). *See* Pet. 1; Paper 7, 3. The ’624 patent is a continuation of the ’724 patent. *See* Ex. 1001, (63). In addition, *inter partes* reviews challenging all claims of the ’724 and ’624 patents were instituted in IPR2017-01241 and IPR2017-01242, respectively, and remain pending before the Board. *Asphalt Prods. Unlimited, Inc. v. Blacklidge Emulsions, Inc.*, No. IPR2017-01241 (PTAB Oct. 24, 2017), Paper 23, 25; *Asphalt Prods. Unlimited, Inc. v. Blacklidge Emulsions, Inc.*, No. IPR2017-01242 (PTAB Oct. 24, 2017), Paper 23, 26.

#### *B. The ’624 Patent*

The ’624 patent relates to a method of providing an adhesive tack coat between pavement layers. Ex. 1001, 1:15–18. In the Background section, the ’624 patent explains that pavement structures are often formed from multiple layers of pavement compositions, such as asphaltic layers. *Id.* at 1:22–34. A tack coat provides bonding between the layers, and may also reduce slippage between the layers. *Id.* at 1:35–44.

Two measures of the properties of asphalt compositions that are pertinent to an understanding of the ’624 patent are penetration value and softening point. Penetration or “pen” value refers to the distance that a standard needle, under standard loading, will penetrate a sample under known temperature conditions. *Id.* at 2:46–57. Softening point is the temperature at which an asphalt composition becomes soft and flowable. *Id.* at 2:58–62.

According to the ’624 patent, known tack coats were typically made from emulsions containing “soft or medium pen asphalt products.” *Id.* at

3:11–13. Emulsions using soft or medium pen asphalt products typically provide a sticky, tacky surface under ambient conditions. *Id.* at 3:15–19. When the next pavement layer could not be laid down immediately, such tack coatings frequently adhered to the tires of passing vehicles, damaging the tack coat and causing undesirable tracking of the coating onto other surfaces. *Id.* at 4:4–18.

The '624 patent describes applying “an emulsion of a hard pen asphalt material, or an equivalent as discussed herein, to an existing base or substrate for a pavement structure to provide a hard pen, low-tracking, adhesive tack coat between the existing substrate base and a new asphaltic pavement layer.” *Id.* at 7:43–48. The Specification describes two broad approaches for obtaining such a tack coat.

In the first approach, an emulsion is prepared with a “hard pen” asphalt component having a pen value of “from about 5 dmm to about 15 dmm pen, with a softening point between about 150° F. (66° C.) and about 160° F. (71° C.)” *Id.* at 7:63–65. The Specification describes asphalt emulsions incorporating asphalt compositions defined by “Performance Grade” values ranging from PG-91 (about 5 pen) to PG-82 (about 40 pen). *Id.* at 9:59–10:1. Beginning with these hard pen asphalts in the emulsion, the Specification describes resulting “tack coat properties” including pen values from about 1 dmm to about 40 dmm and a minimum softening point of 140°F (60°C). *Id.* at 10:35–40. The Specification also describes two examples of “the emulsion of the invention using a 13 dmm pen asphalt,” but does not reveal the pen value or the softening point of the resulting cured tack coat. *Id.* at 12:30–13:55.

The second approach is to use a softer asphalt in the emulsion “in the range of mid or soft pen asphalt” and add “polymeric, waxes, or other equivalent additives” to achieve the properties of the “final cured tack coat.” *Id.* at 8:51–63. The Specification describes that “[e]xamples of such polymeric additives are EVA, SBS, SB, SBR, SBR latex, polychloroprene, isoprene, polybutadiene, acrylic and acrylic copolymers, and other equivalent additives that produce the hard pen characteristics of the final cured tack coat.” *Id.* at 8:59–63. The Specification does not describe examples of emulsions using mid or soft pen asphalt along with any one of the specific additives listed that are used to obtain the properties of the final tack coat.

### *C. Challenged Claims*

Petitioner challenges claims 1–12, 14–23, and 25. Of those, claims 1, 14, and 25 are independent. Claims 1 and 14 recite methods of bonding a layer of asphalt material to a substrate, or of forming a low-tracking tack coating, and claim 25 recites a pavement structure that includes a bonding layer. *Id.* at 13:62–14:22, 15:1–21, 16:27–37. Claim 1 is reproduced below, with emphasis to indicate the claim language on which the parties’ dispute primarily focuses:

1. A method for bonding a layer of asphalt pavement material to a substrate layer, the method comprising:

providing an emulsion comprising at least a first phase which includes an asphalt composition, a second phase comprising water, and emulsifying and stabilizing additives, *the asphalt composition in the emulsion effective for providing a coating having a penetration value less than about 40 dmm and a softening point greater than about 140 ° F. (60 ° C.) when applied to the substrate layer and cured;*

applying the emulsion to an exposed surface of the substrate layer in an amount which is sufficient to provide a coating on the exposed surface of the substrate layer, the coating and emulsion including an amount of the asphalt composition effective to bond the asphalt pavement layer to the substrate layer;

providing heated asphalt pavement material to provide the asphalt pavement layer, the asphalt pavement material heated to a temperature sufficient to soften the coating on the substrate layer to form a bonding surface on an exposed surface of the coating;

applying the heated asphalt pavement material to the exposed coating surface to form the asphalt pavement layer and to soften the exposed coating surface forming a bond between the asphalt pavement layer and the substrate layer.

*Id.* at 13:62–14:22 (emphasis added).

*D. Instituted Ground of Unpatentability*

We instituted trial as to claims 1–12, 14–23, and 25 on the alleged ground of unpatentability under 35 U.S.C. § 103 for obviousness based on the combination of AEMA<sup>1</sup> and Bardesi<sup>2</sup> in view of Christensen<sup>3</sup>, Durand<sup>4</sup>, and/or The Asphalt Handbook<sup>5</sup>. *See* Dec. on Inst. 21.

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<sup>1</sup> *Asphalt Emulsion: A Basic Asphalt Emulsion Manual*, Manual Series No. 19 (3d ed.) (Ex. 1002, “AEMA”).

<sup>2</sup> Bardesi, O.-E. & D.A. Paez, *A Novel Generation of Tack Coat Emulsions to Avoid Adhesion to Tyres*, Third World Congress on Emulsions (Ex. 1003, “Bardesi”).

<sup>3</sup> Canadian Patent No. 1 152 795, issued Aug. 30, 1983 (Ex. 1005, “Christensen”).

<sup>4</sup> U.S. Patent No. 5,769,567, issued June 23, 1998 (Ex. 1004, “Durand”).

<sup>5</sup> *The Asphalt Handbook*, Manual Series No. 4 (1989 ed.) (Ex. 1008, “The Asphalt Handbook”).



## II. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). Under that standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

In our Decision on Institution, we determined that resolution of the disputed issues at that stage of the proceeding did not require an express interpretation of any claim term. *See* Dec. on Inst. 6–7. Neither party’s briefing after institution proposes a construction for any claim term. *See* PO Resp.; Reply. Accordingly, we maintain our determination that no express construction of any claim term is necessary to resolve the dispute that the parties present in this proceeding.

## III. OBVIOUSNESS ANALYSIS

### *A. Legal Standards*

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4)

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“secondary considerations” of nonobviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.” *Id.* at 17–18; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007).

*B. Level of Ordinary Skill in the Art*

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equipment Co., Inc. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner argues, with supporting testimony from its technical expert, Dr. Gayle King, that a person having ordinary skill in the technology described and claimed in the ’624 patent would have “a bachelor’s degree or the equivalent in the fields of chemistry, civil engineering, chemical engineering, material science, or an equivalent, as well as having 5 years of field experience or 5 years of additional academic research in the field of asphalt paving and/or asphalt emulsion technology.” Pet. 13; Ex. 1010 ¶ 19.

Patent Owner responds that Petitioner’s proposed level of ordinary skill in the art is “extraordinarily high.” PO Resp. 1–2; *see also id.* at 14 (arguing that Dr. King “limits his definition of a PHOSITA to be someone with more than ordinary skill”). Despite this criticism, the definitions of ordinary skill in the art proposed by Patent Owner’s technical experts, Mr. William O’Leary and Dr. Dallas Little, call for a similarly high level of skill and experience. Mr. O’Leary testifies that a person of ordinary skill in the art has:

a bachelor of science degree or the equivalent in civil or chemical engineering, as well as having approximately 5 years of practical experience comprising some combination of asphalt binder testing and/or characterization, asphalt mixture testing and/or characterization, pavement design, and field experience such as quality control monitoring of the construction of pavement materials. Alternatively, a person having ordinary skill in the art may have 10 years of practical experience comprising some combination of asphalt binder testing and/or characterization, asphalt mixture testing and/or characterization, pavement design, and field experience instead of a four year college degree.

Ex. 2027 ¶ 48. Dr. Little's definition is very similar. Ex. 2026 ¶ 27. At the hearing, Patent Owner confirmed that Mr. O'Leary's statement represents Patent Owner's definition of the level of ordinary skill in the art. *See* Tr. 48:10–22.

The parties' definitions differ in that under Patent Owner's proposal, additional work experience can substitute for a science or engineering degree. Patent Owner supports that position by pointing to the backgrounds of Mr. O'Leary and the inventor, Mr. Blacklidge, neither of whom has a bachelor's degree in engineering or science. PO Resp. 15–16; Ex. 1034, 12:15–13:3; Ex. 2027, App'x A; *see also* Ex. 2026 ¶¶ 22–23 (discussing the educational background of active workers in the field). Patent Owner also cites Dr. King's deposition testimony agreeing that Mr. O'Leary was an example of someone who had attained the level of ordinary skill in the art through sufficient work experience without academic credentials beyond high school. Ex. 2025, 376:4–377:14. This evidence supports Patent Owner's position that relevant work experience can substitute for a bachelor's degree in science or engineering in this case.

Accordingly, we find that a person of ordinary skill in the art at the time of the invention of the '624 patent would have had a bachelor's degree

in chemistry, civil engineering, chemical engineering, material science, or a related field of science or engineering, plus five years of experience in the field of asphalt paving and/or asphalt emulsion technology. Alternatively, an ordinarily skilled artisan would have had ten years of experience in the field of asphalt paving and/or asphalt emulsion technology.

*C. Summary of the Cited Prior Art*

1. *AEMA*

AEMA is a technical manual jointly published by the Asphalt Institute and the Asphalt Emulsion Manufacturers Association. Ex. 1002, iii. The purpose of AEMA is “to impart a basic understanding of asphalt emulsions to those who work with the product” and “to be useful in choosing the emulsion that best fits a project’s specific conditions.” *Id.*

2. *Bardesi*

Bardesi is titled “A Novel Generation of Tack Coat Emulsions to Avoid Adhesion to Tyres.” Ex. 1003, 1. According to Bardesi, a limitation of traditional tack coats is that the residue of the emulsions commonly sticks to truck tires (or “tyres”), which diminishes the effectiveness of the tack coats. *Id.* Bardesi seeks to solve this problem, and discloses that “[t]he best results have been obtained with hard residue emulsions, manufactured with special emulsifiers.” *Id.*

Bardesi describes testing of six different emulsions, which were “manufactured using 10/20, 60/70 and 150/200 pen bitumen, both conventional and obtained in special refining conditions.” *Id.* After summarizing how specimens performed in tests of bonding between bituminous courses, Bardesi concludes that the results “advise against the use of conventional 10/20 pen bitumen and make recommendable for this

type of emulsions the use of 10/20 pen bitumen obtained in special refining conditions.” *Id.* at 3. Bardesi also describes tire adhesion testing of the specimens, the results of which “show that for the production of this type of emulsions the bitumen used must be 10/20 pen bitumen and they must be obtained in special refining conditions. If not, there is a very high risk of adhesion to the tyres of the machinery during the works.” *Id.*

3. *Christensen, Durand, and The Asphalt Handbook*

Petitioner relies on Christensen, Durand, and The Asphalt Handbook as “supplemental” references. Pet. 14. Christensen describes disadvantages of conventional tack coating processes that leave a sticky film and require a waiting period for drying. Ex. 1005, 1:18–21. Christensen seeks to provide a process for tack coating that eliminates those disadvantages, provides adhesive effect immediately, and improves adhesion. *Id.* at 1:22–26. In Christensen’s process, “asphalt compound is laid out immediately after the existing asphalt concrete layer has been cleaned and tack coated, and . . . the tack coat is dried and broken by the applied fresh and hot asphalt compound.” *Id.* at 2:1–5.

Durand aims to address problems such as unfavorably long “breaking duration” and tracking in known methods of tack coating. Ex. 1004, 2:6–11. Durand describes applying a surface-active agent on the support, which “leads to significant improvement of the adherence of the bonding layer on the support.” *Id.* at 3:28–30. Durand describes a tack coat that does not exhibit “tracking” and is made using asphalts having a variety of pen ratings, including one asphalt with a pen rating as low as 25. *Id.* at 3:52–67.

The Asphalt Handbook is a reference manual published by the Asphalt Institute. Ex. 1008, vii. It contains over 600 pages and purports to

be “the definitive informational source on asphalt technology.” *Id.*

*D. Differences Between the Cited Prior Art and the  
Claimed Subject Matter*

*1. Claim 1*

*a. Summary of Arguments in the Petition*

Petitioner argues that “*AEMA* expressly or inherently discloses everything in claim 1 except particular characteristics of the tack coat emulsion.” Pet. 20. Specifically, Petitioner relies on *AEMA* as disclosing every limitation of claim 1 except for the requirement that “the asphalt composition in the emulsion [is] effective for providing a coating having a penetration value less than about 40 dmm, and a softening point greater than about 140 ° F. (60 ° C.) when applied to the substrate layer and cured.” *See id.* at 25–28. Petitioner relies on *Bardesi* as teaching an asphalt-containing emulsion that meets these characteristics. *Id.* at 20. *Asphalt Handbook* and *Christensen* play a backup role in Petitioner’s challenge, as Petitioner contends that they describe “conventional and well-known aspects of asphalt technology . . . that may not be expressly discussed in *Bardesi* or *AEMA*, such as heating the asphalt paving material prior to overlay onto the tack-coated substrate.” *Id.* Patent Owner does not challenge Petitioner’s assertions regarding how *AEMA* discloses the subject matter of claim 1 other than the limitations on the penetration value and softening point of the cured tack coat. *See id.* at 20–22; PO Resp. *passim*; Tr. 50:16–23. Thus, the dispute focuses on the limitations reciting the penetration value and softening point of the cured tack coat.

Petitioner relies upon *Bardesi*, and the testimony of Dr. King explaining *Bardesi*, to establish that the use of an asphalt composition in the emulsified tack coat that has the claimed pen value of “less than about 40

dmm” and softening point of “greater than about 140 °F” was taught in the prior art. Pet. 22–24 (citing Ex. 1003, 1; Ex. 1010 ¶¶ 40, 42, 43, 46).

Regarding pen value, Petitioner asserts that “*Bardesi* teaches the use of emulsions ‘manufactured using 10/20 . . . pen bitumen,’ corresponding to a penetration of between 10 to 20 dmm.” *Id.* at 22 (quoting Ex. 1003, 1). Dr. King testifies that “*Bardesi* specifically taught the formulation of tack coat emulsions that meet” the claimed pen value of less than about 40 dmm because *Bardesi*’s emulsions are manufactured using bitumen having a pen value from 10 to 20 dmm. Ex. 1010 ¶ 39.

Regarding softening point, Petitioner relies on Dr. King’s testimony that “it is my opinion that asphalt having a hardness of 20-pen or below, such as the ones specifically taught in *Bardesi*, will necessarily have a softening point greater than about 140°F (60°C). . . .” Ex. 1010 ¶ 40 (cited at Pet. 22). To reach this opinion, Dr. King “consulted Pfeiffer on the relationship between asphalt penetration and softening point.” *Id.* (citing Ex. 1006). Pfeiffer is an article from 1936 that presents an equation relating pen values to softening point. *See* Ex. 1006. Dr. King testifies that “this equation became an industry standard soon after publication and remains in use today.” Ex. 1010 ¶ 40. In his declaration, Dr. King applies the following “more common rearranged form of Pfeiffer’s equation,” which relates penetration value, softening point, and “PI” or penetration index:

$$PI = (1952 - 500 \log pen - 20 SP) / (50 \log pen - SP - 120)$$

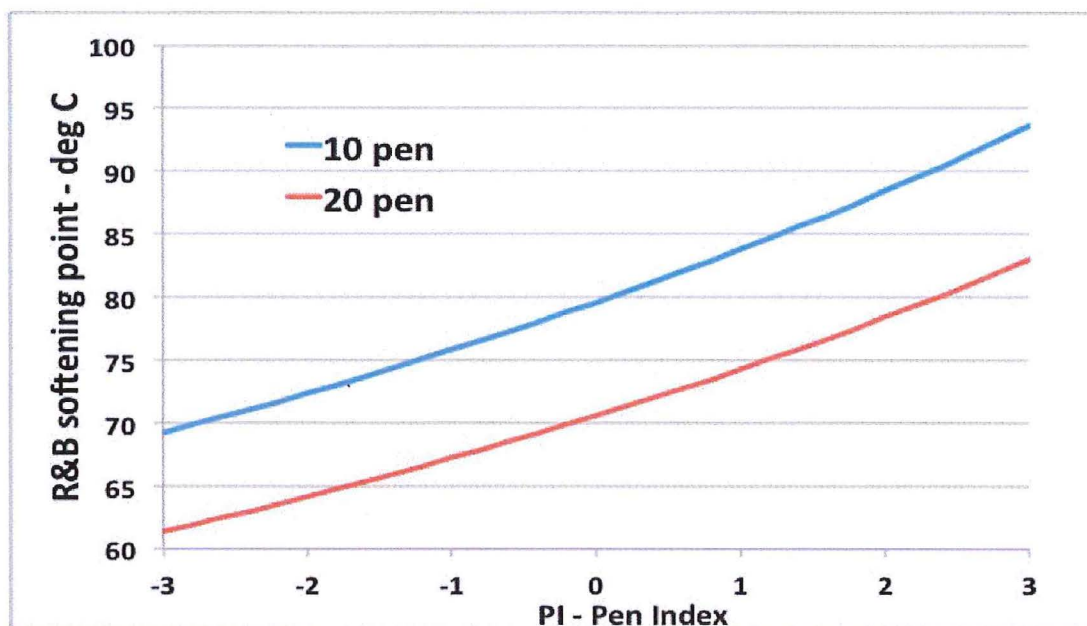
*Id.* Dr. King explains that PI is a measure of the quality or temperature susceptibility of an asphalt. *Id.* According to Dr. King,

[p]aving grade asphalts—regardless of whether they originated during Pfeiffer’s era, at the time of the [’]624 patent, or today—have a PI within the range of -1 to +1. . . . One of ordinary skill

in the art would understand a reference to otherwise uncharacterized asphalt material, such as used in Bardesi, were N-type, with an index between -1 and +1.

*Id.* ¶ 41.

Using the equation reproduced above, Dr. King plotted softening point versus PI for asphalts having a penetration value of 10 dmm and 20 dmm:



Dr. King's graph above plots the softening points for asphalts having pen values of 10 and 20 dmm as pen index varies from -3 to 3.

*Id.* ¶ 42.

From this plot, Dr. King notes that

[d]epending on the PI of the asphalt composition, even within the extreme range of -3 to +3, any 10-pen paving-grade asphalt would be expected to have an R&B Softening Point in the range [from] 69 to 94 degrees C. That is, across the entire quality range for paving-grade bitumen, a 10-pen asphalt has a softening point higher than the claimed minimum[] of 60°C. . . .

*Id.* Further, "even the 20-pen bitumen would have a softening point above 66°C so long as the PI remains within or above Pfeiffer's normal bitumen



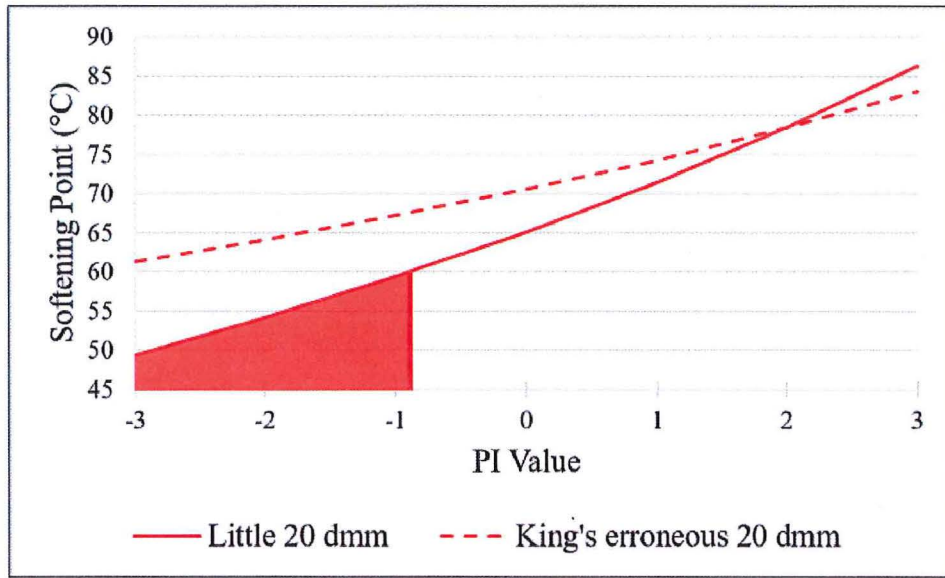
range of -1 to +1, the expected range for paving asphalt.” *Id.* Because “a straight-run conventional 10-pen asphalt would always have an R&B Softening Point above the minimum 60°C specified by the [’]624 patent,” it is Dr. King’s “opinion that asphalts of 10-20 dmm penetration from the Bardesi tack coat emulsion would necessarily have softening points meeting the claim 1 requirement of ‘greater than about 60°C.’” *Id.* ¶ 43. Based on this analysis from Dr. King, Petitioner contends that “an asphalt having a penetration value less than about 40 dmm necessarily and inherently has a softening point greater than about 140°F (60°C).” Pet. 40, 50.

*b. Summary of Patent Owner’s Rebuttal Arguments*

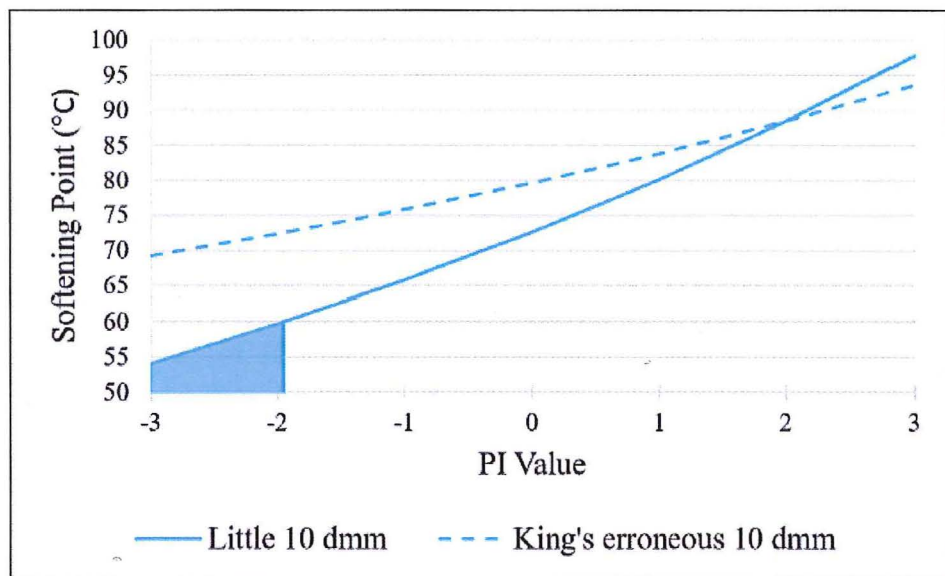
Patent Owner’s rebuttal takes issue with several aspects of Petitioner’s challenge. Patent Owner argues that Petitioner does not address the rheological properties of a tack coat *after curing*, which can differ significantly from the properties of a base asphalt before emulsification. *See* PO Resp. 16–23. Patent Owner also attacks Petitioner’s assertion that Bardesi discloses a cured coating having a softening point in the claimed range. *Id.* at 24–46. Further, Patent Owner contests the adequacy of Petitioner’s stated reason to combine the references. *Id.* at 47–50. Our analysis in Section III.D.1.d. below focuses on the softening point limitation, which is dispositive. Accordingly, our summary in this section will likewise focus on Patent Owner’s arguments regarding softening point.

Patent Owner argues that Dr. King incorrectly applied the Pfeiffer equation, and that when the equation is correctly applied, the results show a softening point outside of the claimed range for asphalts with 10 dmm and 20 dmm penetration values. PO Resp. 29–37. Patent Owner’s expert, Dr. Little, applied the same version of the Pfeiffer equation as Dr. King and

arrived at different softening points for 10-pen and 20-pen bitumen. *See* Ex. 2026 ¶¶ 90–93. The graphs reproduced below show the softening points Dr. Little obtained for 20-pen and 10-pen asphalts as compared to the softening points Dr. King calculated for those same asphalts:



This graph compares softening points calculated by Dr. Little (solid line) to those calculated by Dr. King (dashed line) for 20-pen asphalts.



This graph compares softening points calculated by Dr. Little (solid line) to those calculated by Dr. King (dashed line) for 10-pen asphalts.

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PO Resp. 30, 32.

In the above graphs, the shaded areas beneath the solid line signify asphalts with softening points less than 60°C. *Id.* Thus, according to Dr. Little’s calculations using the Pfeiffer equation, 20-pen asphalts having a PI of  $-0.883$  or less have a softening point less than 60°C. *Id.* at 29; Ex. 2026 ¶ 93. According to Patent Owner, these revised calculations show that “*Bardesi* 10/20 asphalts simply do not necessarily have the claimed softening points.” PO Resp. 34. Patent Owner also highlights the deposition testimony of Dr. King in which he was asked about the revised softening point calculations and stated: “That doesn’t change the final conclusion because it was so far above before that even with this, it’s still above. It’s with less absolute certainty but with extremely high probability.” Ex. 2025, 368:20–23. In Patent Owner’s view, this testimony shows that Dr. King “expressly acknowledged that a softening point greater than 60°C is merely a probability.” PO Resp. 36. Patent Owner argues that Dr. King’s “recognition that some of *Bardesi*’s asphalts may have softening points below 60°C defeats any inherency argument.” *Id.* (citing *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991)).

Patent Owner also challenges Dr. King’s assumption that *Bardesi*’s 10/20-pen asphalt would be a “paving grade” asphalt having a PI value between  $-1$  and  $+1$ . PO Resp. 27–28. Patent Owner cites evidence that paving grade asphalts are typically used as binder materials in a paving layer and have pen values above 40 dmm. *Id.* at 27; Ex. 2026 ¶¶ 38–39; Ex. 1008, 159. Because *Bardesi*’s 10/20-pen asphalt is used in an emulsion for a tack coat rather than as a binder, Patent Owner contends, based on the testimony of Dr. Little, that an ordinarily skilled artisan would not have assumed it to

have the attributes of a typical paving grade asphalt. PO Resp. 27; Ex. 2026 ¶ 42. In addition, Patent Owner attacks the reliability of the Pfeiffer equation, quoting an academic journal article describing it as “unrealistic and seriously misleading,” and arguing that it has been superseded by other methods. PO Resp. 34–35 (quoting Ex. 2005, 275); *see also* Ex. 2026 ¶¶ 83–85 (testimony of Dr. Little opining that “a *PHOSITA* would not have understood *Pfeiffer* to be an ‘industry standard’ as Dr. King asserts” and discussing academic literature describing shortcomings of the Pfeiffer equation).

According to Patent Owner, Bardesi simply does not provide enough information about its 10/20 pen bitumen “obtained in special refining conditions” (Ex. 1003, 3) to permit a reliable assessment of its softening point. PO Resp. 41–44. On this issue, Patent Owner highlights Dr. King’s response, when asked during his deposition whether his declaration addressed Bardesi’s teaching that the 10/20 pen bitumen used must be obtained in special refining conditions: “No, because I’m not sure I agree with Bardesi on that point. . . . [A]lthough he had to do so because of his crude sources, I think there were other options I would have used.” Ex. 2025, 140:8–20 (cited at PO Resp. 43).

*c. Summary of Petitioner’s Reply Arguments*

In Reply, Petitioner argues that the ’624 patent’s “only alleged point of novelty is claiming softening points above 60°C” but that Petitioner’s evidence “shows that this claimed softening point above 60°C is inherent and ‘typical’ for many 10/20 pen asphalts disclosed in *Bardesi*.” Reply 1. Petitioner minimizes the significance of the softening point limitation by arguing that “nowhere in the ’624 patent Specification or intrinsic record is

there any discussion whatsoever of the importance of the claimed softening point and the desired result.” *Id.* at 5. Petitioner points out that the Background of the ’624 patent states that “typically, hard pen . . . asphalt compositions have pen values of about 40 dmm or less, with softening points greater than about 140° F. (60° C.),” and that Patent Owner’s experts agree with that statement. *Id.* at 5–6 (citing Ex. 1001, 2:66–3:2; Ex. 1032, 146:16–147:10; Ex. 1031, 60:23–61:6).

Petitioner defends its reliance on the Pfeiffer equation, noting Dr. King’s testimony that it is “the best tool we have available even today to characterize between” penetration value and softening point. Reply 16–17 (quoting Ex. 2025, 215:17–22). Petitioner points out that Dr. Little has used the Pfeiffer equation in his own research to calculate PI values for asphalts. *Id.* (citing Ex. 1031, 116:17–117:2).

Petitioner concedes that “Dr. King made [a] mathematical mistake with his Pfeiffer calculations” and that Dr. Little’s calculations accurately apply Pfeiffer for 10-pen and 20-pen asphalts with PI values between -3 and +3. Reply 17. Petitioner further agrees that the corrected data from Dr. Little:

shows that *not all* of the 10/20 pen asphalts having a Penetration Index between -3 and +3 will have softening points above 60° C. But the corrected Pfeiffer relationship still shows that *most* 10/20 pen asphalts, and certainly the better quality 10/20 pen asphalts, will have the claimed softening point values above 60° C.

*Id.* at 18. Petitioner argues that “a *prima facie* case of obviousness still exists when the ranges of a claimed composition overlap the ranges disclosed in prior art.” *Id.* at 19 (citing *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003)).

*d. Analysis*

After considering all the arguments and evidence, including those summarized above, we agree with Patent Owner that the evidence does not sufficiently support the theory advanced in the Petition as to why the cited combination teaches or renders obvious the softening point limitation. As summarized above, the obviousness challenge in the Petition was predicated on the inherency of the softening point limitation in the asphalt of the emulsion disclosed in Bardesi. The Petition argued, consistently and exclusively, that a softening point within the claimed range was necessarily and inherently present in Bardesi's 10/20 pen asphalt. *See* Pet. 22 (“an asphalt having a hardness of 20-pen or below, such as the ones specifically taught by Bardesi, will **necessarily** have a softening point greater than about 140°F (60°C)”) (emphasis added); *id.* at 24 (“asphalts of 10–20 dmm penetration from the Bardesi tack coat emulsion would **necessarily** have softening points meeting the claim 1 requirement of ‘greater than about 60°C.’”) (emphasis added); *id.* at 27 (same); *id.* at 38 (“The ‘10/20 pen asphalts of Bardesi **necessarily** have softening points greater than about 140°F”) (emphasis added); *id.* at 40 (“an asphalt having a penetration value less than about 40 dmm **necessarily and inherently** has a softening point greater than about 140°F (60°C)”) (emphasis added); *id.* at 50 (same).

The Federal Circuit has explained that the concept of inherency in the patentability analysis was originally rooted in anticipation and “must be limited when applied to obviousness.” *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014); *see also Honeywell Int’l Inc. v. Mexichem Amanco Holding S.A. de C.V.*, 865 F.3d 1348, 1354–55 (Fed. Cir. 2017) (cautioning that “the use of inherency in the context of obviousness

must be carefully circumscribed”). The Federal Circuit has further explained that:

A party must . . . meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.

*PAR Pharm.*, 773 F.3d at 1195–96. Under this standard, “[i]nherency . . . may not be established by probabilities or possibilities.” *Id.* at 1195 (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). “‘The mere fact that a certain thing may result from a given set of circumstances is not sufficient’ to render the result inherent.” *Millennium Pharms., Inc. v. Sandoz Inc.*, 862 F.3d 1356, 1367 (Fed. Cir. 2017) (quoting *Oelrich*, 666 F.2d at 581).

Applying that standard for inherency, the evidence does not sufficiently support a finding that a cured tack coat formed from a base asphalt as described in Bardesi would necessarily have “a softening point greater than about 140 ° F. (60 ° C.),” as recited in claim 1. The parties are in agreement that Dr. King’s calculations using the Pfeiffer equation were in error and that Dr. Little’s calculations correctly apply the Pfeiffer equation. *See* PO Resp. 29; Reply 17; Tr. 27:7–28:10, 80:9–10. Even assuming the correctness of the assumptions undergirding Dr. King’s analysis of the softening point limitation — which include the reliability of the Pfeiffer equation to calculate softening point, the range of PI values between -1 and +1 for the asphalts described in Bardesi, and the use of a base asphalt’s softening point as a measure of the softening point for a cured tack coat made from that asphalt — the now agreed-upon data that result from the Pfeiffer equation show that not all 10-pen and 20-pen asphalts have a

softening point greater than 60°C. Ex. 2026 ¶¶ 91–93. Indeed, Petitioner and Dr. King seem to concede this point. Reply 18; Tr. 80:8–14; *see also* Ex. 1030 ¶ 29 (rebuttal declaration of Dr. King stating that “most 10-20 pen paving grade asphalts” would have a softening point in the claimed range).

We recognize that Dr. Little’s data reflect that only a small fraction of asphalts are outside the claimed range of softening points for PI values between -1 to +1. In particular, for a 20-pen asphalt, softening point is lower than 60°C when the PI value is less than -0.883. Ex. 2026, 156. However, the fraction of 10-pen and 20-pen asphalts that are outside the claimed range of softening points expands when one looks beyond the range of PI values of -1 to +1 that Dr. King assumed in his initial analysis. *See* Ex. 1010 ¶ 41.

In considering Petitioner’s case for the inherency of the softening point limitation, the evidentiary record does not support that the PI value of Bardesi’s 10/20 bitumen would necessarily have been between -1 and +1. As Petitioner agrees, Bardesi itself is silent regarding penetration index. *See* Ex. 1003; Tr. 29:19–21 (Petitioner’s counsel agreeing that Bardesi does not discuss pen index). Petitioner relies on Dr. King’s testimony to establish that Bardesi’s PI value would have been between -1 and +1. *See* Pet. 23–24; Ex. 1010 ¶ 41; *see also* Tr. 24:3–10. When asked during his deposition what PI values paving grade asphalts typically have, Dr. King explained as follows:

Typically, most of them fall between minus 1 and plus 1. . . . But the range is set from minus 3 to plus 3. . . . The low ones are really waxy that we prefer not to use but a few people have to. The high end is what we really strive to find because that’s the good stuff.



Ex. 2025, 232:6–16. Later in the deposition, in response to a question of what an asphaltic bitumen is, Dr. King elaborated:

A. There are two types, and that's where the penetration index comes in again. And the — the real range is minus 3 to plus 3 but, in reality, minus 1 to plus 1 is kind of the average typical bitumens we see for most crudes.

Those that are waxy have a different curve shape, and they tend to fall in the minus 3 to minus 1 category, and then there are the materials that are higher in asphaltenes, the things we really want to have, that are plus 1 to plus 3, and those are blown bitumens and certain types of modified materials. So, it's the highest quality Venezuelan and Canadian asphalts. So, they're materials of extraordinarily high quality in temperature susceptibility.

Q. And for paving grade asphalt, is it possible to use, in certain circumstances, any of the from minus 3 to plus 3?

A. Yes, but we would try very hard, as refiners, to isolate the minus 3s and not -- we try to divert that stream to something else other than paving.

*Id.* at 265:8–266:2.

Thus, Dr. King's testimony indicates that a PI value between -1 and +1 is a preference and an average of what is typical, but that asphalts in the broader range of -3 to +3 can be used. That Dr. King chose to plot expected softening points for a range of PI values from -3 to +3 is an additional indication that he views -1 to +1 as the typical or preferred range of PI values for Bardesi's 10/20 pen asphalt, but that the PI value is not necessarily limited to that -1 to +1 range. Ex. 1010 ¶ 42. At the hearing, Petitioner's only explanation as to why Dr. King plotted a range of PI values from -3 to +3 was to speculate that "[p]erhaps he wanted to show the whole range beyond that expected range." *See* Tr. 24:10–21.

Dr. Little's deposition testimony also indicates that PI values are not necessarily limited to the range of -1 to +1. When asked what are the most common grades of penetration index he has seen in his experience, he responded "[m]aybe from .5 to negative 1.5, somewhere in that range, most common, but not all." Ex. 1031, 117:11–15. As can be seen from the plots reproduced above from the Patent Owner Response, a PI value range of -1 to +1 already includes some 20 pen asphalts that are outside of claimed range of softening points. See PO Resp. 30, 32. Applying a PI value range of -3 to +3 sweeps in more asphalts, both 10 pen and 20 pen, which would have softening points outside the claimed range. *Id.*

Petitioner's arguments in Reply that the "claimed softening point above 60°C is inherent and 'typical' for many 10/20 pen asphalts disclosed in *Bardesi*" (Reply 1), that the claimed softening point "is the typical and expected value when a hard pen asphalt composition is used" (*id.* at 6), and that "the corrected Pfeiffer relationship still shows that *most* 10/20 pen asphalts . . . will have the claimed softening point values" (*id.* at 18) do not support the inherency of the claimed softening point. Indeed, those probabilistic arguments only underscore that the softening point limitation is not necessarily present in *Bardesi*. See *PAR Pharm.*, 773 F.3d at 1195 ("Inherency . . . may not be established by probabilities or possibilities."). These arguments morph the inherency analysis from requiring that a feature is necessarily present to one in which the feature need only be more likely than not present. See Tr. 28:20–29:2 (Petitioner responding to a question whether "typical" PI values are sufficient for inherency by arguing, "[w]e think that we have to show that it's the preponderance of the evidence that the asphalts used by *Bardesi* would be within the claimed parameters.")

At the hearing, Petitioner suggested that it was abandoning the inherency theory for the softening point limitation, stating that “we are not relying upon inherency with respect to all asphalts will necessarily have that claimed softening point.” *See* Tr. 80:8–14. The problem for Petitioner, however, is that inherency was the only theory presented in the Petition for why the cited combination teaches or renders obvious the softening point limitation. We have already reviewed above the numerous portions of the Petition in which Petitioner relied on inherency for the softening point limitation. *See* Pet. 22, 24, 27, 38, 40, 50.<sup>6</sup> Petitioner argued at the hearing that inherency “wasn’t an all-or-nothing proposition”—i.e., that its Petition did not rely only on inherency for the softening point limitation. *See* Tr. 79:4–80:14. Petitioner pointed to its reliance on Dr. King’s experience, Dr. King’s use of the Pfeiffer equation, and the assumptions Dr. King used in applying the Pfeiffer equation. *Id.* Yet those are all facts that Petitioner relied on to show why the softening point limitation was inherently and necessarily present in Bardesi, not reasons why the softening point limitation would have been obvious separate or independent from inherency.

To the extent Petitioner’s arguments in the Reply and at the hearing that the claimed range of softening points is typical or expected are offered as an alternative theory of obviousness in lieu of inherency, those arguments

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<sup>6</sup> Even in the Reply, Petitioner continued to refer to the softening point limitation as being inherently and necessarily present. *See* Reply 1 (“The [’]624 patent is invalid because Petitioner shows that this claimed softening point above 60°C is *inherent* and ‘typical’ for many 10/20 pen asphalts disclosed in Bardesi.”) (emphasis added); *id.* at 3 (“any 10-20 pen specification paving grade bitumen purchased in Britain at the time of Bardesi’s publication would have *necessarily* had a softening point well above 60°C”) (emphasis added).

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were not adequately developed and presented in the Petition. “It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (quoting 35 U.S.C. § 312(a)(3)). “Unlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.” *Id.*

The Federal Circuit has applied this rule to bar a petitioner from shifting its theory of obviousness after the patent owner pointed out the flaws of the obviousness case presented in the petition. *See Wasica Finance GmbH v. Continental Automotive Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017) (“Rather than explaining how its original petition was correct, Continental’s subsequent arguments amount to an entirely new theory of prima facie obviousness absent from the petition. Shifting arguments in this fashion is foreclosed by statute, our precedent, and Board guidelines.”). Likewise, the Petition in this case relied on inherency for the softening point limitation, and Patent Owner successfully rebutted that theory in its Patent Owner Response. Following that rebuttal, Petitioner is not permitted to abandon inherency to pursue a different theory that it did not present in its Petition. Accordingly, we do not reach the issue of whether the claim is obvious under a different theory than Petitioner advanced in its Petition.

Finally, we find unpersuasive Petitioner’s argument that it has presented a prima facie case of obviousness due to the overlap in the claimed

range of softening points with that of the prior art. Reply 19 (citing *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003)). *Peterson* states that “[a] *prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art.”

*Peterson*, 315 F.3d at 1329. Leaving aside the dubious transferability of this principle from the examination context to the *inter partes* review setting, this proposition is unhelpful to Petitioner’s case on the merits because Bardesi does not disclose a range of softening points at all. The parties’ experts have calculated a potential range of softening points from the penetration value disclosed in Bardesi by assuming a certain range of PI values. Because Bardesi itself discloses neither softening point ranges nor PI value ranges, Petitioner’s overlapping range argument is unpersuasive.

For these reasons, we determine that Petitioner did not carry its burden to demonstrate that claim 1 would have been obvious in view of the cited references.

2. *Claims 2–12, 14–23, and 25*

Independent claims 14 and 25 include substantially the same softening point limitation as in claim 1. *See* Ex. 1001, 15:8–10; 16:35–37. Petitioner’s evidence and arguments, and Patent Owner’s rebuttal, regarding the softening point limitation in those claims are the same as for claim 1. *See* Pet. 38, 40, 50; PO Resp. 24–47; Reply 4–6, 17–20. Thus, for the reasons discussed in Section III.D.1, Petitioner has not established by a preponderance of the evidence that claims 14 and 25 would have been obvious in view of the cited combination. By virtue of their dependency, claims 2–12 and 15–23 incorporate the softening point limitation recited in claims 1 and 14. Thus, Petitioner also has not demonstrated the

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unpatentability of any of those claims. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.”).

*E. Secondary Considerations of Nonobviousness*

Because our evaluation of the first three *Graham* factors leads us to determine that Petitioner has not demonstrated that the challenged claims would have been obviousness in view of the cited art, we need not determine whether Patent Owner’s evidence of secondary considerations weighs further against a conclusion of obviousness.

The Federal Circuit has repeatedly emphasized that secondary considerations must be considered en route to a determination of obviousness. *See Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016); *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012); *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 663 (Fed. Cir. 2000). However, we are unaware of authority requiring evaluation of secondary considerations en route to a determination of *non*obviousness. Indeed, the Federal Circuit has found it unnecessary to consider arguments relating to objective indicia of nonobviousness when the patent challenger failed to establish obviousness. *See Otsuka Pharmaceutical Co. v. Sandoz, Inc.*, 678 F.3d 1280, 1296 (Fed. Cir. 2012) (“Because we agree with the district court that the Defendants failed to prove that claim 12 of the ’528 patent would have been prima facie obvious over the asserted prior art compounds, we need not address the court’s findings regarding objective evidence of nonobviousness.”); *ProBatter Sports, LLC v. Sports Tutor, Inc.*, 680 F. App’x 972, 976 (Fed. Cir. 2017) (“Because we conclude that Sports Tutor failed to establish obviousness by

clear and convincing evidence even without considering ProBatter's contrary evidence, we need not address ProBatter's evidence of objective indicia of nonobviousness.").

This approach makes sense, given that secondary considerations are a bulwark against improper hindsight bias in the obviousness analysis. *See, e.g., Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1378 (Fed. Cir. 2012) ("These objective criteria help inoculate the obviousness analysis against hindsight."); *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litigation*, 676 F.3d 1063, 1079 (Fed. Cir. 2012) ("The objective considerations, when considered with the balance of the obviousness evidence in the record, guard as a check against hindsight bias."). Consistent with that role, secondary considerations can serve to disprove or rebut obviousness. *See Transocean*, 699 F.3d at 1349 ("A party is also free to introduce evidence relevant to the fourth *Graham* factor, objective evidence of nonobviousness, which may be sufficient to disprove or rebut a prima facie case of obviousness."); *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999) ("The objective evidence of non-obviousness may be used to rebut a prima facie case of obviousness based on prior art references."). Such rebuttal is unnecessary when the evidence under the first three *Graham* factors does not show obviousness.

When the first three *Graham* factors do not show obviousness, evaluation of secondary considerations is superfluous because the secondary considerations will not affect the outcome. In the scenario where a patent challenger has not presented sufficient evidence of obviousness under the first three *Graham* factors, a determination that the secondary considerations do not tend to show nonobviousness would still yield an ultimate

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determination that obviousness had not been shown. In the same scenario, the same ultimate determination that obviousness had not been proved would flow from a determination that the secondary considerations do tend to show nonobviousness.

We also note that the Board has previously declined to weigh secondary considerations when evaluation of the first three *Graham* factors led to a determination that obviousness had not been proven. *See, e.g., Purdue Pharma L.P. v. Depomed, Inc.*, Case IPR2014-00377, 2015 WL 4150832, at \*21 (PTAB July 8, 2015) (“In light of our determination that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable as obvious, we need not reach the merits of Patent Owner’s evidence of secondary considerations of nonobviousness.”), *aff’d*, 643 F. App’x 960, 966 (Fed. Cir. 2016) (nonprecedential) (“[W]e conclude that the Board did not err in finding that [the petitioner] failed to establish a reason to combine. . . . Because the Board did not reach the merits of [the patent owner]’s evidence of secondary considerations, we similarly decline to do so in the first instance on appeal.”).

Accordingly, we do not reach the merits of Patent Owner’s secondary considerations of nonobviousness.

*F. Conclusions Regarding Petitioner’s Obviousness Challenge*

Petitioner has not shown by a preponderance of the evidence that any of claims 1–12, 14–23, and 25 would have been obvious based on the combination of AEMA and Bardesi in view of Christensen, Durand, and/or The Asphalt Handbook.



#### IV. MOTIONS TO EXCLUDE EVIDENCE

##### *A. Petitioner's Motion to Exclude*

Petitioner moves to exclude Exhibits 2033 and 2043, which are declarations of R. Grover Allen, an employee of Patent Owner. Paper 26, 1; Ex. 2033 ¶ 1. In Exhibit 2033, Dr. Allen describes the performance and results of testing on certain emulsions and base asphalts that was performed at a lab owned by Patent Owner. Ex. 2033 ¶¶ 2–21. In Exhibit 2043, Dr. Allen describes his own educational background and qualifications. Ex. 2043 ¶¶ 2–6. Patent Owner relies on these exhibits in support of its argument that base asphalts having pen values or softening points within the claimed range can result in tack coats after curing whose rheological properties are outside of the claimed ranges. PO Resp. 21–23. Petitioner argues that the declarations should be excluded because Dr. Allen does not have firsthand knowledge of the testing, because the description of the testing is hearsay, and because the declarations do not disclose sufficient information about the methodologies or results of the testing. Paper 26, 3–4, 6–11; Paper 37, 1–5. This Final Decision does not rely upon the content of either of Dr. Allen's declarations. Therefore, we *dismiss as moot* Petitioner's Motion to Exclude.

##### *B. Patent Owner's Motion to Exclude*

Patent Owner moves to exclude Exhibit 1022 and Attachments B–F to Exhibit 1030, the Rebuttal Declaration of Dr. King. Paper 29, 1. The documents at issue are product specifications, circulars, and technical papers, which Dr. King cites in his analysis of Patent Owner's testing as described in Dr. Allen's declaration and Patent Owner's argument regarding secondary considerations. *See* Ex. 1030 ¶¶ 20, 33. Patent Owner moves to

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exclude these documents pursuant to Rule 901(a) of the Federal Rules of Evidence, arguing that they are not authenticated. Paper 29, 2–6; Paper 36, 1–3. This Final Decision does not rely upon any of the documents that are the subject of Patent Owner’s motion to exclude. Therefore, we *dismiss as moot* Patent Owner’s Motion to Exclude.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–12, 14–23, and 25 have not been shown to be unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Exclude is *dismissed as moot*;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is *dismissed as moot*; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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**UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT**

**COLAS SOLUTIONS, INC.,** )  
 )  
 Appellant, ) **NOTICE OF APPEAL**  
 )  
 v. )  
 )  
**BLACKLIDGE EMULSIONS, INC.,** )  
 )  
 Appellee. )  
 )

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. §§ 90.2(a) and 90.3(a)(1), Appellant, Colas Solutions, Inc. hereby appeals to the United States Court of Appeals for the Federal Circuit for review of the Final Written Decision (Appeal IPR 2016-01032) of the United States Patent and Trademark Office Patent Trial and Appeal Board (“PTAB”) entered on November 2, 2017. A copy of the Final Written Decision is attached. This appeal is being timely filed within sixty-three days of the Final Written Decision pursuant to 37 C.F.R. § 90.3(a)(1).

This Notice of Appeal is being filed with the Director of the United States Patent and Trademark Office. The docketing fee of \$500.00 and the Notice of Appeal are also being electronically filed with the Clerk of Court for the United States Court of Appeals for the Federal Circuit. *See* Fed. Cir. R. 15(a)(1).

Simultaneously, a copy of this Notice of Appeal is being filed with the United States Patent and Trademark Office Patent Trial and Appeal Board.

Date: December 28, 2017

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## **CERTIFICATE OF FILING AND SERVICE**

I hereby certify that the original foregoing NOTICE OF APPEAL is being delivered via hand delivery this 28th day of December, 2017 to:

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel, Room 10B20  
Madison Building East, 600 Dulany Street  
Alexandria, Virginia 22313

I also hereby certify that a true and correct copy of the foregoing NOTICE OF APPEAL is being served via first class mail this 28<sup>th</sup> day of December, 2017, on counsel for Blacklidge Emulsions, Inc. as follows:

John F. Triggs  
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I hereby certify that on this 28<sup>th</sup> day of December, 2017, I electronically filed the foregoing NOTICE OF APPEAL and docketing fee of \$500 with the Clerk of the United States Court of Appeals for the Federal Circuit by using the CM/ECF system.

Date: December 28, 2017

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