

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

**LIQUIDPOWER SPECIALTY PRODUCTS INC., FKA
LUBRIZOL SPECIALTY PRODUCTS, INC.,**
Appellant

v.

**BAKER HUGHES, A GE COMPANY, LLC, FKA
BAKER HUGHES INCORPORATED,**
Appellee

2018-1141

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2016-
00734.

Decided: October 18, 2018

EDWARD R. REINES, Weil, Gotshal & Manges LLP,
Redwood Shores, CA, argued for appellant. Also repre-
sented by DOUGLAS WAYNE MCCLELLAN, Houston, TX;
ELIZABETH WEISWASSER, New York, NY.

HERBERT D. HART, III, McAndrews, Held & Malloy,
Ltd., Chicago, IL, argued for appellee. Also represented
by AARON BARKOFF, PETER LISH, GEORGE WHEELER.

Before PROST, *Chief Judge*, MOORE and HUGHES, *Circuit Judges*.

MOORE, *Circuit Judge*.

LiquidPower Specialty Products Inc. (“LSPI”) appeals the final written decision on *inter partes* review of the Patent Trial and Appeal Board holding claims 8–10 of U.S. Patent No. 8,022,118 unpatentable for obviousness over U.S. Patent No. 6,015,779 (“Eaton”), a publication titled “The Chemistry of Alberta Oil Sands, Bitumens and Heavy Oils” (“Strausz”), and U.S. Patent No. 4,983,186 (“Naiman”).¹ Because the Board erred by failing to weigh LSPI’s objective evidence of nonobviousness, we *vacate* and *remand*.

BACKGROUND

The ’118 patent relates to high molecular weight drag reducing polymers for use in heavy, asphaltenic crude oil (“HAC”). ’118 patent at 1:8–12. Independent claim 10 is illustrative and recites:

10. A method comprising:

introducing a drag reducing polymer having a solubility parameter of at least about 17 MPa^{1/2}, into a pipeline, such that the friction loss associated with the turbulent flow through the pipeline is reduced by suppressing the growth of turbulent eddies, into a liquid hydrocarbon having an asphaltene content of at least 3 weight percent and an API gravity of less than about 26° to thereby produce a treated liquid hydrocarbon wherein the viscosity of the treated liquid hydro-

¹ Liquid Power does not appeal the Board’s decision holding claims 1–7 and 11 unpatentable on other grounds.

carbon is not less than the viscosity of the liquid hydrocarbon prior to treatment with the drag reducing polymer;

wherein the drag reducing polymer has a solubility parameter within $4 \text{ MPa}^{1/2}$ of the solubility parameter of the liquid hydrocarbon and the drag reducing polymer comprises at least about 25,000 repeating units, and wherein a plurality of the repeating units comprise a heteroatom, wherein the heteroatom is selected from the group consisting of an oxygen atom, a nitrogen atom, a sulfur atom and/or a phosphorus atom and wherein the drag reducing polymer has a weight average molecular weight of at least $1 \times 10^6 \text{ g/mol}$ and

the drag reducing polymer is added to the liquid hydrocarbon in the range from about 0.1 to about 500 ppmw.

Baker Hughes, a GE Company, LLC, petitioned for *inter partes* review, arguing claims 8–10 would have been obvious over Eaton in view of Strausz and Naiman. The Board held that the claims would have been obvious in light of this combination. It found a person of ordinary skill in the art would have determined which of Naiman's polymers would be soluble in Eaton's Bow River crude oil based on their known solubility parameters and then would have used Naiman's polymerization process to prepare that polymer. It found substituting Eaton's polymers with Naiman's would have been a substitution of one known drag reducing polymer for another with the predictable result of reducing drag in a pipeline. It declined to consider LSPI's objective evidence of nonobviousness because it found that LSPI did not establish a nexus to the claimed invention.

LSPI timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

We review the Board’s legal determinations de novo and its factual findings for substantial evidence. *In re Van Os*, 844 F.3d 1359, 1360 (Fed. Cir. 2017). Obviousness is a question of law based on underlying facts. *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1358 (Fed. Cir. 2017). The obviousness inquiry requires consideration of the four *Graham* factors: “(1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective considerations of nonobviousness.” *Id.* These are questions of fact. *Id.*

A.

LSPI argues the Board’s finding that the combination of Eaton, Strausz, and Naiman discloses “introducing a drag reducing polymer . . . into a pipeline, such that the friction loss associated with the turbulent flow through the pipeline is reduced by suppressing the growth of turbulent eddies, into” HAC (“the drag reduction limitation”) is not supported by substantial evidence. The Board relied on Naiman’s disclosure that its polymers are drag reducing and testimony establishing that Naiman discloses polymers that would have been soluble in Eaton’s Bow River crude oil, a type of HAC, to find that Naiman’s polymers would have reduced drag in HAC. J.A. 1614 at 2:18–24; J.A. 1616 at 5:21–52; J.A. 2371–73 at ¶¶ 54–57. We hold that substantial evidence supports this finding.

B.

LSPI argues the Board’s finding that there would have been a motivation to replace Eaton’s polymers with Naiman’s polymers to reduce drag in Bow River crude oil with a reasonable expectation of success is not supported by substantial evidence. It argues Naiman’s polymers would have poisoned the catalyst used during Eaton’s

polymerization process. This argument is unpersuasive because the Board found that a person of ordinary skill in the art would have used Naiman's polymerization process, not Eaton's, to prepare the polymer. The Board relied on the testimony of Baker Hughes' expert, Dr. Epps, who testified that a person of ordinary skill in the art would have understood that Naiman's polymerization process was less limited and less expensive compared to Eaton's, would have considered Naiman's polymers an advantageous replacement, and would have expected Naiman's polymers to be an effective drag reducing agent in Bow River crude oil. J.A. 1665–67 at ¶¶ 108–111; J.A. 1671 at ¶ 121. We hold that substantial evidence supports this finding.

C.

“The objective indicia of non-obviousness play an important role as a guard against the statutorily proscribed hindsight reasoning in the obviousness analysis.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). As one of the four *Graham* factors, objective indicia must be considered in every case where present. *Arctic Cat*, 876 F.3d at 1358.

LSPI argues multiple objective indicia support nonobviousness, including long-felt but unsolved need, failure of others, skepticism of experts, unexpected results, industry praise, commercial success, copying, and acquiescence to an injunction. The Board declined to consider LSPI's objective evidence because it found that LSPI did not establish it was entitled to a presumption of nexus. The Board's reasoning is not entirely clear, but we need not determine whether the presumption applies because there was extensive direct evidence of nexus and arguments related thereto presented by LSPI. J.A. 876–99. To the extent that the Board made a fact finding that LSPI failed to establish nexus for its objective evidence, we conclude

that this fact finding is not supported by substantial evidence.

For example, LSPI submitted ample support establishing nexus for its objective evidence related to the commercial products of LSPI, Baker Hughes, and Flowchem. For LSPI's product ExtremePower, it submitted evidence of commercial success driven by the claimed features of the '118 patent, including its ability to reduce drag in HAC. J.A. 883–84; J.A. 2865–82. It also submitted evidence that ExtremePower was recognized in the industry as a pioneering technological breakthrough. J.A. 882–83; J.A. 2864–65. There is no evidence in the record that this commercial success or industry praise was due to any unclaimed features of the product. LSPI also submitted evidence detailing how its competitors copied drag reducing agents from the '118 patent to develop their own products that practice the claimed methods. J.A. 884–99; J.A. 2882–86. By tying the evidence to these commercial products that are designed and marketed to reduce drag in the flow of HAC through a pipeline, LSPI has put forth enough evidence to establish a nexus to the claimed invention. J.A. 884, 896; J.A. 2881–85.

LSPI also submitted evidence that there was a long-felt but unsolved need for improvements to the transportation of heavy crude oils through a pipeline. J.A. 876–79; J.A. 2859–61. It submitted evidence that competitors Baker Hughes and Flowchem recognized this problem but failed to develop a drag-reducing agent that was effective in heavy crude oils. J.A. 879–80; J.A. 2861–63. It submitted evidence that, prior to the '118 patent, those in the industry, including Baker Hughes, were skeptical that heavy crude oils could be drag reduced. J.A. 880–81; J.A. 2863–64. It submitted evidence that the '118 patent produced unexpected results and industry praise. J.A. 881–82; J.A. 2864–65. Finally, it submitted evidence that Flowchem entered into a stipulated injunction ac-

knowledging that claims 8–10 of the '118 patent are valid and enforceable. J.A. 899; J.A. 3744–51. The Board therefore erred by failing to consider the objective evidence in its obviousness determination.

We have considered LSPI's other arguments and find them unpersuasive.

CONCLUSION

Substantial evidence supports the Board's findings that the prior art discloses the drag reduction limitation and that a person of ordinary skill in the art would have been motivated to combine the prior art with a reasonable expectation of success. But because substantial evidence does not support the Board's finding that LSPI failed to establish nexus, the Board erred in not weighing LSPI's objective evidence of nonobviousness. Accordingly, we vacate its decision and remand. On remand, it is up to the Board to consider the amount of weight to give this evidence.

VACATED AND REMANDED

COSTS

No costs.