

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CARGILL, INCORPORATED,
Petitioner,

v.

BUNGE LODERS CROKLAAN USA, LLC,
Patent Owner.

IPR2024-01360
Patent 7,645,473 B2

Before GRACE KARAFFA OBERMANN, KIMBERLY MCGRAW, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

DENNETT, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

A. *Background and Summary*

Cargill, Incorporated (“Petitioner”) filed a petition requesting *inter partes* review (Paper 2, “Pet.”) of claims 1, 6–9, and 11–24 (“the challenged claims”) of U.S. Patent No. 7,645,473 B2 (Ex. 1001, the “’473 patent”). See 35 U.S.C. § 311. Bunge Loders Croklaan USA, LLC (“Patent Owner”) filed a Preliminary Response (Paper 11, “Prelim. Resp.”).

With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 12, “Prelim. Reply”) and Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 13, “Prelim. Sur-reply”).

Under 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Having considered the arguments and the associated evidence, we determine that Petitioner does not meet the reasonable likelihood standard, and we do not institute *inter partes* review.

B. *Real Parties in Interest*

Petitioner identifies itself as the real party in interest. Pet. 1.

Patent Owner identifies itself the real party in interest. Paper 4, 1.

C. *Related Matters*

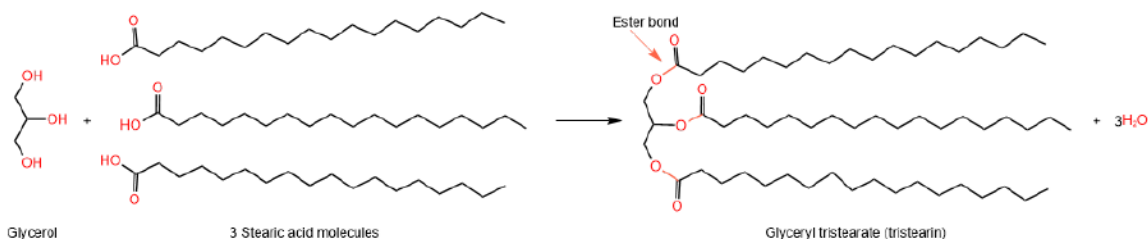
As required by 37 C.F.R. § 42.8(b)(2), the parties identify as a related matter a district court proceeding filed by Patent Owner involving the ’473

patent: *Bunge Loders Crokiaan USA, LLC v. Cargill Inc.*, No. 24–00884
RGA (D.Del.). Pet. 1; Paper 4, 2.

D. Technology Overview

We provide the following background to aid in understanding the terminology at issue in this Decision.

Vegetable fats come from plants, typically from extracts of seeds or other plant parts, and are made up of triglycerides, which are in turn made up of glycerol condensed with three fatty acids, as illustrated below.

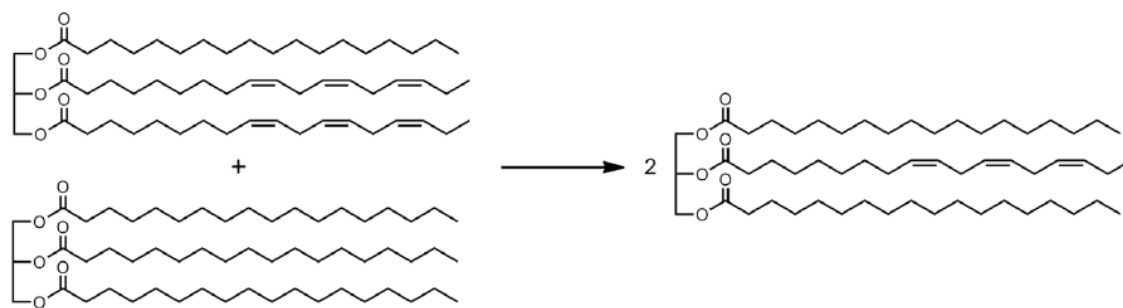


(Illustration taken from Prelim. Resp. 10).

The illustration shows a glycerol molecule and three fatty acids on the left, and a triglyceride plus three water molecules on the right, the result of a condensation reaction.

Fatty acids can be saturated (having only single bonds between carbon atoms in their hydrocarbon chains) or unsaturated (having one or more double bonds between carbon atoms in their hydrocarbon chains, reducing the number of bonded hydrogen atoms).

Interesterification is a reaction of rearranging the fatty acids in triglyceride molecules.



(Illustration taken from Prelim. Resp. 11).

The illustration above shows two triglycerides on the left, the uppermost having one saturated and two unsaturated fatty acid moieties and the lowermost having three saturated fatty acid moieties. Shown on the right is the result of an interesterification reaction, producing two new triglycerides, each with two saturated and one unsaturated fatty acid moiety.

E. The '473 patent (Ex. 1001)

The '473 patent, titled "Fat Composition," issued on January 12, 2010. Ex. 1001, codes (45), (54). The filing date of the application leading to the '473 patent is June 13, 2006. *Id.* at code (22).

The '473 patent is directed to a vegetable fat composition glycerides and to its applications in baked products and iced confectionary products. Ex. 1001, 1:6-8. According to the '473 patent, consumers desire food products low in both *trans* and saturated fatty acids, and modifying triglyceride compositions to achieve this is complex because the component fatty acids, particularly saturated fatty acids, affect the functional and organoleptic properties. *Id.* at 1:9-17. The '473 patent discloses a purported improved vegetable fat composition with specific amounts of SSS, SUS, SSU, SU₂, and U₃ triglycerides ("S" representing a saturated fatty acid residue with 16 to 24 carbon atoms, and "U" representing an unsaturated

fatty acid residue with at least 18 carbons). *Id.* at 2:10–20. The composition can be a blend of commercially available fats, including an interesterified palm olein and canola oil, with component amounts selected to achieve the claimed triglyceride composition. *Id.* at 3:6–15; 4:53–55.

F. Illustrative Claim

Of the challenged claims, claim 1 is independent. Challenged claims 6–9 and 11–24 depend directly from claim 1. Claim 1, reproduced below (with bracketed numbering as added by Petitioner), illustrates the claimed subject matter:

1. A vegetable fat composition comprising glycerides, wherein the triglyceride content of the composition is:

[1.1] 6 to 20% SSS,

[1.2] 5 to less than 20% SUS

[1.3] 5 to less than 25% SSU

[1.4] 10 to 39 SU₂ and

[1.5] at least 20% U₃,

[1.6] wherein S is a saturated fatty acid residue having 16 to 24 carbon atoms and U is an unsaturated fatty acid residue having at least 18 carbon atoms and all percentages are by weight based on the total triglycerides present in the composition,

[1.7] the weight ratio SUS/SSU is between 0.5 and 2.0,

[1.8] the weight ratio of (saturated fatty acid residues having 18 to 24 carbon atoms)/(saturated fatty acid residues having 16 carbon atoms) in the total S content of the triglycerides is less than 0.2,

[1.9] and the triglycerides contain less than 3% of arachidic and behenic acid residues based on the total fatty acid residue content of the triglycerides,

[1.10] and wherein the saturated fatty acid residue content of the triglycerides is less than 45% by weight of the total fatty acid residues in the triglycerides.

Ex. 1001, 7:20–41.

G. Prior Art and Asserted Grounds

Petitioner asserts that claims 1, 6–9, and 11–24 are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	References/Basis
1, 6–9, 11–17, 20	103 ¹	Petrauskaite, ² knowledge generally available in the art
18, 19, 21–24	103	Petrauskaite, Idris ³

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (2011) (“AIA”), amended several provisions of 35 U.S.C., including § 103. Because the ’473 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer herein to the pre-AIA version of § 103.

² V. Petrauskaite et al., “Physical and Chemical Properties of *trans*-Free Fats Produced by Chemical Interesterification of Vegetable Oil Blends,” J. Amer. Oil Chem. Soc. (Apr. 1998), pp. 489–93 (Ex. 1007).

³ N.A. Idris et al., “Evaluation of Shortenings Based on Various Palm Oil Products,” J. Sci. Food Agric. (1989), pp. 481–93 (Ex. 1009).

As further support, Petitioner offers the Declarations of Alejandro G. Marangoni, Ph.D. (Ex. 1003) and Sylvia D. Hall-Ellis, Ph.D. (Ex. 1005). Patent Owner offers the Declaration of Eric A. Decker, Ph.D. (Ex. 2001).

II. ANALYSIS

A. *Principles of Law*

A patent claim is unpatentable under pre-AIA 35 U.S.C. § 103 “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.⁴ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic, Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

⁴ We have no objective indicia of nonobviousness before us.

B. Level of Ordinary Skill in the Art

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

Relying on the declaration testimony of Dr. Marangoni, Petitioner asserts that a person of ordinary skill in the art (“POSITA”) “is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity.” Pet. 9. Further, a POSITA

would have at least (1) a bachelor’s degree in food science, biology, chemistry, or a related discipline (or equivalent course work) and 10 years of work experience in the food industry, or (2) a master’s degree or Ph.D. in food science, biology, chemistry, or a related discipline (or equivalent course work) and at least 3 years of work experience in the food industry. A POSITA could also be part of a team of food scientists, including baking and confectionary chemists.

Id. at 9–10 (citing Ex. 1003 ¶¶ 17, 26–27).

Patent Owner does not proffer a definition of a POSITA, but challenges that of Petitioner because Petitioner’s definition allegedly contains no reference to a specific time period. Prelim. Resp. 48–49.

For purposes of this institution decision, and based on the present record including the disclosure in the ’473 patent, we apply Petitioner’s definition of the level of ordinary skill in the art *at the time the invention was made*, consistent with pre-AIA section 103(a). *See* Pet. 9–10. We determine this level of skill comports with the qualifications a person would have needed to understand and implement the teachings of the ’473 patent and the

prior art of record. *Cf. Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (noting that the prior art itself may reflect an appropriate level of skill in the art).

C. Claim Construction

In interpreting the claims of the '473 patent, we “us[e] the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. [§] 282(b).” *See* 37 C.F.R. § 42.100(b) (2024). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art in light of the written description and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner proposes constructions for several terms, all such constructions based on statements in the '473 patent. *See* Pet. 10–12. Patent Owner presents no claim construction issues. Prelim. Resp. 8 n.3.

For purposes of this Decision, we determine that no claim term requires express interpretation at this time. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (per curiam) (claim terms need to be construed “only to the extent necessary to resolve the controversy” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Overview of Cited References

1. *Petrauskaite* (Ex. 1007)

Petrauskaite is an article entitled “Physical and Chemical Properties of *trans*-Free Fats Produced by Chemical Interesterification of Vegetable Oil Blends,” which bears a legend of the “88th AOCS Annual Meeting and

Expo.” Ex. 1007. Petitioner contends that Petrauskaite was published no later than April 30, 1998, and constitutes prior art under section 102(a)(1). Pet. 4. Petrauskaite reports that “[f]at blends, formulated by mixing a highly saturated fat (palm stearin or fully hydrogenated soybean oil) with a native vegetable oil (soybean oil) in different ratios from 10:90 to 75:25 (wt%), were subjected to chemical interesterification reactions.” *Id.*, Abstract. The reference reports the triglyceride composition, solid fat content, free fatty acid content, and *trans* fatty acid (TFA) levels for starting and interesterified blends *Id.*

2. *Idris (Ex. 1009)*

Idris is an article entitled “Evaluation of Shortenings Based on Various Palm Oil Products.” Ex. 1009, Title. Idris discloses “[s]everal formulations based on blends of hydrogenated palm oil . . . and palm stearin (IV 44) with other liquid oils, on direct blends of palm stearin with other liquid oils, and on 100% inter-esterified palm olein, were used as feedstocks in shortening production.” *Id.*, Abstract. Idris reports the results of evaluating “[p]hysicochemical characteristics, creaming properties and baking performance of the shortenings” in comparison with “the best shortening on the market.” *Id.*

E. *Asserted Obviousness*

1. *Ground 1: Obviousness of Claims 1, 6–9, 11–17, and 20 over Petrauskaite in view of Knowledge Generally Available in the Art*

Petitioner contends that claims 1, 6–9, 11–17, and 20 are unpatentable under 35 U.S.C. § 103(a) over the teachings of Petrauskaite in view of the knowledge generally available in the art. Pet. 13–42.

Patent Owner challenges Ground 1 as (a) being based on a covert and flawed inherency argument; (b) improperly relying on “general knowledge”; (c) improperly relying on prior art references that are not identified as part of either Ground 1 or Ground 2; and (d) relying on an erroneous and contradictory analysis of interesterification. Prelim. Resp. 14–48.

For the reasons explained herein, we are not persuaded that Petitioner has established a reasonable likelihood of establishing unpatentability of any of the challenged claims on the basis of Ground 1.

a. Knowledge Generally Available in the Art

Petitioner argues that Petruskaite discloses two blends of palm stearin and soy bean oil (after esterification), and acknowledges that the reference is silent on the weight percent (wt%) of the listed triglycerides. Pet. 14. Petitioner contends that the wt% of Petruskaite’s fat blends can easily be calculated based on the generally available prior art knowledge of fatty acid compositions of palm stearin and soybean oil,” stating that “the molecular weights and relative proportions of the various fatty acids in palm stearin and soybean oil were within the general knowledge of a POSITA.” *Id.* at 14–15 (citing *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337–38 (Fed. Cir. 2020) (the Board is permitted to rely on general knowledge to supply a missing claim limitation in an inter partes review); *Randall Mfg v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (background knowledge “is part of the store of public knowledge that must be consulted when considering whether a claimed invention would have been obvious”).

b. Claim 1

- (1) “[1.0] A vegetable fat composition comprising glycerides wherein the triglyceride content of the composition is”

Petitioner presents evidence that Petruskaite discloses “[f]at blends, formulated by mixing a highly saturated fat (palm stearin or fully hydrogenated soybean oil) with a native vegetable oil (soybean oil).” Pet. 14 (citing Ex. 1007, Abstr.). Petitioner asserts that “[p]alm oil, soybean oils, and fractions thereof were all known in the art to be vegetable fats that comprise triglycerides.” *Id.* (citing Ex. 1012, 82–6, 96–97 and Ex. 1003 ¶¶ 54–55).

Patent Owner does not specifically address whether Petruskaite discloses the preamble. *See generally* Prelim. Resp.

At this stage of the proceeding, based on the teachings of Petruskaite, we are persuaded that a person of ordinary skill in the art at the critical time would have understood that Petruskaite discloses the preamble.⁵ Additionally, we credit the testimony of Dr. Marangoni, whose testimony is consistent with Petruskaite’s disclosure. *See* Ex. 1003 ¶¶ 54–56.

- (2) “[1.1] 6 to 20% SSS, . . . all percentages are by weight based on the total triglyceride present in the composition”

Petitioner asserts that Petruskaite and knowledge generally available in the art disclose this limitation. Pet. 14–15. More specifically, Petitioner contends that Petruskaite discloses two blends of palm stearin and soybean

⁵ Petitioner does not take a position on whether the preamble to claim 1 is limiting. For purposes of this Decision, we accept Petitioner’s showing that the preamble is taught or suggested by the Petruskaite, without deciding whether the preamble is limiting.

oil (40:60 and 50:50) that after interesterification have experimentally-determined mole percentages (“mol%”) of S₃ (or SSS) that can be calculated to have weight percentages (“wt%”) of SSS that fall within the “6 to 20% SSS . . . by weight based on the total triglyceride present in the composition.” *Id.* Petitioner acknowledges that Petruskaite discloses mol% of SSS and claim 1 recites wt% of SSS. *Id.* However, Petitioner attempts to demonstrate that the wt% of SSS in each of the two specific Petruskaite fat blends “can easily be calculated based on the generally available prior art knowledge of fatty acid compositions of palm stearin and soybean oil.” *Id.* As noted above, Petitioner asserts that “the molecular weights and relative proportions of the various fatty acids in palm stearin and soybean oil were within the general knowledge of a POSITA.” *Id.* at 15.

Palm stearin largely⁶ comprises palmitic acid (C_{16:0})⁷ and stearic acid (C_{18:0}) as saturated fatty acids, and oleic acid (C_{18:1}) and linoleic acid (C_{18:2}) as unsaturated fatty acids. *See, e.g.*, Ex. 1018, 18–19. Soybean oil largely comprises palmitic acid (C_{16:0}) and stearic acid (C_{18:0}) as saturated fatty acids, and oleic acid (C_{18:1}), linoleic acid (C_{18:2}), and linolenic acid (C_{18:3}) as unsaturated fatty acids. *See, e.g.*, Ex. 2004, 21. The molecular weight of each fatty acid is an unvarying number, as the chemical composition of a fatty acid does not change, e.g., palmitic acid has 16 carbons atoms, 32

⁶ The wt% of fatty acids considered by Petitioner and available in other exhibits do not add to 100 wt%, with the wt% of additional components being on the order of 2.5–7 wt%. *See, e.g.*, Ex. 1014, 379, 381; Ex. 2005, 67; Ex. 2006, 224.

⁷ The C_{x:y} designation refers to the number of carbon atoms (x) and the number of double bonds (y) in each fatty acid. *See* Ex. 2001, 22.

hydrogen atoms, and two oxygen atoms. *See* Ex. 2001 ¶ 92.

Petitioner's representation of the problem as merely converting Petrauskaite's disclosed mol% of triglycerides into wt% of triglycerides with simple calculations represents a form of prohibited reliance on hindsight. *See Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1377 (Fed. Cir. 2012) (hindsight to use the invention to define the problem the invention solves); *see also Ecolochem, Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000) ("Defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness."). "[W]hen someone is presented with the identical problem and told to make the patented invention, it often becomes virtually certain that the artisan will succeed in making the invention." *Mintz*, 679 F.3d at 1377. Here, Petitioner urges that one of ordinary skill in the art need merely convert mol% of triglycerides in a specific fat blend into wt% of triglycerides in the specific fat blend. *See* Pet. 14–15 ("[T]he wt% of Petrauskaite's fat blends can easily be calculated based on the generally available prior art knowledge of fatty acid compositions of palm stearin and soybean oil.").

Petitioner's reasoning says no more than that a skilled artisan, once presented with Petrauskaite and prior art knowledge, "would have understood that they *could be* combined, but that is not enough." *PersonalWeb Techs., LLC, v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017) (that two references could be combined does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention). Our reviewing court instructs that indicating that a skilled artisan could have made modifications to arrive at the claimed invention does not establish that

a person of ordinary skill would have made such modifications. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” (citing *InTouch Technologies, Inc. v. VGO Communications, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014))). Petitioner attempts to check the “*would have been motivated* to modify Petrauskaite” box with testimony from its declarant, Dr. Maragoni. *See* Pet. 37–38. Such testimony includes

[C]ombining such prior art elements according to known methods would have yielded nothing more than predictable results. A POSITA would naturally have turned to these references to understand Petrauskaite’s references better. Ex. 1003 ¶ 178.

[T]he corresponding wt% of Petrauskaite’s fat blends] was readily-available and well-known in the art. *Id.* at ¶ 181.

[T]he available information [on characterizations of oils and fats] is voluminous. *Id.* at ¶ 182.

See Pet. 38. We find that such testimony fails to explain why the skilled artisan would have been motivated, without hindsight, to take the steps to reproduce the claimed invention, and to be conclusory, at best.

On this record, we detect the taint of impermissible hindsight bias in Petitioner’s reliance on general knowledge and opinion testimony to fill a gap in the intrinsic disclosure of the applied prior art reference. We agree with Patent Owner’s assertion here that such “conclusory statements and unspecific expert testimony are insufficient to justify the use of general knowledge to modify a reference or provide a missing limitation.” Prelim. Resp. 34 (citing *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed.

Cir. 2016) (“[R]eferences to ‘common sense’—whether to supply a motivation to combine or a missing limitation—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified.”).

Petitioner’s “first step in converting Petruskaite’s triglyceride mol% to wt% requir[ing] determining the average molecular weight of saturated and unsaturated fatty acids in the individual components of Petruskaite’s ‘40:60’ and ‘50:50’ blends” (Pet. 15–16) relies on knowing the relative proportions of each fatty acid in the blend. Numerous possible examples disclose a wide range of values for each fatty acid wt%. *See, e.g.*, Ex. 1007, 377–380; Ex. 2005, 67; Ex. 2006, 223. Indeed, Deffense itself states that “many other data [for olein and stearin samples] are available from publications by PORIM (9, 10)⁸.” Ex. 1014, 378.

Yet, neither Petitioner nor its declarant, Dr. Marangoni, articulates a reason why one of ordinary skill in the art would look to one particular example in Deffense, rather than any of the other eleven examples or any other available reference as the only source of “knowledge generally available in the art” for the wt% of fatty acids in 100% palm stearin. *See* Pet. 16; *see generally id.*; *see also* Ex. 1003 ¶60 (“The general knowledge in the art includes documents, such as . . . Deffense (EX1014).”); *see also* Prelim. Resp. 21–27.

⁸ “PORIM (9, 10)” refers to the ninth and tenth references cited in the footnotes at page 385 of Deffense: 9. Tan, B.K., and F.C.H. Oh, PORIM (Palm Oil Refiners of Malaysia), Technology No. 4, 1981. 10. PORIM Technical Brochure, Malaysian Palm Oil Refining Industry, 1981.

Review of various references filed by the parties suggests that this variance in wt% of fatty acids is due at least in part to the source of the palm stearin, which is derived from the natural product palm oil, the processing it undergoes, how it is measured, and whether the percentages are experimentally measured results or the results of calculations based on random distribution in an interesterification process. *See, e.g.*, Ex. 1014 (*compare* the wt% of fatty acids of stearins in Tables I-IV); Ex. 2005, 67 (Table 3.6); Ex. 2006, 224 (Table II); *see also* Prelim. Resp. 21–30; Ex. 2001 ¶¶ 91–99. As Patent Owner repeatedly points out, there is no “standard” wt% of each fatty acid in palm stearin. *See* Prelim. Resp. 22, 28, 36, 39; Sur-reply 1.

Petitioner selects a single data set from a single reference, Fractionation of Palm Oil by E. Deffense, et al, published in February 1985 (Exhibit 1014) as “the” wt% for fatty acids in palm stearin. *See* Pet. 16. Exhibit 1014 discloses twelve sets of data on fatty acid wt% of eighty-two samples from industrial plants in southeast Asia. Ex. 1014, 377–80. Petitioner states that “[p]alm stearin is known to be comprised of the following fatty acids with the reported wt% and molecular weights found in Deffense (EX1014, Table IV) and Bailey (EX018, Tables 2 and 4), respectively.” Pet.16. Petitioner then employs in its calculation data for only one of the twelve examples, with no explanation of why the particular data set was selected. *See id.* Here is another example of impermissible hindsight reconstruction of the invention. On this record, we determine that Petitioner fails to show that “a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *See Belden Inc.*, 805 F.3d at 1073.

In the Preliminary Reply, Petitioner, for the first time, contends that specific data on fatty acid wt% used for the conversion calculations were selected to represent “knowledge generally available to one of ordinary skill in the art” due to similarity of the iodine value (“IV”) of the palm stearin (and soybean oil) disclosed in Petrauskaite. Prelim. Reply 2–3. No explanation of the meaning or importance of an iodine value was provided in the Petition. *See generally* Pet. Dr. Marangoni, Petitioner’s declarant, never mentions an iodine value as having any significance in determining what data was used to show knowledge generally available in the art of fatty acid wt%. *See generally* Ex. 1003. The newly-identified significance of an iodine value as support for Petitioner’s decision to use data for a single example of the fatty acid wt% from numerous examples disclosing a wide range of values for each fatty acid wt% again points to hindsight reconstruction of the claimed invention.

The results of hindsight reconstruction carry through the rest of Petitioner’s calculations (determining average molecular weight of triglyceride species in 100% palm stearin and 100% soybean oil, determining average molecular weight of triglyceride species in palm stearin/soybean oil blends, and determining total weight and wt% of triglyceride species in Petrauskaite’s interesterified palm stearin/soybean oil fat blends) to finally produce a wt% for each triglyceride species (SSS, UUU, U₂S, and S₂U). Pet. 21–22 (Table 8); *see id.* at 17–22; *see also* Ex. 1003 ¶¶ 67–80. The end result of the calculations are asserted to show that Petrauskaite’s 40:60 and 50:50 fat blends of palm stearin and soybean oil in view of knowledge generally available in the art disclose the wt% of SSS claimed. Pet. 22.

Patent Owner argues that, had Petitioner and its declarant employed Petrauskaite's calculated values for mol% of triglyceride species, rather than the experimentally determined values, the result of Petitioner's calculations would have been wt% for triglyceride species that fall outside of the wt% ranges claimed. Prelim. Resp. 44–45. Patent Owner's declarant, Dr. Decker, testifies that use of the calculated values results in Petitioner's equations to convert Petrauskaite's mol% of triglyceride species into wt% results in the 40:60 blend having SU₂ of 43.2 wt% (outside the claimed range of 10 to 39), and in the 50:50 blend having U₃ of 14.8 wt% (outside the claimed "at least 20%") and SU₂ of 39.6 wt% (above the claimed range). Ex. 2001 ¶¶ 129–33.

In the Preliminary Reply, Petitioner contends that the experimental data for mol% of triglycerides was chosen, rather than data generated "[a]ccording to Random Distribution Hypothesis" because "it was unclear how the theoretical [calculated] values were determined." Preliminary Reply 3; Ex. 1003, ¶ 125. We note that Petrauskaite states that the "AOCS Official Method Ce 5b-89 (18)" was used to calculate the random triglyceride distributions. Ex. 1007, 490. This disclosure of a cited "official method" further supports attributing the data selected by Petitioner, calculated by a different method, to hindsight reconstruction. This is especially true where Petitioner employs the AOCS Recommended Practice Cd 1c-85 (Exhibit 1020) in calculating the iodine value of soybean oil, but leaves unexplained its decision to use a different method to calculate the random triglyceride distributions. *See* Pet. 7–8 (citing Ex. 1020); Ex. 1003 ¶ 37.

In light of the above, Petitioner does not demonstrate that Petruskaite in view of the knowledge generally available in the art discloses limitation [1.1].

(3) Limitations [1.2]–[1.5]

Because Petitioner employs the same reasoning and calculation in asserting that limitations [1.2]–[1.5] are disclosed by Petruskaite in view of the general knowledge in the art, these limitations are infected by hindsight reconstruction for the reasons discussed above.

Based on our review of the record, we find that Petitioner has failed to demonstrate a reasonable likelihood of prevailing in showing that claim 1 would have been obvious over Petruskaite in view of the knowledge generally available in the art.

c. Claims 6–9, 11–17, and 20

Claim 1 is the only independent claim challenged by Petitioner. *See* Pet. 13; Ex. 1001, claims 1, 6–9, 11–17, 20. Each of challenged dependent claims 6–9, 11–17, and 20 depend directly upon claim 1. Petitioner’s arguments regarding these dependent claims do not remedy the deficiencies regarding independent claim 1 set forth above. *See* Pet. 31–42. Therefore, Petitioner fails to show a reasonable likelihood of prevailing in showing obviousness of any claim challenged in Ground 1 over Petruskaite in view of knowledge generally available in the art.

2. Obviousness of Claims 18, 19, and 21–24 Petruskaite in view of Idris and Knowledge Generally Available in the Art

Claims subject to Ground 2 claim a method of producing a baked product (Claim 18), a method of producing an iced confectionary product (claim 19), a bakery composition (claim 21), an icing composition (claim

22), a baked product (claim 23), or an iced confectionary product (claim 24), with each of these claims reciting that the method incorporates the composition of claim 1 or the product comprises the composition of claim 1. Ex. 1001, claims.

For each challenged claim, Petitioner argues that Petruskaite in view of knowledge generally available in the art discloses the composition of claim 1. Pet. 42–45.

Having found for the reasons above that Petruskaite in view of knowledge generally available in the art fails to disclose the composition of claim 1, we find that Petitioner fails to show a reasonable likelihood of prevailing in showing obviousness of any claim challenged in Ground 2.

III. CONCLUSION

For the foregoing reasons, we determine Petitioner has not established a reasonable likelihood of prevailing in showing that one or more claims are unpatentable over the cited prior art in view of the knowledge generally available in the art.

IV. ORDER

For the reasons given, it is:

ORDERED that the Petition is *denied* and no trial is instituted.

IPR2024-01360
Patent 7,645,473 B2

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