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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* EVA MAX and ANSGAR BEHLER

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Appeal 2019-004845  
Application 15/115,704  
Technology Center 1600

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Before DONALD E. ADAMS, JOHN G. NEW, and  
JAMIE T. WISZ, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from Examiner's decision to reject claims 1–4, 6, 7, and 9–11. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as BASF SE (Appellant's January 24, 2019 Appeal Brief (Appeal Br.) 3).

STATEMENT OF THE CASE

Appellant's disclosure "relates to aqueous surfactant compositions with a content of alpha-sulfo fatty acid disalts and specific alkyl or alkenyl oligoglycosides" (Spec.<sup>2</sup> 1: 6–7). Appellant's claims 1, 3, 9, and 10 are reproduced below:

1. An aqueous surfactant composition comprising  
one or more alpha-sulfa fatty acid disalt (A) of general formula (I),



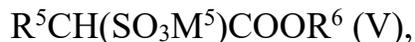
in which radical  $R^1$  is a linear or branched alkyl or alkenyl radical with 6 to 16 carbon atoms and the radicals  $M^1$  and  $M^2$ , independently of one another, are selected from the group consisting of H, Li, Na, K, Ca/2, Mg/2, ammonium, and alkanolamine,

one or more alkyl glycosides (B) of general formula (II),



in which  $R^2$  is an alkyl and/or alkenyl radical with 8 to 18 carbon atoms, G is a sugar radical with 5 or 6 carbon atoms, and p is numbers between 1 and 10,

optionally one or more ester sultanate (E) of general formula (V),



in which radical  $R^5$  is a linear or branched alkyl or alkenyl radical with 6 to 18 carbon atoms and radical  $R^6$  is a linear or branched alkyl or alkenyl radical with 1 to 20 carbon atoms, and the radical  $M^5$  is selected from the group consisting of Li, Na, K, Ca/2, Mg/2, ammonium, and alkanolamine, and

water,

wherein a pH of the composition is in a range of 4.3 to 5.8,

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<sup>2</sup> Appellant's August 1, 2016 Specification.

where the following provisos apply:

with regard to the compound (A), it is the case that a fraction of the compound (A) in which the radical R<sup>1</sup> is an alkyl or alkenyl radical with 14 or more carbon atoms, based on the total amount of the compound (A) in the aqueous surfactant composition, is 20% by weight or less;

with regard to the compound (B), it is the case that a fraction of the compound (B) in which the radical R<sup>2</sup> is an alkyl or alkenyl radical with 15 or more carbon atoms, based on the total amount of the compound (B) in the aqueous surfactant composition, is 5% by weight or less;

when the aqueous surfactant composition comprises one or more optional ester sultamate (E) of general formula (V),

then it is the case that the compound (A), based on the totality of the compounds (A) and (E), is present to 50% by weight or more; and

a weight ratio of the compounds (A): (B) in the aqueous surfactant composition is in the range from 0.6: 1 to 1: 0.6.

(Appeal Br. A-1.)

3. The composition according to claim 1, wherein the composition additionally comprises one or more compound (C) of general formula (III),



in which the radical R<sup>4</sup> is a linear or branched alkyl or alkenyl radical with 7 to 19 carbon atoms and the radical M<sup>3</sup> is selected from the group consisting of H, Li, Na, K, Ca/2, Mg/2, ammonium, and alkanolamine.

(*Id.* at A-2.)

9. The composition according to claim 3, wherein the composition additionally comprises one or more inorganic salts of sulfuric acid (D) of the general formula (IV)



wherein  $M^4$  is selected from the group consisting of Li, Na, K, Ca/2, Mg/2, ammonium, and alkanolamine.

(*Id.*)

10. The composition according to claim 9, wherein, based on a mixture of components (A), (C), and (D),

a content of (A) is in a range from 60 to 100% by weight,

a content of (C) is in a range from 0 to 20% by weight,

and

a content of (D) is in a range from 0 to 20% by weight,

with a proviso that a sum of compounds (A), (C), and (D) in the mixture is 100% by weight.

(*Id.* at A-3.)

Ground of rejection before this Panel for review:

Claims 1–4, 6, 7, and 9–11<sup>3</sup> stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Dong<sup>4</sup> and Llenado.<sup>5, 6</sup>

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<sup>3</sup> We recognize, but decline to address, the contentions on this record regarding a restriction requirement (*see* Appeal Br. 12–13; *see also* Appellant’s May 31, 2019 Reply Brief (Reply Br.) 1; *cf.* Examiner’s April 2, 2019 Answer (Ans.) 4). This issue relates to a petitionable rather than appealable issue. *See* MPEP § 1002.02(c) (rev. 08.2017, Jan. 2018).

<sup>4</sup> Dong et al., US 2012/0208898 A1, published Aug. 16, 2012.

<sup>5</sup> Llenado, EP 0 070 074 A2, published Jan. 19, 1983.

<sup>6</sup> Examiner’s rejection of claims 1–4, 6, 7, and 9 under 35 U.S.C. § 103 as unpatentable over the combination of Dong and Llenado (*see* Ans. 3) is cumulative to this rejection and, therefore, vacated.

## ISSUE

Does the preponderance of evidence relied upon by Examiner support a conclusion of obviousness?

### FACTUAL FINDINGS (FF)

FF 1. Dong discloses that “[s]alts of alpha sulfonated fatty acid esters and salts of alpha sulfonated fatty acids have been used in detergents as primary surfactants. They have excellent foaming and cleansing properties” (Dong ¶ 3; *see* Ans. 7).

FF 2. Dong “relates to the discovery of surfactant thickeners that can be effectively used in combination with electrolytes to increase the viscosity of cleansing compositions comprising alpha sulfonated fatty acid esters and/or alpha sulfonated fatty acids and/or salts thereof,” wherein “[t]he use of the surfactant thickener of . . . [Dong’s] technology further improves[, *inter alia,*] foaming” (Dong ¶ 6; *see id.* ¶ 5 (Dong discloses that “polymeric thickeners are more expensive than surfactants, and they do not have desirable cost/performance efficiency in cleansing products”)); *see generally* Ans. 7).

FF 3. Dong discloses

a viscous liquid cleansing composition . . . which comprises or consists essentially of:

a) from about 2% to about 70%, more preferably from about 3% to about 50%, and most preferably from about 5% to about 30% of a hydrotropic surfactant, for example, an alpha sulfonated fatty acid ester and/or alpha sulfonated fatty acid, or one or more salts thereof;

b) from about 1 % to about 50%, more preferably from about 1 % to about 30%, and most preferably from about 2% to about 20% of an alkyl betaine or sultaine;

c) from about 0% to about 3% of an organic or inorganic salt or electrolyte; . . .

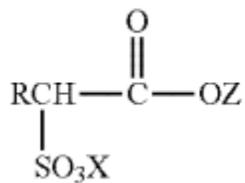
d) from about 0% to about 50% of other surfactants and additives; and

e) water present in an amount to balance the total composition to 100%.

(Dong ¶¶ 8–13; *see id.* ¶ 37 (Dong’s “compositions and formulations can also comprise one or more electrolytes,” such as sodium sulfate); *id.* ¶ 40 (Dong discloses, *inter alia*, “alkyl glucosides [and] alkyl poly glucosides” as examples of “nonionic surfactants suitable for use with . . . [its] technology”); Ans. 6 (Examiner finds that Dong discloses “Glucopon 628 UP” as an example of an alkyl polyglucoside within the scope of compound (B) of Appellant’s claim 1) (emphasis omitted); *see generally* Dong ¶¶ 48–50; Ans. 5–7.)

FF 4. Dong discloses:

In various embodiments of the present technology, the hydrotropic surfactant is an alpha sulfonated fatty acid, an ester thereof, or a salt of such an acid or such an ester, having the structure of Formula 1:



Formula 1

where R is a C<sub>6</sub>-C<sub>20</sub> hydrocarbyl group, preferably an alkyl or other hydrocarbyl group, or a combination thereof, Z is -CH<sub>3</sub>, ethyl or X, where X is H, Na, K, Ca, Mg, NH<sub>4</sub>, monoethanolammonium, diethanolammonium, triethanolammonium or a mixture thereof. The hydrotropic surfactant can be a combination of such a sulfonated fatty acid,

ester, or salt. R can represent a distribution of alkyl chain lengths.

(Dong ¶ 22; *see also id.* ¶ 28; *id.* ¶ 32 (Dong discloses that “[e]xemplary products in this category include ALPHA-STEP® PC-48, ALPHA-STEP® MC-48, ALPHA-STEP® BSS-45 ALPHA-STEP® P-65 from Stepan Company, Northfield, Ill.”); *see* Ans. 6–7.)

FF 5. Dong describes “ALPHA-STEP® PC-48” and “ALPHA-STEP® MC-48” as “Sodium Sulfonated Methyl C<sub>12</sub>-C<sub>18</sub> ester (mono) and Disodium Sulfonated C<sub>12</sub>-C<sub>18</sub> fatty acid (di) with average mono- to di- ratio of approximately 7:1” (Dong ¶ 65, Table A; *see* Ans. 7).

FF 6. Dong describes “ALPHA-STEP P-65” as “Sodium Sulfonated Methyl C<sub>14</sub>-C<sub>18</sub> ester (mono) and Disodium Sulfonated C<sub>14</sub>-C<sub>18</sub> fatty acid (di) with average mono- to di- ratio of approximately 10:1” (Dong ¶ 65, Table A).

FF 7. Dong’s

hydrotrophic surfactant can be an alpha sulfonated fatty acid, an ester of an alpha sulfonated fatty acid, a di-cation salt (di-salt) of an alpha sulfonated fatty acid, a mono-cation salt (mono-salt) of an alpha sulfonated ester of a fatty acid, or a blend of any of the foregoing acids, esters or salts.

(Dong ¶ 28.)

FF 8. Examiner finds that although Dong discloses compositions comprising 1.5%–10% of an alpha-sulfo fatty acid disalt and 0.5% alkyl polyglycoside, “Dong does not expressly disclose that the weight ratio of compounds (A):(B) in the aqueous surfactant compositions is in the range of 0.66:1 to 1:0.6” (Ans. 7 (citing Dong, Examples 22 and 63; Tables 2, 3, 10, and 11)).

FF 9. Examiner finds that Llenado discloses a composition comprising polyglycoside and an anionic co-surfactant “in the range from 1:10 to 10:1” (Ans. 7 (citing Llenado, claim 1)).

FF 10. Examiner finds that Dong discloses “that a mixture of alkyl betaines having different alkyl chain lengths can improve viscosity building and foaming properties” (Ans. 10 (citing Dong ¶ 34)).

#### ANALYSIS

Claim 1:

Dong discloses a composition comprising an alpha-sulfo fatty acid disalt within the scope of Appellant’s formula (I) (*see* FF 4; *see also* FF 7). In contrast to Appellant’s contention, “Z” of Dong’s formula I “is -CH<sub>3</sub>, ethyl *or* X, where X is H, Na, K, Ca, Mg, NH<sub>4</sub>, monoethanolammonium, diethanolammonium, triethanolammonium or a mixture thereof” (*see* FF 4 (emphasis added); *cf.* Appeal Br. 17–18 (Appellant contends that Z of Dong’s formula I “can be methyl or ethyl”)). Thus, Dong suggests compositions comprising “from about 2% to about 70% . . . of a hydrotropic surfactant,” that is the alpha-sulfo fatty acid disalt (A) of Appellant’s claimed invention (*see* FF 3–4; *cf.* Appeal Br. 17–18).

A reference disclosure is not limited only to its preferred embodiments, but is available for all that it discloses and suggests to one of ordinary skill in the art. *See In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976). Therefore, we are not persuaded by Appellant’s contentions relating ALPHA-STEP® PC-48 and ALPHA-STEP® MC-48, i.e. products comprising a mixture of alpha sulfonated fatty acid mono- and di-salts, which Dong exemplifies as falling within the scope of Dong’s Formula I (*see* Appeal Br. 18; Reply Br. 2; *see also* FF 4–5). In this regard, we note

that Dong discloses that its hydrotrophic surfactant can be, *inter alia*, a di-cation salt (di-salt) of an alpha sulfonated fatty acid or a mono-cation salt (mono-salt) (FF 7). Thus, notwithstanding Appellant's contention to the contrary, Dong does not require that its compositions comprise a mono-salt, which falls within the scope of Appellant's optional ingredient (E) (*see* Appeal Br. 20 (Appellant contends that Dong "fails to meet the claimed feature of ester sulfonate (E) being absent from the composition, and, if present, then only in an amount equal to or less than the amount of alpha-sulfo fatty acid disalt (A)"); *see id.* (Appellant contends that Dong "contains no disclosure and no example wherein an amount of claimed compound (A) exceeds an amount of claimed optional component (E)"); *see generally id.* at 18–21, 28–29, and 32–33).

Dong discloses that its composition may comprise "from about 0% to about 50% of other surfactants and additives," wherein the "surfactant" may be a nonionic surfactant, such as "alkyl glucosides" and exemplifies compositions comprising an alpha sulfonated fatty acid in combination with alkyl glucosides (FF 3 and 8). Thus, we find no error in Examiner's finding that Dong discloses a composition comprising the alpha-sulfo fatty acid disalt (A) and alkyl glycosides (B) of Appellant's claimed composition (*see* Final Act. 6; Ans. 6).

In addition, Examiner finds that Dong exemplifies compositions comprising 1.5% to 10% an alpha sulfonated fatty acid and 0.5% alkyl polyglycoside (FF 8). Thus, because Dong suggests aqueous surfactant compositions, comprising from about 2% to about 70% alpha-sulfo fatty acid disalt and from about 0% to about 50% alkyl glycosides, we find no error in Examiner's conclusion that the combination of Dong and Llenado

makes obvious aqueous surfactant compositions having a weight ratio of the alpha-sulfo fatty acid disalt to alkyl glycoside compounds that encompasses the range of from 0.6:1 to 1:06, as required by Appellant's claimed invention (*see generally* FF 8–9; *cf.* Appeal Br. A-1; Appeal Br. 21–22 (Appellant contends that the combination of Dong and Llenado fails to make obvious a composition comprising Appellant's claimed weight ratio of alpha-sulfo fatty acid disalt to alkyl glycosides)). As Examiner explains, at the time Appellant's invention was made, it would have been *prima facie* obvious, in view of the combination of Dong and Llenado, "to vary the amount of each ingredient to optimize the effect desired" (Ans. 7; *see also id.* at 9–10; *see generally* FF 1–2). *See In re Aller*, 220 F.2d 454, 456 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.").

We are not persuaded by Appellant's contentions regarding the removal of bentaine and sultaine from Dong's composition (*see* Appeal Br. 22; Reply Br. 2 (Appellant contends that "alkyl betaines and alkyl sultaines . . . are not claimed components of [Appellant's] composition")). As Examiner explains, Appellant's "claim 1 uses an open-ended transitional phrase 'comprising,'" and "[t]hus, it allows for the presence of additional unrecited components," such as Dong's bentaine and sultaine (Ans. 5).

Therefore, we are not persuaded by Appellant's contentions or evidence relating to unexpected results (*see* Appeal Br. 22–24 (citing Spec. 10: 1–11 and 11: 1–12: 10; Brunn Decl.<sup>7</sup> ¶ 8); *see also* Reply Br. 2). As

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<sup>7</sup> Declaration of Claudia Brunn, Ph.D., not dated ("Brunn Decl.").

discussed above, Appellant’s claimed invention is open to include ingredients in addition to the alpha-sulfo fatty acid disalt (SFA-I) and fatty alcohol glycoside (APG-I) tested by Appellant’s and Brunn (*see* Appeal Br. A-1; *see also* FF 8 (directing attention to the compositions exemplified by Dong); *cf.* Spec. 10: 1–11 and 11: 1–12: 10; Brunn Decl. ¶ 8). Appellant’s evidence of unexpected results, however, is limited to comparing compositions comprising only SFA-I and APG-I (Spec. 10: 1–11 and 11: 1–12: 10; Brunn Decl. ¶ 8). Thus, Appellant’s evidence is not commensurate in scope with Appellant’s claimed invention and fails to fairly compare the claimed invention to the closest prior art, i.e., Dong, which discloses compositions comprising alpha sulfonated fatty acid, alkyl glycoside, a mixture of alkyl betaines having different alkyl chain lengths (*see* Ans. 10 (Examiner finds that Appellant’s evidence of unexpected results is not commensurate with the scope of Appellant’s claimed invention); *see also id.* (Examiner finds that Appellant’s evidence of unexpected results relates to “a single species of alpha-sulfo fatty acid disalt (SFA-I) and a single species of alky polyglycoside (APG-I) while claiming tens or hundreds of [compounds within the] genus of alpha-sulfo fatty acid disalt and alkyl polyglycoside”); *cf.* Appeal Br. 32). In this regard, we note that Dong discloses that “a mixture of alkyl betaines having different alkyl chain lengths[, which are not excluded from Appellant’s claimed invention,] can improve . . . foaming properties” of a composition (FF 10; *cf.* Reply Br. 2–3).

Because Dong exemplifies a composition comprising alkyl glucoside, we are not persuaded by Appellant’s contention that Dong “fails to teach or suggest that a glucoside has any major effect on foaming properties” (Appeal Br. 22; *cf.* FF 8).

As discussed above, the ingredients of the composition suggested by the prior art are present in amounts that encompass or overlap the concentration of the same ingredients required by Appellant's claim 1 and, thus, the prior art supports a conclusion of obviousness. *See Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1322 (Fed. Cir. 2004); *see also In re Geisler*, 116 F.3d 1465, 1468 (Fed. Cir. 1997). Therefore, we are not persuaded by Appellant's contentions based on *In re Stephan Co.*, 868 F.3d 1342, 1346 (Fed. Cir. 2017), wherein our reviewing Court found "[m]issing from the Board's analysis . . . an explanation as to why it would have been routine optimization to arrive at the claimed invention" (*see* Appeal Br. 24–25; *see also id.* at 29–31 and 33–34; Reply Br. 2).

For the foregoing reasons, we are not persuaded by Appellant's contention that Examiner's rejection is based on improper hindsight or that a person of ordinary skill in this art would have considered it unpredictable to arrive at a composition within the scope of Appellant's claim 1 based on the combination of Dong and Llenado (Appeal Br. 25).

Claim 10:

As Examiner explains, Dong discloses a composition comprising from about 2% to about 70% of a hydrotrophic surfactant, such as a mixture of alpha sulfonated fatty acids, within the scope of Appellant's formulas (I) and (III); at least one alkyl betaine or sultaine; from about 0% to about 3% of an electrolyte, such a sodium sulfate, which is within the scope of Appellant's formula (IV), water, and an additional surfactant or additive, such as alkyl glucosides (*see* Ans. 5–6; *see also* FF 3–4). Thus, we are not persuaded by Appellant's contention that Examiner failed to examine Appellant's claim 10

(Appeal Br. 26). Further, having found no deficiency in Examiner’s rejection of Appellant’s claim 1, we are not persuaded by Appellant’s contention that its claim 10 is not obvious over the combination of Dong and Llenado for the same reasons as Appellant asserted with respect to its claim 1 (*id.*).

### CONCLUSION

The preponderance of evidence relied upon by Examiner supports a conclusion of obviousness. The rejection of claims 1 and 10 under 35 U.S.C. § 103(a) as unpatentable over the combination of Dong and Llenado is affirmed. Claims 2–4, 6, 7, and 9 are not separately argued and fall with claim 1. Claim 11 is not separately argued and falls with claim 10.

### DECISION SUMMARY

In summary:

| <b>Claims Rejected</b> | <b>35 U.S.C. §</b> | <b>Reference(s)/Basis</b> | <b>Affirmed</b> | <b>Reversed</b> |
|------------------------|--------------------|---------------------------|-----------------|-----------------|
| 1–4, 6, 7, 9–11        | 103                | Dong, Llenado             | 1–4, 6, 7, 9–11 |                 |

### TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

**AFFIRMED**