

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/EP2023/065056	International filing date (day/month/year) 06.06.2023	Priority date (day/month/year) 08.06.2022
International Patent Classification (IPC) or both national classification and IPC INV. A61K8/26 A61K8/894 A61K8/92 A61Q15/00		
Applicant UNILEVER IP HOLDINGS B.V.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Van den Bulcke, H Telephone No. -0	
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed.
 - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13ter.1(a)),
☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
4. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established to the extent that a meaningful opinion could be formed without a WIPO Standard ST.26 compliant sequence listing.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-15</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1 US 2019/105239 A1 (MIKKELSEN TYLER [US] ET AL) 11 April 2019
(2019-04-11)
- D2 US 2012/121525 A1 (LEDINGHAM KATHERINE [GB] ET AL) 17 May 2012
(2012-05-17)

- The applicant has requested to have the present application processed under PCT Direct (PCT-EPO Guidelines B-IV, 1.2.1). Account taken of the applicant's comments submitted with the PCT Direct letter received on 06.06.2023, this Authority considers that the claims do not meet the requirements of the PCT for the following reasons:

2. Novelty (Article 33(2) PCT)

- The subject-matter of present claims 1-15 is considered novel over the cited prior art for the following reasons (Article 33(2) PCT):

- Document D1 (US 2019/105239; page 3, paragraph 25-26; page 4, paragraphs 34-35; page 7, paragraph 53-54; page 7, paragraph 57 - page 8, paragraph 66; tables 3,4; claims) discloses an antiperspirant stick composition comprising a synthetic wax, a fatty alcohol, a hydrophilic surfactant having a HLB value greater than 10, preferably greater than 12, 14 or 16, a plasticizer, and an antiperspirant active agent, e.g. aluminum chlorohydrate. The hydrophilic surfactants are mentioned in a list of various components which includes also decyl glucoside, and is present in an amount to reduce perspiration-induced discoloration of fabric in contact with the composition. The composition can include further suitable ingredients, e.g. antioxidants.

Document D1 does not specifically disclose the presence of an unsaturated oil having a iodine value of at least 70 in the composition, but more generally describes the presence of "a fully or partially hydrogenated plant oil" to be included as secondary

structurant for the compositions. Additionally the decyl glucoside or dodecyl glucoside would need to be selected from a long list of possible surfactants. Thus a double selection would be needed to arrive at the subject-matter of the present claims.

- Document D2 (US 2012/121525; page 2, paragraph 32 - page 3, paragraph 37; page 3, paragraph 49 - page 4, paragraph 51; page 5, paragraph 74 - page 6; tables 1,3; claims) describes an anhydrous antiperspirant composition comprising from 10 to 35 wt. % of antiperspirant active, preferably an aluminium and/or zirconium salt, triethyl hexanoin, an additional non-volatile oil, e.g. a natural oil such as sunflower oil, which has a iodine value of more than 70, and from 1.5 to 30 wt. % of structurant. A wash-off agent in the form of a non-ionic surfactant may also be added, e.g. cetareth-20, which has an HLB value of 15, or steareth-100, which has an HLB value of 18.8.

Document D2 does not describe that the non-ionic surfactant is a C₆ to C₁₆ alkyl polyglycoside.

3. Inventive step (Article 33(1),(3) PCT)

- Although novel, the subject-matter of present claims 1-15 cannot be considered inventive according to Article 33(1),(3) PCT for the following reasons:

- Document D1, which has been described already in more detail under the point of novelty here above, is considered as the closest prior art.

a - The difference between the subject-matter described in independent claims 1, 14, 15 and the teaching of the closest prior art is that an unsaturated oil having a iodine value of at least 70 is selected to be included in the composition, in combination with the selection of a non-ionic surfactant having an HLB value of more than 11 which is a C₆ to C₁₆ alkyl polyglycoside.

- It is explained in the present application that when the antiperspirant composition comprises an unsaturated oil with iodine value of at least 70 this leads to yellowing of fabrics. The inclusion of the C₆ to C₁₆ alkyl polyglycoside non-ionic surfactant with HLB value of more than 11 reduces this yellowing of clothing. This is demonstrated also in Example 1 (Table 2). However, only examples are given for a composition with either no non-ionic surfactant, or with a C₆ to C₁₆ alkyl polyglycoside non-ionic surfactant. It has

not been demonstrated that the reduction of yellowing of the clothing is only achieved by non-ionic surfactants with HLB value of more than 11 and being selected from C₆ to C₁₆ alkyl polyglycoside, and not for any non-ionic surfactant with HLB value of more than 11. Document D1 clearly teaches that surfactants with HLB value greater than 10, preferably greater than 12, 14 or 16, combat fabric discoloration and staining. It thus cannot be concluded that there is any technical effect caused by the differences.

- The objective technical problem may therefore be formulated as to provide an alternative antiperspirant composition which reduces yellowing of clothing.

- Document D1 teaches towards using surfactants with HLB value greater than 10, preferably even higher. It even specifically mentions decyl glucoside and dodecyl glucoside in a list. Starting from document D1 the skilled person thus would consider using these surfactants, without the use of any inventive skill. Document D1 further also teaches towards the inclusion of plant oils, also e.g. to provide a soothing effect on the skin (see paragraph 49). Hereby an oil such as sunflower oil, and other plant-based triglycerides, are known to be commonly used in antiperspirant compositions (see e.g. document D2, which also has been described already in more detail under the point of novelty here above). When looking for a mere alternative, i.e. without a demonstrated effect of using C₆ to C₁₆ alkyl polyglycoside as compared to other surfactants having an HLB value of more than 11, the skilled person thus would consider including a C₆ to C₁₆ alkyl polyglycoside as well as unsaturated oils having a iodine value of at least 70 such as sunflower oil in the antiperspirant composition. The subject-matter of claims 1, 14 and 15 thus cannot be considered inventive.

b - Dependent claims 2-13 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step.

The subject-matter of claims 3-5, 8, 9, 11 and 12 has been disclosed already in document D1 itself. These claims therefore cannot be considered inventive for the same reasons as mentioned here above already for independent claim 1.

Claims 7 and 10 further define that the composition comprises an antioxidant, as well as the amount of said antioxidant. However, the incorporation of antioxidants in an antiperspirant composition is very common (see also for example tables 1-3 in

document D2). Determining a suitable amount of the antioxidant to arrive at a composition with optimal properties falls within the scope of customary practice followed by the skilled person. Claims 7 and 10 thus also cannot be considered inventive.

Claims 2 and 6 further define the unsaturated oil. As already mentioned for independent claim 1 here above, the inclusion of such oils in antiperspirant compositions is very common, see e.g. document D2.

Claim 13 further defines that the antiperspirant composition is in the form of an aerosol. As this is a well known and commonly used form for an antiperspirant composition also this feature cannot be considered to contribute to an inventive step.

The features claimed in these dependent claims thus represent matters of common practice to a skilled person. As such, they represent mere obvious alternative embodiments to the antiperspirant composition already known from document D1.. In the absence of any indication as to a further unexpected or surprising technical effect being obtained by these features, claims 2-13 are considered to lack an inventive step.

4. Industrial application (Article 33(4) PCT)

- The subject-matter of present claims 1-15 is considered to be industrially applicable; claims 1-15 therefore satisfy the criterion set forth in Article 33(4) PCT.