

(10) International Publication Number
WO 2016/041680 A1(43) International Publication Date
24 March 2016 (24.03.2016)

(51) International Patent Classification:

C11D 1/37 (2006.01) *C11D 1/14* (2006.01)
C11D 1/83 (2006.01) *C11D 1/22* (2006.01)
C11D 3/40 (2006.01) *C11D 1/29* (2006.01)
C11D 11/00 (2006.01) *C11D 1/34* (2006.01)
C11D 3/37 (2006.01) *C11D 1/72* (2006.01)
C11D 1/06 (2006.01)

(21) International Application Number:

PCT/EP2015/067350

(22) International Filing Date:

29 July 2015 (29.07.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

14185270.7 18 September 2014 (18.09.2014) EP

(71) **Applicant** (for AE, AG, AU, BB, BH, BN, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, IN, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, QA, RW, SA, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): **UNILEVER PLC** [GB/GB]; Unilever House, 100 Victoria Embankment, London, Greater London EC4Y 0DY (GB).

(71) **Applicant** (for all designated States except AE, AG, AU, BB, BH, BN, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, IN, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, QA, RW, SA, SC, SD, SG, SL, SZ, TT, TZ, UG, US, VC, ZA, ZM, ZW): **UNILEVER N.V.** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) **Applicant** (for US only): **CONOPCO, INC., D/B/A UNILEVER** [US/US]; 800 Sylvan Avenue AG West, S. Wing, Englewood Cliffs, NJ New Jersey 07632 (US).

(72) **Inventors**: **BATCHELOR, Stephen, Norman**; Unilever R&D Port Sunlight Quarry Road East, Bebington, Wirral, Merseyside CH63 3JW (GB). **BIRD, Jayne, Michelle**;

Unilever R&D Port Sunlight Quarry Road East, Bebington, Wirral, Merseyside CH63 3JW (GB).

(74) **Agent**: **AVILA, David, Victor**; Unilever PLC Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))

(54) Title: WHITENING COMPOSITION

(57) **Abstract**: The present invention provides a laundry aqueous liquid detergent composition comprising (i) from 4 to 50 wt% of a charged surfactant, (ii) from 0.1 to 20 wt% of an alkoxyated polyaryl or alkoxyated polyalkyl phenol and (iii) dye. A domestic method of treating a textile, the method comprising the steps of (i) treating a textile directly with the laundry liquid detergent composition, and (ii) allowing said liquid detergent to remain in contact with said textile for 30 minutes to 2 days then washing said textile in water, optionally rinsing and drying said textile.



WO 2016/041680 A1

Box No. VIII (iii) DECLARATION: ENTITLEMENT TO CLAIM PRIORITY

The declaration must conform to the standardized wording provided for in Section 213; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii)):

in relation to international application: PCT/EP2015/067350

Unilever NV is entitled to claim priority of earlier application no. EP 14185270.7 by virtue of the following:

An assignment from Unilever PLC to Unilever NV, dated 20 July 2015.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iii)".

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

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/EP2015/067350

International filing date (day/month/year)
29.07.2015

Priority date (day/month/year)
18.09.2014

International Patent Classification (IPC) or both national classification and IPC
INV. C11D1/37 C11D1/83 C11D3/40 C11D11/00 C11D3/37 ADD. C11D1/06 C11D1/14 C11D1/22 C11D1/29
C11D1/34 C11D1/72

Applicant
UNILEVER PLC

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
P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040
Fax: +31 70 340 - 3016

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Bertran Nadal, Josep

Telephone No. +31 70 340-0



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:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 - ☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43*b/s*.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>1-17</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-17</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-17</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

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 WO 2012/159778 A1 (UNILEVER PLC [GB]; UNILEVER NV [NL]; UNILEVER HINDUSTAN [IN]) 29 November 2012 (2012-11-29)
 - D2 US 2005/107281 A1 (DAHLMANN UWE [DE] ET AL) 19 May 2005 (2005-05-19)
 - D3 FR 1 313 944 A (GEN ANILINE & FILM CORP) 4 January 1963 (1963-01-04)
 - D4 GB 1 337 190 A (HOECHST AG) 14 November 1973 (1973-11-14)
 - D5 GB 2 007 692 A (RHONE POULENC IND) 23 May 1979 (1979-05-23)
- 2 The present application appears to meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1-17 appears to be novel in the sense of Article 33(2) PCT and to involve an inventive step in the sense of Article 33(3) PCT.
 - 2.1 None of the documents cited in the International Search Report discloses a laundry aqueous liquid detergent composition comprising a charged surfactant in combination with an alkoxylated C3-C15-trialkyl or triaryl phenol and a dye. Thus, the subject-matter of claims 1-17 appears to be novel.
 - 2.2 The present application concerns the use of laundry liquid detergent compositions. It addresses the problem of reducing the neat contact dye stain of undiluted detergents on the fabric (cf. page 1 lines 6 and 18-21).
 - 2.3 The document D1 discloses (cf. page 2, lines 1-29; examples; claims) a liquid laundry detergent composition with reduced neat contact staining comprising surfactants and a shading dye. A method for treating a textile, the method comprising the steps of treating the textile directly with the laundry liquid detergent composition and allowing said liquid detergent to remain in contact with said textile for 30 minutes and then washing the textile in water is also disclosed.

The subject-matter of claim 1 therefore differs from this known composition in that it comprises (ii) alkoxyated polyaryl or alkoxyated polyalkyl phenol.

The effect of this difference is a reduction of the neat contact staining of the dye, as evidenced by the experimental data of the application. Example 1 shows that the addition of uncharged ethoxylated tristyrylphenol reduces the neat contact staining of a dye. Example 2 shows the same effect with tributylphenol ether sulphate, tributyl phenol ether and tristyryl phenol phosphate.

The objective technical problem is thus regarded as the reduction of the neat contact dye staining of a detergent composition.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step for the following reasons: although alkoxyated polyaryl or alkoxyated polyalkyl phenol compounds according to (ii) of present claim 1 are known (cf. documents D2-D5 and the passages cited in the International Search Report), the available prior art does not disclose or suggest that these compounds would reduce the neat contact dye staining of a laundry detergent composition. Thus, none of these documents would have prompted the skilled person faced with the objective technical problem to modify or adapt the teaching of D1 to arrive at the claimed solution.

- 2.4 The same reasoning applies to the domestic method of treating a textile of independent claim 17. It follows that the subject-matter of claim 17 also appears to involve an inventive step.
- 2.5 Claims 2-16 are dependent on claim 1, whose subject-matter is considered as being new and inventive, as discussed above, and as such said dependent claims also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII

Certain defects in the international application

- 3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1-D5 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the international application

- 4 It is clear from the description on page 5 lines 6-8 that the alkoxylated polyarylphenol or the alkoxylated polyalkylphenol, which may be an anionic surfactant, is not taken into account for calculating the amount of charged surfactant as defined in claim 1(i).

Since independent claim 1 does not contain this feature, it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.