

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization

International Bureau

(43) International Publication Date  
04 July 2019 (04.07.2019)



(10) International Publication Number  
**WO 2019/126999 A1**

(51) International Patent Classification:

A61K 8/37 (2006.01)

(21) International Application Number:

PCT/CN2017/118564

(22) International Filing Date:

26 December 2017 (26.12.2017)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except AL): **L'OREAL**  
[FR/FR]; 14, Rue Royale, F-75008 Paris (FR).

(72) Inventor; and

(71) Applicant (for AL only): **CHEN, Dongfang** [CN/CN]; 550  
Jinyu Road, Shanghai 201206 (CN).

(74) Agent: **CHINA PATENT AGENT (H.K.) LTD.**; 22/F.,  
Great Eagle Center, 23 Harbour Road, Wanchai, Hong  
Kong (CN).

(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, DJ, DK, DM, DO,  
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,  
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,  
KR, KW, 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).

Published:

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

(54) Title: SOLID ANHYDROUS COMPOSITION COMPRISING A HYDROPHOBIC POLYMER FOR REMOVING MAKEUP ON THE SKIN

(57) Abstract: The present invention concerns a solid anhydrous composition, particularly useful for the cleansing of the skin and makeup removal, more particularly comprising bis-stearyl ethylenediamine/neopentyl glycol/hydrogenated dimer dilinoleate copolymer, and to a cosmetic process for cleansing and/or removing the makeup on the keratin materials using said composition.



**WO 2019/126999 A1**

Solid anhydrous composition comprising a hydrophobic polymer for  
removing makeup on the skin

The present invention concerns a solid anhydrous composition,  
5 particularly useful for the cleansing of the keratin materials and/or the  
makeup removal from the keratin materials, comprising a hydrophobic  
polymer.

The invention also concerns a cosmetic process for cleansing and/or  
removing the makeup on the keratin materials using said composition.

10 In the field of cleansing and/or makeup removing compositions, "soft  
solid" compositions constitute a category of products that are appreciated  
by consumers for their efficacy on cleansing, makeup removability, rinse  
ability, and for their cosmetic qualities (soft, dry feeling, easy to use, etc.).  
They are known as solid compositions that soften under the effect of a  
15 stress such as spreading over the surface of the skin or, for example, by  
extrusion through a device with a perforated wall (grille).

Consumers seek compositions of "soft solid" type that are used for  
cleansing of the skin and/or the removal of makeups, which leave the skin  
without any residue and with a fresh skin finish, and meanwhile, are easy  
20 to apply on the skin.

Some known soft solid compositions useful for the cleansing of the  
skin and/or the removal of makeup comprise silica aerogel particles, waxes,  
hydrocarbon-based oils and non-ionic surfactants.

However, there is still a need for solid compositions adapted to the  
25 cleansing of the skin and/or the removal of makeup with improved  
properties.

In particular, there is still a need for improved solid compositions  
which can be easily and quickly applied, i.e., easily spread on the skin, and  
such compositions are expected to leave the skin without any oily feeling.

30 None of the prior arts had disclosed a soft solid composition that  
provides an improved usage property as described above, and have a good  
stability over time.

The aim of the present invention is to provide a solid anhydrous composition with good efficacy such as makeup remove ability and rinse ability, and with improved cosmetic properties such as ease of use.

The aim of the present invention is to provide such a composition as  
5 described above with no oily feeling on the skin after application.

The aim of the present invention is to provide the composition as described above with good stability over time.

Another aim of the invention is to provide a solid and anhydrous composition, in particular for removing makeup from the skin, which can  
10 be carried easily in devices.

Optionally, one aim of the present invention is to provide a solid anhydrous composition with all the above mentioned properties, and meanwhile presents a pleasant transparent appearance.

The present invention thus relates to a solid anhydrous composition  
15 comprising:

a) at least one hydrophobic polymer chosen from the group consisting of ester terminated poly(ester-amide), and their mixtures;

b) at least one hydrocarbon-based oil; and

c) at least two non-ionic surfactants, wherein one of which is selected  
20 from fatty acid esters of polyglycerol containing at least 5 glycerol groups.

The present invention also relates to a cosmetic process for treating and/or caring for the keratin materials, in particular the skin and/or lips, characterized in that it comprises a step of applying to the surface of the keratin materials at least one composition according to the invention.

The present invention also relates to a cosmetic process for cleansing  
25 and/or removing the makeup on the keratin materials, which comprises a step of applying to the surface of a keratin material, in particular the skin, at least one composition according to the invention.

The inventors discovered that with the compositions according to the  
30 invention, the spread-ability and application properties on the keratin materials were improved, with less time required to melt and apply the compositions, compared to other solid compositions.

Besides, the skin finish is also improved, with the absence of oily feeling after rinsing.

Furthermore, the composition is stable over time.

Advantageously, the compositions according to the invention may be transparent, thereby presenting a pleasant appearance to the compositions.

According to the present invention, the compositions have a desired hardness so as to be conditioned in a jar, a device equipped with an open-work wall, a device equipped with a ball applicator, or in the form of wands (sticks).

10

### **Definitions**

The term "solid" composition means the form of the composition at 20°C, and in particular the term "solid" means a composition whose hardness at 20°C and at atmospheric pressure (760 mmHg) is greater than or equal to 30 Nm<sup>-1</sup> when it is measured according to the protocol described below.

The hardness of a solid composition is measured according to the following protocol.

The composition whose hardness is to be determined is stored at 20°C for 24 hours before measuring the hardness. The hardness may be measured at 20°C via the "cheese wire" method, which consists in transversely cutting a wand of product, which is preferably a circular cylinder, by means of a rigid tungsten wire 250 µm in diameter, by moving the wire relative to the stick at a speed of 100 mm/minute.

The hardness of the samples of compositions of the invention, expressed in Nm<sup>-1</sup>, is measured using a DFSGS2 tensile testing machine from the company Indelco-Chatillon.

The measurement is repeated three times and then averaged. The average of the three values read using the tensile testing machine mentioned above, noted Y, is given in grams. This average is converted into newtons and then divided by L which represents the longest distance through which the wire passes. In the case of a cylindrical wand, L is equal

to the diameter (in metres).

The hardness is converted into  $\text{Nm}^{-1}$  by the equation below:

$$(Y \times 10^{-3} \times 9.8)/L$$

For a measurement at a different temperature, the stick is stored for 24  
5 hours at this new temperature before the measurement.

According to a preferred embodiment, the composition of the present invention has a hardness of greater than or equal to  $40 \text{ Nm}^{-1}$ , more preferably ranging from  $50 \text{ Nm}^{-1}$  to  $300 \text{ Nm}^{-1}$ , even more preferably ranging from  $60 \text{ Nm}^{-1}$  to  $120 \text{ Nm}^{-1}$ .

10 The term "anhydrous composition" means a composition containing less than 2% by weight of water, or even less than 0.5% water, and especially free of water, the water not being added during the preparation of the composition but corresponding to the residual water provided by the mixed ingredients.

15 By "rinse ability", it may be meant the ease of being rinsed off by water after applying the composition of the present invention onto the skin.

By "no oily feeling", it may be meant the feeling of the skin being dry and fresh after rinsing off the composition of the present invention. In one embodiment, there is no greasy or waxy feeling of the skin after rinsing off  
20 the composition of the present invention.

By "spread-ability", it may be meant the ease of application and/or of spread of the compositions on the keratin materials (the solid composition "melt" when applied on the keratin materials).

The term "keratin materials" means the skin (of the body, face and  
25 around the eyes), hair, eyelashes, eyebrows, bodily hair, nails, lips or mucous membranes, preferably skin.

The term "transparent" may be represented by the turbidity of the composition of the present invention, which may be measured according to the NTU method using a 2100P model turbidimeter from the company  
30 HACH, at room temperature.

Advantageously, the turbidity of the solid anhydrous composition of the invention is less than 400 NTU units and preferably less than 200 NTU,

more preferably between 1 and 100 NTU units,

### **Detailed description of the invention**

The composition of the present invention aims at solving the problems  
5 as listed above.

More particularly, the composition of the present invention is a solid anhydrous composition for cleansing and/or removing makeup on keratin materials.

Preferably, the composition of the present invention is a cosmetic  
10 composition, more preferably a cosmetic composition for removing makeup from the keratin materials, in particular from the skin. In a particular embodiment, the makeup is removed from the skin of the face.

In one embodiment, the composition according to the invention is transparent.

15

#### **Hydrophobic polymer**

The composition according to the invention comprises at least one hydrophobic polymer chosen from ester terminated poly(ester-amide).

By “hydrophobic” it may be meant a polymer which is repelled from  
20 water, i.e. which is not miscible with water.

By “ester terminated” polymer it may be meant a polymer comprising at least one chemical function ester ( $\text{Ra-C(O)-O-R'a}$ ) as a terminal moiety. For example, such polymers and their methods of preparation are described in the WO 02/092663 patent application.

25 In one embodiment, said polymer comprises at least one dimer dilinoleate unit, optionally hydrogenated. Preferably, the hydrophobic polymer is bis-stearyl ethylenediamine/neopentyl glycol/hydrogenated dimer dilinoleate copolymer. Particular mention may be made of bis-stearyl ethylenediamine/neopentyl glycol/hydrogenated dimer  
30 dilinoleate copolymer, also called polyamide-8, commercialized by Arizona chemical under the name Sylvaclear<sup>TM</sup> C75V or by Croda, Inc., under the name OleoCraft LP-20 (CAS RN is 678991-29-2).

In one embodiment, the composition according to the invention comprises only one hydrophobic polymer. In a particular embodiment, the composition of the invention does not comprise an ester terminated polyamide polymer such as ethylenediamine stearyl dimer dilinoleate  
5 copolymer.

In one embodiment, the amount of the hydrophobic polymer is comprised between 1% and 20% by weight, based on the total weight of the composition, preferably between 5% and 15% by weight, for example about 10% by weight, based on the total weight of the composition.

10

### **Hydrocarbon-based oils**

According to the invention, the composition comprises at least one hydrocarbon-based oil.

The term “oil” means a fatty substance that is liquid at room  
15 temperature (25°C) and atmospheric pressure (760 mmHg, i.e. 105 Pa). The oil may be volatile or non-volatile.

For the purposes of the invention, the term “volatile oil” means an oil that is capable of evaporating on contact with the skin or the keratin fibre in less than one hour, at room temperature and atmospheric pressure. The  
20 volatile oils of the invention are volatile cosmetic oils, which are liquid at room temperature, having a non-zero vapour pressure, at room temperature and atmospheric pressure, ranging in particular from 0.13 Pa to 40 000 Pa ( $10^{-3}$  to 300 mmHg), in particular ranging from 1.3 Pa to 13 000 Pa (0.01 to 100 mmHg) and more particularly ranging from 1.3 Pa to 1300 Pa (0.01 to  
25 10 mmHg).

The term “non-volatile oil” means an oil that remains on the skin or the keratin fibre at room temperature and atmospheric pressure for at least several hours, and that especially has a vapour pressure of less than  $10^{-3}$  mmHg (0.13 Pa).

The oils in accordance with the invention are preferably selected from  
30 any cosmetically acceptable oil, especially mineral, animal, plant or synthetic oils, or a mixture thereof.

The term “hydrocarbon-based oil” means an oil mainly containing carbon and hydrogen atoms and possibly one or more functions selected from hydroxyl, ester, ether and carboxylic functions. Generally, the oil has a viscosity of from 0.5 to 100 000 mPa.s, preferably from 50 to 50 000 mPa.s and more preferably from 100 to 300 000 mPa.s.

As examples of volatile hydrocarbon-based oils that may be used in the invention, mention may be made of:

- volatile hydrocarbon-based oils selected from hydrocarbon-based oils containing from 8 to 16 carbon atoms, and especially C<sub>8</sub>-C<sub>16</sub> isoalkanes of petroleum origin (also known as isoparaffins), for instance isododecane (also known as 2,2,4,4,6-pentamethylheptane), isodecane and isohexadecane, for example the oils sold under the trade names Isopar or Permethyl, branched C<sub>8</sub>-C<sub>16</sub> esters and isohexyl neopentanoate, and mixtures thereof. Other volatile hydrocarbon-based oils, for instance petroleum distillates, especially those sold under the name Shell Solt by the company Shell, may also be used; volatile linear alkanes, such as those described in patent application DE10 2008 012 457 from the company Cognis.

As examples of non-volatile hydrocarbon-based oils that may be used in the invention, mention may be made of:

- hydrocarbon-based oils of animal origin, such as perhydrosqualene;  
- hydrocarbon-based plant oils such as liquid triglycerides of fatty acids of 4 to 24 carbon atoms, for instance heptanoic or octanoic acid triglycerides, or wheatgerm oil, olive oil, sweet almond oil, palm oil, rapeseed oil, cottonseed oil, alfalfa oil, poppy oil, pumpkin oil, marrow oil, blackcurrant oil, evening primrose oil, millet oil, barley oil, quinoa oil, rye oil, safflower oil, candlenut oil, passion flower oil, musk rose oil, sunflower oil, corn oil, soybean oil, grapeseed oil, sesame seed oil, hazelnut oil, apricot oil, macadamia oil, castor oil, avocado oil, caprylic/capric acid triglycerides, for instance those sold by the company Stéarineries Dubois or those sold under the names Miglyol 810, 812 and 818 by the company Dynamit Nobel, jojoba oil and shea butter oil,



- linear or branched hydrocarbons, of mineral or synthetic origin, such as liquid paraffins and derivatives thereof, petroleum jelly, polydecenes, polybutenes, hydrogenated polyisobutene such as Parleam, and squalane,

- synthetic ethers containing from 10 to 40 carbon atoms;

5 - synthetic esters, especially of fatty acids, for instance the oils of formula  $R_1COOR_2$  in which  $R_1$  represents a linear or branched higher fatty acid residue containing from 1 to 40 carbon atoms and  $R_2$  represents a hydrocarbon-based chain, which is especially branched, containing from 1 to 40 carbon atoms, with  $R_1 + R_2 \geq 10$ , for instance purcellin oil  
10 (cetostearyl octanoate), isononyl isononanoate, isopropyl myristate, isopropyl palmitate,  $C_{12}$ - $C_{15}$  alkyl benzoates, hexyl laurate, diisopropyl adipate, isononyl isononanoate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate or tridecyl trimellitate; alcohol or polyalcohol octanoates, decanoates or ricinoleates,  
15 for instance propylene glycol dioctanoate; hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate, triisocetyl citrate, and fatty alcohol heptanoates, octanoates or decanoates; polyol esters, for instance propylene glycol dioctanoate, neopentyl glycol diheptanoate or diethylene glycol  
20 diisononanoate; and pentaerythritol esters, for instance pentaerythrityl tetraisostearate,

- fatty alcohols that are liquid at room temperature, containing a branched and/or unsaturated carbon-based chain containing from 12 to 26 carbon atoms, for instance octyldodecanol, isostearyl alcohol,  
25 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol or oleyl alcohol,

- higher fatty acids such as oleic acid, linoleic acid or linolenic acid;

- carbonates;

- acetates;

- citrates.

30 In one embodiment, the hydrocarbon-based oil is chosen from the group consisting of  $C_8$ - $C_{16}$  isoalkanes of petroleum origin, branched  $C_8$ - $C_{16}$  esters and isohexyl neopentanoate, hydrocarbon-based non-volatile oils of

animal origin or plant oils, linear or branched hydrocarbons of mineral or synthetic origin, synthetic ethers containing from 10 to 40 carbon atoms, synthetic esters, fatty alcohols that are liquid at 25°C, higher fatty acids such as oleic acid, linoleic acid, carbonates, acetates, citrates, and mixtures thereof; preferably from synthetic esters of fatty acids.

In a particular embodiment, hydrocarbon-based oil is chosen from the group consisting of:

- volatile hydrocarbon-based oils selected from hydrocarbon-based oils containing from 8 to 16 carbon atoms, and especially C<sub>8</sub>-C<sub>16</sub> isoalkanes of petroleum origin, such as isododecane, isodecane and isoheptadecane;

- linear or branched hydrocarbons of mineral or synthetic origin, such as liquid paraffins and derivatives thereof, petroleum jelly, polydecenes, polybutenes, hydrogenated polyisobutene and squalene; and

- synthetic esters of fatty acids, and their mixtures.

Using the above-mentioned hydrocarbon-based oils, the composition according to the invention is advantageously transparent.

In another particular embodiment, the hydrocarbon-based oil is chosen from the group consisting of synthetic esters of fatty acids for instance cetostearyl octanoate, isononyl isononanoate, isopropyl myristate, isopropyl palmitate, C<sub>12</sub>-C<sub>15</sub> alkyl benzoates, hexyl laurate, diisopropyl adipate, isononyl isononanoate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate or tridecyl trimellitate; alcohol or polyalcohol octanoates, decanoates or ricinoleates, for instance propylene glycol dioctanoate; hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate, triisocetyl citrate, and fatty alcohol heptanoates, octanoates or decanoates; polyol esters, for instance propylene glycol dioctanoate, neopentyl glycol diheptanoate or diethylene glycol diisononanoate; and pentaerythritol esters, for instance pentaerythrityl tetraistearate, or a mixture thereof.

As illustrations of oils that are suitable for the invention, mention may be made especially of non-volatile hydrocarbon-based oils, for instance synthetic esters. Mention may be made of such oils, for example, 2-ethylhexyl palmitate, which is sold by the company Stearinerie Dubois  
 5 under the tradename Palmitate D'ethyl 2 Hexyle, or Cegesoft<sup>®</sup> C24 sold by the company BASF.

Preferably, the hydrocarbon-based oil is a synthetic ester of a fatty acid, more preferably 2-ethylhexyl palmitate.

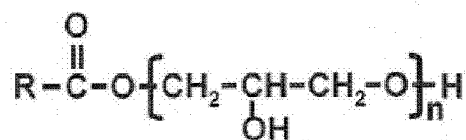
In one embodiment, the amount of the hydrocarbon-based oil in the  
 10 composition is comprised between 40% and 98% by weight, based on the total weight of the composition; preferably between 50% and 80% by weight, more preferably between 55% and 70% by weight, for example about 65% by weight, based on the total weight of the composition.

#### 15 **Non-ionic surfactants**

Surfactants are usually organic compounds that are amphiphilic, meaning that they contain both hydrophobic groups (their tails) and hydrophilic groups (their heads). By “non-ionic surfactant” is meant a surfactant which has no charged groups in its head (i.e. the charge of the  
 20 hydrophilic group is neutral).

The composition of the present invention comprises at least two non-ionic surfactants, wherein one of which is selected from fatty acid esters of polyglycerol containing at least 5 glycerol groups.

According to an embodiment, the fatty acid ester of polyglycerol (also  
 25 known as polyglycerol fatty acid ester, PGFE) that is suitable for the present invention is the compound of formula (I),



formula (I)

wherein:

R represents a linear or branched, saturated or unsaturated C<sub>5</sub>-C<sub>30</sub>

fatty chain;

n is an integer ranging from 5 to 30.

Preferably, for the purpose of the present invention, in the formula (I),

R represents a linear or branched, saturated or unsaturated C<sub>7</sub>-C<sub>17</sub>

5 fatty chain,

n is an integer ranging from 5 to 20, preferably 5 to 16.

Examples of suitable PGFE surfactants are Polyglyceryl-10 Caprate, Polyglyceryl-10 Laurate, Polyglyceryl-10 Dilaurate, Polyglyceryl-10 Myristate, Polyglyceryl-10 Dimyristate, Polyglyceryl-10 Oleate, 10 Polyglyceryl-10 Dioleate, Polyglyceryl-10 stearate, Polyglyceryl-10 Isostearate, Polyglyceryl-10 Diisostearate, Polyglyceryl-5 Laurate, Polyglyceryl-5 Dilaurate, Polyglyceryl-5 Myristate, Polyglyceryl-5 Trimyristate, Polyglyceryl-5 Oleate, or Polyglyceryl-5 Dioleate, Polyglyceryl-5 Stearate.

15 More particularly, the fatty acid esters of polyglycerol suitable for the present invention are compounds selected from the group consisting of Polyglyceryl-5 laurate, Polyglyceryl-5 Myristate, Polyglyceryl-5 Oleate, Polyglyceryl-5 Stearate, Polyglyceryl-10 Caprate, Polyglyceryl-10 Laurate, Polyglyceryl-10 Myristate, Polyglyceryl-10 Oleate, Polyglyceryl-10 20 stearate, Polyglyceryl-10 Isostearate, or a mixture thereof.

These compounds are commercially available. For example, mentions can be made to the compounds sold by the company Nikkol under the trade names: Sunsoft A-12E (Polyglyceryl-5 laurate), Sunsoft A-14E (Polyglyceryl-5 Myristate), Sunsoft A-17E (Polyglyceryl-5 Oleate), 25 Sunsoft A-18E (Polyglyceryl-5 Stearate), Sunsoft Q-10Y (Polyglyceryl-10 Caprate), Sunsoft Q-12Y (Polyglyceryl-10 Laurate), Sunsoft Q-14S (Polyglyceryl-10 Myristate), Nikkol Decaglyn 1-OV (Polyglyceryl-10 Oleate), and Sunsoft Q-18Y (Polyglyceryl-10 stearate).

In a particular embodiment, polyglyceryl-10 oleate is used in the 30 composition of the present invention.

The composition according to the present invention comprises a second non-ionic surfactant, which is different from the fatty acid esters of

polyglycerol as described above.

Examples of the second suitable non-ionic surfactants that may be mentioned include oxyalkylenated fatty acid ester of glycerol, oxyalkylenated fatty acid ester of sorbitan, oxyalkylenated or  
5 non-oxyalkylenated ethers of fatty alcohols and of polyols, and mixtures thereof.

According to the present invention, the oxyalkylene chain of the oxyalkylenated fatty acid esters of glycerol is preferably an oxyethylene chain.

10 More preferably, it may contain, for example, from 1 to 150 oxyalkylene and especially oxyethylene groups, and preferably from 2 to 100 oxyalkylene and especially oxyethylene groups.

Examples of oxyalkylenated fatty acid esters of glycerol that may be mentioned more particularly include (INCI name) PEG-20 glyceryl  
15 triisostearate, PEG-7 glyceryl cocoate, and mixtures thereof.

As illustration of the non-ionic surfactants, mentions may be made of PEG-20 glyceryl triisostearate, such as those sold by the company Nihon Emulsion under the tradename Emalex Gwis-320EX.

Surfactants of other types that may be mentioned more particularly  
20 include:

- oxyethylenated fatty acid esters of sorbitan such as (INCI name) Polysorbate 20, Polysorbate 65, Polysorbate 85, PEG-5 sorbitan isostearate, PEG-20 sorbitan triisostearate, PEG-20 sorbitan isostearate, PEG-40 sorbitan septaoleate, PEG-20 sorbitan tetraoleate and PEG-20 sorbitan  
25 trioleate;

- fatty acid esters of polyethylene glycol such as (INCI name) PEG-8 Stearate, PEG-6 Oleate, PEG-6 Isostearate, PEG-12 Isostearate, PEG-12 Diisostearate, PEG-8 Isostearate, PEG-8 Diisostearate or PEG-10 Isostearate;

30 - oxyalkylenated, especially oxyethylenated and/or oxypropylenated, more particularly oxyethylenated, fatty alkyl ethers, for instance cetareth-12 and cetareth-20 (INCI name), and also mixtures containing

them, for instance the mixture sold under the name Emulgade CM by the company Cognis (mixture of cetearyl isononanoate, cetearth-20, cetearyl alcohol, glyceryl stearate, glycerol, cetearth-12 and cetyl palmitate);

- and mixtures thereof.

5 In one embodiment, the amount of the non-ionic surfactants in the composition according to the invention is comprised between 1% and 30% by weight, based on the total weight of the composition, preferably between 1% and 20% by weight, for example about 15% by weight, based on the total weight of the composition.

10

### **Adjuvants**

In a known manner, the composition of the invention may also contain adjuvants that are common in cosmetics and/or dermatology, such as preserving agents, antioxidants, complexing agents, pH modifiers (acidic  
15 or basic), fragrances, fillers, bactericides, odour absorbers, colorants (pigments and dyes), film-forming polymers, additional surfactants such as anionic, amphoteric, cationic, or nonionic surfactants; additional oils such as silicone oil, or fluoro oils, thickeners and/or gelling agents, and active ingredients.

20 The term "silicone oil" means an oil comprising in its structure carbon atoms and at least one silicon atom.

The term "fluoro oil" means partially hydrocarbon-based and/or silicone-based oils comprising carbon atoms and fluorine atoms.

As examples of non-volatile silicone oils, mention may be made of  
25 linear or cyclic non-volatile polydimethylsiloxanes (PDMS); polydimethylsiloxanes comprising alkyl, alkoxy or phenyl groups, which are pendant or at the end of a silicone chain, these groups containing from 2 to 24 carbon atoms; phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyl trimethylsiloxy diphenyl siloxanes, diphenyl  
30 dimethicones, diphenyl methyl diphenyl trisiloxanes and 2-phenylethyl trimethylsiloxy silicates, and mixtures thereof.

Needless to say, a person skilled in the art will take care to select this

or these optional additional compound(s), and/or the amount thereof, such that the properties of the composition according to the invention are not, or are not substantially, adversely affected by the envisaged addition.

## 5 Galenical forms

The compositions according to the invention may be in the form of a cream, a balm, pomade or a gel whose hardness may vary as a function of the desired application, the region of human keratin material to be treated and the desired conditioning.

10 The compositions according to the invention may be conditioned in a jar; in a device equipped with an open-work wall, especially a grille; in a device equipped with a ball applicator (“roll-on”); in the form of wands (sticks). In this regard, they contain the ingredients generally used in products of this type, which are well known to those skilled in the art.

15 In a particular embodiment, the composition according to the invention comprises, based on the total weight of the composition:

- from 1% to 20% by weight of at least one hydrophobic polymer chosen from ester terminated poly(ester-amide);

- from 1% to 30% by weight of at least two non-ionic surfactants, 20 wherein one of which is fatty acid ester of polyglycerol containing at least 5 glycerol groups; and

- at least one hydrocarbon-based oil.

More particularly, the present invention relates to a solid anhydrous composition for cleansing and/or makeup removing of keratin materials, in 25 particular the skin, comprising, based on the total weight of the composition:

- from 5% to 12% by weight of at least one hydrophobic polymer chosen from ester terminated poly(ester-amide);

- from 1% to 20% by weight of at least two non-ionic surfactants 30 which are chosen from, respectively, fatty acid ester of polyglycerol containing at least 5 glycerol groups, and oxyalkylenated fatty acid ester of glycerol; and

- at least one hydrocarbon-based oil.

In one embodiment, the composition of the invention comprises:

- bis-stearyl ethylenediamine/neopentyl glycol/hydrogenated dimer dilinoleate copolymer,

- 5
- a synthetic ester of a fatty acid such as 2-ethylhexyl palmitate, and
  - non-ionic surfactants which are mixtures of polyglyceryl-10 oleate and PEG-20 glyceryl triisostearate.

In one embodiment, the composition of the invention comprises:

- 10
- 10% by weight of bis-stearyl ethylenediamine/neopentyl glycol/hydrogenated dimer dilinoleate copolymer,
  - 2-ethylhexyl palmitate, and
  - 5% by weight of PEG-20 glyceryl triisostearate, and 5% by weight of polyglyceryl-10 oleate,
- based on the total weight of the composition.

15 The present invention also relates to a cosmetic process for treating and/or caring for keratin materials, characterized in that it comprises applying to the surface of the keratin material at least one composition as defined previously.

The present invention also relates to a cosmetic process for removing  
20 the makeup on the keratin materials, which comprises applying to the surface of a keratin material at least one composition as defined previously.

The composition according to the invention has improved spread-ability, makeup remove ability, rinse ability and skin finish.

25 Besides, the composition has a desired hardness so as to be conditioned in a jar, a device equipped with an open-work wall, a device equipped with a ball applicator, or in the form of wands (sticks).

In the patent application, unless specifically mentioned otherwise, the contents are expressed on a weight basis relative to the total weight of the  
30 composition.

The examples that follow are aimed at illustrating the compositions and processes according to this invention, but are not in any way a



limitation of the scope of the invention.

All the parts and percentages in the examples are given on a weight basis and all the measurements were obtained at about 25°C, unless otherwise mentioned.

5

## **EXAMPLES**

### Example 1: Preparation examples

The following formulations were prepared as follows:

Phase	INCI Name	Dosage (% by weight, by active matters)		
		Invention formula	Comparative formula	
		1	2	3
A	ETHYLHEXYL PALMITATE (2-ethylhexyl palmitate (Dub po) of TEARINERIE DUBOIS)	QS 100	QS 100	QS 100
A	POLYAMIDE-8 (Bis-Stearyl Ethylenediamine/neopentyl glycol/stearyl hydrogenated dimer dilinoleate copolymer, OLEAOCRAFT LP-20 from Croda)	10	10	10
A	PEG-20 Glyceryl triisostearate (EMALEX GWIS-320EX of NIHON EMULSION)	5	5	5
B	POLYGLYCERYL-10 OLEATE (NIKKOL DECAGLYN 1-OV of Nikkol)	5	0	0
B	POLYGLYCERYL-3 DIISOSTEARATE (LAMEFORM TGI from Cognis)	0	5	0
B	POLYGLYCERYL-4 DIISOSTEARATE (ISOLAN GPS from Evonik Goldschmidt)	0	0	5
B	POLYGLYCERYL-6 POLYRICINOLEATE (S-FACE CR-1001)	0	0	0
B	BUTYLENE GLYCOL (BUTYLENEGLYCOL-1,3 from Alzo)	25	25	25

Comparative formula 2: POLYGLYCERYL-10 OLEATE is replaced by POLYGLYCERYL-3 DIISOSTEARATE;

Comparative formula 3: POLYGLYCERYL-10 OLEATE is replaced by POLYGLYCERYL-4 DIISOSTEARATE.

5

### Example 2: Evaluation examples

The formulas listed above were evaluated in terms of stability, ease of application, makeup remove ability, rinse ability, and skin sensory after application.

10 The stability of the invention and comparative formulas were evaluated. All the invention and comparative formulas were stored under room temperature (about 20°C) for 2 months.

The formulas were tested by X consumers, using them respectively as makeup removers on the forearms. Then scores from 1 to 5 were given to 15 each of the properties. An average of score were calculated. Scores greater than or equal to 3 represent desired properties, whereas scores lower than 3 represent poor properties.

The results were listed herewith.

Example	Ease of application (spreading)	Makeup remove ability	Rinse ability	Non-residue feeling	Stability
Invention formula 1	5	5	5	5	Stable
Comparative formula 2	3	5	2	1	unstable
Comparative formula 3	3.4	5	2.4	1.6	unstable

20 In conclusion, the invention formula 1 presents an improved stability comparing to the comparative formulas 2 and 3. Besides, the invention formula 1 presents an improved cosmetic properties comparing to the comparative formulas 2 and 3, in particular in rinse ability and non-residue

feelings after application.

It was observed that the invention formula **1**, after storage for 2 months, remained a solid makeup removal stick, with a transparent appearance. Whereas the comparative formulas **2** and **3** both showed phase  
5 separation: the upper phase was an oily phase, and bottom phase was an aqueous phase. The stability test of the comparative formulas failed.

## CLAIMS

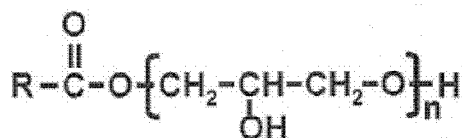
1. A solid anhydrous composition comprising:

- a) at least one hydrophobic polymer chosen from the group consisting  
 5 of ester terminated poly(ester-amide), and their mixtures;  
 b) at least one hydrocarbon-based oil; and  
 c) at least two non-ionic surfactants, wherein one of which is selected  
 from fatty acid esters of polyglycerol containing at least 5 glycerol groups.

2. The composition according to claim 1, wherein the hydrophobic  
 10 ester terminated poly(ester-amide) polymer comprises at least one dimer  
 dilinoleate unit; preferably the hydrophobic polymer is bis-stearyl  
 ethylenediamine/neopentyl glycol/hydrogenated dimer dilinoleate  
 copolymer.

3. The composition according to claim 1 or 2, wherein the amount of  
 15 the hydrophobic polymer is comprised between 1% and 20% by weight,  
 based on the total weight of the composition, preferably between 5% and  
 15% by weight, based on the total weight of the composition.

4. The composition of any one of the preceding claims 1 to 3, wherein  
 the fatty acid esters of polyglycerol are compounds of formula (I),



formula (I)

wherein:

R represents a linear or branched, saturated or unsaturated C<sub>5</sub>-C<sub>30</sub>  
 fatty chain;

n is an integer ranging from 5 to 30;

preferably, in formula (I), R represents a linear or branched, saturated  
 25 or unsaturated C<sub>7</sub>-C<sub>17</sub> fatty chain, and n is an integer ranging from 5 to 20,  
 preferably 5 to 16.

5. The composition of any one of the preceding claims 1 to 4, wherein  
 the fatty acid ester of polyglycerol is selected from the group consisting of  
 30 Polyglyceryl-5 laurate, Polyglyceryl-5 Myristate, Polyglyceryl-5 Oleate,

Polyglyceryl-5 Stearate, Polyglyceryl-10 Caprate, Polyglyceryl-10 Laurate, Polyglyceryl-10 Myristate, Polyglyceryl-10 Oleate, Polyglyceryl-10 stearate, Polyglyceryl-10 Isostearate, or a mixture thereof; preferably Polyglyceryl-10 Oleate.

5           6. The composition according to any one of the preceding claims 1 to 5, wherein the second non-ionic surfactant is chosen from the group consisting of oxyalkylenated fatty acid ester of glycerol, oxyalkylenated fatty acid ester of sorbitan, oxyalkylenated or non-oxyalkylenated ethers of fatty alcohols and of polyols, and mixtures thereof; preferably selected  
10 from oxyalkylenated fatty acid esters of glycerol; preferably chosen from the group consisting of PEG-20 glyceryl triisostearate, PEG-7 glyceryl cocoate, and mixtures thereof; more preferably PEG-20 glyceryl triisostearate.

          7. The composition according to any one of the preceding claims 1 to  
15 6, wherein the total amount of the non-ionic surfactants is comprised between 1% and 30% by weight, based on the total weight of the composition, preferably between 1% and 20% by weight, based on the total weight of the composition.

          8. The composition according to any one of the preceding claims 1 to  
20 7, wherein the hydrocarbon-based oil is chosen from the group consisting of C<sub>8</sub>-C<sub>16</sub> isoalkanes of petroleum origin, branched C<sub>8</sub>-C<sub>16</sub> esters and isohexyl neopentanoate, hydrocarbon-based non-volatile oils of animal origin or plant oils, linear or branched hydrocarbons of mineral or synthetic origin, synthetic ethers containing from 10 to 40 carbon atoms,  
25 synthetic esters, fatty alcohols that are liquid at 25°C, higher fatty acids such as oleic acid, linoleic acid, carbonates, acetates, citrates, and mixtures thereof; preferably from synthetic esters of fatty acids.

          9. The composition according to any one of the preceding claims 1 to  
8, wherein the amount of the hydrocarbon-based oil is comprised between  
30 55% and 98% by weight, based on the total weight of the composition; preferably between 65% and 95% by weight, more preferably between 80% and 90% by weight, based on the total weight of the composition.

10. The composition according to any one of the preceding claims 1 to 9, wherein the composition is transparent.

11. A solid anhydrous composition comprising, relative by weight relative to the total weight of the composition:

5 a) from 5% to 12% by weight of at least one hydrophobic polymer chosen from ester terminated poly(ester-amide);

b) from 1% to 20% by weight of at least two non-ionic surfactants which are chosen from, respectively, fatty acid ester of polyglycerol containing at least 5 glycerol groups, and oxyalkylenated fatty acid ester of  
10 glycerol; and

c) at least one hydrocarbon-based oil.

12. The composition according to any one of the preceding claims 1 to 11, wherein said composition is a cosmetic composition.

13. Cosmetic use of a composition according to any one of the  
15 preceding claims 1 to 12, for removing makeup from keratin materials, in particular from the skin.

14. Cosmetic process for cleansing and/or removing the makeup on the keratin materials, which comprises a step of applying to the surface of a keratin material, in particular the skin, at least one composition as defined  
20 in any of the preceding claims 1 to 13.

## INTERNATIONAL SEARCH REPORT

International application No.

**PCT/CN2017/118564**

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
A61K 8/37(2006.01)i		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
A61K; C08L; A61Q		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
DWPI;SIPOABS;CNPAT;CNKI; Elsevier: solid anhydrous hydrophobic polyester polyamide polyglycerol		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 8546640 B2 (POPOVSKY MICHAEL ET AL.) 01 October 2013 (2013-10-01) the whole document	1-14
A	US 2006177505 A1 (OREAL) 10 August 2006 (2006-08-10) the whole document	1-14
A	CN 104740234 A (TIANJIN ZHONGXIN PHARM GROUP CO LTD) 01 July 2015 (2015-07-01) the whole document	1-14
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
15 September 2018		27 September 2018
Name and mailing address of the ISA/CN		Authorized officer
<b>STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China</b>		<b>GAO,Feng</b>
Facsimile No. (86-10)62019451		Telephone No. 62084462

**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

**PCT/CN2017/118564**

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
US	8546640	B2	01 October 2013	WO	2007146103	A3	30 October 2008
				US	2013236520	A1	12 September 2013
				EP	2029292	A4	05 December 2012
				US	2009285875	A1	19 November 2009
				EP	2029292	A2	04 March 2009
				JP	2009539852	A	19 November 2009
				KR	20090082334	A	30 July 2009
				KR	101469290	B1	04 December 2014
				CA	2690716	C	05 August 2014
				CA	2690716	A1	21 December 2007
				WO	2007146103	A2	21 December 2007
US	2006177505	A1	10 August 2006	FR	2881348	A1	04 August 2006
				EP	1685876	A1	02 August 2006
				JP	2006213710	A	17 August 2006
CN	104740234	A	01 July 2015	None			