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(54) Title: COSMETIC COMPOSITION IN THE FORM OF AN OIL-IN-WATER EMULSION COMPRISING ASCORBIC ACID, AT LEAST ONE SUNSCREEN, AND GELLED WITH NATURAL POLYMERS.

(57) Abstract: The present invention relates to a composition in the form of an oil-in-water emulsion comprising at least 5% by weight of ascorbic acid and/or a compound thereof, a lipophilic sunscreen, a lipophilic surfactant with an HLB ranging from 2 to 5, a hydrophilic surfactant with an HLB ranging from 8 to 12, an anionic surfactant, a gelling natural polymer or polymer of natural origin, with said composition having a pH ranging from 5 to 7. The invention also relates to a cosmetic process for caring for and/or treating keratin materials, comprising the application of such a composition, and to the use of such a composition for regenerating and firming keratin materials, or for treating the appearance of brown spots on keratin materials.

Description

Title: Cosmetic composition in the form of an oil-in-water emulsion comprising ascorbic acid, at least one sunscreen, and gelled with natural polymers.

Technical field

The present invention is directed toward providing compositions, notably cosmetic compositions, in particular for caring for and/or making up keratin materials, in the form of an oil-in-water emulsion, comprising at least ascorbic acid, at least one sunscreen, at least one natural gelling polymer and stabilized over time and with respect to temperature.

Prior art

It is known practice to introduce active agents into cosmetic and/or dermatological compositions intended for application to the skin, in order to reinforce the skin's protection against external attacking factors such as ultraviolet radiation and pollution, but also to slow down and/or reduce the appearance of the signs of aging. In this respect, ascorbic acid, also known as vitamin C, is particularly advantageous as a skin-regenerating active agent, as it stimulates the synthesis of collagen, which is responsible for skin firmness. It is also known for its antioxidant properties and as a skin-depigmenting active agent, as it reduces the production of melanin, which is responsible for the appearance of brown spots. The efficacy of ascorbic acid is most particularly enhanced when it is used in a content of greater than 5% by weight, relative to the total weight of the composition containing it.

Moreover, it has been found that these beneficial biological effects of ascorbic acid may be enhanced by combining it with one or more lipophilic sunscreens.

Given the lipophilic nature of said sunscreens, it is necessary to dissolve them in cosmetic oils in order to formulate them, and thus to give preference to compositions of the oil-in-water emulsion type. However, formulating ascorbic acid in a content of greater than 5% by weight relative to the total weight of the composition is difficult to achieve in this type of emulsion, as it destabilizes and changes color drastically, even turning brown, which is unacceptable to users.

One way of stabilizing dissolved vitamin C has been proposed, for example in patent application FR3124388 A1, in an aqueous medium, which consists in neutralizing it in the form of sodium ascorbate at pH 6 and combining it with a cationic polymer.

However, this sodium ascorbate form induces a high ionic strength in the aqueous medium, which disrupts the physicochemical equilibria and promotes rapid destabilization of O/W emulsions.

One solution consists in developing purely aqueous gel-type products, as described in patent application FR3124390 A1. However, lipophilic ingredients are not compatible with these aqueous gels for solubility reasons.

Another solution is to incorporate the active lipophilic ingredients associated with vitamin C by means of the addition of hydrotropes such as niacinamide as proposed in patent application FR3130595 A1. However, this restricts the accessible galenical field in terms of appearance and sensoriality.

Disclosure of the invention

In the light of the foregoing, there remains a need for compositions, notably cosmetic compositions, of the oil-in-water emulsion type, containing ascorbic acid and/or a compound of ascorbic acid thereof in a significant content and in a form combined with at least one lipophilic sunscreen which remain stable over time and/or with respect to temperature.

The invention is specifically directed toward meeting these needs.

Summary of the invention

Thus, according to a first aspect, the present invention relates to a composition in the form of an oil-in-water emulsion, notably a cosmetic composition, in particular for caring for keratin materials, comprising:

- at least 5% by weight of ascorbic acid and/or a compound of ascorbic acid, relative to the total weight of the composition;
- at least one lipophilic sunscreen;
- at least one lipophilic surfactant with an HLB ranging from 2 to 5;
- at least one hydrophilic surfactant with an HLB ranging from 8 to 12;
- at least one anionic surfactant;
- at least one gelling natural polymer or polymer of natural origin; and

said composition having a pH ranging from 5 to 7.

According to a particular embodiment, the composition according to the invention has a pH ranging from 5.5 to 6.5, and in particular of the order of 6.

As illustrated in the examples below, the inventors have discovered that the combined use of a surfactant system as described above and at least one natural polymer or polymer of natural origin makes it possible to obtain compositions that are compatible with the formulation of at least one lipophilic UV-screening agent, which have a high content of ascorbic acid or a compound of ascorbic acid, and which are not subject to destabilization of O/W emulsions.

Contrary to all expectation, the inventors have found that the combined presence of at least one lipophilic surfactant with an HLB ranging from 2 to 5, at least one hydrophilic surfactant with an HLB ranging from 8 to 12, at least one anionic surfactant and at least one gelling natural polymer or polymer of natural origin affords stable O/W emulsions.

The invention also relates to a non-therapeutic cosmetic process for caring for and/or treating keratin materials, in particular the skin, comprising the application to the keratin materials, in particular the topical application to these keratin materials, of a composition as defined previously.

A subject of the present invention is also the non-therapeutic use of a composition as described previously, in the cosmetic field, and in particular for regenerating and firming keratin materials, in particular the skin.

A subject of the present invention is also the non-therapeutic use of a composition as described previously, in the cosmetic field, and in particular for preventing and/or treating the appearance of brown spots on keratin materials, in particular on the skin.

Detailed description

The composition according to the invention is cosmetic and/or dermatological, and is preferably cosmetic.

The composition according to the invention is generally suitable for topical application to the skin and thus generally comprises a physiologically acceptable medium, i.e. a medium that is compatible with the skin.

The term "*cosmetic*" refers to a composition that is compatible with the skin, mucous membranes and the integuments. The composition according to the invention is non-therapeutic.

The term "*keratin materials*" in particular means the skin, mucous membranes, fibres, eyelashes and the integuments.

The term "*the skin*" means all the skin of the body, and preferably the skin of the face, the scalp, the neckline, the neck, the arms and forearms, the eyelids, around the mouth or behind the ears, the hollow of the elbow, the back of the knees, the hands, the wrists and the ankles, or even more preferably the skin of the face (in particular the forehead, the nose, the cheeks and the chin), the neckline and the neck.

The term "*gelling polymer of natural origin*" is intended to denote polymeric gelling agents obtained by modification of natural polymeric gelling agents. In the following description, the simplified expression "natural polymer" can be used to denote the two categories of polymer considered according to the invention, namely natural polymer and polymer of natural origin.

A composition according to the invention comprises a physiologically acceptable medium, i.e. one which has a pleasant color, odor and feel and which does not give rise to any unacceptable discomfort, i.e. tingling, tautness or redness, that is liable to discourage the user from applying this composition.

As used herein, the terms "*treating*" and "*treatment*" are intended to denote the alleviation of the symptoms associated with a specific disorder or condition and/or the elimination of said symptoms and also the complete disappearance of the disorder or condition in question. In the context of the present invention, the terms "*preventing*" and "*prevention*" denote the reduction, to a lesser degree, of the risk or probability of occurrence of a given phenomenon.

Ascorbic acid and compounds of ascorbic acid

As indicated previously, a composition according to the invention comprises at least 5% by weight of ascorbic acid, also known as vitamin C, and/or a compound of ascorbic acid, relative to the total weight of the composition.

In particular, ascorbic acid and/or a compound of ascorbic acid is present in the composition according to the invention in a content ranging from 5% to 20% by weight, preferably from

6% to 15% by weight, better still from 7% to 12% by weight relative to the total weight of the composition.

The ascorbic acid may be in D or L form, advantageously in L form, and analogs thereof chosen from salts thereof, preferably sodium ascorbate, magnesium or sodium ascorbyl phosphate, and glycosyl ascorbic acid.

Compounds of ascorbic acid that may be mentioned in particular include sugar esters of ascorbic acid and metal salts of phosphorylated ascorbic acid.

The sugar esters of ascorbic acid that may be used in the invention are notably glycosyl, mannosyl, fructosyl, fucosyl, galactosyl, N-acetylglucosamine and N-acetylmuramic compounds of ascorbic acid and mixtures thereof.

May also be cited as compounds of ascorbic acid the ascorbyl-2 glucoside or the 2-O-α-D-glucopyranosyl L-ascorbic acid or the 6-O-β-D-galactopyranosyl L-ascorbic acid. The latter compounds and processes for preparing them are described in particular in EP 487 404, EP 425 066 and JP05213736.

For its part, the metal salt of phosphorylated ascorbic acid is chosen from alkali metal ascorbyl phosphates, alkaline-earth metal ascorbyl phosphates and transition metal ascorbyl phosphates.

The compounds of ascorbic acid that are suitable for use according to the present invention may be chosen from the 5,6-di-O-dimethylsilyl ascorbate sold under the reference PRO-AA by the company Exsymol, the potassium salt of DL-α-tocopheryl-DL-ascorbyl phosphate sold under the reference Sepivital EPC by the company Senju Pharmaceutical, magnesium ascorbyl phosphate, sodium ascorbyl phosphate sold under the reference Stay-C 50 by the company Roche and ascorbyl glucoside sold by the company Hayashibara.

Surfactant system

As mentioned previously, a composition according to the invention comprises:

a) at least one lipophilic surfactant with an HLB of between 2 and 5,

b) at least one hydrophilic surfactant with an HLB of between 8 and 12, and

c) at least one anionic surfactant.

For the purposes of the invention, the combination of the three types of surfactant a), b) and c) is also referred to as a “lamellar surfactant system”.

This surfactant system advantageously affords access to a very stabilized oil-in-water emulsion architecture, formed by oily globules each provided with a lamellar liquid crystal coating, which are dispersed in the aqueous phase. More precisely, the small-sized oily globules are coated with a monolayer and an extremely thin oligolamellar layer. The term "oligolamellar layer" means a layer comprising from two to five lipid lamellae (the term "lipid lamella" means a membrane of the lipid bilayer type as described in the field of liposomes, for example).

According to a particular embodiment of the invention, the lipophilic surfactants, hydrophilic surfactants and anionic surfactants are present in a mass ratio of 53/27/20.
In particular, a composition of the invention may comprise a total content of lipophilic surfactant(s) with an HLB of between 2 and 5, hydrophilic surfactant(s) with an HLB of between 8 and 12, and anionic surfactant(s) ranging from 1% to 10% by weight, preferably from 3% to 7% by weight, better still from 3.5% to 5% by weight relative to the total weight of the composition.

a) Lipophilic surfactant

As mentioned previously, this lipophilic surfactant has an HLB parameter ranging from 2 to 5.

The term "HLB (Hydrophilic-Lipophilic Balance)" means the equilibrium between the size and the strength of the hydrophilic group and the size and the strength of the lipophilic group of the surfactant.

The HLB value according to Griffin is defined in J. Soc. Cosm. Chem. 1954 (Volume 5), pages 249-256.

Lipophilic surfactants with an HLB ranging from 2 to 5 may in particular be chosen from:

- ethers of polyethylene glycol and of fatty alcohols, notably saturated or unsaturated alcohols comprising from 12 to 30 carbon atoms, preferably from 14 to 26 carbon atoms, such as oleyl alcohol, stearyl alcohol or behenyl alcohol, and comprising from 1 to 50 oxyethylene (OE) groups, preferably from 1 to 20 oxyethylene groups, for instance the compounds having the INCI name steareth 2, beheneth 2 or oleth 2. These polyethylene glycol ethers may comprise from 1 to 10 fatty chains;

- esters of polyethylene glycol and of fatty acids, notably saturated or unsaturated fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 26 carbon atoms, such as oleic acid or stearic acid, and comprising from 1 to 50 oxyethylene (OE) groups, preferably from 1 to 20 oxyethylene groups, such as polyethylene glycol monostearate (INCI name: PEG-2 stearate). These polyethylene glycol esters may be formed from 1 to 10 fatty chains;
- ethers of polyethylene glycol and of glycosylated fatty alcohols, notably of alcohols comprising from 12 to 30 carbon atoms, preferably from 14 to 26 carbon atoms, said ethers comprising from 1 to 10 oxyethylene (OE) groups, preferably from 1 to 5 oxyethylene groups and from 1 to 10 glycosyl groups;
- esters of polyethylene glycol and of glycosylated fatty acids, notably of fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 26 carbon atoms and comprising from 1 to 5 glycosyl groups, said esters possibly comprising from 1 to 5 fatty chains, preferably from 1 to 5 oxyethylene groups;
- ethers of oxyethylenated alcohols comprising from 12 to 30 carbon atoms, preferably from 14 to 22 carbon atoms, and of glycerol or polyglycerol, said ethers comprising from 1 to 5 glycerol groups and said esters possibly comprising from 2 to 10 fatty chains and from 1 to 10 oxyethylene groups;
- esters of fatty acids comprising from 12 to 30 carbon atoms, better still from 14 to 20 carbon atoms (such as stearic acid or behenic acid), and of glycerol or polyglycerol, said esters comprising from 1 to 10 glycerol groups, for instance diglyceryl distearate, tetraglyceryl tristearate, decaglyceryl decastearate, diglyceryl monostearate, hexaglyceryl tristearate or decaglyceryl pentastearate, the glyceryl ester of palmitic and stearic acids, glyceryl mono- and dibehenate;
- esters of sucrose and of fatty acids comprising from 12 to 30 carbon atoms, in particular from 14 to 20 carbon atoms, said esters possibly comprising from 2 to 5 fatty chains, for instance sucrose distearate or sucrose tristearate;
- esters of pentaerythritol and of fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 20 carbon atoms, for instance pentaerythrityl tetrastearate;
- esters of sorbitol and/or sorbitan and of fatty acids comprising from 12 to 30 carbon atoms, preferably from 12 to 20 carbon atoms, such as stearic acid, for instance sorbitan monostearate or sorbitan tristearate;

- ethers of polyethylene glycol and of cholesterol, comprising from 1 to 10 oxyethylene groups, such as choleth 3;
- and mixtures thereof.

The term "ester" means a monoester or a polyester.

As illustrations of these surfactants, mention may notably be made of steareth 2, beheneth 2, oleth 2, sucrose distearate, sucrose tristearate, diglyceryl distearate, tetraglyceryl tristearate, decaglyceryl decastearate, diglyceryl monostearate, hexaglyceryl tristearate, decaglyceryl pentastearate, sorbitan monostearate, sorbitan tristearate, diethylene glycol monostearate, the glyceryl ester of palmitic and stearic acids, polyoxyethylene 2 OE monostearate, glyceryl mono- and dibehenate, pentaerythrityl tetrastearate and mixtures thereof.

Preferably, as a lipophilic surfactant with an HLB ranging from 2 to 5, the composition according to the invention comprises at least one surfactant chosen from mono-, di- or triesters of sucrose and of fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 20 carbon atoms, such as stearic acid, in particular sucrose tristearate, sucrose distearate and mixtures thereof.

A composition according to the invention may in particular comprise from 0.5% to 8% by weight, preferably from 1% to 5% by weight, better still from 1.5% to 3% by weight of lipophilic surfactant(s) with an HLB of between 2 and 5 relative to the total weight of the composition.

b) Hydrophilic surfactant

As mentioned previously, this surfactant has an HLB parameter ranging from 8 to 12.

Hydrophilic surfactants with an HLB ranging from 8 to 12 may in particular be chosen from:

- ethers of polyethylene glycol and/or polypropylene glycol and of fatty alcohols, notably of alcohols comprising from 12 to 30 carbon atoms, preferably from 14 to 22 carbon atoms, such as tridecyl alcohol, cetyl alcohol, stearyl alcohol or lauryl alcohol, said ether comprising a total of 2 to 30 oxyethylene (OE) and/or oxypropylene (OP) groups, preferably from 1 to 20 oxyethylene and/or from 1 to 10 oxypropylene groups, for instance the compounds having the INCI name steareth-8, steareth-10, steareth-16, steareth-20, ceteth-10, laureth 4, laureth-3 (such as Remcopal 121 from CECA SA), trideceth 6 (such as Renex 36 from ICI Surfactant),

ceteareth-5 (such as Volpo CS 5 from Croda), oleth-10 (such as Volpo N 10 from Croda), beneth-10 (such as Nikkol BB-10 from Nikkol), polyethylene glycol oleyl alcohol ether comprising 4 or 5 EO groups (such as Remcopal 220 from CECA SA), polyoxypropylene (4 OP)/polyoxyethylene (1 OE) cetyl alcohol ether (such as Nikkol PBC-31 from Nikkol), polyoxypropylene (4 OP)/polyoxyethylene (10 OE) cetyl alcohol ether (such as Nikkol PBC-33 from Nikkol);

- esters of polyethylene glycol and/or polypropylene glycol and of fatty acids, notably of fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 26 carbon atoms, such as oleic acid or stearic acid, and comprising from 1 to 50 oxyethylene (OE) groups, preferably from 4 to 12 oxyethylene groups, for instance polyethylene glycol-8 monostearate, polyethylene glycol-10 monostearate or polyethylene glycol-12 distearate;
- ethers resulting from the reaction of a) polyethylene glycol and b) esters of fatty acids (notably C12-C30 and preferably C12-C26 acids) and of oxyethylenated glucose (which may include from 1 to 50 oxyethylene groups, preferably from 4 to 10 oxyethylene groups, and from 1 to 10 glycosyl groups), such as polyethylene glycol esters and stearic acid-glucose esters such as polyoxyethylene methyl glucose distearate (20 OE);
- ethers of alcohols comprising from 12 to 30 carbon atoms, preferably from 14 to 22 carbon atoms, and of glycerol or polyglycerol, said ethers comprising from 3 to 10 glycerol groups, for instance polyglyceryl-3 cetyl ether such as Chimexane NL from Chimex;
- esters of fatty acids comprising 12 to 30 carbon atoms, better still from 14 to 20 carbon atoms, such as stearic acid, and of glycerol or polyglycerol, said esters comprising from 3 to 10 glycerol groups, for instance hexaglyceryl monostearate, said esters of glycerol or polyglycerol possibly comprising from 1 to 10 fatty chains;
- esters of sucrose or glucose and of fatty acid comprising from 12 to 30 carbon atoms, in particular from 14 to 20 carbon atoms; mention being made, for example, of the mixture of esters (mono- and polyesters) of stearic acid and sucrose sold by the company Croda under the reference Crodesta F110;
- ethers of fatty alcohols comprising from 12 to 30 carbon atoms, in particular from 12 to 20 carbon atoms, and of sucrose or glucose, in particular ethers of fatty alcohols

comprising from 12 to 20 carbon atoms and of glucose, comprising in particular from 1 to 3 glucoside units, such as the compounds having the INCI name C12-18 Alkyl Glucoside, C12-20 Alkyl Glucoside (for example Montanov L from SEPPIC), cetearyl glucoside (for instance, sold as a mixture with cetearyl alcohol under the reference Montanov 68 from SEPPIC), myristyl glucoside (for instance, sold as a mixture with myristyl alcohol under the reference Montanov 14 from SEPPIC), cetearyl glucoside (for instance, Tegocare CG 90 from Evonik Goldschmidt);

- esters of sorbitol and/or sorbitan and of fatty acids comprising from 12 to 30 carbon atoms, preferably from 12 to 20 carbon atoms such as lauric acid; mention may be made, for example, of sorbitan laurate such as Span 20 from the company Uniqema, sorbitol and/or sorbitan ethers such as ethers of beeswax and of ethoxylated sorbitan comprising 5 to 25 EO groups, for instance Sorbeth-8 beeswax or Sorbeth-20 beeswax from the company GBW-125 Nikko Chemical;
- esters of fatty acids (notably C12-C30 acids, and preferably C12-C20 acids) and of sorbitol and/or sorbitan ethers, which are oxyethylenated (possibly including from 2 to 30 oxyethylene groups), such as esters of stearic acid and of sorbitol and/or sorbitan comprising from 2 to 20 OE groups such as polysorbate-60, polysorbate-61, sorbeth 3 isosteratate, polyoxyethylene sorbitan monostearate 4 OE, polyoxyethylene sorbitan tristearate 20 OE;
- polyethylene glycol cholesterol ethers comprising from 5 to 40 oxyethylene groups, for instance Choleth-10 (such as Emalex CS-10 from Nihon Emulsion Company), Choleth-15 (such as Emalex CS-15 from Nihon Emulsion Company) or Choleth-20 (such as Emalex CS-20 from Nihon Emulsion);
- esters of polyglycerol (and derivatives thereof) and of fatty acid, for example stearic acid, such as polyglyceryl methyl glucose 3 distearate;
- and mixtures thereof.

Preferably, as a hydrophilic surfactant with an HLB ranging from 8 to 12, a composition according to the invention comprises at least one surfactant chosen from esters of fatty acid (notably C12-C30 and preferably C12-C20 acid) and of oxyethylenated sorbitol and/or sorbitan ethers (possibly including from 2 to 30 oxyethylene groups), such as stearic acid esters of sorbitol and/or sorbitan comprising from 2 to 20 OE groups, such as polysorbate-60, polysorbate-61, sorbeth 3 isosteratate, polyoxyethylenated sorbitan monostearate 4 OE,

polyoxyethylenated sorbitan tristearate 20 OE, and esters of polyglycerol (and derivatives thereof) and of fatty acid, for example stearic acid, such as polyglyceryl methyl glucose 3 distearate and mixtures thereof.

A composition according to the invention may comprise from 0.3% to 5% by weight, preferably from 0.5% to 3% by weight, better still from 0.7% to 2% by weight of hydrophilic surfactant(s) whose HLB parameter ranges from 8 to 12 relative to the total weight of the composition.

c) Anionic surfactant

Reference may be made to Kirk-Othmer's *Encyclopedia of Chemical Technology*, volume 22, pages 333-432, 3rd edition, 1979, Wiley, for the definition of the emulsifying properties and functions of anionic surfactants (pages 347-377 of this reference).

The anionic surfactants may be chosen from alkyl ether sulfates, carboxylates, amino acid compounds, sulfonates, isethionates, taurates, glutamates, sulfosuccinates, alkyl sulfoacetates, phosphates and alkyl phosphates, polypeptides, metal salts of C_{10}-C_{30} and notably C_{16}-C_{25} fatty acids, in particular metal stearates and behenates, alkali metal salts of cetyl phosphate, mixed esters of fatty acid or fatty alcohol, carboxylic acid and glycerol, alkyl ether citrates, alkoxylated glucose alkenyl succinates and alkoxylated methylglucose alkenyl succinates, phosphoric acid fatty esters, and mixtures thereof.

Among these anionic surfactants, the following may notably be mentioned as representative:
- acylisethionates, the linear or branched acyl group comprising from 16 to 22 carbon atoms, preferably from 16 to 18 carbon atoms;
- N-acyl-N-alkyltaurates, the linear or branched acyl group comprising from 16 to 22 carbon atoms, preferably from 16 to 18 carbon atoms, and the linear or branched alkyl group comprising from 1 to 6 carbon atoms, or the cyclic alkyl group comprising from 3 to 6 carbon atoms; preferably, the alkyl group is a methyl,
- and mixtures thereof; in particular in the form of alkali metal or alkaline-earth metal, ammonium or amino alcohol salts.

As N-acyl-N-alkyltaurates, mention may be made of sodium palmitoyl methyltaurate sold under the name Nikkol PMT® by the company Nikkol; the sodium salt of N-stearoyl N-methyl taurate sold under the name Nikkol SMT by the company Nikko.

As a mixed ester, mention may be made of the mixed ester of glycerol and the mixture of citric, lactic, linoleic and oleic acids (INCI name: Glyceryl citrate/lactate/linoleate/oleate) sold by Hüls under the name Imwitor 375; the mixed ester of succinic acid and of isostearyl alcohol with glycerol (INCI name: Isostearyl diglyceryl succinate) sold by Hüls under the name Imwitor 780 K; the mixed ester of citric acid and stearic acid with glycerol (INCI name: Glyceryl stearate citrate) sold by Hüls under the name Imwitor 370; or the mixed ester of lactic acid and stearic acid with glycerol (INCI name: Glyceryl stearate lactate) sold by Danisco under the name Lactodan B30 or Rylo LA30.

As alkali metal salts of cetyl phosphate, mention may notably be made of potassium cetyl phosphate. Use may notably be made of the monopotassium salt of monocetyl phosphate (INCI name: potassium cetyl phosphate) sold under the name Amphisol K by the company DSM Nutritional Products.

According to a particular embodiment of the invention, the anionic surfactant(s) are chosen from surfactants comprising at least one sulfonate function, acylglutamates, and mixtures thereof. These may notably concern surfactants chosen from anionic surfactants comprising at least one sulfonate function, such as alkylsulfonates, alkylamidesulfonates, alkylarylsulfonates, alkylsulfoacetates, taurates, acylisethionates, alkylsulfolaurates, and mixtures thereof.

According to a preferred embodiment of the invention, a composition according to the invention contains at least one acyl glutamic acid surfactant or acyl glutamate salts.

Examples of acyl glutamates that may notably be mentioned include palmitoyl glutamic acid, stearoyl glutamic acid, behenoyl glutamic acid, olivoyl glutamic acid, and the salts of these acids, notably the alkali metal salts such as the Na, Li or K and preferably Na or K salts, the alkaline-earth metal salts such as the Mg salts or the ammonium salts of said acids.

Mention may be made, for example, of the compounds having the INCI name sodium stearoyl glutamate, sodium olivoyl glutamate, and mixtures thereof.

As acylglutamic acid salts, mention may also be made of sodium stearoyl glutamate, such as the product sold under the reference Acylglutamate HS 11 by the company Ajinomoto and disodium hydrogenated stearoyl glutamate, such as the product sold under the reference Acylglutamate HS-21 by the company Ajinomoto.

Preferably, as an anionic surfactant, a composition according to the invention comprises at least one surfactant chosen from acyl glutamates whose acyl group comprises from 16 to 18

carbon atoms, in particular chosen from sodium stearoyl glutamate and disodium stearoyl glutamate.

A composition according to the invention may comprise from 0.2% to 5% by weight, preferably from 0.3% to 2% by weight and better still from 0.5% to 1% by weight of anionic surfactant(s) relative to the total weight of the composition.

According to a particular embodiment, a composition according to the invention comprises at least:

- from 1% to 3% by weight, relative to its total weight, of lipophilic surfactant(s), notably chosen from sucrose esters of fatty acids comprising from 12 to 30 carbon atoms, and in particular at least sucrose tristearate;
- from 0.5% to 2% by weight, relative to its total weight, of hydrophilic surfactant(s), notably chosen from fatty acid esters of sorbitol and/or sorbitan ethers, and in particular at least polysorbate 61; and
- from 0.3% to 1% by weight, relative to its total weight, of anionic surfactant(s), notably chosen from acyl glutamates, and in particular at least sodium stearoyl glutamate.

Gelling natural polymer

As indicated previously, the composition according to the invention comprises at least one gelling natural polymer or polymer of natural origin.

In particular, a composition according to the invention contains from 0.2% to 2% by weight, preferably from 0.3% to 1.5% by weight, better still from 0.5% to 1% by weight of gelling natural polymer(s) or polymer(s) of natural origin relative to the total weight of the composition.

This polymer acts as a gelling agent with respect to the aqueous phase of the emulsion according to the invention and thus contributes to the stabilization of this emulsion over time and with respect to temperature.

In particular, these gelling polymers may be particulate or non-particulate. More specifically, these gelling agents fall within the category of polysaccharides.

In general, polysaccharides may be divided into several categories.

Thus, polysaccharides that are suitable for use in the invention may be homopolysaccharides such as fructans, glucans, galactans and mannans or heteropolysaccharides such as hemicellulose.

Similarly, they may be linear polysaccharides such as pullulan or branched polysaccharides such as acacia gum and amylopectin, or mixed polysaccharides such as starch.

The polysaccharides that are suitable for use in the invention may be distinguished according to whether or not they are starchy.

More particularly, they are non-starchy.

In general, the non-starchy polysaccharides may be chosen from polysaccharides produced by microorganisms; polysaccharides isolated from algae, and higher plant polysaccharides, such as homogeneous polysaccharides, in particular celluloses and derivatives thereof or fructosans, heterogeneous polysaccharides such as acacia gums, galactomannans, glucomannans and pectins, and derivatives thereof; and mixtures thereof.

In particular, the polysaccharides may be chosen from fructans, gellans, glucans, amylose, amylopectin, glycogen, pullulan, dextrans, celluloses and derivatives thereof, in particular methylcelluloses, hydroxyalkylcelluloses, ethylhydroxyethylcelluloses and carboxymethylcelluloses, mannans, xylans, lignins, arabans, galactans, galacturonans, alginate-based compounds, chitin, chitosans, glucuronoxylans, arabinoxylans, xyloglucans, glucomannans, pectic acids and pectins, hyaluronic acid, arabinogalactans, carrageenans, agars, glycosaminoglucans, acacia gums, tragacanth gums, ghatti gums, karaya gums, locust bean gums, galactomannans such as guar gums and nonionic derivatives thereof, in particular hydroxypropyl guar, and ionic derivatives thereof, biopolysaccharide gums of microbial origin, in particular scleroglucan or xanthan gums, mucopolysaccharides, and in particular chondroitin sulfates, and mixtures thereof.

These polysaccharides may be chemically modified, notably with urea or urethane groups or by hydrolysis, oxidation, esterification, etherification, sulfatation, phosphatation, amination, amidation or alkylation reaction, or by several of these modifications.

The derivatives obtained may be anionic, cationic, amphoteric or nonionic.

Advantageously, the polysaccharides may be chosen from carrageenans, in particular kappa carrageenan, gellan gum, agar-agar, xanthan gum, alginate-based compounds, in particular sodium alginate, scleroglucan gum, guar gum, inulin and pullulan, and mixtures thereof.

As illustrations of gelling polymers that are particularly suitable for use in the invention, mention may be made of scleroglucan gums and xanthan gums, which are polysaccharides produced by microorganisms, and carrageenans, which are polysaccharides isolated from algae, guar and acacia gums, which are galactomannans, i.e. nonionic polyosides extracted

from the albumen of legume seeds, locust bean gums, which are extracted from the seeds of the locust bean (*Ceratonia siliqua*), and acacia gums, which are acidic polysaccharides and alginate-based compounds.

More particularly, a composition according to the invention contains at least one gelling natural polymer or polymer of natural origin chosen from polysaccharides and notably from scleroglucan gums and xanthan gums and mixtures thereof.

Scleroglucan

Scleroglucan is a nonionic branched homopolysaccharide consisting of β-D-glucan units. Scleroglucan gum is produced by *Sclerotium rolfsii*. The molecules are constituted of a linear main chain formed from D-glucose units linked via β(1,3) bonds and of which one in three is linked to a side D-glucose unit via a β(1,6) bond.

A more complete description of scleroglucans and of their preparation may be found in US 3 301 848.

Scleroglucan is sold, for example, under the name Amigum by the company Alban Muller, or under the name Actigum™ CS by the company Cargill (INCI name: Sclerotium Gum).

In a preferred embodiment of the invention, the composition comprises at least one scleroglucan gum.

Xanthan

Xanthan is a heteropolysaccharide produced on an industrial scale by aerobic fermentation of the bacterium *Xanthomonas campestris* and mutants and variants thereof. Its structure is formed from a main chain of β(1,4)-linked β-D-glucoses, similar to cellulose. One glucose molecule in two bears a trisaccharide side chain composed of an α-D-mannose, a β-D-glucuronic acid and a terminal β-D-mannose. The internal mannose residue is generally acetylated on carbon 6. About 30% of the terminal mannose residues bear a pyruvate group linked in chelated form between carbons 4 and 6. The charged pyruvic acids and glucuronic acids are ionizable, and are thus responsible for the anionic nature of xanthan (negative charge down to a pH equal to 1). The content of the pyruvate and acetate residues varies according to the bacterial strain, the fermentation process, the conditions after fermentation and the purification steps. These groups may be neutralized in commercial products with

Na^+, K^+ or Ca^{2+} ions (Satia company, 1986). The neutralized form may be converted into the acid form by ion exchange or by dialysis of an acidic solution.

Xanthan gums have a molecular weight of between 1 000 000 and 50 000 000 and a viscosity of between 0.6 and 1.65 Pa.s for an aqueous composition containing 1% of xanthan gum (measured at 25°C on a Brookfield viscometer of LVT type at 60 rpm).

Xanthan gums are represented, for example, by the products sold under the names Rhodicare by the company Rhodia Chimie, under the name Satiaxane™ by the company Cargill Texturizing Solutions (for the food, cosmetic and pharmaceutical industries), under the name Novaxan™ by the company ADM, and under the names Kelzan® and Keltrol® by the company CP-Kelco.

In a particular embodiment, a composition according to the invention comprises at least one xanthan gum, in particular in admixture with a scleroglucan gum.

Carrageenans

Carrageenans are anionic polysaccharides constituting the cell walls of various red algae (Rhodophyceae) belonging to the Gigartinacae, Hypneaceae, Furcellariaceae and Polyideaceae families. They are generally obtained by hot aqueous extraction from natural strains of said algae. These linear polymers, formed by disaccharide units, are composed of two D-galactopyranose units linked alternately by α(1,3) and β(1,4) bonds. They are highly sulfated (20-50%) polysaccharides and the α-D-galactopyranosyl residues can be in 3,6-anhydro form. Depending on the number and position of sulfate-ester groups on the repeating disaccharide of the molecule, several types of carrageenans are distinguished, namely: kappa-carrageenans, which bear one sulfate-ester group, iota-carrageenans, which bear two sulfate-ester groups, and lambda-carrageenans, which bear three sulfate-ester groups.

Carrageenans are composed essentially of potassium, sodium, magnesium, triethanolamine and/or calcium salts and of polysaccharide sulfate esters.

Carrageenans are notably sold by the company SEPPIC under the name Solagum, by the company Gelymar under the name Carragel, Carralact, and Carrasol, by the company Cargill under the names Satiagel™ and Satiagum™, and by the company CP-Kelco under the names Genulacta, Genugel and Genuvisco.

According to a particular embodiment, a composition according to the invention comprises at least:

- an ester of sucrose and of fatty acids comprising from 12 to 30 carbon atoms, and in particular at least sucrose tristearate,
- a fatty acid ester of sorbitol and/or sorbitan ethers,
- an acyl glutamate compound, and
- from 0.3% to 1% by weight, relative to the total weight, of polysaccharide(s) and in particular at least one scleroglucan gum, where appropriate in admixture with xanthan gum.

Lipophilic sunscreen

As indicated previously, the composition according to the invention comprises at least one lipophilic sunscreen.

By "lipophilic sunscreen", is intended any cosmetic compound that filters UV radiation and is capable of being completely dissolved in the molecular state in a liquid fatty phase, or of being solubilized in colloidal form (e.g. in micellar form) in a liquid fatty phase.

The lipophilic sunscreen(s) present in a composition according to the invention are chosen from organic and/or inorganic, preferably organic UV-screening agents that are active in the UVA and/or UVB range.

The organic UV-screening agents are notably chosen from cinnamic compounds; anthranilates; salicylic compounds; dibenzoylmethane compounds, camphor compounds; benzophenone compounds; β,β-diphenylacrylate compounds; triazine compounds; benzalmalonate compounds, notably those mentioned in patent US 5 624 663; benzimidazole compounds; p-aminobenzoic acid (PABA) compounds; methylenebis(hydroxyphenylbenzotriazole) compounds as described in patent applications US 5 237 071, US 5 166 355, GB 2 303 549, DE 197 26 184 and EP 893 119; benzoxazole compounds as described in patent applications EP 0 832 642, EP 1 027 883, EP 1 300 137 and DE 101 62 844; screening polymers and screening silicones such as those notably described in patent application WO 93/04665; α-alkylstyrene-based dimers, such as those described in patent application DE 198 55 649; 4,4-diarylbutadienes such as those described in patent applications EP 0 967 200, DE 197 46 654, DE 197 55 649, EP-A-1 008 586, EP 1 133 980 and EP 133 981; merocyanine compounds such as those described in patent applications WO 04/006 878, WO 05/058 269 and WO 06/032 741; and mixtures thereof.

As lipophilic UVA-screening agents that are suitable for use in the invention, mention may be made in particular of the screening agents chosen from:

- dibenzoylmethane compounds, for instance butylmethoxydibenzoylmethane, notably sold under the trade name Parsol 1789 by the company DSM Nutritional Products, Inc., or isopropyldibenzoylmethane;
- aminobenzophenones, for instance n-hexyl 2-(4-diethylamino-2-hydroxybenzoyl)benzoate notably sold under the trade name Uvinul A+ by the company BASF;
- anthranilic compounds, for instance methyl anthranilate notably sold under the trade name Neo Heliopan MA by the company Symrise;
- 4,4-diarylbutadiene compounds such as 1,1-dicarboxy(2,2'-dimethylpropyl)-4,4-diphenylbutadiene;
- merocyanine compounds, for instance octyl 5-N,N-diethylamino-2-phenysulfonyl-2,4-pentadienoate;
- cyano compounds, in particular methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate (MCE), notably sold under the name Uvinul LR by the company BASF, and also the 2E geometrical isomers thereof.

Among the lipophilic UVB-screening agents that are suitable for use in the invention, mention may in particular be made of screening agents chosen from:

- para-aminobenzoates, for instance ethyl PABA, ethyl dihydroxypropyl PABA and ethylhexyl dimethyl PABA (Escalol 507 from ISP);
- salicylic compounds, for instance homosalate notably sold under the name Eusolex HMS by the company Rona/EM Industries, ethylhexyl salicylate sold under the name Neo Heliopan OS by the company Symrise, dipropylene glycol salicylate notably sold under the name Dipsal by the company Scher, and TEA salicylate notably sold under the name Neo Heliopan TS by the company Symrise;
- cinnamates, for instance ethylhexyl methoxycinnamate, notably sold under the trade name Parsol MCX by the company DSM Nutritional Products, Inc., isopropyl methoxycinnamate, isoamyl methoxycinnamate, notably sold under the trade name Neo Heliopan E 1000 by the company Symrise, diisopropyl methylcinnamate, cinnoxate and glyceryl ethylhexanoate dimethoxycinnamate;

- β,β'-diphenylacrylate compounds, for instance octocrylene, notably sold under the trade name Uvinul N539 by the company BASF, and etocrylene, notably sold under the trade name Uvinul N35 by the company BASF;
- benzylidenecamphor compounds, for instance 3-benzylidenecamphor manufactured under the name Mexoryl SD by the company Chimex, methylbenzylidenecamphor notably sold under the name Eusolex 6300 by the company Merck, polyacrylamidomethylbenzylidenecamphor manufactured under the name Mexoryl SW by the company Chimex;
- triazine compounds, for instance ethylhexyl triazone, notably sold under the trade name Uvinul T150 by the company BASF, diethylhexyl butamido triazone notably sold under the trade name Uvasorb HEB by the company Sigma 3V, 2,4,6-tris(dineopentyl 4'-aminobenzalmalonate)-s-triazine, 2,4,6-tris(diisobutyl 4'-aminobenzalmalonate)-s-triazine, 2,4-bis(dineopentyl 4'-aminobenzalmalonate)-6-(n-butyl 4'-aminobenzoate)-s-triazine, 2,4-bis(n-butyl 4'-aminobenzoate)-6-(aminopropyltrisiloxane)-s-triazine, the symmetrical triazine screening agents described in patent US 6 225 467, patent application WO 2004/085412 (see compounds 6 and 9) or the document "Symmetrical Triazine Derivatives" IP. COM Journal, IP. COM Inc. West Henrietta, NY, US (September 20, 2004) notably 2,4,6-tris(biphenyl)-1,3,5-triazines (in particular 2,4,6-tris(biphenyl-4-yl-1,3,5-triazine) and 2,4,6-tris(terphenyl)-1,3,5-triazine, the latter two screening agents being described in Beiersdorf patent applications WO 06/035000, WO 06/034982, WO 06/034991, WO 06/035007, WO 2006/034992, WO 2006/034985);
- imidazoline compounds, for instance ethylhexyl dimethoxybenzylidene dioxoimidazoline propionate;
- benzalmalonate compounds, for instance polyorganosiloxanes bearing a benzalmalonate function, such as Polysilicone-15 notably sold under the trade name Parsol SLX by the company DSM Nutritional Products, Inc., dineopentyl 4'-methoxybenzalmalonate; the preferred hydrophobic UVB-screening agents are chosen from ethylhexyl salicylate, octocrylene, ethylhexyl triazone; and
- mixtures thereof.

Among the lipophilic UVA- and UVB-screening agents that are suitable for use in the invention, mention may in particular be made of screening agents chosen from:

- benzophenone compounds, for instance benzophenone-1 notably sold under the trade name Uvinul 400 by the company BASF, benzophenone-2 notably sold under the trade name Uvinul D50 by the company BASF, benzophenone-3 or oxybenzone notably sold under the trade name Uvinul M40 by the company BASF, benzophenone-5, benzophenone-6 notably sold under the trade name Helisorb 11 by the company Norquay, benzophenone-8 notably sold under the trade name Spectra-Sorb UV24 by the company American Cyanamid, benzophenone-10, benzophenone-11 and benzophenone-12;

- phenylbenzotriazole compounds, for instance drometrizole trisiloxane notably sold under the name Silatrizole by the company Rhodia Chimie or manufactured under the name Meroxyl XL by the company Chimex, and methylenebis(benzotriazolyl)-tetramethylbutylphenol, sold in the form of a solid, notably under the name Mixxim BB/100 by the company Fairmount Chemical, or in the form of a micronized aqueous dispersion, notably under the name Tinosorb M by the company Ciba Specialty Chemicals;

- bis(resorcinyl)triazine compounds, for instance bis(ethylhexyloxyphenol)-methoxyphenyltriazine, notably sold under the trade name Tinosorb S by the company Ciba Geigy;

- benzoxazole compounds, for instance 2,4-bis[5-1(dimethylpropyl)benzoxazol-2-yl(4-phenyl)imino]-6-(2-ethylhexyl)imino-1,3,5-triazine notably sold under the trade name Uvasorb K2A by the company Sigma 3V.

Preferred lipophilic UVA- and UVB-screening agents are chosen from drometrizole trisiloxane, methylenebis(benzotriazolyl)tetramethylbutylphenol, bis(ethylhexyloxyphenol)methoxyphenyltriazine and mixtures thereof, and even more preferentially bis(ethylhexyloxyphenol)methoxyphenyltriazine.

The lipophilic sunscreens used in a composition according to the invention are preferably chosen from dibenzoylmethane compounds, cyano compounds, and bis(resorcinyl)triazine compounds, in particular from butylmethoxydibenzoylmethane, methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate and bis(ethylhexyloxyphenol)methoxyphenyltriazine and mixtures thereof, more particularly methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate.

The amount of lipophilic sunscreens may range from 0.1% to 15% by weight, preferably from 0.3% to 10% by weight, better still from 0.5% to 5% by weight, even better still from 0.7% to 2% by weight relative to the total weight of the composition.

According to a particular embodiment, a composition according to the invention comprises at least:

- from 1% to 3% by weight, relative to its total weight, of lipophilic surfactant(s);
- from 0.5% to 2% by weight, relative to its total weight, of hydrophilic surfactant(s);
- 0.3% to 1% by weight, relative to its total weight, of anionic surfactant(s);
- from 0.3% to 1% by weight, relative to the total weight, of at least one polysaccharide and in particular at least scleroglucan gum; and
- from 0.5% to 2% by weight, relative to the total weight, of lipophilic sunscreen(s), notably chosen from dibenzoylmethane compounds, cyano compounds, and bis(resorcinyl)triazine compounds, and in particular at least methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate and/or butylmethoxydibenzoylmethane and/or bis(ethylhexyloxyphenol)methoxyphenyltriazine.

According to a particular embodiment, a composition according to the invention contains at least one hydrophobic UVA screening agent chosen from butylmethoxydibenzoylmethane and methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate, and in particular at least methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate.

Aqueous phase

The aqueous phase of the composition in accordance with the invention comprises at least water optionally as a mixture with one or more water-soluble solvents.

The amount of aqueous phase may range from 40% to 95% by weight, preferably from 50% to 90% by weight, more preferentially from 55% to 85% by weight and better still from 60% to 80% by weight, relative to the total weight of the composition. The amount of water may represent all or some of the aqueous phase and it is generally at least 50% by weight relative to the total weight of the composition, preferably at least 53% by weight, better still at least 55% by weight relative to the total weight of the composition.

According to a particular embodiment, the aqueous phase may contain ethanol.

According to a particular embodiment, the aqueous phase contains at least one polyol.

Polyols

For the purposes of the invention, the term “polyol” means:

- a saturated or unsaturated, linear or branched hydrocarbon-based chain comprising at least two hydroxyl functions; or
- a saturated, linear or branched hydrocarbon-based chain in which one or more carbon atoms are replaced with an oxygen atom and which comprises at least two hydroxyl functions, for instance polyethylene glycols (PEGs) containing from 4 to 8 ethylene glycol units.

Preferably, the polyol(s) bear a saturated, linear or branched hydrocarbon-based chain.

Advantageously, the polyol(s) comprise a number of carbon atoms ranging from 2 to 20, preferably from 2 to 10, and comprise from 2 to 12 and better still from 2 to 8 hydroxyl functions.

The polyol(s) may be chosen from glycols such as ethylene glycol, propylene glycol, 1,3-propanediol, isoprene glycol, butylene glycol, dipropylene glycol, polypropylene glycol, caprylyl glycol, glycerol, diglycerol, erythritol, pentaerythritol, arabitol, adonitol, sorbitol, dulcitol, maltitol and panthenol.

Among these polyols, glycerol, caprylyl glycol, propylene glycol, dipropylene glycol, butylene glycol, 1,3-propanediol, and mixtures thereof, are preferentially chosen.

According to one embodiment, the polyol(s) comprise from 2 to 12 hydroxyl functions, preferably from 2 to 8 hydroxyl functions, and in particular are chosen from ethylene glycol, propylene glycol, 1,3-propanediol, isoprene glycol, butylene glycol, dipropylene glycol, polypropylene glycol, caprylyl glycol, glycerol, diglycerol, erythritol, pentaerythritol, arabitol, adonitol, sorbitol, dulcitol, maltitol, panthenol and mixtures thereof, preferably glycerol, caprylyl glycol, propylene glycol, dipropylene glycol, butylene glycol, 1,3-propanediol and mixtures thereof, and even more preferentially glycerol, caprylyl glycol and mixtures thereof.

According to a particular embodiment, the polyol(s) may be present in the composition according to the invention in an amount of greater than or equal to 3% by weight, preferably greater than or equal to 5% by weight relative to the total weight of the composition.

According to another particular embodiment of the invention, the polyol(s) may be present in the composition in an amount ranging from 1% to 15% by weight, preferably from 3% to 10% by weight, better still from 5% to 8% by weight relative to the total weight of the composition.

The aqueous (or hydrophilic) phase of the composition according to the invention contains, as gelling agent, at least one natural polymer or polymer of natural origin.

Oily phase

A composition according to the invention comprises an oily phase notably in an amount of from 0.1% to 40% by weight, preferably from 1% to 30% by weight, better still from 2% to 20% by weight and even better still from 5% to 20% by weight relative to the total weight of the composition.

In addition to the ingredients required according to the invention, the oily phase may comprise one or more auxiliary fatty substances notably chosen from oils, waxes and pasty compounds.

Oil(s)

The term "*oil*" means a water-immiscible non-aqueous compound that is liquid at room temperature (20°C±5°C) and at atmospheric pressure (760 mmHg).

They may be of animal, plant, mineral or synthetic origin.

For the purposes of the present invention, the term "*hydrocarbon-based oil*" means an oil mainly containing hydrogen and carbon atoms.

The term "*non-silicone oil*" means an oil not comprising any silicon atoms and notably no Si-O groups.

Preferably, the oils used in the present invention are non-silicone oils.

Hydrocarbon-based oils that may notably be mentioned include:

- branched alkanes comprising more than 8 carbon atoms, notably C_8-C_{16} alkanes, for instance C_8-C_{16} isoalkanes (also known as isoparaffins), isododecane, isodecane, isohexadecane and, for example, the oils sold under the trade names Isopar or Permethyl, branched C_8-C_{16} esters, for instance isohexyl neopentanoate, and mixtures thereof,
- linear alkanes comprising more than 8 carbon atoms, in particular from 10 to 30 carbon atoms, in particular from 10 to 26 carbon atoms, and more particularly from 10 to 20 carbon atoms, for instance n-dodecane (C_{12}) and n-tetradecane (C_{14}) sold by Sasol under the respective references Parafol 12-97 and Parafol 14-97, and also mixtures thereof, the undecane-tridecane mixture, mixtures of n-undecane (C_{11}) and

of n-tridecane (C_{13}) obtained in examples 1 and 2 of patent application WO 2008/155059 from the company Cognis, and mixtures thereof; or a mixture of alkanes of 15 to 19 carbon atoms (called C15-C19 alkane), for example the products sold under the references Emogreen L19 and Emosmart L19 from SEPPIC,

- hydrocarbon-based oils of animal origin,
- linear or branched hydrocarbons of mineral or synthetic origin, such as petroleum jelly, polydecenes, hydrogenated polyisobutene such as Parleam, and squalane, and mixtures thereof,
- hydrocarbon-based oils of plant origin, such as glyceride triesters, which are generally triesters of fatty acids and of glycerol, the fatty acids of which may have varied chain lengths of from 4 to 24 carbon atoms, these chains possibly being linear or branched, and saturated or unsaturated; these oils are notably wheatgerm oil, rice bran oil, sunflower oil, grapeseed oil, sesame seed oil, corn oil, apricot oil, castor oil, shea oil, avocado oil, olive oil, soybean oil, sweet almond oil, palm oil, rapeseed oil, cottonseed oil, hazelnut oil, macadamia oil, alfalfa oil, poppyseed oil, pumpkin oil, marrow oil, blackcurrant oil, evening primrose oil, millet oil, barley oil, quinoa oil, rye oil, safflower oil, candlenut oil, passionflower oil, musk rose oil, *Limnanthes alba* seed oil (INCI name: *Limnanthes alba* (Meadowfoam) Seed Oil); or caprylic/capric acid triglycerides such as those sold by the company Stéarinerie Dubois or those sold under the names Miglyol 810, 812 and 818 by the company Dynamit Nobel. Mention may also be made of cocoyl caprylate/caprate, for example sold under the name Cetiol LC by the company Cognis or under the name DUB 810 C by the company Stéarinerie Dubois,
- synthetic ethers containing from 10 to 40 carbon atoms, such as dicapryl ether,
- synthetic esters, different from the fatty acid monoesters (d) as defined above, such as the oils of formula R_3COOR_4, in which R_3 represents a linear or branched fatty acid residue including from 1 to 40 carbon atoms and R_4 represents a hydrocarbon-based chain that is notably branched, containing from 1 to 40 carbon atoms, with the proviso that $R_3 + R_4$ is greater than or equal to 10, for instance purcellin oil (cetostearyl octanoate), isopropyl myristate, myristyl myristate, isopropyl palmitate, alkyl benzoates containing between 12 and 15 carbon atoms, such as the product sold under the trade name Finsolv TN or Witconol TN by the company Witco or Tegosoft

TN by the company Evonik Goldschmidt, 2-ethylphenyl benzoate, such as the commercial product sold under the name X-Tend 226 by the company ISP, isopropyl lanolate, hexyl laurate, diisopropyl adipate, isononyl isononanoate, oleyl erucate or (Z)-octadec-9-enyl (Z)-docos-13-enoate, 2-ethylhexyl palmitate, isostearyl isostearate, diisopropyl sebacate such as the product sold under the name Dub Dis by the company Stéarinerie Dubois, alcohol or polyalcohol octanoates, decanoates or ricinoleates, such as propylene glycol dioctanoate; hydroxylated esters, such as isostearyl lactate, diisostearyl malate; and pentaerythritol esters, in particular pentaerythrityl tetraoctanoate (INCI name: Pentaerythrityl Tetraethylhexanoate); dipentaerythrityl hexacaprylate/hexacaprate, citrates, such as the ester of C_3-C_{22} tricarboxylic acid and C_1-C_6 alcohols having the INCI name Triethyl Citrate, for example the product sold under the name Citrofol AI Extra by the company Jungbunzlauer; tartrates such as linear dialkyl tartrates containing 12 or 13 carbon atoms, for example those sold under the name Cosmacol ETI by the company Enichem Augusta Industriale, and also linear dialkyl tartrates containing between 14 and 15 carbon atoms, for example those sold under the name Cosmacol ETL by the same company, and acetates,

- polyol esters and pentaerythritol esters, for instance dipentaerythrityl tetrahydroxystearate/tetraisostearate,
- esters of diol dimer and diacid dimer, where appropriate esterified on their free alcohol or acid function(s) with acid or alcohol radicals, in particular dimer dilinoleate esters; more particularly chosen from the esters having the following INCI nomenclature: bis-behenyl/isostearyl/phytosteryl dimer dilinoleyl dimer dilinoleate (Plandool G), phytosteryl/isostearyl/cetyl/stearyl/behenyl dimer dilinoleate (Plandool H or Plandool S), and mixtures thereof,
- fatty amides, such as isopropyl N-lauroyl sarcosinate, for example the product sold under the trade name Eldew SL205 from Ajinomoto,
- fatty alcohols that are liquid at room temperature, with a branched and optionally unsaturated carbon-based chain containing from 12 to 26 carbon atoms, for instance behenyl alcohol, octyldodecanol, 2-butyloctanol or 2-undecylpentadecanol,
- higher C_{19}-C_{22} fatty acids;

- carbonates, such as dicaprylyl carbonate, for example the product sold under the name Cetiol CC by the company Cognis.

The composition according to the invention advantageously comprises from 1% to 40% by weight, and preferably from 3% to 20% by weight, and even more preferentially from 5% to 15% by weight of non-silicone oil(s), relative to the total weight of the composition.

Co-surfactant

The composition according to the invention may also comprise at least one co-surfactant chosen from fatty alcohols or phospholipids.

When it is present, the co-surfactant is chosen from saturated, linear fatty alcohols which are solid at room temperature and including from 14 to 26 carbon atoms, and/or from phospholipids.

The co-surfactant(s) may notably be chosen from the group comprising cetyl alcohol, stearyl alcohol, cetyl stearyl alcohol, myristic alcohol, tridecyl alcohol, pentadecyl alcohol, heptadecyl alcohol, arachidyl alcohol, behenyl alcohol, myricyl alcohol, and phospholipids, in particular lecithins and preferably hydrogenated lecithin.

When they are present, the amount of co-surfactant(s) may range from 0.05% to 7% by weight, preferably from 0.1% to 5% by weight, better still from 0.2% to 3% by weight and even better still from 0.5% to 2% by weight relative to the total weight of the composition.

Additional synthetic gelling polymer

According to a particular embodiment, a composition according to the invention may also comprise at least one additional synthetic gelling polymer.

For the purposes of the invention, the term "synthetic" means that the polymer is neither naturally existing nor a derivative of a polymer of natural origin.

This synthetic gelling agent may be chosen from polymeric hydrophilic gelling agents and in particular from crosslinked acrylic homopolymers or copolymers; cationic, anionic or nonionic associative polymers and in particular polyurethane-type associative polymers; polyacrylamides and 2-acrylamido 2-methylpropanesulfonic acid polymers and copolymers, which are crosslinked and/or neutralized; modified or unmodified carboxyvinyl polymers, organopolysiloxane elastomers, and mixtures thereof.

As water-soluble or water-dispersible AMPS copolymers that are suitable for use in the invention, examples that may be mentioned include:

- crosslinked acrylamide/sodium acrylamido-2-methylpropanesulfonate copolymers, such as that used in the commercial product Sepigel 305 (CTFA name: Polyacrylamide/C_{13}-C_{14} isoparaffin/laureth-7) or that used in the commercial product sold under the name Simulgel 600 (CTFA name: Acrylamide/sodium acryloyldimethyltaurate copolymer/isohexadecane/polysorbate-80) by the company SEPPIC;

- copolymers of AMPS® and of vinylpyrrolidone or vinylformamide, such as that used in the commercial product sold under the name Aristoflex AVC® by the company Clariant (CTFA name: Ammonium Acryloyldimethyltaurate/VP copolymer) but neutralized with sodium hydroxide or potassium hydroxide;

- copolymers of AMPS® and of sodium acrylate, for instance the AMPS/sodium acrylate copolymer, such as that used in the commercial product sold under the name Simulgel EG® by the company SEPPIC or under the trade name Sepinov EM (CTFA name: Hydroxyethyl acrylate/Sodium acryloyldimethyltaurate copolymer);

- copolymers of AMPS® and of hydroxyethyl acrylate, for instance the AMPS®/hydroxyethyl acrylate copolymer, such as that used in the commercial product sold under the name Simulgel NS® by the company SEPPIC (CTFA name: Hydroxyethyl Acrylate/Sodium Acryloyldimethyltaurate Copolymer (and) Squalane (and) Polysorbate 60), or such as the product sold under the name sodium acrylamido-2-methylpropanesulfonate/hydroxyethyl acrylate copolymer, such as the commercial product Sepinov EMT 10 (INCI name: Hydroxyethyl Acrylate/Sodium Acryloyldimethyltaurate Copolymer).

Among the anionic associative polymers that may be mentioned are maleic anhydride/C_{30}-C_{38}-α-olefin/alkyl maleate terpolymers, such as the product (maleic anhydride/C_{30}-C_{38}-α-olefin/isopropyl maleate copolymer) sold under the name Performa V 1608 by the company Newphase Technologies. Examples of compounds of this type that may be mentioned include Aculyn 22® sold by the company Röhm & Haas, which is a methacrylic acid/ethyl acrylate/oxyalkylenated stearyl methacrylate (comprising 20 EO units) terpolymer or Aculyn 28® (methacrylic acid/ethyl acrylate/oxyethylenated behenyl methacrylate (25 EO) terpolymer).

As examples of nonionic associative polyurethane polymers that may be used in the invention, mention may be made of Rheolate® FX 1100 (Steareth-100/PEG 136/HDI (hexamethyl diisocyanate) copolymer), Rheolate® 205 containing a urea function, sold by the company Elementis, or else Rheolate® 208, 204 or 212, and also Acrysol® RM 184 or Acrysol® RM 2020.

Representative modified or unmodified carboxyvinyl polymers that may be mentioned more particularly are acrylate/C_{10}-C_{30}-alkylacrylate copolymers (INCI name: Acrylates/C_{10-30} Alkyl acrylate Crosspolymer), for instance the products sold by the company Lubrizol under the trade names Pemulen TR-1, Pemulen TR-2, Carbopol 1382, Carbopol EDT 2020 and Carbopol Ultrez 20 Polymer, and even more preferentially Pemulen TR-2.

As organopolysiloxane elastomers, mention may be made notably of crosslinked organopolysiloxane elastomers chosen from Dimethicone Crosspolymer (INCI name), Dimethicone (and) Dimethicone Crosspolymer (INCI name), Vinyl Dimethicone Crosspolymer (INCI name), Dimethicone/Vinyl Dimethicone Crosspolymer (INCI name), Dimethicone Crosspolymer-3 (INCI name), and in particular Dimethicone Crosspolymer (INCI name).

The use of any of these synthetic polymers or mixtures thereof falls within the competence of those skilled in the art.

Cosmetic active agents and adjuvants

The compositions according to the present invention may also contain one or more active agents and adjuvants notably chosen from cosmetic active agents, hydrophilic sunscreens, dyes, nacres, pigments, fragrances, preserving agents, pH adjusters, film-forming agents, etc.

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 advantageous properties of the composition according to the invention are not, or are not substantially, adversely affected by the envisioned addition.

According to a particular embodiment, a composition according to the invention may also comprise at least one cosmetic active agent notably chosen from:

- vitamins and derivatives thereof;
- known antiaging active agents;

- desquamating active agents;
- firming active agents;
- hydrophilic sunscreens; and
- mixtures thereof.

A composition according to the invention may notably comprise from 0.0001% to 20% by weight, preferably from 0.01% to 30% by weight, better still from 0.01% to 20% by weight and even better still from 0.01% to 15% by weight of active agent(s), relative to the total weight of the composition.

Cosmetic composition

The composition used according to the invention may be in any presentation form normally used in the cosmetics field.

It may be more or less fluid and may have the appearance of a gel, a cream, an ointment, a milk, a lotion, a serum or a paste.

More particularly, the composition according to the invention is intended for application to the skin. This may be the skin of the face and/or of the body, in particular of the face and/or of the neck and/or of the hands.

The composition according to the invention may comprise any constituent usually employed in the envisaged topical application and administration.

Preferably, such a composition is not intended to be rinsed off after application.

Uses and processes

According to one of its aspects, the present invention relates to the non-therapeutic use of a composition as defined previously in the cosmetics field, and in particular for caring for, protecting and/or making up bodily or facial skin.

According to another of its aspects, the invention relates to a non-therapeutic process for the cosmetic treatment of a keratin material in which a composition as defined in the present invention is applied to the keratin material.

The cosmetic uses and processes considered according to the invention are non-therapeutic.

The cosmetic use or process of the invention is performed by topically administering a composition according to the invention.

Topical administration is constituted of the external application to the skin of cosmetic compositions according to the usual techniques for the use of these compositions.

By way of illustration, the cosmetic use or process according to the invention may be performed by topical, for example daily, application of at least one composition according to the invention.

According to one embodiment, the application is repeated, for example, once or twice a day for one or more days and generally over a prolonged period of at least 4 weeks, or even 4 to 15 weeks, with, where appropriate, one or more periods of stoppage.

Throughout the description, including the claims, the terms "between ... and ...", and "ranging from ... to ..." should be understood as meaning limits included, unless otherwise specified.

The examples that follow illustrate the present invention without limiting the scope thereof.

In the examples, the amounts of the ingredients of the compositions are "expressed as % of starting material", more specifically as % by weight of starting material, relative to to the total weight of the composition.

Example

Methods and Measurements

Starting materials

In the examples below, the compounds are identified by their INCI name:

Sucrose tristearate is sold under the names Ryoto Sugar Ester S 370 or Surfhope SE Cosme C-1803 by the company Mitsubishi Chemicals;

Polysorbate 61 is sold under the name SP Tween 61 MBAL-SO-(MV) by the company Croda;

Sodium stearoyl glutamate is sold under the name Amisoft® HS 11 PF by the company Ajinomoto;

Glyceryl stearate is sold under the name Radiasurf 7343 RSPO MB by the company Oleon;

PEG-40 stearate is sold under the name SP Myrj S40-MBAL-PA-(SG) by the company Croda;

Glyceryl stearate (and) PEG-100 stearate is sold under the name Radiasurf 7343 RSPO MB by the company Oleon;

Stearyl alcohol is sold under the names Alkonat 1898P MB, Lanette 18 or Nacol 1898 by the companies Oxiteno, BASF or Sasol;

Hydrogenated lecithin is sold under the name Nikkol Lecinol S 10 by the company IMCD;

Sclerotium gum is sold under the name Amigum by the company Alban Muller;

Sclerotium gum (and) xanthan gum is sold under the name Actigum VSX 20 by the company Cargill;

Sodium polyacrylate is sold under the name Cosmedia SP by the company BASF;

Butylmethoxydibenzoylmethane is sold under the name Eusolex 9020 by the company Merck;

Ammonium polyacryloyldimethyl taurate is sold under the name Uvinul LR by the company BASF;

Methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate is sold under the name Uvinul LR by the company BASF;

Bis(ethylhexyloxyphenol)methoxyphenyltriazine is sold under the name Parsol Shield by the company DSM Nutritional Products;

Butylmethoxydibenzoylmethane is sold under the name Parsol Shield by the company DSM Nutritional Products;

Ascorbic acid is sold under the name VC Ascorbic Acid 100 Mesh (95%) 50 1584 2 by the company DSM Nutritional Products;

Glycerol is sold under the name Glycerine 4811 by the company Oleon;

Isopropyl lauroyl sarcosinate is sold under the name Eldew SL-205 by the company Ajinomoto;

Diisopropyl sebacate is sold under the name DUB DIS by the company Stéarinerie Dubois;

Diisopropyl adipate is sold under the name 660014 Isoadipate by the company Symrise;

Sodium hydroxide is sold under the name Caustic Soda 50% Membrane by the company Univar.

Stability control protocol

The stability evaluation protocol is detailed below:

Centrifugation:

The stability of the compositions is evaluated by passing the compositions obtained through a Thermo Scientific centrifuge, at T = 24 hours, according to the following protocol: 2500

rpm for 1 hour. Observation of phase separation, of leaching or of a change in appearance is checked.

Stability measurement:

The stability of the compositions is evaluated after storage of the formulations and under the following conditions:

A composition is prepared and then stored at different temperatures:

i) at room temperature

ii) at 37°C in an oven

iii) at 45°C in an oven.

The composition is then evaluated as follows:

- at t = 24 hours, the composition's appearance, color, odor and pH are characterized,
- at t = 1 month, the composition's appearance, color and odor.

The macroscopic appearance of the composition must remain identical or even close to the initial appearance characterized at t = 24 hours. To be compliant, a composition must remain smooth, homogeneous and unchanged in appearance, i.e. with no oily or aqueous release (syneresis), no creaming, no phase separation and no change in color or odor.

Example 1: Preparation of the compositions

Compositions **I1** to **I5** according to the invention are prepared according to the protocol described hereinbelow. The nature of the ingredients and their respective amounts are given in Table 1. The contents are expressed as weight percentages relative to the total weight of the composition.

Preparation of compositions **I1** to **I5**

The aqueous phase is heated to 75°C in the main tank (emulsifying machine speed 1000 rpm with doctor blade at 30 rpm), and the fatty phase is then heated to 80°C in another tank. The fatty phase is poured onto the aqueous phase to form an emulsion (emulsifying machine speed 4000 rpm with doctor blade at 60 rpm). The fineness of the emulsion is checked by microscopy. The emulsion is diluted with water and then heated to 25°C (emulsifying machine speed 4000 rpm with doctor blade at 60 rpm). The powdered polymer is added from the top of the tank at a temperature of between 45°C and 50°C and the mixture is left to stir

for 20 min (emulsifying machine speed at 4000 rpm with doctor blade at 60 rpm). The antioxidants and fragrances are added at a temperature of 40°C, and the vacuum is then set at -0.5 bar (emulsifying machine speed at 4000 rpm with doctor blade at 60 rpm). Powdered ascorbic acid is added to the open tank at a temperature below 30°C (emulsifying machine speed at 4000 rpm with doctor blade at 60 rpm), sodium hydroxide is then added from the top of the tank (emulsifying machine speed at 4000 rpm with doctor blade at 60 rpm), and the vacuum is set at -0.5 bar for 5 min. The emulsifying machine speed is reduced (emulsifying machine speed at 1000 rpm with doctor blade at 30 rpm) and the vacuum is set at -0.5 bar for 5 min before stopping the emulsifying machine.

[Table 1]

Compounds	**I1**	**I2**	**I3**	**I4**	**I5**	**I6**
SUCROSE TRISTEARATE	2.0	2.0	2.0	2.0	2.0	2.0
POLYSORBATE 61	1.0	1.0	1.0	1.0	1.0	-
SODIUM STEAROYL GLUTAMATE	0.75	0.75	0.75	0.75	0.75	0.75
POLYGLYCERYL-3 METHYLGLUCOSE DISTEARATE	-	-	-	-	-	1
STEARYL ALCOHOL	0.4	0.4	0.4	0.4	0.4	0.4
HYDROGENATED LECITHIN	-	0.25	-	-	-	-
SCLEROTIUM GUM	0.5	0.5	-	-	0.5	-
SCLEROTIUM GUM (and) XANTHAN GUM	-	-	0.5	0.8	-	0.8
METHOXYPROPYLAMINOCYCLOHEXENYLDIENEETHOXYETHYL CYANOACETATE	1.0	1.0	1.0	1.0	-	1.0
BIS(ETHYLHEXYLOXYPHENOL)METHOXYPHENYLTRIAZINE	-	-	-	-	0.5	-
BUTYLMETHOXYDIBENZOYLMETHANE	-	-	-	-	0.5	-
ASCORBIC ACID	12.0	12.0	12.0	12.0	12.0	12.0
GLYCEROL	5.0	5.0	5.0	5.0	5.0	5.0
Sequestrant	0.5	0.5	0.5	0.5	0.5	0.5
Antiaging active agent	0.1	0.1	0.1	0.1	0.1	2.1
ISOPROPYL LAUROYL SARCOSINATE	8.0	8.0	8.0	8.0	8.0	8.0
DIISOPROPYL SEBACATE	3.0	3.0	3.0	3.0	3.25	3.0
DIISOPROPYL ADIPATE	4.0	4.0	4.0	4.0	4.0	4.0

Preserving agents	1.2	1.2	1.2	1.2	1.2	0.7
Antioxidant	1.0	1.0	1.0	1.0	1.0	1.0
WATER	qs 100	qs 100	qs 100	qs 100	qs 100	qs 100
SODIUM HYDROXIDE	2.69	2.69	2.67	2.67	0	2.67
FRAGRANCE	0.2	-	-	-	-	
pH measurement						
At t = 24 hours	6.2	6.3	6.0	6.1	6.1	6.0

The pH and stability of compositions **I1** to **I6** were determined according to the protocol previously described above in the "Methods and measurements" section. Table 2 hereinbelow details the results obtained.

[Table 2]

Composition	**I1**	**I2**	**I3**	**I4**	**I5**	**I6**
Macroscopic observation of the composition stored at room temperature after 1 month	Compositions I1 to I6 are compliant					
Macroscopic observation of the composition stored at 37°C after 1 month	Compositions I1 to I6 are compliant					
Macroscopic observation of the composition stored at 45°C after 1 month	Compositions I1 to I6 are compliant					

Compositions **I1** to **I6** according to the invention are compliant, in the sense that no significant change in their properties is observed, whether after storage at room temperature, at 37°C or at 45°C for 1 month.

Example 2: Preparation of compositions outside the invention

Compositions **C1** (free of gelling natural polymer or polymer of natural origin), **C2** (free of anionic surfactant), and **C3** (free of lipophilic and anionic surfactants) outside the invention are prepared according to the protocol described above in Example 1; the nature of the ingredients and their respective amounts are given in Table 3. The contents are expressed as weight percentages relative to the total weight of the composition.

[Table 3]

Compounds	C1 (outside the invention)	C2 (outside the invention)	C3 (outside the invention)
POLYSORBATE 61	1.0	-	-
SODIUM STEAROYL GLUTAMATE	0.75	-	-
GLYCERYL STEARATE	-	3.75	-
SUCROSE TRISTEARATE	2.0		-
PEG-40 TRISTEARATE	-		3.75
GLYCERYL STEARATE (and) PEG-100 STEARATE	-	-	
STEARYL ALCOHOL	0.4	0.4	0.4
SCLEROTIUM GUM	-	0.5	0.5
SODIUM POLYACRYLATE	0.5	-	-
AMMONIUM POLYACRYLOYLDIMETHYLTAURATE	0.5	-	-
METHOXYPROPYLAMINOCYCLOHEXENYLDIENEETHOXYETHYL CYANOACETATE	1.0	1.0	1.0
ASCORBIC ACID	12.0	12.0	12.0
GLYCEROL	5.0	5.0	5.0
Sequestrant	0.5	0.5	0.5
Antiaging active agent	0.1	0.1	0.1
ISOPROPYL LAUROYL SARCOSINATE	8.0	8.0	8.0
DIISOPROPYL SEBACATE	3.0	3.0	3.0
DIISOPROPYL ADIPATE	4.0	4.0	4.0
Preserving agents	1.2	1.2	1.2
Antioxidant	1.0	1.0	1.0
WATER	qs 100	qs 100	qs 100
SODIUM HYDROXIDE	2.69	2.69	2.69
FRAGRANCE	0.2	0.2	0.2

The stabilities of compositions **C1** to **C3** outside the invention were determined according to the protocol previously described above in the “Methods and measurements” section. Table 4 hereinbelow details the results obtained.

[Table 4]

Composition	C1 (outside the invention)	C2 (outside the invention)	C3 (outside the invention)
Macroscopic observation of the composition stored at room temperature after 1 month	The composition is compliant	The composition is compliant	The composition shows phase separation
Macroscopic observation of the composition stored at 37°C after 1 month	The composition shows release of oil	The composition is compliant	The composition shows phase separation
Macroscopic observation of the composition stored at 45°C after 1 month	The composition shows release of oil	The composition shows creaming	The composition shows phase separation

Composition **C1**, free of required natural polymer or polymer of natural origin, shows release of oil after 1 month of storage at 37°C and 45°C; it is thus unstable.

Similarly, composition **C2**, whose surfactant system is not in accordance with the invention, shows creaming after 1 month of storage at 45°C; it is thus unstable.

Finally, composition **C3**, whose surfactant system is also not in accordance with the invention, shows phase separation after 1 month of storage at room temperature, 37°C and 45°C.

It follows from these examples that only the compositions according to the invention have satisfactory stability, even after one month of storage at elevated temperatures.

Claims

1. A composition in the form of an oil-in-water emulsion, notably a cosmetic composition, in particular for caring for keratin materials, comprising:

- at least 5% by weight of ascorbic acid and/or a compound of ascorbic acid, relative to the total weight of the composition;
- at least one lipophilic sunscreen;
- at least one lipophilic surfactant with an HLB ranging from 2 to 5;
- at least one hydrophilic surfactant with an HLB ranging from 8 to 12;
- at least one anionic surfactant;
- at least one gelling natural polymer or polymer of natural origin; and

said composition having a pH ranging from 5 to 7.

2. The composition as claimed in the preceding claim, having a pH ranging from 5.5 to 6.5, and in particular of the order of 6.

3. The composition as claimed in claim 1 or 2, comprising from 5% to 20% by weight, preferably from 6% to 15% by weight, better still from 7% to 12% by weight, of ascorbic acid and/or a compound of ascorbic acidrelative to the total weight of the composition.

4. The composition as claimed in any one of the preceding claims, comprising, as a lipophilic surfactant with an HLB ranging from 2 to 5, at least one surfactant chosen from mono-, di- or triesters of sucrose and of fatty acids comprising from 12 to 30 carbon atoms, preferably from 14 to 20 carbon atoms, such as stearic acid, in particular sucrose tristearate, sucrose distearate and mixtures thereof.

5. The composition as claimed in any one of the preceding claims, comprising, as hydrophilic surfactant with an HLB ranging from 8 to 12, at least one surfactant chosen from esters of fatty acid, notably C12-C30 and preferably C12-C20 acid and of oxyethylenated sorbitol and/or sorbitan ethers, possibly including from 2 to 30 oxyethylene groups, such as stearic acid esters of sorbitol and/or sorbitan comprising from 2 to 20 OE groups, such as polysorbate-60, polysorbate-61, sorbeth 3 isosteratate, polyoxyethylenated sorbitan monostearate 4 OE, polyoxyethylenated sorbitan tristearate 20 OE, and esters of polyglycerol, and derivatives thereof and of fatty acid, such as polyglyceryl methyl glucose 3 distearate and mixtures thereof.

6. The composition as claimed in any one of the preceding claims, comprising, as anionic surfactant, at least one surfactant chosen from acyl glutamates whose acyl group comprises from 16 to 18 carbon atoms, in particular chosen from sodium stearoyl glutamate and disodium stearoyl glutamate.

7. The composition as claimed in any one of the preceding claims, comprising a total content of lipophilic surfactant(s) with an HLB of between 2 and 5, hydrophilic surfactant(s) with an HLB of between 8 and 12, and anionic surfactant(s) ranging from 1% to 10% by weight, preferably from 3% to 7% by weight, better still from 3.5% to 5% by weight relative to the total weight of the composition.

8. The composition as claimed in any one of the preceding claims, comprising at least:

- from 1% to 3% by weight, relative to its total weight, of lipophilic surfactant(s), notably chosen from sucrose esters of fatty acids comprising from 12 to 30 carbon atoms, and in particular at least sucrose tristearate;
- from 0.5% to 2% by weight, relative to its total weight, of hydrophilic surfactant(s), notably chosen from fatty acid esters of sorbitol and/or sorbitan ethers; and
- from 0.3% to 1% by weight, relative to its total weight, of anionic surfactant(s), notably chosen from acyl glutamates, and in particular at least sodium stearoyl glutamate.

9. The composition as claimed in any one of the preceding claims, comprising at least:

- an ester of sucrose and of fatty acids comprising from 12 to 30 carbon atoms, and in particular at least sucrose tristearate,
- a fatty acid ester of sorbitol and/or sorbitan ethers,
- an acyl glutamate compound, and
- from 0.3% to 1% by weight, relative to the total weight, of polysaccharide(s) and in particular at least scleroglucan gum.

10. The composition as claimed in any one of the preceding claims, in which the lipophilic sunscreen(s) are chosen from dibenzoylmethane compounds, cyano compounds, and bis(resorcinyl)triazine compounds, in particular from butylmethoxydibenzoylmethane, methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate and bis(ethylhexyloxyphenol)methoxyphenyltriazine and mixtures thereof, more particularly methoxypropylaminocyclohexenyldieneethoxyethyl cyanoacetate.

11. The composition as claimed in any one of the preceding claims, comprising a total content of lipophilic sunscreen(s) ranging from 0.1% to 15% by weight, preferably from 0.3% to 10% by weight, better still from 0.5% to 5% by weight and even better still from 0.7% to 2% by weight, relative to the total weight of the composition.

12. The composition as claimed in any one of the preceding claims, comprising at least one gelling natural polymer or polymer of natural origin chosen from polysaccharides and notably from scleroglucan gums and xanthan gums and mixtures thereof.

13. The composition as claimed in any one of the preceding claims, comprising a content of gelling natural polymer(s) or polymer(s) of natural origin ranging from 0.2% to 2% by weight, preferably from 0.3% to 1.5% by weight, and better still from 0.5% to 1% by weight, relative to the total weight of the composition.

14. A non-therapeutic cosmetic process for caring for and/or treating keratin materials, in particular the skin, comprising the application to the keratin materials, in particular the topical application to said keratin materials, of a composition as claimed in any one of claims 1 to 13.

15. The non-therapeutic use of a composition as defined in any one of claims 1 to 13, in the cosmetic field, and in particular for regenerating and firming keratin materials, in particular the skin.

16. The non-therapeutic use of a composition as defined in any one of claims 1 to 13, in the cosmetic field, and in particular for preventing and/or treating the appearance of brown spots on keratin materials, in particular on the skin.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2024/087436

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K8/06 A61K8/41 A61K8/44 A61K8/49 A61K8/60
A61K8/67 A61K8/73 A61Q17/04 A61Q19/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61K 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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2023/110763 A1 (OREAL [FR]) 22 June 2023 (2023-06-22) page 4, line 2 - line 6; example 3	1-16
Y	EP 1 027 878 A1 (OREAL [FR]) 16 August 2000 (2000-08-16) example 2	1-16
Y	FR 2 899 462 A1 (OREAL [FR]) 12 October 2007 (2007-10-12) examples 1,2	1-16
A	WO 2022/129403 A1 (OREAL [FR]) 23 June 2022 (2022-06-23) page 39, line 15 - line 16; examples 1,2	1-16

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[x] Further documents are listed in the continuation of Box C.

[x] 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 April 2025	30/04/2025

Name and mailing address of the ISA/	Authorized officer
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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2024/087436

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
T	Masyithah Zuhrina ET AL: "A RESPONSE SURFACE METHOD FOR THE PREPARATION OF N-LAUROYL LYSINE FROM MEDIUM CHAIN FATTY ACID CATALYZED BY SODIUM METOXIDE", , 9 May 2021 (2021-05-09), pages 892-902, XP093231845, Retrieved from the Internet: URL:https://www.arpnjournals.org/jeas/research_papers/rp_2021/jeas_0521_8568.pdf page 900 -----	

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2024/087436

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