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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 May 2012 (03.05.2012)

PCT

(10) International Publication Number
WO 2012/055807 A1

(51) International Patent Classification:
A61K 8/58 (2006.01) *A61Q 5/12* (2006.01)
A61K 8/89 (2006.01) *A61K 8/81* (2006.01)
A61Q 5/02 (2006.01)

(21) International Application Number:
PCT/EP2011/068523

(22) International Filing Date:
24 October 2011 (24.10.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1058802 26 October 2010 (26.10.2010) FR
61/411,070 8 November 2010 (08.11.2010) US

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

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **KHENNICHE, Samira** [FR/FR]; 40-42 rue Chance Milly, F-92110 Clichy (FR). **PLOS, Grégory** [FR/FR]; 11, rue Christiani, F-75018 Paris (FR).

(74) Agent: **DOSSMANN, Gérard**; Bureau D.A. Casalonga & Josse, 8 Avenue Percier, F-75008 Paris (FR).

(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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

Published:

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

WO 2012/055807 A1

(54) Title: COSMETIC COMPOSITION COMPRISING A FATTY-CHAIN ALKOXYSILANE AND A CATIONIC POLYMER

(57) Abstract: The present invention relates to a cosmetic composition comprising : - at least 0. 1 % by weight, relative to the total weight of the composition, of one or more fatty-chain alkoxy silanes of formula (I) below : $R_1Si(OR_2)_3$ (I) in which R_1 represents a linear or branched alkyl or alkenyl group, comprising from 7 to 18 carbon atoms, and R_2 represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms, and - one or more cationic polymers. The invention al so relates to a cosmetic treatment process using the said composition. This composition can be used in particular for haircare, and especially facilitates the conditioning of the hair.

Cosmetic composition comprising a fatty-chain alkoxysilane and a cationic polymer.

The present invention relates to a cosmetic composition comprising one or more fatty-chain alkoxysilanes and one or more cationic polymers.

The present invention also relates to the use of the said composition for caring for keratin materials, such as human keratin fibres and in particular the hair, and also to a cosmetic process for treating keratin fibres using such a composition.

A recurrent problem in the field of cosmetic haircare consists in caring for keratin fibres subjected to various external attacking factors. Specifically, these fibres may be subject to attack of various origins, such as mechanical attack, for example linked to disentangling or blow-drying, or alternatively chemical attack, for example following dyeing or permanent-waving.

Attack due to chemical and mechanical treatments has consequences especially on the qualities of the keratin fibre and may lead to difficult disentangling at the time of washing the hair, on dry hair and/or wet hair, and also to degradation of the surface properties of the fibres, which become non-smooth and irregular at the surface, more particularly when the hair is dry.

Care products exist that can limit these phenomena. However, these solutions are not always sufficiently effective and are not sufficiently shampoo-resistant.

The prior-art compositions that can facilitate disentangling by softening the keratin fibre and that afford gloss, softness and uniformity to dry hair essentially comprise cationic surfactants, fatty substances, silicones and cationic polymers.

After having been applied, these compositions are rinsed out, and the cosmetic agents, which are only lightly deposited on the keratin fibres, are generally removed at the time of the next wash.

Thus, the application of these compositions must be repeated after each wash, in order to treat the hair and to facilitate its conditioning.

There is thus a need for compositions that can deposit care active agents uniformly onto and/or into the keratin fibres, in a manner that is resistant to shampooing several times.

International patent application WO 2004/012 691 discloses the cosmetic use of silanes for improving the condition of the hair.

Patent application EP 0 159 628 proposes compositions for reinforcing the elasticity of the hair, comprising an alkyltrialkoxysilane.

Moreover, patent application EP 1 736 139 describes a hair treatment composition comprising an alkoxysilane, an organic acid and water, the pH of the composition being between 2 and 5.

Finally, patent application EP 0 877 027 discloses a composition comprising an organosilane and a particular polyol.

The Applicant has now discovered, surprisingly, that a combination of a particular fatty-chain alkoxysilane with at least one cationic polymer can afford efficient and long-lasting treatment of the hair, and thus facilitate its conditioning.

In particular, such a composition can, firstly, treat the head of hair, and in particular thus facilitate the disentangling, and, secondly, afford cosmetic effects that are resistant to shampooing several times.

One subject of the present invention is thus a cosmetic composition comprising:

- at least 0.1% by weight, relative to the total weight of the composition, of one or more fatty-chain alkoxysilanes of formula (I) below:

$$R_1Si(OR_2)_3 \qquad (I)$$

in which R_1 represents a linear or branched alkyl or alkenyl group, comprising from 7 to 18 carbon atoms, and R_2 represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms, and

- one or more cationic polymers.

The present invention further concerns a cosmetic composition, obtainable by mixing the following ingredients:

- at least 0.1% by weight, relative to the total weight of the composition, of one or more fatty-chain alkoxysilanes of formula (I) below:

$$R_1Si(OR_2)_3 \qquad (I)$$

in which R_1 represents a linear or branched alkyl or alkenyl group, comprising from 7 to 18 carbon atoms, and R_2 represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms, and

- one or more cationic polymers.

The composition of the present invention proves to be particularly suitable for caring for the hair and also makes it possible to obtain very good working qualities such as particularly easy application and good rinseability.

The composition according to the invention gives the hair excellent cosmetic properties, and in particular promotes the disentangling, suppleness and smoothness of the hair.

In addition, the feel of the hair after treatment using the composition according to the invention is particularly pleasant.

Finally, the conditioning properties obtained using the composition according to the invention are shampoo-resistant.

Another subject of the invention consists of a cosmetic process for treating keratin materials, such as human keratin fibres and in particular the hair, which consists in applying to the hair an effective amount of a composition according to the invention.

In particular, the composition according to the invention may be rinsed out or left in, optionally applied under the effect of heat, and optionally combined with chemical and/or mechanical hair treatments.

A subject of the invention is also the use of the composition according to the invention for caring for keratin materials, such as human keratin fibres and in particular the hair.

Other subject-matters, characteristics, aspects and advantages of the invention will become even more clearly apparent on reading the description and examples which follow.

According to the invention, the composition comprises one or more fatty-chain alkoxysilanes and one or more cationic polymers.

The fatty-chain alkoxysilane(s) that may be used in the composition according to the invention are those corresponding to formula (I) below:

$$R_1Si(OR_2)_3 \qquad (I)$$

in which R^1 represents a linear or branched alkyl or alkenyl group comprising from 7 to 18 carbon atoms, and R_2 represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms and preferably from 1 to 4 carbon atoms, and even more preferentially the ethyl group.

Said fatty-chain alkoxysilane can be present in the composition under the form of a compound of formula (I) above, and/or under the form of one or more oligomer(s) of such a compound.

In formula (I) above, R_1 being an alkyl or alkenyl group and R_2 being an alkyl group, these groups comprise only carbon and hydrogen atoms.

Preferably, R_2 represents an alkyl group comprising from 1 to 4 carbon atoms, better still a linear alkyl group comprising from 1 to 4 carbon atoms, and preferably the ethyl group.

Preferably, R_1 represents an alkyl group and even more preferentially a linear alkyl group.

Preferably, the fatty-chain alkoxysilane is chosen from octyltriethoxysilane, dodecyltriethoxysilane, octadecyltriethoxysilane and hexadecyltriethoxysilane.

More particularly, the fatty-chain alkoxysilane according to the invention is octyltriethoxysilane (OTES).

The alkoxysilane(s) of formula (I) are present in the composition according to the invention in proportions of at least 0.1% by weight, preferably ranging from 0.1 to 20% by weight, more

preferably from 0.5 to 18% by weight and better still from 2 to 15% by weight, relative to the total weight of the composition.

The term "cationic polymer" means any polymer containing cationic groups and/or groups that can be ionized to cationic groups, which are preferably non-siliceous.

The cationic polymers which can be used in accordance with the present invention may be selected from all of those already known per se to enhance the cosmetic properties of hair treated with detergent compositions, these being, in particular, the polymers described in Patent Application EP-A-0 337 354 and in French Patent Applications FR-A-2 270 846, 2 383 660, 2 598 611, 2 470 596 and 2 519 863.

The preferred cationic polymers are chosen from those that contain units comprising primary, secondary, tertiary and/or quaternary amine groups that may either form part of the main polymer chain or may be borne by a side substituent directly connected thereto.

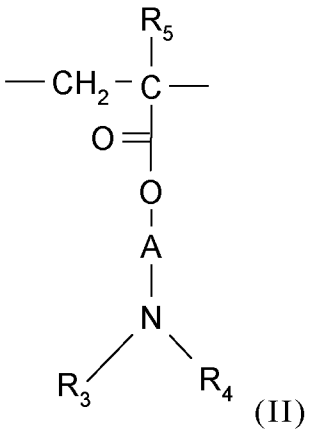
The cationic polymers used have a weight-average molecular mass of more than 10^5, preferably more than 10^6 and more preferably of between 10^6 and 10^8.

Among the cationic polymers that may be mentioned more particularly are polymers of the polyamine, polyamino amide and polyquaternary ammonium type. These are known products.

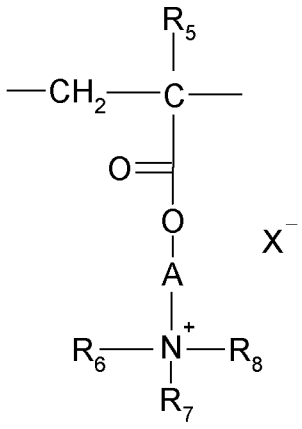
The polymers of polyamine, polyaminoamide and polyquaternary ammonium type that can be used in the composition of the present invention are those described in French patents 2 505 348 and 2 542 997.

Among these polymers, mention may be made of:

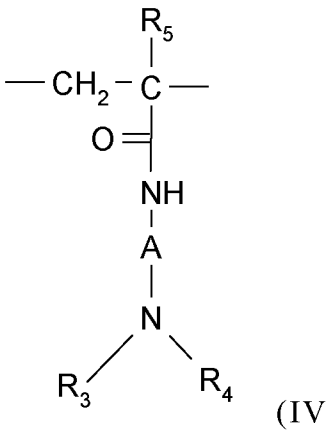
(1) Homopolymers or copolymers derived from acrylic or methacrylic esters or amides and comprising at least one of the units of formula (II), (III), (IV) or (V) below:



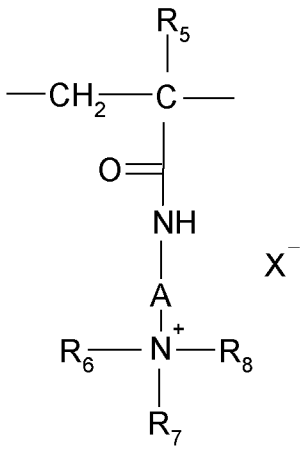
(II)



(III)



(IV)



(V)

in which:

R_3 and R_4, which may be identical or different, represent a hydrogen atom or an alkyl group having from 1 to 6 carbon atoms, and preferably a methyl or ethyl group,

R_5, which may be identical or different, denote a hydrogen atom or a CH_3 group,

A, which may be identical or different, represent a linear or branched alkyl group of 1 to 6 carbon atoms, preferably 2 or 3 carbon atoms, or a hydroxyalkyl group of 1 to 4 carbon atoms,

R_6, R_7, R_8, which may be identical or different, represent an alkyl group having from 1 to 18 carbon atoms or a benzyl group, and preferably an alkyl group having from 1 to 6 carbon atoms,

X^- denotes an anion derived from a mineral or organic acid, such as a methosulfate anion or a halide such as chloride or bromide.

The copolymers of family (1) may also contain one or more units derived from comonomers which may be chosen from the family of acrylamides, methacrylamides, diacetone acrylamides, acrylamides and methacrylamides substituted on the nitrogen with lower (C_1-C_4) alkyls, acrylic or methacrylic acids or esters thereof, vinyllactams such as vinylpyrrolidone or vinylcaprolactam, and vinyl esters.

Thus, among these copolymers of the family (1), mention may be made of:

- copolymers of acrylamide and of dimethylaminoethyl methacrylate quaternized with dimethyl sulfate or with a dimethyl halide, such as the product sold under the name Hercofloc by the company Hercules,
- copolymers of acrylamide and of methacryloyloxyethyltrimethylammonium chloride, described, for example, in Patent Application EP-A-080 976 and sold under the name Bina Quat P 100 by the company Ciba Geigy,
- the copolymer of acrylamide and of methacryloyloxyethyltrimethylammonium methosulfate sold under the name Reten by the company Hercules,
- quaternized or non-quaternized vinylpyrrolidone/dialkylaminoalkyl acrylate or methacrylate copolymers, such as the products sold under the name Gafquat by the company ISP, such as, for example, Gafquat 734 or Gafquat 755, or alternatively the products known as Copolymer 845, 958 and 937. These polymers are described in detail in French Patents 2 077 143 and 2 393 573,
- dimethylaminoethyl methacrylate/vinylcaprolactam/vinylpyrrolidone terpolymers, such as the product sold under the name Gaffix VC 713 by the company ISP,
- vinylpyrrolidone/methacrylamidopropyldimethylamine copolymers sold in particular under the name Styleze CC 10 by ISP,

- quaternized vinylpyrrolidone/dimethylaminopropylmethacrylamide copolymers such as the product sold under the name Gafquat HS 100 by the company ISP, and

- crosslinked polymers of methacryloyloxy(C_1-C_4)alkyltri(C_1-C_4)alkylammonium salts, such as the polymers obtained by homopolymerization of dimethylaminoethyl methacrylate quaternized with methyl chloride, or by copolymerization of acrylamide with dimethylaminoethyl methacrylate quaternized with methyl chloride, the homo- or copolymerization being followed by crosslinking with an olefinically unsaturated compound, more particularly methylenebisacrylamide. A crosslinked acrylamide/methacryloyloxyethyltrimethylammonium chloride copolymer (20/80 by weight) in the form of a dispersion containing 50% by weight of the said copolymer in mineral oil can be used more particularly. This dispersion is sold under the name Salcare® SC 92 by the company Ciba. A crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer (INCI name: Polyquaternium-37), for example as a dispersion in mineral oil or in a liquid ester, can also be used. These dispersions are sold under the names Salcare® SC 95 and Salcare® SC 96 by the company Ciba.

(2) Polymers formed from piperazinyl units and divalent alkylene or hydroxyalkylene radicals containing straight or branched chains, optionally interrupted with oxygen, sulfur or nitrogen atoms or with aromatic or heterocyclic rings, and also the oxidation and/or quaternization products of these polymers. Such polymers are described, in particular, in French patents 2 162 025 and 2 280 361.

(3) water-soluble polyamino amides prepared in particular by polycondensation of an acidic compound with a polyamine. These polyaminoamides can be crosslinked with an epihalohydrin, a diepoxide, a dianhydride, an unsaturated dianhydride, a bis-unsaturated derivative, a bis-halohydrin, a bis-azetidinium, a bis-haloacyldiamine, a bis-alkyl halide or alternatively with an oligomer resulting from the reaction of a difunctional compound which is reactive with a bis-halohydrin, a bis-azetidinium, a bis-haloacyldiamine, a bis-alkyl halide, an epihalohydrin, a diepoxide or a

bis-unsaturated derivative; the crosslinking agent being used in proportions ranging from 0.025 to 0.35 mol per amine group of the polyaminoamide. These polyaminoamides can be alkylated or, if they comprise one or more tertiary amine functions, they can be quaternized. Such polymers are described, in particular, in French patents 2 252 840 and 2 368 508.

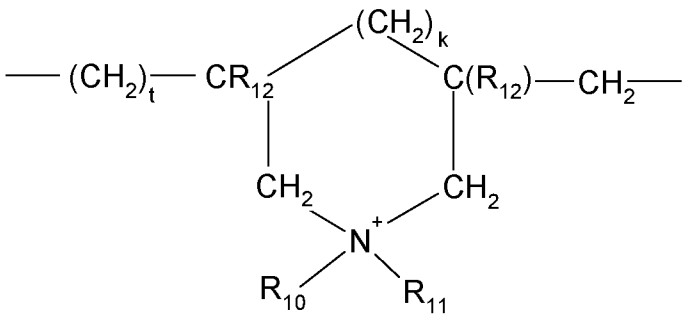
(4) Polyaminoamide derivatives resulting from the condensation of polyalkylene polyamines with polycarboxylic acids followed by alkylation with difunctional agents. Mention may be made, for example, of adipic acid/dialkylaminohydroxy-alkyldialkylenetriamine polymers in which the alkyl radical contains from 1 to 4 carbon atoms and preferably denotes methyl, ethyl or propyl. Such polymers are especially described in French patent 1 583 363.

Among these derivatives, mention may be made more particularly of the adipic acid/dimethylamino-hydroxypropyl/diethylenetriamine polymers sold under the name Cartaretine F, F4 or F8 by the company Sandoz.

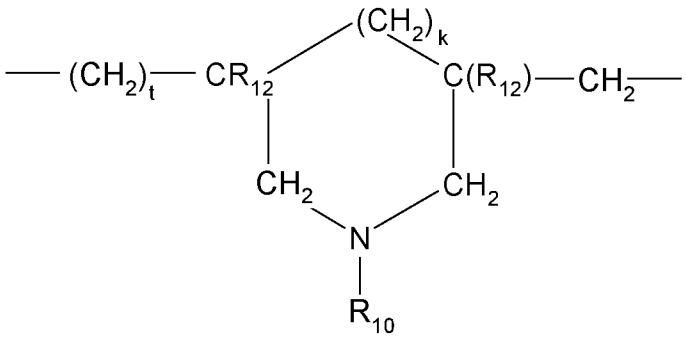
(5) The polymers obtained by reaction of a polyalkylene polyamine containing two primary amine groups and at least one secondary amine group with a dicarboxylic acid chosen from diglycolic acid and saturated aliphatic dicarboxylic acids having from 3 to 8 carbon atoms. The mole ratio between the polyalkylene polyamine and the dicarboxylic acid is between 0.8: 1 and 1.4: 1; the polyamino amide resulting therefrom is reacted with epichlorohydrin in a mole ratio of epichlorohydrin relative to the secondary amine group of the polyamino amide of between 0.5: 1 and 1.8: 1. Such polymers are described in particular in US patents 3 227 615 and 2 961 347.

Polymers of this type are sold in particular under the name Hercosett 57 by the company Hercules Inc. or alternatively under the name PD 170 or Delsette 101 by the company Hercules in the case of the adipic acid/epoxypropyl/diethylenetriamine copolymer.

(6) Cyclopolymers of alkyldiallylamine or of dialkyldiallylammonium, such as the homopolymers or copolymers containing, as main constituent of the chain, units corresponding to formula (VI) or (VII):



(VI)



(VII)

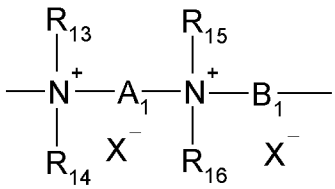
in which formulae: k and t are equal to 0 or 1, the sum k + t being equal to 1; R_{12} denotes a hydrogen atom or a methyl group; R_{10} and R_{11}, independently of one another, denote an alkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group in which the alkyl group has preferably 1 to 5 carbon atoms, a lower (C_1-C_4) amidoalkyl group, or else R_{10} and R_{11} may, together with the nitrogen atom to which they are attached, denote heterocyclic groups, such as piperidyl or morpholinyl; Y^- is an anion such as bromide, chloride, acetate, borate, citrate, tartrate, bisulfate, bisulfite, sulfate or phosphate. These

polymers are especially described in French patent 2 080 759 and in its Certificate of Addition 2 190 406.

R_{10} and R_{11}, independently of one another, denote preferably an alkyl group having from 1 to 4 carbon atoms.

Among the polymers defined above, mention may be made more particularly of the dimethyldiallylammonium chloride homopolymer sold under the name Merquat 100 by the company Nalco and its homologues of low weight-average molecular weights, and the copolymers of diallyldimethylammonium chloride and of acrylamide sold under the name Merquat 550.

(7) quaternary diammonium polymers especially containing repeating units corresponding to formula (VIII):



(VIII)

in which:

R_{13}, R_{14}, R_{15} and R_{16}, which may be identical or different, represent aliphatic, alicyclic or arylaliphatic groups containing from 1 to 20 carbon atoms or lower hydroxyalkylaliphatic radicals, or alternatively R_{13}, R_{14}, R_{15} and R_{16}, together or separately, constitute, with the nitrogen atoms to which they are attached, heterocycles optionally containing a second heteroatom other than nitrogen, or alternatively R_{13}, R_{14}, R_{15} and R_{16} represent a linear or branched C_1-C_6 alkyl group substituted with a nitrile, ester, acyl or amide group or a group -CO-O-R_{17}-D or -CO-NH-R_{17}-D where R_{17} is an alkylene and D is a quaternary ammonium group,

A_1 and B_1 represent polymethylene groups containing from 2 to 20 carbon atoms, which may be linear or branched and saturated or unsaturated and may contain, joined to or intercalated in the main chain, one or more aromatic rings, or one or more oxygen or sulfur

atoms or sulfoxide, sulfone, disulfide, amino, alkylamino, hydroxyl, quaternary ammonium, ureido, amide or ester groups, and

X^- denotes an anion derived from a mineral or organic acid,

A_1, R_{13} and R_{15} can form, with the two nitrogen atoms to which they are attached, a piperazine ring. In addition, if A_1 denotes a linear or branched, saturated or unsaturated alkylene or hydroxyalkylene radical, B_1 may also denote a group $(CH_2)_n$-CO-D-OC-$(CH_2)_p$-,

n and p are integers ranging from 2 to 20 approximately,

in which D denotes:

a) a glycol residue of formula: -O-Z-O-, where Z denotes a linear or branched hydrocarbon-based radical or a group corresponding to one of the following formulae:

$-(CH_2-CH_2-O)_x$ $-CH_2-CH_2-$,

$-[CH_2-CH(CH_3)-O]_y-CH_2-CH(CH_3)-$,

in which x and y denote an integer from 1 to 4, representing a defined and unique degree of polymerization or any number from 1 to 4 representing an average degree of polymerization,

b) a bis-secondary diamine residue such as a piperazine derivative,

c) a bis-primary diamine residue of formula: -NH-Y-NH-, where Y denotes a linear or branched hydrocarbon-based radical, or else the divalent radical $-CH_2-CH_2-S-S-CH_2-CH_2-$,

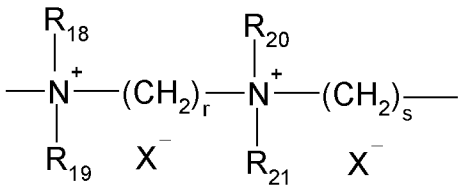
d) a ureylene group of formula -NH-CO-NH-.

Preferably, X^- is an anion such as chloride or bromide.

These polymers generally have a number-average molecular mass of between 1000 and 100 000.

Polymers of this type are described in particular in French patents 2 320 330, 2 270 846, 2 316 271, 2 336 434 and 2 413 907 and US patents 2 273 780, 2 375 853, 2 388 614, 2 454 547, 3 206 462, 2 261 002, 2 271 378, 3 874 870, 4 001 432, 3 929 990, 3 966 904, 4 005 193, 4 025 617, 4 025 627, 4 025 653, 4 026 945 and 4 027 020.

Use may more particularly be made of polymers that are formed from repeating units corresponding to formula (IX):

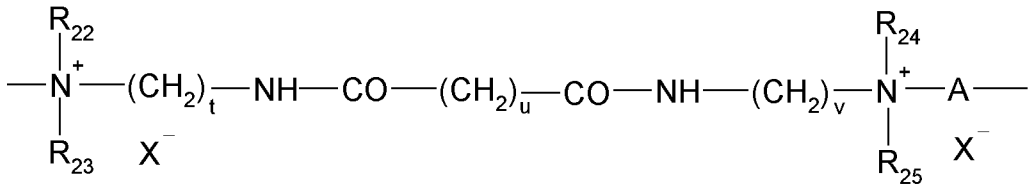


(IX)

in which R_{18}, R_{19}, R_{20} and R_{21}, which are identical or different, denote an alkyl or hydroxyalkyl group having from 1 to 4 carbon atoms approximately, r and s are integers ranging from 2 to 20 approximately, and X^- is an anion derived from a mineral or organic acid.

One particularly preferred compound of formula (IX) is that for which R_{18}, R_{19}, R_{20} and R_{21} represent a methyl group and r = 3, s = 6 and X = Cl, which is called Hexadimethrine chloride according to INCI nomenclature (CTFA).

(8) Polyquaternary ammonium polymers formed from units of formula (X):



(X)

in which:

R_{22}, R_{23}, R_{24} and R_{25}, which may be identical or different, represent a hydrogen atom or a methyl, ethyl, propyl, β-hydroxyethyl, β-hydroxypropyl or $-CH_2CH_2(OCH_2CH_2)_pOH$ group,

where p is equal to 0 or to an integer between 1 and 6, with the proviso that R_{22}, R_{23}, R_{24} and R_{25} do not simultaneously represent a hydrogen atom,

t and u, which may be identical or different, are integers between 1 and 6,

v is equal to 0 or to an integer between 1 and 34,

X^- denotes an anion such as a halide,

A denotes a dihalide group or preferably represents $-CH_2-CH_2-O-CH_2-CH_2-$.

Such compounds are described especially in Patent Application EP-A-122 324.

Among these, mention may be made, for example, of the products Mirapol® A 15, Mirapol® AD1, Mirapol® AZ1 and Mirapol® 175, sold by the company Miranol.

(9) Quaternary polymers of vinylpyrrolidone and/or of vinylimidazole, for instance the products sold under the names Luviquat® FC 905, FC 550 and FC 370 and Luviquat Excellence by the company BASF.

(10) Cationic polysaccharides, especially cationic celluloses and galactomannan gums.

Among cationic polysaccharides, mention may be made more particularly of cellulose ether derivatives comprising quaternary ammonium groups, cationic cellulose copolymers or cellulose derivatives grafted with a water-soluble quaternary ammonium monomer and cationic galactomannan gums.

The cellulose ether derivatives comprising quaternary ammonium groups are described in French Patent 1 492 597. These polymers are also defined in the CTFA dictionary as quaternary ammoniums of hydroxyethyl cellulose that have reacted with an epoxide substituted with a trimethylammonium group.

The cationic cellulose copolymers or the cellulose derivatives grafted with a water-soluble quaternary ammonium monomer are described especially in patent US 4 131 576, such as hydroxyalkyl celluloses, for instance hydroxymethyl, hydroxyethyl or hydroxypropyl celluloses grafted especially with a methacryloylethyltrimethyl-ammonium, methacrylamidopropyltrimethylammonium or dimethyl-diallylammonium salt.

The cationic galactomannan gums are described more particularly in US patents 3 589 578 and 4 031 307, in particular guar gums containing cationic trialkylammonium groups. Guar gums modified with a salt such as 2,3-epoxypropyltrimethylammonium chloride are used, for example.

(11) Cationic proteins or cationic protein hydrolysates, polyalkyleneimines, in particular polyethyleneimines, polymers containing vinylpyridine or vinylpyridinium units, condensates of polyamines and of epichlorohydrin, quaternary polyureylenes and chitin derivatives.

The cationic proteins or protein hydrolysates are, in particular, chemically modified polypeptides bearing quaternary ammonium groups at the end of the chain, or grafted thereon. Their molecular mass may vary, for example, from 1500 to 10 000 and in particular from 2000 to 5000 approximately. Among these compounds, mention may be made especially of:

- collagen hydrolysates bearing triethylammonium groups, such as the products sold under the name Quat-Pro E by the company Maybrook and referred to in the CTFA dictionary as Triethonium Hydrolyzed Collagen Ethosulfate;

- collagen hydrolysates bearing trimethylammonium chloride and trimethylstearylammonium chloride groups, which are sold under the name Quat-Pro S by the company Maybrook and are referred to in the CTFA dictionary as Steartrimonium Hydrolyzed Collagen;

- animal protein hydrolysates bearing trimethylbenzylammonium groups, such as the products sold under the name Crotein BTA by the company Croda and referred to in the CTFA dictionary as Benzyltrimonium hydrolyzed animal protein;

- protein hydrolysates bearing quaternary ammonium groups on the polypeptide chain, the said ammonium groups containing at least one alkyl group having from 1 to 18 carbon atoms.

Among these protein hydrolysates, mention may be made, *inter alia*, of:

- Croquat L, in which the quaternary ammonium groups contain a C_{12} alkyl group;

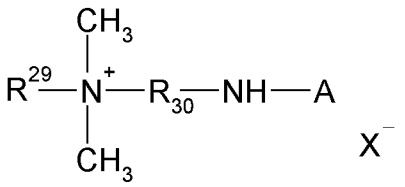
- Croquat M, in which the quaternary ammonium groups contain C_{10}-C_{18} alkyl groups;

- Croquat S, in which the quaternary ammonium groups contain a C_{18} alkyl group;

- Crotein Q, in which the quaternary ammonium groups contain at least one alkyl group having from 1 to 18 carbon atoms.

These various products are sold by the company Croda.

Other quaternized proteins or hydrolysates are, for example, those corresponding to the formula (XI):



(XI)

in which X^- is an anion of an organic or inorganic acid, A denotes a protein residue derived from collagen protein hydrolysates, R_{29} denotes a lipophilic group containing up to 30 carbon atoms, and R_{30} represents an alkylene group having 1 to 6 carbon atoms. Mention may be made, for example, of the products sold by the company Inolex, under the name Lexein QX 3000, referred to in the CTFA dictionary as Cocotrimonium Collagen Hydrolysate.

Mention may also be made of quaternized plant proteins such as wheat, corn or soybean proteins, for instance quaternized wheat proteins. Mention may be made of those sold by the company Croda under the names Hydrotriticum WQ or QM, referred to in the CTFA dictionary as Cocodimonium hydrolysed wheat protein, Hydrotriticum QL, referred to in the CTFA dictionary as Laurdimonium hydrolysed wheat protein, or else Hydrotriticum QS, referred to in the CTFA dictionary as Steardimonium hydrolysed wheat protein.

Preferably, the cationic polymer(s) are chosen from polymers of families (1), (6), (9) and (10).

Among these preferred cationic polymers that may be used in the context of the present invention, it is more particularly preferred to use cationic cyclopolymers, in particular dimethyldiallylammonium chloride homopolymers or copolymers, sold under the names Merquat 100, Merquat 550 and Merquat S by the company Nalco, quaternary polymers of vinylpyrrolidone and of vinylimidazole, such as the copolymer of vinylpyrrolidone and of methylvinylimidazolinium chloride sold under the name Luviquat Excellence by BASF, cationic polysaccharides, more particularly guar gums modified with 2,3-epoxypropyltrimethylammonium chloride sold, for example, under the name Jaguar C13S by the company Rhodia or cellulose ether derivatives comprising quaternary ammonium groups, for instance the cellulose ethers sold under the name Ucare Polymer JR 400 LT by the company Amerchol (Dow Chemical), and crosslinked polymers of methacryloyloxy(C_1-C_4)alkyltri(C_1-C_4)alkylammonium salts, such as the crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer sold under the name Salcare SC95 by the company Ciba, and mixtures thereof.

More preferentially, the cationic polymer(s) are chosen from guar gum modified with 2,3-epoxypropyltrimethylammonium chloride, sold under the name Jaguar C13S by the company Rhodia, hydroxyethylcellulose quaternized with 2,3-epoxypropyltrimethylammonium chloride, sold under the name Ucare Polymer JR 400 by the company Amerchol (Dow Chemical), the dimethyldiallylammonium chloride homopolymer sold under the name Merquat 100 by the company Nalco, the copolymer of vinylpyrrolidone and of methylvinylimidazolinium chloride, sold under the name Luviquat Excellence by the company BASF, the crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer sold under the name Salcare SC95 by the company Ciba, and the methylacrylamidopropyltrimethylammonium

chloride/acrylamide/acrylic acid copolymer sold under the name Merquat 2003 by the company Nalco.

The cationic polymer(s) are present in the composition according to the invention in preferential proportions of at least 0.01% by weight, preferably ranging from 0.01% to 15% by weight, more preferably from 0.05% to 10% by weight and better still from 0.1% to 5% by weight, relative to the total weight of the composition.

The cationic polymer(s) are present in the compositions according to the invention such that the weight ratio between the amount of fatty-chain alkoxysilane(s), on the one hand, and the amount of cationic polymer(s), on the other hand, is preferably greater than or equal to 0.1.

In one preferred embodiment, the weight ratio between the amount of fatty-chain alkoxysilane(s), on the one hand, and the amount of cationic polymer(s), on the other hand, ranges from 0.1 to 50, even more preferentially from 1 to 25 and better still from 5 to 20.

According to a second preferred embodiment, the composition according to the invention also comprises one or more thickeners, other than the cationic polymers according to the invention.

For the purposes of the present invention, the term "thickener" means an agent which, when introduced at 1% by weight in an aqueous solution or an aqueous-alcoholic solution containing 30% ethanol, and at pH 7, makes it possible to achieve a viscosity of at least 100 mPa.s (100 cPs) and preferably of at least 500 mPa.s (500 cPs), at 25°C and at a shear rate of 1 s^{-1}. This viscosity may be measured using a cone/plate viscometer (Haake R600 rheometer or the like).

The thickener or thickeners may be selected from fatty acid amides obtained from C_{10}-C_{30} carboxylic acid such as monoisopropanolamide, diethanolamide or monoethanolamide of coconut acids, monoethanolamide of ethoxylated carboxylic alkyl ether acid, nonionic cellulose-based thickeners (such as hydroxyethylcellulose, hydroxypropylcellulose, carboxymethylcellulose), guar gum and its nonionic derivatives such as hydroxypropyl guar, gums of microbial origin such as xanthan gum,

scleroglucan gum, crosslinked or non-crosslinked homopolymers and copolymers based on acrylic acid, methacrylic acid or acrylamidopropanesulfonic acid, and associative polymers, especially acrylic associative polymers or polyurethanes, as described below.

The associative polymer(s) that can be used according to the invention are water-soluble polymers which, in an aqueous medium, are capable of reversible association with one another or with other molecules.

Their chemical structure comprises hydrophilic zones and hydrophobic zones characterized by at least one fatty chain preferably comprising from 10 to 30 carbon atoms.

The associative polymer(s) that may be used according to the invention may be of anionic, cationic, amphoteric or nonionic type, for instance the polymers sold under the names Pemulen TR1 or TR2 by the company Goodrich, the INCI name of which is Acrylates/C10-30 Alkyl Acrylate Crosspolymer, Salcare SC90 by the company Ciba, Aculyn 22, 28, 33, 44 or 46 by the company Röhm & Haas, and Elfacos T210 and T212 by the company Akzo.

Among the cited thickeners, use is preferably made of nonionic cellulose-based thickeners, such as hydroxyethylcellulose, associative polyurethanes and xanthan gum.

Preferably, the composition according to the invention comprises from 0.1% to 20% by weight and better still from 0.2% to 10% by weight of thickener(s) relative to the total weight of the composition.

In one particularly advantageous embodiment, the cosmetic composition according to the invention also comprises one or more organic acids.

The term “organic acid” means any non-polymeric organic compound comprising two or more than two carbon atoms and one or more acid functions chosen from carboxylic acid, sulfonic acid and phosphoric acid functions.

Preferentially, the organic acid is not a surfactant.

Even more preferentially, the molecular weight of the organic acid is less than 250 and better still less than 200.

Even more preferentially, the organic acids according to the invention are carboxylic acids and α-hydroxylated carboxylic acids or AHAs.

The organic acids may be amino acids.

The organic acid(s) are preferably chosen from acetic acid, propanoic acid, butanoic acid, lactic acid, malic acid, glycolic acid, ascorbic acid, maleic acid, phthalic acid, succinic acid, taurine, tartaric acid, arginine, glycine, glucuronic acid, gluconic acid and citric acid.

Even more preferentially still, the organic acid used in the composition according to the invention is chosen from acetic acid, citric acid and lactic acid, and is preferably lactic acid.

In the composition, the organic acid(s) may be in free or salified form.

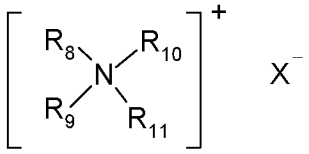
The organic acid(s) that may be used in the composition according to the present invention may be present in a content, expressed as free acids, ranging from 0.01% to 10% by weight, preferably in a content ranging from 0.1% to 8% by weight and even more preferentially in a content ranging from 0.2% to 5% by weight relative to the total weight of the composition.

The composition according to the invention may also comprise one or more surfactants chosen from cationic, anionic, nonionic, amphoteric and/or zwitterionic surfactants.

The cationic surfactant(s) that can be used in the compositions of the present invention comprise, for example, salts of optionally polyoxyalkylenated primary, secondary or tertiary fatty amines, quaternary ammonium salts, and mixtures thereof.

Examples of quaternary ammonium salts that may especially be mentioned include:

- those corresponding to the general formula (XII) below:



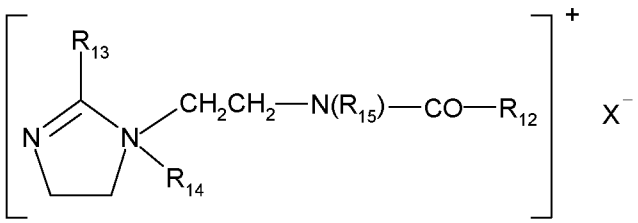
(XII)

in which the radicals R_8 to R_{11}, which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 30 carbon atoms or an aromatic radical such as aryl or alkylaryl, at least one of the radicals R_8 to R_{11} comprising from 8 to 30 carbon atoms and preferably from 12 to 24 carbon atoms. The aliphatic radicals may comprise heteroatoms especially such as oxygen, nitrogen, sulfur and halogens.

The aliphatic radicals are chosen, for example, from C_1-C_{30} alkyl, C_1-C_{30} alkoxy, polyoxy(C_2-C_6)alkylene, C_1-C_{30} alkylamide, (C_{12}-C_{22})alkylamido(C_2-C_6)alkyl, (C_{12}-C_{22})alkylacetate and C_1-C_{30} hydroxyalkyl radicals, and X^- is an anionic counterion chosen from halides, phosphates, acetates, lactates, (C_1-C_4)alkyl sulfates, and (C_1-C_4)alkyl- or (C_1-C_4)alkylarylsulfonates.

Preference is given, among the quaternary ammonium salts of formula (XII), on the one hand, to tetraalkylammonium chlorides, such as, for example, dialkyldimethylammonium or alkyltrimethylammonium chlorides in which the alkyl radical comprises approximately from 12 to 22 carbon atoms, in particular behenyltrimethylammonium chloride, distearyldimethylammonium chloride, cetyltrimethylammonium chloride or benzyldimethylstearylammonium chloride, or also, on the other hand, to distearoylethylhydroxyethylmethylammonium methosulfate, dipalmitoylethylhydroxyethylammonium methosulfate or distearoylethylhydroxyethylammonium methosulfate, or also, finally, to palmitylamidopropyltrimethylammonium chloride or stearamidopropyldimethyl(myristyl acetate)ammonium chloride, sold under the name Ceraphyl® 70 by Van Dyk.

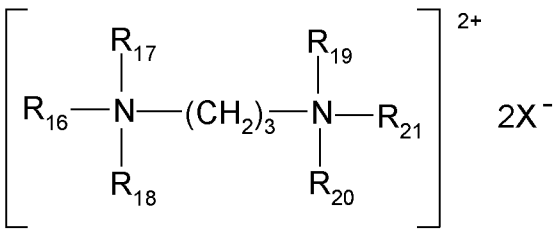
- quaternary ammonium salts of imidazoline, for instance those of formula (XIII) below:



(XIII)

in which R_{12} represents an alkyl or alkenyl radical comprising from 8 to 30 carbon atoms, for example fatty acid derivatives of tallow, R_{13} represents a hydrogen atom, a C_1-C_4 alkyl radical or an alkyl or alkenyl radical comprising from 8 to 30 carbon atoms, R_{14} represents a C_1-C_4 alkyl radical, R_{15} represents a hydrogen atom or a C_1-C_4 alkyl radical, X^- is an anion chosen from the group of halides, phosphates, acetates, lactates, (C_1-C_4)alkyl sulfates and (C_1-C_4)alkyl- or (C_1-C_4)alkylaryl-sulfonates. Preferably, R_{12} and R_{13} denote a mixture of alkenyl or alkyl radicals comprising from 12 to 21 carbon atoms, for example fatty acid derivatives of tallow, R_{14} denotes a methyl radical and R_{15} denotes a hydrogen atom. Such a product is, for example, sold under the name Rewoquat® W 75 by the company Rewo,

- quaternary diammonium or triammonium salts, in particular of formula (XIV) below:

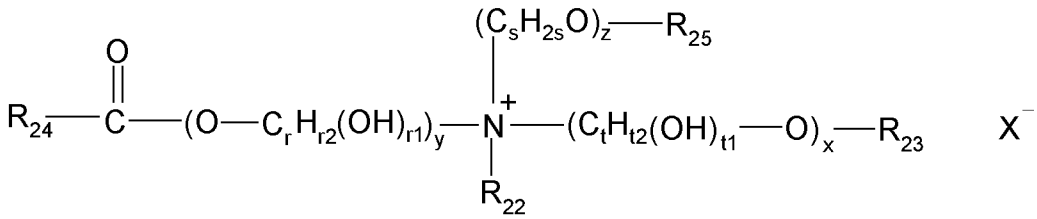


(XIV)

in which R_{16} denotes an alkyl radical comprising for about 16 to 30 carbon atoms, optionally hydroxylated and/or interrupted with one or more oxygen atoms; R_{17} is chosen from hydrogen, an alkyl radical comprising from 1 to 4 carbon atoms or a group -$(CH_2)_3$-

$N^+(R_{16a})(R_{17a})(R_{18a})$; R_{16a}, R_{17a}, R_{18a}, R_{18}, R_{19}, R_{20} and R_{21}, which may be identical or different, are chosen from hydrogen and an alkyl group comprising from 1 to 4 carbon atoms, and X^- is an anion chosen from the group of halides, acetates, phosphates, nitrates, (C_1-C_4)alkyl sulfates and (C_1-C_4)alkyl- or (C_1-C_4)alkylaryl-sulfonates, in particular methyl sulfate and ethyl sulfate. Such compounds are, for example, Finquat CT-P, available from the company Finetex (Quaternium 89), and Finquat CT, available from the company Finetex (Quaternium 75),

- quaternary ammonium salts comprising one or more ester functional groups, such as those of formula (XV) below:

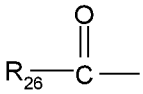


(XV)

in which:

R_{22} is chosen from C_1-C_6 alkyl and C_1-C_6 hydroxyalkyl or dihydroxyalkyl groups;

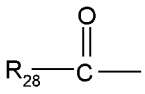
R_{23} is chosen from:

- the group 

- linear or branched, saturated or unsaturated C_1-C_{22} hydrocarbon-based groups R_{27},

- a hydrogen atom,

R_{25} is chosen from:

- the group 

- linear or branched, saturated or unsaturated C_1-C_6 hydrocarbon-based groups R_{29},

- a hydrogen atom,

R_{24}, R_{26} and R_{28}, which may be identical or different, are chosen from linear or branched, saturated or unsaturated C_7-C_{21} hydrocarbon-based groups;

r, s and t, which may be identical or different, are integers ranging from 2 to 6,

r1 and t1, which may be identical or different, are equal to 0 or 1,

r2 + r1 = 2 r and t1 + t2 = 2 t,

y is an integer ranging from 1 to 10,

x and z, which may be identical or different, are integers ranging from 0 to 10,

X^- is a simple or complex, organic or mineral anion,

with the proviso that the sum x + y + z is from 1 to 15, that when x is 0, then R_{23} denotes R_{27} and that when z is 0, then R_{25} denotes R_{29}.

The alkyl groups R_{22} may be linear or branched, and more particularly linear.

Preferably, R_{22} denotes a methyl, ethyl, hydroxyethyl or dihydroxypropyl group, and more particularly a methyl or ethyl group.

Advantageously, the sum x + y + z is from 1 to 10.

When R_{23} is a hydrocarbon-based group R_{27}, it may be long and may contain from 12 to 22 carbon atoms, or may be short and may contain from 1 to 3 carbon atoms.

When R_{25} is a hydrocarbon-based group R_{29}, it preferably contains 1 to 3 carbon atoms.

Advantageously, R_{24}, R_{26} and R_{28}, which may be identical or different, are chosen from linear or branched, saturated or unsaturated C_{11}-C_{21} hydrocarbon-based groups, and more particularly from linear or branched, saturated or unsaturated C_{11}-C_{21} alkyl and alkenyl groups.

Preferably, x and z, which may be identical or different, have values of 0 or 1.

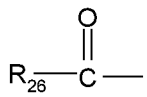
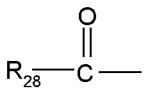
Advantageously, y is equal to 1.

Preferably, r, s and t, which may be identical or different, are equal to 2 or 3, and even more particularly are equal to 2.

The anion X^- is preferably a halide, preferably chloride, bromide or iodide, a (C_1-C_4)alkyl sulfate or a (C_1-C_4)alkyl- or (C_1-C_4)alkylaryl-sulfonate. However, methanesulfonate, phosphate, nitrate, tosylate, an anion derived from an organic acid, such as acetate or lactate, or any other anion that is compatible with the ammonium containing an ester function, may be used.

The anion X^- is even more particularly chloride, methyl sulfate or ethyl sulfate.

Use is made more particularly in the composition according to the invention of the ammonium salts of formula (XV) in which:

- R_{22} denotes a methyl or ethyl group,
- x and y are equal to 1,
- z is equal to 0 or 1,
- r, s and t are equal to 2,
- R_{23} is chosen from:
  - the group 
  - methyl, ethyl or C_{14}-C_{22} hydrocarbon-based groups,
  - a hydrogen atom,
- R_{25} is chosen from:
  - the group 
  - a hydrogen atom,
- R_{24}, R_{26} and R_{28}, which may be identical or different, are chosen from linear or branched, saturated or unsaturated C_{13}-C_{17} hydrocarbon-based groups, and more particularly from linear or branched, saturated or unsaturated C_{13}-C_{17} alkyl and alkenyl groups.

Advantageously, the hydrocarbon-based radicals are linear.

Among the compounds of formula (XV), examples that may be mentioned include salts, especially the chloride or methyl sulfate, of diacyloxyethyldimethylammonium,
diacyloxyethylhydroxyethylmethylammonium,
monoacyloxyethyldihydroxyethylmethylammonium,
triacyloxyethylmethylammonium or

monoacyloxyethylhydroxyethyldimethylammonium, and mixtures thereof. The acyl groups preferably contain 14 to 18 carbon atoms and are obtained more particularly from a plant oil such as palm oil or sunflower oil. When the compound contains several acyl groups, these groups may be identical or different.

These products are obtained, for example, by direct esterification of triethanolamine, triisopropanolamine, an alkyldiethanolamine or an alkyldiisopropanolamine, which are optionally oxyalkylenated, with fatty acids or with fatty acid mixtures of plant or animal origin, or by transesterification of the methyl esters thereof. This esterification is followed by a quaternization by means of an alkylating agent such as an alkyl halide, preferably a methyl or ethyl halide, a dialkyl sulfate, preferably methyl or ethyl sulfate, methyl methanesulfonate, methyl para-toluenesulfonate, glycol chlorohydrin or glycerol chlorohydrin.

Such compounds are, for example, sold under the names Dehyquart® by Henkel, Stepanquat® by Stepan, Noxamium® by Ceca or Rewoquat® WE 18 by Rewo-Witco.

The composition according to the invention may contain, for example, a mixture of quaternary ammonium monoester, diester and triester salts with a weight majority of diester salts.

Mixtures of ammonium salts that may be used include, for example, the mixture containing 15% to 30% by weight of acyloxy-ethyldihydroxyethylmethylammonium methyl sulfate, 45% to 60% of diacyloxyethylhydroxyethylmethylammonium methyl sulfate and 15% to 30% of triacyloxyethylmethylammonium methyl sulfate, the acyl groups having from 14 to 18 carbon atoms and originating from palm oil, which is optionally partially hydrogenated.

It is also possible to use the ammonium salts containing at least one ester function that are described in patents US-A-4 874 554 and US-A-4 137 180.

Use may be made of behenoylhydroxypropyltrimethyl-ammonium chloride sold by KAO under the name Quartamin BTC 131.

Preferably, the ammonium salts containing at least one ester function contain two ester functions.

Among the cationic surfactants present in the composition according to the invention, it is more particularly preferred to choose cetyltrimethylammonium, behenyltrimethylammonium and dipalmitoylethylhydroxyethylmethylammonium salts, and mixtures thereof, and more particularly behenyltrimethylammonium chloride, cetyltrimethylammonium chloride, and dipalmitoylethylhydroxyethyl-ammonium methosulfate, and mixtures thereof.

When they are present, the amount of the cationic surfactant(s) preferably ranges from 0.01% to 20% by weight and better still from 0.2% to 10% by weight, relative to the total weight of the composition.

The term "anionic surfactant" means a surfactant comprising, as ionic or ionizable groups, only anionic groups. These anionic groups are preferably chosen from $-CO_2H$, $-CO_2^-$, $-SO_3H$, $-SO_3^-$, $-OSO_3H$, $-OSO_3^-$, $-H_2PO_3$, $-HPO_3^-$, $-PO_3^{2-}$, $=H_2PO_2$, $=HPO_2$, $=HPO_2^-$, $=PO_2^-$, =POH and $=PO^-$ groups.

Mention may be made, as examples of anionic surface-active agents which can be used in the composition according to the invention, of alkyl sulfates, alkyl ether sulfates, alkylamido ether sulfates, alkylaryl polyether sulfates, monoglyceride sulfates, alkylsulfonates, alkylamidesulfonates, alkylarylsulfonates, α-olefin sulfonates, paraffin sulfonates, alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkylamide sulfosuccinates, alkyl sulfoacetates, acylsarcosinates, acylglutamates, alkyl sulfosuccinamates, acylisethionates and N-acyltaurates, polyglycoside polycarboxylic acid and alkyl monoester salts, acyl lactylates, salts of D-galactoside uronic acids, salts of alkyl ether carboxylic acids, salts of alkylaryl ether carboxylic acids, salts of alkylamido ether carboxylic acids; and the corresponding non-salified forms of all these compounds; the alkyl and acyl groups of all these compounds comprising from 6 to 24 carbon atoms and the aryl group denoting a phenyl group.

These compounds may be oxyethylenated and then preferably comprise from 1 to 50 ethylene oxide units.

The salts of C_6-C_{24} alkyl monoesters of polyglycoside-polycarboxylic acids can be selected from C_6-C_{24} alkyl polyglycoside-citrates, C_6-C_{24} alkyl polyglycoside-tartrates and C_6-C_{24} alkyl polyglycoside-sulfosuccinates.

When the anionic surfactant(s) are in salt form, they may be chosen from alkali metal salts such as the sodium or potassium salt and preferably the sodium salt, the ammonium salts, the amine salts and in particular amino alcohol salts or the alkaline-earth metal salts such as the magnesium salts.

Examples of amino alcohol salts that may especially be mentioned include monoethanolamine, diethanolamine and triethanolamine salts, monoisopropanolamine, diisopropanolamine or triisopropanolamine salts, 2-amino-2-methyl-1-propanol salts, 2-amino-2-methyl-1,3-propanediol salts and tris(hydroxymethyl)aminomethane salts.

Alkali metal or alkaline-earth metal salts, and in particular sodium or magnesium salts, are preferably used.

Among the anionic surfactants mentioned, use is preferably made of (C_6-C_{24})alkyl sulfates, (C_6-C_{24})alkyl ether sulfates comprising from 2 to 50 ethylene oxide units, especially in the form of alkali metal, ammonium, amino alcohol and alkaline-earth metal salts, or a mixture of these compounds.

It is particularly preferred to use (C_{12}-C_{20})alkyl sulfates, (C_{12}-C_{20})alkyl ether sulfates comprising from 2 to 20 ethylene oxide units, especially in the form of alkali metal, ammonium, amino alcohol and alkaline-earth metal salts, or a mixture of these compounds. Better still, use is made of sodium lauryl ether sulfate containing 2.2 mol of ethylene oxide.

When they are present, the amount of the anionic surfactant(s) preferably ranges from 0.01% to 20% by weight, more preferably from 0.2% to 10% by weight, relative to the total weight of the composition.

Examples of nonionic surfactants that may be used in the composition used according to the invention are described, for example, in the "Handbook of Surfactants" by M.R. Porter, published

by Blackie & Son (Glasgow and London), 1991, pp. 116-178. They are especially chosen from polyethoxylated, polypropoxylated and/or polyglycerolated alcohols, α-diols and (C_1-C_{20})alkylphenols, containing at least one fatty chain comprising, for example, from 8 to 18 carbon atoms, the number of ethylene oxide or propylene oxide groups possibly ranging especially from 2 to 50, and the number of glycerol groups possibly ranging especially from 2 to 30.

Mention may also be made of copolymers of ethylene oxide and propylene oxide, optionally oxyethylenated fatty acid esters of sorbitan, fatty acid esters of sucrose, polyoxyalkylenated fatty acid esters, optionally oxyalkylenated alkylpolyglycosides, alkylglucoside esters, derivatives of N-alkylglucamine and of N-acylmethylglucamine, aldobionamides and amine oxides.

Unless otherwise mentioned, the term "fatty" compound (for example a fatty acid) denotes a compound comprising, in its main chain, at least one saturated or unsaturated hydrocarbon-based chain, such as alkyl or alkenyl containing at least 8 carbon atoms, preferably from 8 to 30 carbon atoms, and even better still from 10 to 22 carbon atoms.

The mono- or polyglycosides that may be used in the invention are well known and may be represented more particularly by the general formula (XVI) below:

$$R_1O\text{-}(R_2O)_t\,(G)_v \qquad \text{(XVI)}$$

in which:

R_1 represents a linear or branched alkyl and/or alkenyl group, comprising from about 8 to 24 carbon atoms, or an alkylphenyl group whose linear or branched alkyl group comprises from 8 to 24 carbon atoms,

R_2 represents an alkylene group comprising from about 2 to 4 carbon atoms,

G represents a sugar unit comprising from 5 to 6 carbon atoms,

t denotes a value ranging from 0 to 10 and preferably 0 to 4, preferably 0 to 4, and

v denotes an integer ranging from 1 to 15.

Mono- or polyglycosides that are preferred in the present invention are (C_8-C_{18})alkyl mono- or polyglycosides and are compounds of formula (XVI) in which:

R_1 more particularly denotes a saturated or unsaturated, linear or branched alkyl group comprising from 8 to 18 carbon atoms,

t denotes a value ranging from 0 to 3 and even more particularly is equal to 0,

G may denote glucose, fructose or galactose, preferably glucose.

The degree of polymerization, i.e. the value of v in formula (XVI), may range from 1 to 15 and preferably from 1 to 4. The average degree of polymerization is more particularly between 1 and 2 and even more preferentially from 1.1 to 1.5.

The glycoside bonds between the sugar units are of 1-6 or 1-4 type and preferably of 1-4 type.

Examples of compounds of formula (XVI) are especially caprylylglucoside, decylglucoside or caprylglucoside, laurylglucoside, cetearylglucoside and cocoglucoside, and mixtures thereof. These preferred compounds of formula (XVI) are especially represented by the products sold by the company Cognis under the names Plantaren® (600 CS/U, 1200 and 2000) or Plantacare® (818, 1200 and 2000). It is also possible to use the products sold by the company SEPPIC under the names Triton CG 110 or Oramix CG 110 and Triton CG 312 or Oramix® NS 10, the products sold by the company BASF under the name Lutensol GD 70 or those sold by the company Chem Y under the name AG10 LK.

It is also possible to use, for example, (C_8-C_{16})alkyl-1,4-polyglucoside as an aqueous 53% solution, sold by the company Cognis under the reference Plantacare® 818 UP.

Among the cited nonionic surfactants, optionally oxyalkylenated alkylpolyglycosides are preferably used.

When they are present, the amount of the nonionic surfactant or surfactants varies preferably from 0.01% to 20% by weight, more preferably from 0.2% to 10% by weight, relative to the total weight of the composition.

The amphoteric or zwitterionic surfactant(s), which are preferably nonsilicone, which can be used in the present invention may especially be derivatives of optionally quaternized aliphatic secondary or tertiary amines, in which derivatives the aliphatic group is a linear or branched chain comprising from 8 to 22 carbon atoms, said amine derivatives containing at least one anionic group, for instance a carboxylate, sulfonate, sulfate, phosphate or phosphonate group. Mention may be made in particular of (C_8-C_{20})alkylbetaines, sulfobetaines, (C_8-C_{20})alkylamido(C_3-C_8)alkylbetaines and (C_8-C_{20})alkylamido(C_6-C_8)alkylsulfobetaines.

Among the optionally quaternized secondary or tertiary aliphatic amine derivatives that can be used, as defined above, mention may also be made of the compounds of respective structures (A1) and (A2) below:

$$R_aCONHCH_2CH_2N^+(R_b)(R_c)(CH_2COO^-) \qquad (A1)$$

in which:

R_a represents a C_{10}-C_{30} alkyl or alkenyl group derived from an acid R_aCOOH preferably present in hydrolysed coconut oil, or a heptyl, nonyl or undecyl group;

R_b represents a β-hydroxyethyl group, and

R_c represents a carboxymethyl group;

and

$$R_a'CONHCH_2CH_2N(B)(B') \qquad (A2)$$

in which:

B represents the group $-CH_2CH_2OX'$,

B' represents the group $-(CH_2)_zY'$, with z = 1 or 2,

X' represents the group $-CH_2COOH$, CH_2COOZ',

$-CH_2CH_2COOH$, $-CH_2CH_2COOZ'$, or a hydrogen atom,

Y' represents the group -COOH, -COOZ', the group $-CH_2CHOHSO_3H$ or the group $-CH_2CHOHSO_3Z'$,

Z' represents an ion resulting from an alkali metal or alkaline earth metal, such as sodium, an ammonium ion or an ion resulting from an organic amine,

$R_{a'}$ represents a C_{10}-C_{30} alkyl or alkenyl group of an acid $R_{a'}COOH$ preferably present in coconut oil or in hydrolysed linseed oil, an alkyl group, especially of C_{17} and its iso form, or an unsaturated C_{17} group.

These compounds are classified in the CTFA dictionary, 5th edition, 1993, under the names disodium cocoamphodiacetate, disodium lauroamphodiacetate, disodium caprylamphodiacetate, disodium capryloamphodiacetate, disodium cocoamphodipropionate, disodium lauroamphodipropionate, disodium caprylamphodipropionate, disodium capryloamphodipropionate, lauroamphodipropionic acid and cocoamphodipropionic acid.

By way of example, mention may be made of the cocoamphodiacetate sold by the company Rhodia under the trade name Miranol® C2M Concentrate.

Among the amphoteric or zwitterionic surfactants mentioned above, use is preferably made of (C_8-C_{20})alkylbetaines such as cocoylbetaine, and (C_8-C_{20})alkylamido(C_3-C_8)alkylbetaines such as cocamidopropylbetaine, and mixtures thereof. More preferentially, the amphoteric or zwitterionic surfactant(s) are chosen from cocamidopropylbetaine and cocoylbetaine.

When they are present, the amount of the amphoteric or zwitterionic surfactant(s) preferably ranges from 0.01% to 20% by weight and better still from 0.2% to 10% by weight, relative to the total weight of the composition.

The composition according to the invention may also comprise one or more additives chosen from alkoxysilanes other than those of formula (I), non-siliceous fatty substances, silicones, solid particles, reducing agents and oxidizing agents.

Other alkoxysilanes, other than those of formula (I), may be used in the composition and are preferably compounds of formula $(G)_{4-x}Si(OR)_x$, with x denoting an integer ranging from 1 to 3, G denoting identical or different monovalent groups and R denoting a monovalent hydrocarbon-based group comprising one or more carbon atoms and optionally one or more heteroatoms.

Preferably, the alkoxysilane(s), other than the alkoxysilanes of the invention, contain two or three alkoxy functions.

Preferably, the alkoxy function(s) are chosen from methoxy and ethoxy functions.

According to one particular embodiment, the additional alkoxysilane(s) comprise one or more solubilizing functional groups.

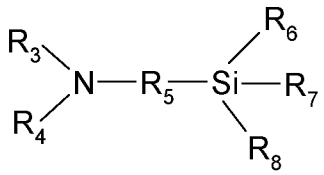
For the purposes of the present invention, the term "solubilizing functional group" means any chemical functional group that facilitates the dissolution of the alkoxysilane in the medium of the composition, i.e. in the solvent or the solvent mixture of the composition, in particular in water or in aqueous-alcoholic mixtures.

As solubilizing functional groups that may be used according to the present invention, mention may be made of primary, secondary and tertiary amine, aromatic amine, alcohol, carboxylic acid, sulfonic acid, anhydride, carbamate, urea, guanidine, aldehyde, ester, amide, epoxy, pyrrole, gluconamide, pyridyl and polyether groups.

This or these alkoxysilane(s) containing one or more solubilizing functional groups may contain one or more silicon atoms.

The alkoxysilane(s) containing one or more solubilizing functional groups generally contain two or three alkoxy functions. Preferably, the alkoxy functions are methoxy or ethoxy functions.

According to one particular embodiment, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from the compounds of formula (XVII) below:



(XVII)

in which:

R_6 represents a halogen or a group OR' or R'_6,

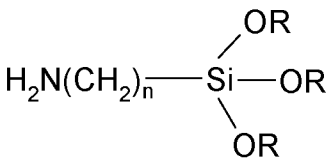
R_7 represents a halogen or a group OR'' or R'_7,

R_8 represents a halogen or a group OR''' or R'_8,

R_3, R_4, R_5, R', R'', R''', R'_6, R'_7 and R'_8 represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group, optionally bearing additional chemical groups, R_3, R_4, R', R'' and R''' also possibly denoting hydrogen, at least two of the groups R_6, R_7 and R_8 being different from the groups R'_6, R'_7 and R'_8, at least two of the groups R', R'' and R''' being other than hydrogen.

Preferably, the groups R_3, R_4, R', R'_6, R'_7, R'_8, R'' and R''' are chosen from C_1-C_{12} alkyl, C_6-C_{14} aryl, (C_1-C_8)alkyl(C_6-C_{14})aryl and (C_6-C_{14})aryl(C_1-C_8)alkyl radicals.

According to one preferred implementation variant of this embodiment, the alkoxysilane(s) comprise a substituent comprising a primary amine function, and are chosen from the compounds of formula (XVIII) below:



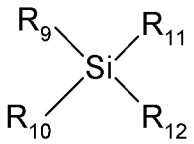
(XVIII)

in which the groups R, which may be identical or different, are chosen from C_1-C_6 alkyl groups, and n is an integer from 1 to 6 and preferably from 2 to 4.

Alkoxysilane that is particularly preferred according to this embodiment is γ-aminopropyl triethoxysilane. Such a product is sold,

for example, under the name Z-6011 Silane by the company Dow Corning.

According to another particular embodiment, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from the compounds of formula (XIX) below:



(XIX)

in which:

R_{11} represents a halogen or a group OR'_{11} and R_{12} represents a halogen or a group OR'_{12}, at least one of the groups R_{11} and R_{12} being other than a halogen,

R'_{11} and R'_{12} represent, independently of each other, hydrogen or a saturated or unsaturated, linear or branched C_1-C_{14}, hydrocarbon-based group, at least one of the groups R'_{11} and R'_{12} being other than hydrogen,

R_9 is a non-hydrolysable functional group with a cosmetic effect, and

R_{10} is a non-hydrolysable functional group bearing a function chosen from the following functions: amine, carboxylic acid and salts thereof, sulfonic acid and salts thereof, polyalcohols such as glycol, polyether such as polyalkene ether, and phosphoric acid and salts thereof.

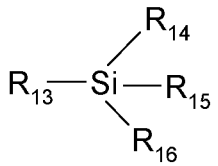
The term "functional group with a cosmetic effect", means a group chosen from groups derived from a reducing agent, from an oxidizing agent, from a colouring agent, from a polymer, from a surfactant, from an antibacterial agent or from a UV-screening agent.

Examples of groups derived from a colouring agent are, inter alia, nitroaromatic, anthraquinone, naphthoquinone, benzoquinone, azo, xanthene, triarylmethane, azine, indoaniline, indophenol or

indoamine groups. Examples of groups with a reducing effect are, inter alia, thiol or sulfinic acid groups or sulfinic acid salts.

An example of an alkoxy silane of formula (XVIII) that may be mentioned is aminopropyl-N-(4,2-dinitrophenyl)aminopropyldiethoxysilane. Such compounds are described, for example, in patent application EP 1 216 023.

The alkoxysilane(s), other than the alkoxysilanes of the invention, may also be chosen from the compounds of formula (XX) below:



(XX)

in which:

R_{14} represents a halogen or a group OR'_{14} or R_0,

R_{15} represents a halogen or a group OR'_{15} or R'_0,

R_{16} represents a halogen or a group OR'_{16} or R''_0,

at least two of the groups R_{14}, R_{15} and R_{16} being different from the groups R_0, R'_0 and R''_0,

R_{13} is a group chosen from groups bearing at least one function chosen from the following functions: carboxylic acid and salts thereof, sulfonic acid and salts thereof, polyalkyl ethers.

R_0, R'_0, R''_0, R'_{14}, R'_{15} and R'_{16} represent, independently of each other, a saturated or unsaturated, linear or branched C_1-C_{14} hydrocarbon-based group, optionally bearing additional chemical functions chosen from the following functions: carboxylic acid and salts thereof, sulfonic acid and salts thereof, polyalkyl ethers, R'_{14}, R'_{15} and R'_{16} also possibly denoting hydrogen, at least two of the groups R'_{14}, R'_{15} and R'_{16} being other than hydrogen.

Preferably, the groups R'_{14}, R'_{15} and R'_{16}, R_0, R'_0 and R''_0 represent a C_1-C_{12} alkyl, C_6-C_{14} aryl, (C_1-C_8)alkyl(C_6-C_{14})aryl or (C_6-C_{14})aryl(C_1-C_8)alkyl group.

According to another embodiment, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from the compounds of formula (XXI) below:

$$(R_{21}O)_x(R_{22})_ySi(B)_p[NR_{23}(B')_{p'}]_q[NR'_{23}(B'')_{p''}]_{q'}Si(R'_{22})_{y'}(OR'_{21})_{x'} \quad (XXI)$$

in which:

R_{21}, R_{22}, R'_{21} and R'_{22} each independently represent a saturated or unsaturated, linear or branched hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more groups chosen from ether, ester, amine, amide, carboxyl, hydroxyl and carbonyl groups,

x is an integer ranging from 1 to 3, y = 3-x, x' is an integer ranging from 1 to 3, y' = 3-x', p = 0 or 1, p' = 0 or 1, p'' = 0 or 1, q = 0 or 1, q' = 0 or 1, it being understood that at least q or q' is other than zero,

B, B' and B'' each independently represent a linear or branched divalent C_1-C_{20} alkylene radical,

R_{23} and R'_{23} each independently represent a hydrogen atom or a saturated or unsaturated, linear or branched hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more ether, C_1-C_{20} alcohol ester, amine, carboxyl, C_6-C_{30} aryl, hydroxyl or carbonyl groups, or a heterocyclic or non-heterocyclic aromatic ring, optionally substituted with one or more C_3-C_{20} alcohol ester, amine, amide, carboxyl, hydroxyl, carbonyl or acyl groups.

As explained previously, R_{21}, R_{22}, R'_{21} and R'_{22} each independently represent a hydrocarbon-based chain. The term "hydrocarbon-based chain" preferably means a chain comprising from 1 to 10 carbon atoms.

Similarly, R_{23} and R'_{23} may represent a hydrocarbon-based chain. In this case, a chain comprising from 1 to 10 carbon atoms is preferably intended.

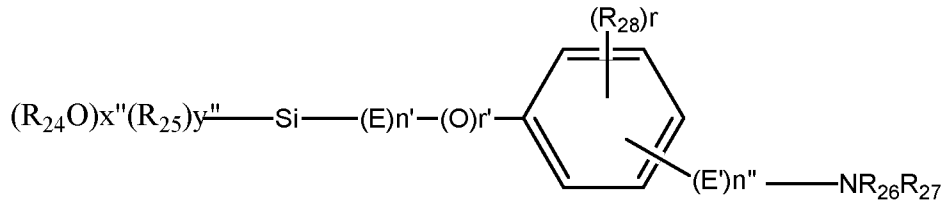
Preferably, the aromatic ring comprises from 6 to 30 carbon atoms. Even more preferentially, it denotes an optionally substituted phenyl radical.

Preferably, $R_{21} = R'_{21}$, $R_{22} = R'_{22}$, x = x', y = y', p = p', A = A', q = 1 and q' = 0.

The alkoxysilane(s) of formula (XXI) may also have the following characteristics, taken alone or in combination:

- R_{21}, R_{22}, R'_{21} and R'_{22}, which may be identical or different, represent a C_1-C_4 alkyl,
- p = p' = 1,
- B and B', which may be identical or different, represent a linear C_1-C_4 alkylene.
- R_{23} is hydrogen.

According to another embodiment of the invention, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from the compounds of formula (XXII) below:



(XXII)

in which:

R_{24} and R_{25} each independently represent a saturated or unsaturated, linear or branched hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more groups chosen from ether, ester, amine, amide, carboxyl, hydroxyl and carbonyl groups,

x'' = 2 or 3,

y'' = 3-x'',

n' = 0 or 1,

n'' = 0 or 1,

E and E' each independently represent a linear or branched divalent C_1-C_{20} alkylene group,

R_{26} and R_{27} each independently represent a hydrogen atom or a saturated or unsaturated, linear or branched hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more ether, C_1-C_{20} alcohol ester, amine, carboxyl, C_6-C_{30} aryl, hydroxyl or carbonyl groups, or a heterocyclic or non-heterocyclic aromatic ring, optionally substituted with one or more C_1-C_{20} alcohol ester, amine, amide, carboxyl, hydroxyl, carbonyl or acyl groups,

r is an integer ranging from 0 to 4,

r' = 0 or 1,

the group(s) R_{28} each independently represent a hydrogen atom or a saturated or unsaturated, linear or branched preferably C_1-C_{10} hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more ether, C_1-C_{20} alcohol ester, amine, carboxyl, C_6-C_{30} aryl, hydroxyl or carbonyl groups, or a heterocyclic or non-heterocyclic aromatic ring, optionally substituted with one or more C_1-C_{20} alcohol ester, amine, amide, carboxyl, hydroxyl, carbonyl or acyl groups.

As explained previously, R_{24} and R_{25} each independently represent a hydrocarbon-based chain. The term "hydrocarbon-based chain" preferably means a chain comprising from 1 to 10 carbon atoms.

Similarly, R_{26} and R_{27} may represent a hydrocarbon-based chain. In this case, a chain comprising from 1 to 10 carbon atoms is preferably intended.

Preferably, the aromatic ring comprises from 6 to 30 carbon atoms. Even more preferentially, it denotes an optionally substituted phenyl group.

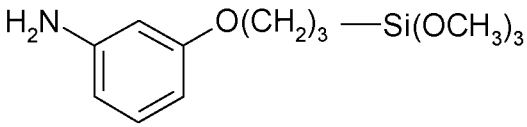
The alkoxysilane(s) of formula (XXII) may have the following characteristics, taken alone or in combination:

- R_{24} is a C_1-C_4 alkyl,
- x'' = 3, n'= n'' = 1; r = r' = 0,

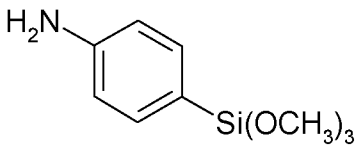
R_{26} and R_{27} independently represent hydrogen or a group chosen from C_1-C_4 alkyl, C_1-C_4 hydroxyalkyl and C_1-C_4 aminoalkyl groups.

In particular, the alkoxysilane(s) of formula (XXII) may be chosen from:

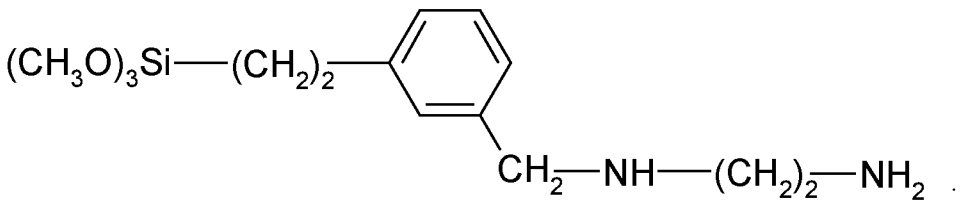
- 3-(m-aminophenoxy)propyltrimethoxysilane, of formula:



- p-aminophenyltrimethoxysilane, of formula:



- N-(2-aminoethylaminomethyl)phenethyltrimethoxysilane, of formula:



The alkoxysilane(s), other than those of formula (I), may also be chosen from the compounds of formula (XXIII) below:

$$(R_{29}O)_{x1}(R_{30})_{y1}Si(A_1)_sCH{=}O \qquad \text{(XXIII)}$$

in which:

R_{29} and R_{30} each independently represent a saturated or unsaturated, linear or branched hydrocarbon-based chain, optionally containing one or more heteroatoms, optionally interrupted or substituted with one or more groups chosen from ether, ester, amine, amide, carboxyl, hydroxyl and carbonyl groups,

$x_1 = 2$ or 3, $y_1 = 3-x_1$,

A_1 represents a linear or branched C_1-C_{20} divalent alkylene group, optionally interrupted or substituted with one or more C_1-C_{30} alcohol ester, amine, carboxyl, alkoxysilane, C_6-C_{30} aryl, hydroxyl or carbonyl groups,

$s = 0$ or 1,

As explained previously, R_{29} and R_{30} each independently represent a hydrocarbon-based chain. The term "hydrocarbon-based chain" preferably means a chain comprising from 1 to 10 carbon atoms.

The alkoxysilane(s) of formula (XXIII) may also have the following characteristics, taken alone or in combination:

R_{29} and R_{30} are chosen from C_1-C_4 alkyls,

s=1,

A1 is a linear C_1-C_4 alkylene,

In particular, the alkoxysilane(s) of formula (XXIII) may be chosen from:

- triethoxysilylbutyraldehyde, of formula:

$$(CH_3CH_2O)_3Si(CH_2)_3CH=O$$

- triethoxysilylundecanal, of formula:

$$(CH_3CH_2O)_3Si(CH_2)_{10}CH=O \text{ and}$$

- triethoxysilylundecanal ethylene glycol acetal, of formula:

$(CH_3CH_2O)_3Si(CH_2)_{10}CH(OCH_2)_2$.

The preferred compound of formula (XXIII) is triethoxysilylbutyraldehyde. Such a product is sold, for example, under the name SIT 8185.3 by the company Gelest.

According to one particularly preferred embodiment of the invention, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from the di- and/or trialkoxysilanes bearing one or more substituents comprising one or more amine functions.

According to an even more preferred embodiment, the alkoxysilane(s), other than the alkoxysilanes of the invention, are chosen from trialkoxysilanes bearing a substituent comprising one or more amine functions, more particularly from the compounds of formula (XVIII).

An additional alkoxysilane that is most particularly preferred is γ-aminopropyltriethoxysilane cited previously.

The alkoxysilane(s), other than the alkoxysilanes of the invention, may be present in the compositions according to the invention in proportions preferably ranging from 0.01% to 25% by weight, more preferentially from 0.05% to 20% by weight and more particularly from 0.1% to 10% by weight relative to the total weight of the composition.

The composition according to the invention may also comprise one or more non-siliceous fatty substances.

The term “fatty substance” means an organic compound that is insoluble in water at standard temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013×10^5 Pa), i.e. with a solubility of less than 5%, preferably of less than 1% and even more preferably of less than 0.1%. The non-siliceous fatty substances generally have in their structure a hydrocarbon-based chain comprising at least 6 carbon atoms and not comprising any siloxane groups. In addition, the fatty substances are generally soluble in organic solvents under the same

temperature and pressure conditions, for instance chloroform, ethanol, benzene, liquid petroleum jelly or decamethylcyclopentasiloxane.

The term "non-siliceous fatty substance" means a fatty substance whose structure does not comprise any silicon atoms.

The fatty substances that may be used in the composition according to the invention are generally not oxyalkylenated and preferably do not contain any carboxylic acid COOH functions.

Preferably, the non-siliceous fatty substances are chosen from hydrocarbons, fatty alcohols, fatty esters, silicones and fatty ethers, and mixtures thereof.

Even more preferentially, they are chosen from hydrocarbons, fatty alcohols, fatty esters and ceramides, and mixtures thereof.

They may be liquid or non-liquid, at room temperature and at atmospheric pressure.

The liquid fatty substances of the invention preferably have a viscosity of less than or equal to 2 Pa.s, better still less than or equal to 1 Pa.s and even better still less than or equal to 0.1 Pa.s at a temperature of 25°C and at a shear rate of 1 s^{-1}.

The term “liquid hydrocarbon” means a hydrocarbon composed solely of carbon and hydrogen atoms, which is liquid at standard temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013 × 10^5 Pa), which is especially of mineral or plant origin, preferably of plant origin.

More particularly, the liquid hydrocarbons are chosen from:

- linear or branched, optionally cyclic, C_6-C_{16} alkanes. Examples that may be mentioned include hexane, undecane, dodecane, tridecane, and isoparaffins, for instance isohexadecane, isododecane and isodecane,

- linear or branched hydrocarbons of mineral, animal or synthetic origin with more than 16 carbon atoms, such as volatile or non-volatile liquid paraffins, petroleum jelly, liquid petroleum jelly, polydecenes, hydrogenated polyisobutene such as the product sold under the brand name Parleam® by the company NOF Corporation, and squalane.

In one preferred variant, the liquid hydrocarbon(s) are chosen from volatile or non-volatile liquid paraffins, and liquid petroleum jelly.

The term "liquid fatty alcohol" means a non-glycerolated and non-oxyalkylenated fatty alcohol, which is liquid at standard temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013 $\times 10^5$ Pa).

Preferably, the liquid fatty alcohols of the invention comprise from 8 to 50 carbon atoms.

The liquid fatty alcohols of the invention may be saturated or unsaturated.

The saturated liquid fatty alcohols are preferably branched. They may optionally comprise in their structure at least one aromatic or non-aromatic ring. They are preferably acyclic.

More particularly, the liquid saturated fatty alcohols of the invention are chosen from octyldodecanol, isostearyl alcohol and 2-hexyldecanol.

Octyldodecanol is most particularly preferred.

The unsaturated liquid fatty alcohols contain in their structure at least one double or triple bond, and preferably one or more double bonds. When several double bonds are present, there are preferably 2 or 3 of them, and they may be conjugated or unconjugated.

These unsaturated fatty alcohols may be linear or branched.

They may optionally comprise in their structure at least one aromatic or non-aromatic ring. They are preferably acyclic.

More particularly, the unsaturated liquid fatty alcohols of the invention are chosen from oleyl alcohol, linoleyl alcohol, linolenyl alcohol and undecylenyl alcohol.

Oleyl alcohol is most particularly preferred.

The term "liquid fatty esters" means an ester derived from a fatty acid and/or from a fatty alcohol that is liquid at standard temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013 $\times 10^5$ Pa).

The esters are preferably liquid esters of saturated or unsaturated, linear or branched C_1-C_{26} aliphatic monoacids or polyacids and of saturated or unsaturated, linear or branched C_1-C_{26} aliphatic monoalcohols or polyalcohols, the total number of carbon atoms of the esters being greater than or equal to 10.

Preferably, for the esters of monoalcohols, at least one from among the alcohol and the acid from which the esters of the invention are derived is branched.

Among the monoesters of monoacids and of monoalcohols, mention may be made of ethyl palmitate, isopropyl palmitate, alkyl myristates such as isopropyl myristate or ethyl myristate, isocetyl stearate, 2-ethylhexyl isononanoate, isodecyl neopentanoate, isostearyl neopentanoate and isononyl isononanoate.

Esters of C_4-C_{22} dicarboxylic or tricarboxylic acids and of C_1-C_{22} alcohols and esters of monocarboxylic, dicarboxylic or tricarboxylic acids and of C_4-C_{26} dihydroxy, trihydroxy, tetrahydroxy or pentahydroxy alcohols may also be used.

Mention may be made especially of: diethyl sebacate; diisopropyl sebacate; bis(2-ethylhexyl) sebacate; diisopropyl adipate; di-n-propyl adipate; dioctyl adipate; bis(2-ethylhexyl) adipate; diisostearyl adipate; bis(2-ethylhexyl) maleate; triisopropyl citrate; triisocetyl citrate; triisostearyl citrate; glyceryl trilactate; glyceryl trioctanoate; trioctyldodecyl citrate; trioleyl citrate; neopentyl glycol diheptanoate; diethylene glycol diisononanoate.

The composition may also comprise, as liquid fatty ester, sugar esters and diesters of C_6-C_{30} and preferably C_{12}-C_{22} fatty acids. It is recalled that the term “sugar” means oxygen-bearing hydrocarbon-based compounds containing several alcohol functions, with or without aldehyde or ketone functions, and which comprise at least 4 carbon atoms. These sugars may be monosaccharides, oligosaccharides or polysaccharides.

Examples of suitable sugars that may be mentioned include saccharose, glucose, galactose, ribose, fucose, maltose, fructose, mannose, arabinose, xylose and lactose, and derivatives thereof,

especially alkyl derivatives, such as methyl derivatives, for instance methylglucose.

The sugar esters of fatty acids may be chosen especially from the group comprising the esters or mixtures of esters of sugars described previously and of linear or branched, saturated or unsaturated C_6-C_{30} and preferably C_{12}-C_{22} fatty acids. If they are unsaturated, these compounds may comprise one to three conjugated or unconjugated carbon-carbon double bonds.

The esters according to this variant may also be chosen from mono-, di-, tri- and tetraesters, and polyesters, and mixtures thereof.

These esters may be chosen, for example, from oleates, laurates, palmitates, myristates, behenates, cocoates, stearates, linoleates, linolenates, caprates and arachidonates, or mixtures thereof, such as, in particular, oleopalmitate, oleostearate or palmitostearate mixed esters.

More particularly, use is made of monoesters and diesters and in particular of sucrose, glucose or methylglucose mono- or dioleates, stearates, behenates, oleopalmitates, linoleates, linolenates or oleostearates.

An example that may be mentioned is the product sold under the name Glucate® DO by the company Amerchol, which is a methylglucose dioleate.

Finally, use may also be made of natural or synthetic glycerol esters of mono-, di- or triacids.

Among these, mention may be made of plant oils.

As oils of plant origin or synthetic triglycerides that may be used in the composition of the invention as liquid fatty esters, examples that may be mentioned include:

- triglyceride oils of plant or synthetic origin, such as liquid fatty acid triglycerides containing from 6 to 30 carbon atoms, for instance heptanoic or octanoic acid triglycerides, or alternatively, for example, sunflower oil, corn oil, soybean oil, marrow oil, grapeseed oil, sesame seed oil, hazelnut oil, apricot oil, macadamia oil, arara oil, castor oil, avocado oil, olive oil, rapeseed oil, coconut oil, wheatgerm

oil, sweet almond oil, apricot oil, safflower oil, candlenut oil, camellina oil, tamanu oil, babassu oil and pracaxi 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.

Liquid fatty esters derived from monoalcohols will preferably be used as esters according to the invention.

Isopropyl myristate and isopropyl palmitate are particularly preferred.

The liquid fatty ethers are chosen from liquid dialkyl ethers such as dicaprylyl ether.

The fatty substances of the invention may be liquid or non-liquid at room temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013×10^5 Pa).

The term "non-liquid" preferably means a solid compound or a compound that has a viscosity of greater than 2 Pa.s at a temperature of 25°C and at a shear rate of 1 s^{-1}.

More particularly, the non-liquid fatty substances are chosen from fatty alcohols, fatty acid and/or fatty alcohol esters, non-siliceous waxes and fatty ethers, which are non-liquid and preferably solid.

The non-liquid fatty alcohols that are suitable for use in the invention are more particularly chosen from saturated or unsaturated, linear or branched alcohols comprising from 8 to 30 carbon atoms. Mention may be made, for example, of cetyl alcohol, stearyl alcohol and a mixture thereof (cetylstearyl alcohol).

As regards the non-liquid esters of fatty acids and/or of fatty alcohols, mention may be made especially of solid esters derived from C_9-C_{26} fatty acids and from C_9-C_{26} fatty alcohols.

Among these esters, mention may be made of octyldodecyl behenate, isocetyl behenate, cetyl lactate, stearyl octanoate, octyl octanoate, cetyl octanoate, decyl oleate, myristyl stearate, octyl palmitate, octyl pelargonate, octyl stearate, alkyl myristates such as

cetyl myristate, myristyl myristate and stearyl myristate, and hexyl stearate.

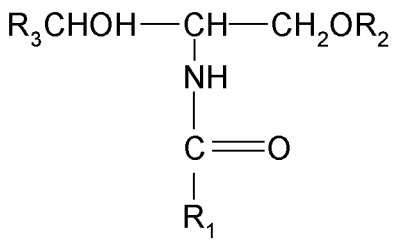
Still within the context of this variant, esters of C_4-C_{22} dicarboxylic or tricarboxylic acids and of C_1-C_{22} alcohols and esters of monocarboxylic, dicarboxylic or tricarboxylic acids and of C_2-C_{26} dihydroxy, trihydroxy, tetrahydroxy or pentahydroxy alcohols may also be used.

Mention may be made especially of diethyl sebacate, diisopropyl sebacate, diisopropyl adipate, di-n-propyl adipate, dioctyl adipate and dioctyl maleate.

Among all the esters mentioned above, it is preferred to use myristyl, cetyl or stearyl palmitates, and alkyl myristates such as cetyl myristate, stearyl myristate and myristyl myristate.

The non-siliceous wax(es) are chosen especially from carnauba wax, candelilla wax, esparto wax, paraffin wax, ozokerite, plant waxes, such as olive tree wax, rice wax, hydrogenated jojoba wax or absolute flower waxes, such as the blackcurrant blossom essential wax sold by Bertin (France), or animal waxes, such as beeswaxes or modified beeswaxes (cerabellina), and ceramides.

The ceramides or ceramide analogues, such as glycoceramides, that may be used in the compositions according to the invention are known *per se* and are natural or synthetic molecules that may correspond to the general formula (XXIV) below:



(XXIV)

in which:

- R_1 denotes a linear or branched, saturated or unsaturated alkyl group, derived from C_{14}-C_{30} fatty acids, it being possible for this

group to be substituted with a hydroxyl group in the alpha position, or a hydroxyl group in the omega position esterified with a saturated or unsaturated C_{16}-C_{30} fatty acid,

- R_2 denotes a hydrogen atom or a $(glycosyl)_n$, $(galactosyl)_m$ or sulfogalactosyl group, in which n is an integer ranging from 1 to 4 and m is an integer ranging from 1 to 8,

- R_3 denotes a C_{15}-C_{26} hydrocarbon-based group which is saturated or unsaturated in the alpha position, it being possible for this group to be substituted with one or more C_1-C_{14} alkyl groups,

it being understood that, in the case of natural ceramides or glycoceramides, R_3 can also denote a C_{15}-C_{26} α-hydroxyalkyl group, the hydroxyl group being optionally esterified with a C_{16}-C_{30} α-hydroxy acid.

The ceramides which are preferred in the context of the present invention are those described by Downing in Arch. Dermatol., Vol. 123, 1381-1384, 1987, or those described in French patent FR 2 673 179.

The ceramide(s) that are more particularly preferred according to the invention are the compounds for which R_1 denotes a saturated or unsaturated alkyl derived from C_{16}-C_{22} fatty acids; R_2 denotes a hydrogen atom; and R_3 denotes a saturated linear C_{15} group.

Such compounds are, for example, N-linoleyldihydrosphingosine, N-oleyldihydrosphingosine, N-palmityldihydrosphingosine, N-stearyldihydrosphingosine or N-behenyldihydrosphingosine, or mixtures of these compounds.

Even more preferentially, use is made of ceramides for which R_1 denotes a saturated or unsaturated alkyl group derived from fatty acids, R_2 denotes a galactosyl or sulfogalactosyl group and R_3 denotes a $-CH=CH-(CH_2)_{12}-CH_3$ group.

Other waxes or waxy starting materials that may be used according to the invention are especially marine waxes such as those sold by the company Sophim under the reference M82, and waxes of polyethylene or of polyolefins in general.

The non-liquid fatty ethers are chosen from dialkyl ethers and especially dicetyl ether and distearyl ether, alone or as a mixture.

Preferably, the non-siliceous fatty substances according to the invention are chosen from hydrocarbons, fatty alcohols, fatty esters and ceramides.

Even more preferably, the non-siliceous fatty substances are chosen from liquid petroleum jelly, stearyl alcohol, cetyl alcohol and a mixture thereof such as cetylstearyl alcohol, octyldodecanol, oleyl alcohol, isopropyl palmitate, isopropyl myristate, N-oleyldihydrosphingosine, N-behenyldihydrosphingosine and N-linoleyldihydrosphingosine.

The non-siliceous fatty substance(s) may be present in an amount ranging from 0.01% to 40% by weight and especially from 0.1% to 5% by weight relative to the total weight of the composition.

The composition according to the invention may also comprise one or more silicones.

The silicones that may be used in the composition according to the invention are in particular polyorganosiloxanes that may be in the form of aqueous solutions, i.e. dissolved, or optionally in the form of dispersions or microdispersions, or of aqueous emulsions. The polyorganosiloxanes may also be in the form of oils, waxes, resins or gums.

Organopolysiloxanes are defined in greater detail in Walter Noll's *Chemistry and Technology of Silicones* (1968), Academic Press.

The silicones may be volatile or non-volatile.

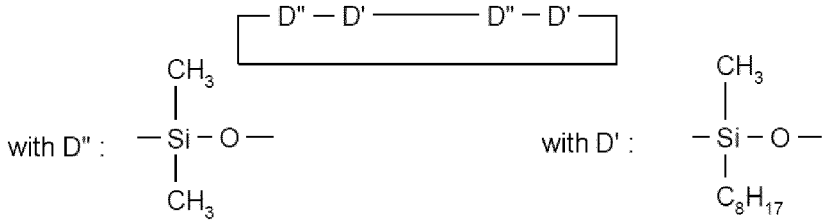
When they are volatile, the silicones are more particularly chosen from those with a boiling point of between 60°C and 260°C, and even more particularly from:

(i) cyclic silicones comprising from 3 to 7 and preferably 4 to 5 silicon atoms.

These are, for example, octamethylcyclotetrasiloxane sold especially under the name Volatile Silicone 7207 by the company Union Carbide or Silbione 70045 V 2 by the company Rhodia, decamethylcyclopentasiloxane sold under the name Volatile Silicone

7158 by the company Union Carbide, and Silbione 70045 V 5 by the company Rhodia, and mixtures thereof.

Mention may also be made of cyclocopolymers of the dimethylsiloxane/methylalkylsiloxane type, such as Volatile Silicone FZ 3109 sold by the company Union Carbide, of chemical structure:



Mention may also be made of mixtures of cyclic silicones with organosilicon compounds, such as the mixture of octamethyl-cyclotetrasiloxane and tetrakis(trimethylsilyl)-pentaerythritol (50/50) and the mixture of octamethylcyclo-tetrasiloxane and oxy-1,1'-bis(2,2,2',2',3,3'-hexatrimethyl-silyloxy)neopentane;

(ii) linear volatile silicones containing 2 to 9 silicon atoms and having a viscosity of less than or equal to 5×10^{-6} m^2/s at 25°C. An example is decamethyltetrasiloxane sold in particular under the name SH 200 by the company Toray Silicone. Silicones belonging to this category are also described in the article published in Cosmetics and Toiletries, Vol. 91, Jan. 76, pp. 27-32, Todd & Byers "Volatile Silicone Fluids for Cosmetics".

When the silicones are non-volatile, use is preferably made of polyalkylsiloxanes, polyarylsiloxanes, polyalkylarylsiloxanes, silicone gums and resins, and polyorganosiloxanes modified with organofunctional groups, and mixtures thereof.

These silicones are more particularly chosen from polyalkylsiloxanes, among which mention may be made mainly of polydimethylsiloxanes containing trimethylsilyl end groups (Dimethicone according to the CTFA name) having a viscosity of from

5×10^{-6} to 2.5 m^2/s at 25°C and preferably 1×10^{-5} to 1 m^2/s. The viscosity of the silicones is measured, for example, at 25°C according to standard ASTM 445 Appendix C.

Among these polyalkylsiloxanes, mention may be made, in a non-limiting manner, of the following commercial products:

- the Silbione oils of the 47 and 70 047 series or the Mirasil oils sold by the company Rhodia, for instance the oil 70 047 V 500 000,
- the oils of the Mirasil series sold by the company Rhodia,
- the oils of the 200 series from the company Dow Corning, such as, more particularly, DC200 with a viscosity of 60 000 cSt,
- the Viscasil oils from the company General Electric and certain oils of the SF series (SF 96, SF 18) from the company General Electric.

Mention may also be made of polydimethylsiloxanes containing dimethylsilanol end groups (Dimethiconol according to the CTFA name) such as the oils of the 48 series from the company Rhodia.

Mention may also be made of polydimethylsiloxanes containing aminoethyl, aminopropyl and α,ω-silanol groups.

In this category of polyalkylsiloxanes, mention may also be made of the products sold under the names Abil Wax 9800 and 9801 by the company Goldschmidt, which are poly(C_1-C_{20})alkylsiloxanes.

The polyalkylarylsiloxanes are particularly chosen from linear and/or branched polydimethylmethylphenylsiloxanes and polydimethyldiphenylsiloxanes with a viscosity of from 1×10^{-5} to $5\times10^{-2}m^2/s$ at 25°C.

Among these polyalkylarylsiloxanes, examples that may be mentioned include the products sold under the following names:

- Silbione oils of the 70 641 series from the company Rhodia,
- the oils of the Rhodorsil 70 633 and 763 series from the company Rhodia,
- the oil Dow Corning 556 Cosmetic Grade Fluid from the company Dow Corning,

- silicones of the PK series from the company Bayer, such as the product PK20,

- the silicones of the PN and PH series from the company Bayer, such as the products PN1000 and PH1000,

- certain oils of the SF series from the company General Electric, such as SF 1023, SF 1154, SF 1250 and SF 1265.

The silicone gums that may be present in the composition according to the invention are especially polydiorganosiloxanes having high number-average molecular masses of between 200 000 and 1 000 000, used alone or as a mixture in a solvent. This solvent can be chosen from volatile silicones, polydimethylsiloxane (PDMS) oils, polyphenylmethylsiloxane (PPMS) oils, isoparaffins, polyisobutylenes, methylene chloride, pentane, dodecane and tridecane, or mixtures thereof.

Mention may be made more particularly of the following products:

- polydimethylsiloxane gums,
- polydimethylsiloxane/methylvinylsiloxane gums,
- polydimethylsiloxane/diphenylsiloxane gums,
- polydimethylsiloxane/phenylmethylsiloxane gums,
- polydimethylsiloxane/diphenylsiloxane/methylvinylsiloxane gums.

Products that may be used more particularly are the following mixtures:

- mixtures formed from a polydimethylsiloxane hydroxylated at the end of the chain (known as dimethiconol according to the nomenclature of the CTFA dictionary) and from a cyclic polydimethylsiloxane (known as cyclomethicone according to the nomenclature of the CTFA dictionary), such as the product Q2 1401 sold by the company Dow Corning,

- mixtures formed from a polydimethylsiloxane gum with a cyclic silicone, such as the product SF 1214 Silicone Fluid from the company General Electric, this product being an SF 30 gum corresponding to a dimethicone, having a number-average molecular

weight of 500 000, dissolved in the oil SF 1202 Silicone Fluid corresponding to decamethylcyclopentasiloxane,

- mixtures of two PDMSs with different viscosities, and more particularly of a PDMS gum and a PDMS oil, such as the product SF 1236 from the company General Electric. The product SF 1236 is a mixture of a gum SE 30 defined above, with a viscosity of 20 m^2/s and of an oil SF 96 with a viscosity of 5×10^{-6} m^2/s. This product preferably comprises 15% of gum SE 30 and 85% of an oil SF 96.

The organopolysiloxane resins that may be present in the composition according to the invention are crosslinked siloxane systems containing the following units: $R_2SiO_{2/2}$, $R_3SiO_{1/2}$, $RSiO_{3/2}$ and $SiO_{4/2}$ in which R represents a hydrocarbon group containing 1 to 16 carbon atoms or a phenyl group. Among these products, the ones that are particularly preferred are those in which R denotes a C_1-C_4 alkyl group, more particularly methyl, or a phenyl group.

Among these resins, mention may be made of the product sold under the name Dow Corning 593 or those sold under the names Silicone Fluid SS 4230 and SS 4267 by the company General Electric, which are silicones of dimethyl/trimethylsiloxane structure.

Mention may also be made of the trimethyl siloxysilicate type resins sold in particular under the names X22-4914, X21-5034 and X21-5037 by the company Shin-Etsu.

The organomodified silicones that may be present in the composition according to the invention are silicones as defined above and comprising in their structure one or more organofunctional groups attached via a hydrocarbon-based group.

Among the organomodified silicones, mention may be made of polyorganosiloxanes comprising:

- polyethyleneoxy and/or polypropyleneoxy groups optionally comprising C_6-C_{24} alkyl groups, such as the products known as dimethicone copolyol sold by the company Dow Corning under the name DC 1248 or the oils Silwet L 722, L 7500, L 77 and L 711 by the company Union Carbide, and the (C_{12})alkylmethicone copolyol sold by the company Dow Corning under the name Q2 5200,

- thiol groups, such as the products sold under the names GP 72 A and GP 71 from the company Genesee,

- alkoxylated groups, such as the product sold under the name Silicone Copolymer F-755 by SWS Silicones and Abil Wax 2428, 2434 and 2440 by the company Goldschmidt,

- hydroxylated groups, such as the polyorganosiloxanes containing a hydroxyalkyl function, described in French patent application FR 2 589 476,

- acyloxyalkyl groups, for instance the polyorganosiloxanes described in patent US-A-4 957 732,

- anionic groups of the carboxylic acid type, for instance in the products described in patent EP 186 507 from the company Chisso Corporation, or of the alkylcarboxylic type, such as those present in the product X-22-3701E from the company Shin-Etsu; 2-hydroxyalkyl sulfonate; 2-hydroxyalkyl thiosulfate such as the products sold by the company Goldschmidt under the names Abil S201 and Abil S255,

- hydroxyacylamino groups, for instance the polyorganosiloxanes described in patent application EP 342 834. Mention may be made, for example, of the product Q2-8413 from the company Dow Corning.

Among the organomodified silicones, mention may also be made of amino silicones.

For the purposes of the present invention, the term “amino silicone” means any silicone comprising at least one primary, secondary or tertiary amine function or a quaternary ammonium group.

The amino silicones that may be used in the cosmetic composition according to the present invention are chosen from:

(a) compounds corresponding to formula (XXV) below:

$$(R_1)_a(T)_{3-a}Si[OSi(T)_2]_n[OSi(T)_b(R_1)_{2-b}]_mOSi(T)_{3-a}(R_1)_a \quad (XXV)$$

in which:

T is a hydrogen atom or a phenyl, hydroxyl (-OH) or C_1-C_8 alkyl group, and preferably methyl, or a C_1-C_8 alkoxy, preferably methoxy,

a denotes the number 0 or an integer from 1 to 3, and preferably 0,

b denotes 0 or 1, and in particular 1,

m and n are numbers such that the sum (n + m) can range especially from 1 to 2000 and in particular from 50 to 150, it being possible for n to denote a number from 0 to 1999 and in particular from 49 to 149, and for m to denote a number from 1 to 2000 and in particular from 1 to 10,

R^1 is a monovalent group of formula $-C_qH_{2q}L$ in which q is a number from 2 to 8 and L is an optionally quaternized amino group chosen from the following groups:

$-N(R^2)-CH_2-CH_2-N(R^2)_2$;

$-N(R^2)_2$,

$-N^+(R^2)_3\ Q^-$,

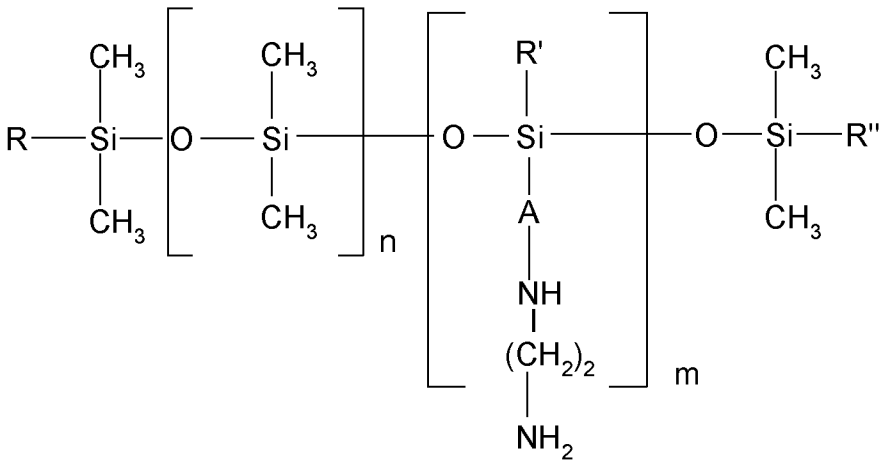
$-N^+(R^2)\ (H)_2\ Q^-$,

$-N^+(R^2)_2HQ^-$,

$-N(R^2)-CH_2-CH_2-N^+(R^2)(H)_2\ Q^-$,

in which R^2 may denote a hydrogen atom, a phenyl, a benzyl or a saturated monovalent hydrocarbon-based group, for example a C_1-C_{20} alkyl group, and Q^- represents a halide ion, for instance fluoride, chloride, bromide or iodide.

In particular, the amino silicones corresponding to the definition of formula (XXV) are chosen from the compounds corresponding to formula (XXVI) below:



(XXVI)

in which R, R' and R", which may be identical or different, denote a C_1-C_4 alkyl group, preferably CH_3; a C_1-C_4 alkoxy group, preferably methoxy; or OH; A represents a linear or branched, C_3-C_8 and preferably C_3-C_6 alkylene group; m and n are integers dependent on the molecular weight and whose sum is between 1 and 2000.

According to a first possibility, R, R' and R", which may be identical or different, represent a C_1-C_4 alkyl or hydroxyl group, A represents a C_3 alkylene group and m and n are such that the weight-average molecular mass of the compound is between 5000 and 500 000 approximately. Compounds of this type are referred to in the CTFA dictionary as "amodimethicones".

According to a second possibility, R, R' and R", which may be identical or different, each represent a C_1-C_4 alkoxy or hydroxyl group, at least one of the groups R or R" is an alkoxy group and A represents a C_3 alkylene group. The hydroxy/alkoxy mole ratio is preferably between 0.2/1 and 0.4/1 and advantageously equal to 0.3/1. Moreover, m and n are such that the weight-average molecular mass of the compound is between 2000 and 10^6. More particularly, n is between 0 and 999 and m is between 1 and 1000, the sum of n and m being between 1 and 1000.

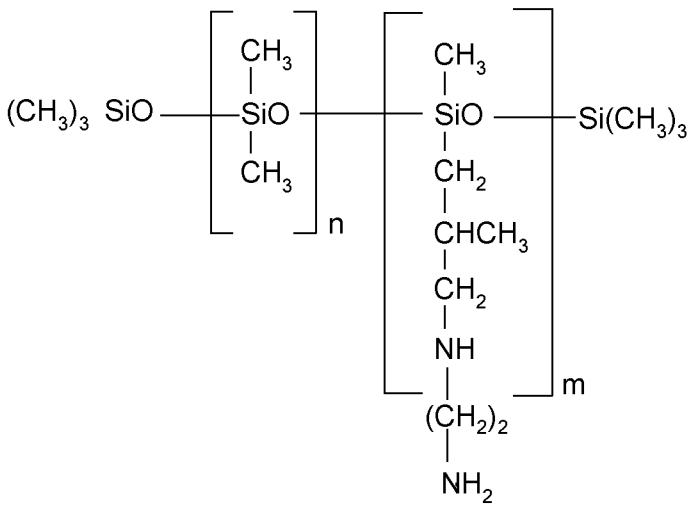
In this category of compounds, mention may be made, inter alia, of the product Belsil® ADM 652 sold by the company Wacker.

According to a third possibility, R and R", which are different, each represent a C_1-C_4 alkoxy or hydroxyl group, at least one of the groups R or R" being an alkoxy group, R' representing a methyl group and A representing a C_3 alkylene group. The hydroxy/alkoxy mole ratio is preferably between 1/0.8 and 1/1.1 and advantageously equal to 1/0.95. Moreover, m and n are such that the weight-average molecular mass of the compound is between 2000 and 200 000. More particularly, n is between 0 and 999 and m is between 1 and 1000, the sum of n and m being between 1 and 1000.

More particularly, mention may be made of the product Fluid WR® 1300 sold by the company Wacker.

Note that the molecular mass of these silicones is determined by gel permeation chromatography (ambient temperature, polystyrene standard; μ styragem columns; eluent THF; flow rate 1 mm/minute; 200 μl of a solution containing 0.5% by weight of silicone in THF are injected, and detection is performed by refractometry and UV-metry).

A product corresponding to the definition of formula (XXV) is in particular the polymer known in the CTFA dictionary as "trimethylsilyl amodimethicone", corresponding to formula (XXVII) below:

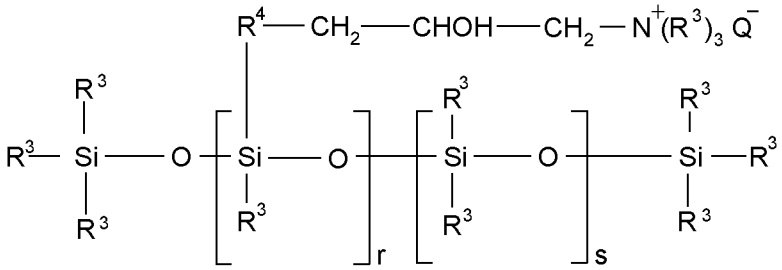


(XXVII)

in which n and m have the meanings given above in accordance with formula (XXV).

Such compounds are described, for example, in patent EP 95238. A compound of formula (XXVII) is sold, for example, under the name Q2-8220 by the company OSI.

(b) the compounds corresponding to formula (XXVIII) below:



(XXVIII)

in which:

R^3 represents a C_1-C_{18} monovalent hydrocarbon-based group, and in particular a C_1-C_{18} alkyl or C_2-C_{18} alkenyl group, for example methyl,

R^4 represents a divalent hydrocarbon-based group, especially a C_1-C_{18} alkylene group or a divalent C_1-C_{18}, and for example C_1-C_8, alkylenoxy group,

Q^- is a halide ion, in particular chloride;

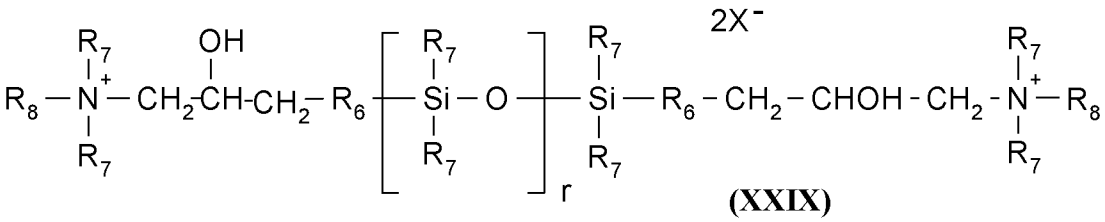
r represents a mean statistical value from 2 to 20 and in particular from 2 to 8,

s represents a mean statistical value from 20 to 200 and in particular from 20 to 50.

Such compounds are described more particularly in patent US 4 185 087.

A compound falling within this class is the product sold by the company Union Carbide under the name Ucar Silicone ALE 56.

(c) quaternary ammonium silicones especially of formula (XXIX):



(XXIX)

in which:

R_7, which may be identical or different, represent a monovalent hydrocarbon-based group containing from 1 to 18 carbon atoms, and in particular a C_1-C_{18} alkyl group, a C_2-C_{18} alkenyl group or a ring comprising 5 or 6 carbon atoms, for example methyl,

R_6 represents a divalent hydrocarbon-based group, especially a C_1-C_{18} alkylene group or a divalent C_1-C_{18}, and for example C_1-C_8, alkylenoxy group linked to the Si via an SiC bond,

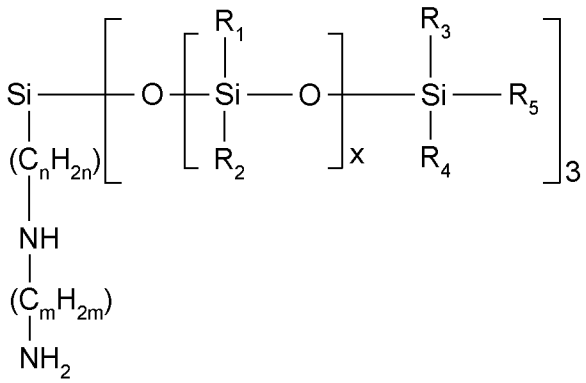
R_8, which may be identical or different, represent a hydrogen atom, a monovalent hydrocarbon-based group containing from 1 to 18 carbon atoms, and in particular a C_1-C_{18} alkyl group, a C_2-C_{18} alkenyl group or a group $-R_6-NHCOR_7$;

X^- is an anion such as a halide ion, especially chloride, or an organic acid salt (acetate, etc.);

r represents a mean statistical value from 2 to 200 and in particular from 5 to 100.

These silicones are described, for example, in patent application EP-A-0 530 974.

d) the amino silicones of formula (XXX) below:



(XXX)

in which:

- R_1, R_2, R_3 and R_4, which may be identical or different, denote a C_1-C_4 alkyl group or a phenyl group,
- R_5 denotes a C_1-C_4 alkyl group or a hydroxyl group,
- n is an integer ranging from 1 to 5,
- m is an integer ranging from 1 to 5, and
- x is chosen such that the amine number is between 0.01 and 1 meq/g.

When these compounds are used, one particularly advantageous embodiment involves their combined use with cationic and/or nonionic surfactants.

By way of example, use may be made of the product sold under the name Cationic Emulsion DC939 by the company Dow Corning, a cationic surfactant, namely trimethylcetylammonium chloride and a nonionic surfactant of formula $C_{13}H_{27}$-$(OC_2H_4)_{12}$-OH, known under the CTFA name Trideceth-12.

Another commercial product that may be used according to the invention is the product sold under the name Dow Corning Q2 7224 by the company Dow Corning, comprising, in combination, trimethylsilyl amodimethicone of formula (XXVI) described above, above nonionic surfactant of formula C_8H_{17}-C_6H_4-$(OCH_2CH_2)_{40}$-OH, known under the CTFA name Octoxynol-40, a second nonionic surfactant of formula $C_{12}H_{25}$-$(OCH_2$-$CH_2)_6$-OH, known under the CTFA name Isolaureth-6, and propylene glycol.

The silicones of the invention may also be silicone is grafted with anionic groups, such as the compounds VS 80 or VS 70 sold by the company 3M.

In a more preferred embodiment, the silicone is a chemically unmodified polydimethylsiloxane.

The silicone(s) may be present in contents ranging from 0.01% to 40% by weight and preferably from 0.1% to 5% by weight relative to the total weight of the composition.

The composition may also comprise one or more solid particles. Among these solid particles, antidandruff agents such as zinc pyridinethione, selenium disulfide and ellagic acid, fillers, and especially silica, titanium dioxide, pigments, dyes, abrasive powders such as pumice and apricot kernel powder may be present in the composition according to the invention.

The composition according to the present invention may also contain one or more reducing agents, especially such as sulfureous reducing agents. These agents are preferably chosen from organic compounds comprising one or more mercapto groups (-SH), sulfites and sulfite derivatives.

Among the sulfite derivatives that are essentially denoted are bisulfites and sulfite diesters of formula $ROSO_2R'$, with R and R' denoting C_1-C_{10} alkyl groups.

The organic compounds comprising a mercapto group are preferably chosen from the following compounds: thioglycolic acid, thiolactic acid, cysteine, homocysteine, glutathione, thioglycerol, thiomalic acid, 2-mercaptopropionic acid, 3-mercaptopropionic acid, thiodiglycol, 2-mercaptoethanol, dithiothreitol, thioxanthine, thiosalicylic acid, thiodiglycolic acid, lipoic acid, N-acetylcysteine, and thioglycolic or thiolactic acid esters, and mixtures of these compounds.

The sulfureous reducing agent(s) may be used especially in the form of salts, in particular alkali metal salts such as sodium and potassium salts, alkaline-earth metal salts, for example magnesium and calcium salts, ammonium salts, amine salts and amino alcohol salts.

In a particularly preferred manner, the sulfureous reducing agent(s) are chosen from thioglycolic acid and salts thereof, thiolactic acid and salts thereof, alkali metal sulfites and especially sodium sulfite, alkali metal bisulfites and especially sodium bisulfite, and precursors of these sulfites or bisulfites such as sodium metabisulfite.

The sulfureous reducing agent(s) may be present in an amount ranging from 0.1% to 5% by weight and especially from 0.3% to 3% by weight relative to the total weight of the composition.

The composition in accordance with the invention may also comprise at least one oxidizing agent.

Such an oxidizing agent is preferably chosen from the group formed by hydrogen peroxide, urea peroxide, alkali metal bromates or ferricyanides, and persalts such as perborates and persulfates.

The use of hydrogen peroxide is particularly preferred.

According to one preferred embodiment, the composition according to the invention may also comprise one or more cationic polymers.

The composition according to the invention may be aqueous or anhydrous.

The term "anhydrous" refers to a composition not containing any added water, i.e. a composition in which the water that may be present comes only from the water of crystallization or of adsorption of the starting materials. In any case, an anhydrous composition contains less than 5% by weight of water and preferably less than 1% by weight of water relative to the total weight of the composition.

Whether it is anhydrous or aqueous, the composition according to the invention may contain one or more organic solvents that are liquid at room temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 1.013×10^5 Pa). Preferably, the liquid organic solvent(s) are chosen from C_1-C_4 lower alcohols, such as ethanol, isopropanol, tert-butanol or n-butanol, polyols such as propylene glycol, polyol ethers, C_5-C_{10} alkanes, C_3-C_4 ketones such as acetone and methyl ethyl ketone, C_1-C_4 alkyl acetates such as methyl acetate, ethyl acetate and butyl acetate, dimethoxyethane, diethoxyethane, silicone oils and the non-siliceous liquid fatty substances described above, and mixtures thereof.

When the composition of the invention is aqueous, its pH is generally between 2 and 9 and in particular between 3 and 8. Preferably, the pH is less than 7. Even more preferentially, it ranges from 3 to 6.

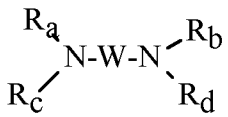
It may be adjusted to the desired value by means of acidifying or basifying agents usually used in cosmetics for this type of application, or alternatively using standard buffer systems.

Among the acidifying agents, examples that may be mentioned include the organic acids already mentioned previously, or mineral acids.

The term "mineral acid" means any acid derived from a mineral compound. Among the mineral acids, mention may be made of hydrochloric acid, orthophosphoric acid, sulfuric acid, sulfonic acids and nitric acid.

Use may be made especially of mineral or organic acids such as hydrochloric acid, orthophosphoric acid, sulfuric acid, carboxylic acids, for instance acetic acid, tartaric acid, citric acid or lactic acid, and sulfonic acids.

Among the basifying agents, examples that may be mentioned include aqueous ammonia, alkali metal carbonates, alkanolamines, such as mono-, di- and triethanolamines and derivatives thereof, sodium hydroxide, potassium hydroxide and the compounds of the following formula:



in which W is a propylene residue optionally substituted with a hydroxyl group or a C_1-C_4 alkyl group; R_a, R_b, R_c and R_d, which may be identical or different, represent a hydrogen atom or a C_1-C_4 alkyl or C_1-C_4 hydroxyalkyl group.

Preferably, the pH modifiers may be chosen from alkaline agents such as aqueous ammonia, monoethanolamine, diethanolamine, triethanolamine, 1,3-propanediamine or an alkaline hydroxide, such as 2-amino-2-methyl-1-propanol, or from acidifying agents such as phosphoric acid or hydrochloric acid.

The compositions according to the invention may also comprise one or more additives chosen from fixing polymers, pseudoceramides, vitamins and provitamins, including panthenol, water-soluble or liposoluble, silicone or non-silicone sunscreens, nacreous agents and opacifiers, sequestrants, conditioning agents other than the silicones and cationic polymers mentioned previously, solubilizers, antioxidants, antidandruff agents other than those mentioned above, anti-seborrhoeic agents, hair-loss counteractants and/or hair restorers, penetrants, fragrances, peptizers and preserving agents, or any other additive conventionally used in the cosmetics field.

These additives can be present in the composition according to the invention in an amount ranging from 0 to 20% by weight, with respect to the total weight of the composition.

A person skilled in the art will take care to select the optional additives and amounts thereof so that they do not interfere with the properties of the compositions of the present invention.

The present invention also relates to a cosmetic hair treatment process, which consists in applying to the hair an effective amount of a composition as described above.

This application may or may not be followed by a rinsing operation.

When the application of the composition is followed by rinsing, the leave-on time of the composition on the keratin materials ranges from a few seconds to 60 minutes, better still from 5 seconds to 30 minutes, even better still from 10 seconds to 10 minutes.

Whether in rinse-out mode or leave-in mode, the application of the composition may take place in the presence or absence of heat. The heating device may be a hairdryer, a hood dryer, a curling iron or a flat iron. The heating temperature may be between 40°C and 220°C.

The application of the composition according to the invention to the hair may take place on dry hair or on wet hair. It may in particular be carried out after a shampooing operation or after a pretreatment at acidic or basic pH.

The examples that follow serve to illustrate the invention without, however, being limiting in nature.

EXAMPLES

In the following examples, all the amounts are shown as percentage by weight of active material, with respect to the total weight of the composition.

Example 1:

A composition according to the invention (composition A) is compared with a comparative composition (composition B) not comprising any fatty-chain alkoxysilane of formula (I).

Composition A according to the invention and composition B outside the invention were prepared according to the formulations given in the above table.

	A	B
Octyltriethoxysilane (1)	10%	-
Polyquaternium-37 (2)	1%	1%
Hydroxyethylcellulose (3)	0.6%	0.6%
Lactic acid	2%	2%
Sodium hydroxide	qs pH 3.5	qs pH 3.5
Water	qs 100%	qs 100%

(1) sold under the name Dynasylan Octeo by the company Evonik.

(2) sold under the name Salcare SC 95 by the company Ciba.

(3) sold under the name Natrosol 250 HHR PC by the company Ashland.

Treatment:

The above compositions were tested on a panel of 10 models with dyed hair. After a standard shampoo wash, composition A was

applied on wet hair to a half-head and composition B to the other half-head, at a rate of 8 g of each of the compositions A and B.

Results:

- Sensory analysis:

On the day of the application, a panel of experts graded on a scale ranging from 0 (poor) to 5 (very good) the cosmetic performance qualities of compositions A and B in terms of disentangling, suppleness, smoothness and individualization on wet hair, after rinsing. The averages of the grades obtained for each of these criteria are collated in the table below:

	A	B
Disentangling	4.8	2.0
Suppleness	4.0	2.6
Smoothness	4.0	3.2
Individualized	3.7	2.0

These results show that the treatment with composition A of the invention affords more ease of disentangling, suppleness and individualization on wet hair.

These results also show that the hair is smoother with composition A in accordance with the invention.

A study of shampoo-resistance of the cosmetic effects observed on application was also performed.

After performing 10 standard shampoo washes, the cosmetic performance qualities of composition A according to the invention were re-evaluated by a panel of experts. The table below shows the averages of the grades obtained on the day of application, and then after 10 shampoo washes.

	On application	After 10 shampoo washes
Disentangling	4.8	4.0
Suppleness	4.0	4.0
Smoothness	4.0	4.0
Individualized	3.7	3.5

These results show that the performance qualities of composition A according to the invention are remanent and in particular remain superior to the performance qualities obtained immediately after application of the comparative composition B. Specifically, after 10 shampoo washes, the suppleness and smoothness are conserved. As regards the individualization and disentangling properties, they are only slightly inferior to those obtained on the day of application.

Examples 2 to 7:

Compositions according to the invention were prepared from the compounds indicated in the table below.

Octyltriethoxysilane (1)	10%
Cationic polymer	1%
Lactic acid	2%
pH agent	qs pH 3.5
Water	qs 100%

(1) sold under the name Dynasylan Octeo by the company Evonik.

In Examples 2, 3, 4, 5, 6 and 7, the cationic polymer is, respectively, guar gum modified with 2,3-epoxypropyltrimethylammonium chloride, sold under the name Jaguar C13S by the company Rhodia, hydroxyethylcellulose quaternized with 2,3-epoxypropyltrimethylammonium chloride, sold under the name Ucare Polymer JR 400 by the company Amerchol (Dow Chemical), the dimethyldiallylammonium chloride homopolymer sold under the name Merquat 100 by the company Nalco, the copolymer of vinylpyrrolidone and of methylvinylimidazolinium chloride, sold under the name Luviquat Excellence by the company BASF, the crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer sold under the name Salcare SC95 by the company Ciba, and the methylacrylamidopropyltrimethylammonium chloride/acrylamide/acrylic acid copolymer sold under the name Merquat 2003 by the company Nalco.

CLAIMS

1. Cosmetic composition comprising:
- at least 0.1% by weight, relative to the total weight of the composition, of one or more fatty-chain alkoxysilanes of formula (I) below:

$$R_1Si(OR_2)_3 \qquad (I)$$

in which R_1 represents a linear or branched alkyl or alkenyl group, comprising from 7 to 18 carbon atoms, and R_2 represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms, and
- one or more cationic polymers.

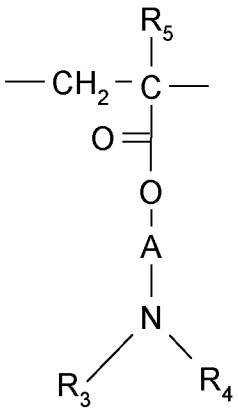
2. Composition according to Claim 1, characterized in that R_2 represents an alkyl group comprising from 1 to 4 carbon atoms, better still a linear alkyl group comprising from 1 to 4 carbon atoms, and preferably the ethyl group.

3. Composition according to either of Claims 1 and 2, characterized in that the alkoxysilane is chosen from octyltriethoxysilane, dodecyltriethoxysilane, octadecyltriethoxysilane and hexadecyltriethoxysilane, and is preferably octyltriethoxysilane.

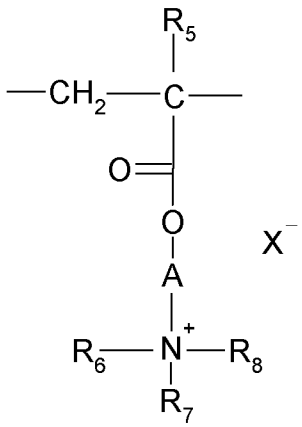
4. Composition according to any one of the preceding claims, characterized in that the alkoxysilane(s) are present in proportions ranging from 0.1% to 20% by weight, preferably from 0.5% to 18% by weight and better still from 2% to 15% by weight, relative to the total weight of the composition.

5. Composition according to any one of the preceding claims, characterized in that the cationic polymer(s) are chosen from the following families:

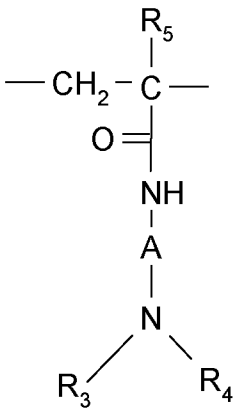
(1) Homopolymers or copolymers derived from acrylic or methacrylic esters or amides and comprising at least one of the units of formula (II), (III), (IV) or (V) below:



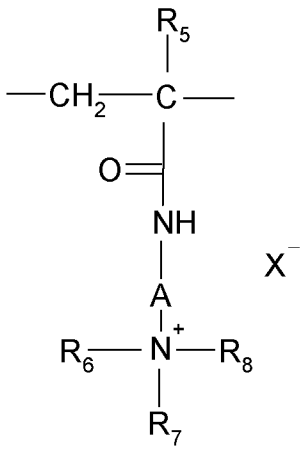
(II)



(III)



(IV)



(V)

in which:

R_3 and R_4, which may be identical or different, represent a hydrogen atom or an alkyl group having from 1 to 6 carbon atoms, and preferably a methyl or ethyl group,

R_5, which may be identical or different, denote a hydrogen atom or a CH_3 group,

A, which may be identical or different, represent a linear or branched alkyl group of 1 to 6 carbon atoms, preferably 2 or 3 carbon atoms, or a hydroxyalkyl group of 1 to 4 carbon atoms,

R_6, R_7, R_8, which may be identical or different, represent an alkyl group having from 1 to 18 carbon atoms or a benzyl group, and preferably an alkyl group having from 1 to 6 carbon atoms,

X^- denotes an anion derived from a mineral or organic acid, or a halide

(2) polymers formed from piperazinyl units and divalent alkylene or hydroxyalkylene radicals containing straight or branched chains, optionally interrupted with oxygen, sulfur or nitrogen atoms or with aromatic or heterocyclic rings, and also the oxidation and/or quaternization products of these polymers,

(3) water-soluble polyamino amides prepared in particular by polycondensation of an acidic compound with a polyamine,

(4) polyaminoamide derivatives resulting from the condensation of polyalkylene polyamines with polycarboxylic acids followed by alkylation with difunctional agents,

(5) polymers obtained by reaction of a polyalkylene polyamine containing two primary amine groups and at least one secondary amine group with a dicarboxylic acid chosen from diglycolic acid and saturated aliphatic dicarboxylic acids having from 3 to 8 carbon atoms, the mole ratio between the polyalkylene polyamine and the dicarboxylic acid being between 0.8: 1 and 1.4: 1; the polyamino amide resulting therefrom is reacted with epichlorohydrin in a mole ratio of epichlorohydrin relative to the secondary amine group of the polyamino amide of between 0.5: 1 and 1.8: 1,

(6) alkyldiallylamine or dialkyldiallylammonium cyclopolymers,

(7) quaternary diammonium polymers,

(8) polyquaternary ammonium polymers,

(9) quaternary polymers of vinylpyrrolidone and/or of vinylimidazole,

(10) cationic polysaccharides, especially cationic celluloses and galactomannan gums,

(11) cationic proteins or cationic protein hydrolysates, polyalkyleneimines, in particular polyethyleneimines, polymers containing vinylpyridine or vinylpyridinium units, condensates of polyamines and of epichlorohydrin, quaternary polyureylenes and chitin derivatives.

6. Composition according to the preceding claims, characterized in that the cationic polymer(s) are chosen from those of families (1), (6), (9) and (10), more preferentially from guar gum modified with 2,3-epoxypropyltrimethylammonium chloride, hydroxyethylcellulose quaternized with 2,3-epoxypropyltrimethylammonium chloride, dimethyldiallylammonium chloride homopolymer, the copolymer of vinylpyrrolidone and of methylvinylimidazolinium chloride, crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer, and the copolymer of methylacrylamidopropyltrimethylammonium chloride/acrylamide/acrylic acid.

7. Composition according to any one of the preceding claims, characterized in that the cationic polymer(s) are present in proportions of at least 0.01% by weight, preferably ranging from 0.01% to 15% by weight, more preferentially from 0.05% to 10% by weight and better still from 0.1% to 5% by weight relative to the total weight of the composition.

8. Composition according to any one of the preceding claims, characterized in that the weight ratio between the amount of fatty-chain alkoxysilane(s), on the one hand, and the amount of cationic polymer(s), on the other hand, is greater than or equal to 0.1, and preferably ranges from 0.1 to 50, more preferentially from 1 to 25 and better still from 5 to 20.

9. Composition according to any one of the preceding claims, characterized in that it also comprises one or more thickeners, other than cationic polymers, preferably present in a content ranging from 0.1% to 20% by weight and better still from 0.2% to 10% by weight relative to the total weight of the composition.

10. Composition according to any one of the preceding claims, characterized in that it also comprises one or more organic acids preferably chosen from acetic acid, propanoic acid, butanoic acid, lactic acid, malic acid, glycolic acid, ascorbic acid, maleic acid, phthalic acid, succinic acid, taurine, tartaric acid, arginine, glycine, glucuronic acid, gluconic acid and citric acid, and even more

preferentially lactic acid, and preferably present in acid content expressed as free acids ranging from 0.01% to 10% by weight, preferably from 0.1% to 8% by weight and even more preferentially from 0.2% to 5% by weight relative to the total weight of the composition.

11. Cosmetic composition according to any one of the preceding claims, characterized in that it also comprises one or more surfactants chosen from cationic, anionic, nonionic, amphoteric and/or zwitterionic surfactants.

12. Composition according to any one of the preceding claims, characterized in that it also comprises one or more additives chosen from alkoxysilanes other than those of formula (I), non-siliceous fatty substances, silicones, solid particles, reducing agents and oxidizing agents.

13. Composition according to any one of the preceding claims, characterized in that it is anhydrous.

14. Composition according to any one of Claims 1 to 12, characterized in that it is aqueous.

15. Cosmetic process for treating keratin materials, especially human keratin fibres such as the hair, characterized in that it consists in applying to the said fibres an effective amount of a composition according to any one of Claims 1 to 14 and then in optionally rinsing it out after an optional leave-on time, in the presence or absence of heat.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/068523

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K8/58 A61K8/89 A61Q5/02 A61Q5/12 A61K8/81
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 practical, search terms used)
EPO-Internal, BEILSTEIN Data, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	DATABASE GNDP [Online] Mintel; November 2010 (2010-11), "3-minute shine boost", XP002642524, Database accession no. 1442607 the whole document -----	1-12,14, 15
T	Anonymous: "Alterna Caviar Anti-Aging 3-Minute Shine Boost", Internet , 18 October 2010 (2010-10-18), XP002642525, Retrieved from the Internet: URL:http://www.folica.com/hair-care/hair-treatments/ [retrieved on 2011-06-20] the whole document -----	1-12,14, 15

-/--

[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 document 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
13 January 2012	03/02/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Renard, Delphine

1

Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE GNDP [Online] Mintel; September 2009 (2009-09), "Heads Up! Couture Highlighting Kit", XP002640877, Database accession no. 1188079 the whole document -----	1-12,14, 15
X	DATABASE GNDP [Online] Mintel; February 2003 (2003-02), "Ruthless Hold Gel", XP002640878, Database accession no. 10127486 the whole document -----	1-9,11, 12,14,15
X	DATABASE GNDP [Online] Mintel; October 2004 (2004-10), "Natural finish powdery foundation NP (OC-30)", XP002643816, Database accession no. 311215 the whole document -----	1-5, 7-10,12, 13
X	DATABASE GNDP [Online] Mintel; June 2009 (2009-06), "Eye Radiance Eye Colour", XP002643817, Database accession no. 1115420 the whole document -----	1-9,11, 12,14
X	DATABASE GNDP [Online] Mintel; November 2009 (2009-11), "7-in-1 Anti Aging Ultra Nourishing Shower Cream", XP002643818, Database accession no. 1220865 the whole document -----	1-12,14
X	DATABASE GNDP [Online] Mintel; September 2009 (2009-09), "Sensitiveil Foundation", XP002643819, Database accession no. 1185744 the whole document ----- -/--	1-12,14

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	anonymous: "Masque Reconstituant Eclat - Age suprême Intégral de l'Oréal Professionnel", interner , 23 September 2010 (2010-09-23), XP002643716, Retrieved from the Internet: URL:http://www.beaute-test.com [retrieved on 2011-06-17] the whole document	1-15
Y	FR 2 910 276 A1 (OREAL [FR]) 27 June 2008 (2008-06-27) abstract claims 1, 27-32, 35-37 page 11, line 21 - page 17, line 20 pages 21-23	1-15
Y	EP 1 172 079 A1 (OREAL [FR]) 16 January 2002 (2002-01-16) claims 1, 3, 5; compound formule Ib paragraphs [0003] - [0006]	1-15
Y	EP 0 159 628 A2 (REVLON [US]) 30 October 1985 (1985-10-30) cited in the application page 3, line 23 - page 4, line 12 page 5, lines 6-27 claims 1, 2, 4, 9, 10-14	1-15
Y	EP 1 736 139 A1 (KAO CORP [JP]) 27 December 2006 (2006-12-27) cited in the application the whole document	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2011/068523

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2910276 A1	27-06-2008	NONE	
EP 1172079 A1	16-01-2002	AR 029707 A1	10-07-2003
		AU 770719 B2	26-02-2004
		AU 5197601 A	17-01-2002
		BR 0103736 A	26-02-2002
		CA 2352623 A1	13-01-2002
		CN 1333013 A	30-01-2002
		EP 1172079 A1	16-01-2002
		FR 2811549 A1	18-01-2002
		HU 0102961 A2	29-05-2002
		JP 2002097114 A	02-04-2002
		KR 20020008017 A	29-01-2002
		PL 348626 A1	14-01-2002
		RU 2218908 C2	20-12-2003
		US 2002041856 A1	11-04-2002
		ZA 200105384 A	31-01-2002
EP 0159628 A2	30-10-1985	AU 571671 B2	21-04-1988
		AU 4090685 A	17-10-1985
		CA 1254144 A1	16-05-1989
		DE 3578680 D1	23-08-1990
		EP 0159628 A2	30-10-1985
		JP 61000007 A	06-01-1986
		ZA 8502756 A	24-12-1985
EP 1736139 A1	27-12-2006	EP 1736139 A1	27-12-2006
		KR 20060134988 A	28-12-2006
		US 2007218028 A1	20-09-2007
		US 2010254930 A1	07-10-2010
		WO 2005097050 A1	20-10-2005