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(54) Title: COSMETIC COMPOSITION COMPRISING ANIONIC AND AMPHOTERIC SURFACTANTS, A CATIONIC POLYMER, AT LEAST 2% OF SOLID FATTY ALCOHOL AND A PARTICULAR AMINO SILICONE; AND PROCESS

(57) Abstract: The present invention relates to a cosmetic composition, notably a hair composition, comprising one or more anionic surfactants, one or more amphoteric surfactants, one or more cationic polymers, one or more solid fatty alcohols, the total content of solid fatty alcohols being greater than or equal to 2% by weight relative to the total weight of the composition, and one or more amino silicones comprising hydrocarbon-based end groups comprising 8 to 30 carbon atoms. The invention also relates to a cosmetic treatment process for keratin fibers, notably for washing and/or conditioning the hair, using said cosmetic composition.

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DESCRIPTION

Title of the invention: Cosmetic composition comprising anionic and amphoteric surfactants, a cationic polymer, at least 2% of solid fatty alcohol and a particular amino silicone; and process

The present invention relates to a cosmetic composition, notably a hair composition, comprising one or more anionic surfactants, one or more amphoteric surfactants, one or more particular amino silicones, one or more fatty alcohols, and one or more cationic polymers; and also to a cosmetic treatment process, notably for the hair, using said composition.

Hair can be damaged and embrittled by the action of external atmospheric agents such as light and bad weather, and/or by mechanical or chemical treatments, such as brushing, combing, dyeing, bleaching, permanent-waving and/or relaxing.

To remedy these drawbacks, it is now common practice to have recourse to hair compositions which make it possible to condition the hair after these treatments to give it in particular sheen, softness, manageability, lightness, a natural feel and disentangling properties.

These hair compositions may notably be compositions that are both washing and conditioning, such as conditioning shampoos for example. These compositions generally have good washing power, but the cosmetic properties introduced can be further improved; conditioning agents, such as silicones, are therefore generally included in these shampoos; however, these hair compositions are not necessarily entirely satisfactory and can be further improved, notably with regard to the depositing of the conditioning agents on the keratin fibers.

In particular, washing compositions are sought which make it possible, on the one hand, to generate an abundant foam of good quality, and to make the hair clean and shiny, and on the other hand, to give the hair improved cosmetic properties, notably in terms of disentangling, softness, a smooth feel and smooth appearance, manageability, coating of the fiber and sheen.

It is the responsibility of the applicant to have demonstrated that a particular choice of amino silicones combined with fatty alcohols makes it possible to solve this problem, and to meet this demand by consumers, to obtain compositions having the detergent and cleansing properties of a shampoo, combined with the other cosmetic properties of a disentangling care product.

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

- (i) one or more anionic surfactants,
- (ii) one or more amphoteric surfactants,

- (iii) one or more cationic polymers,
(iv) one or more solid fatty alcohols, the total content of solid fatty alcohols being greater than or equal to 2% by weight relative to the total weight of the composition, and
5 (v) one or more amino silicones comprising hydrocarbon-based end groups comprising 8 to 30 carbon atoms.

The composition according to the invention has satisfactory foaming power. It allows the production of a very creamy and abundant, gradual dense foam, different than that
10 of conventional shampoos, which spreads easily on keratin fibers and is easy to remove on rinsing.

The composition according to the invention also makes it possible to improve the cosmetic properties given to the keratin fibers, notably to the hair, in particular sensitized hair. In particular, it makes it possible to obtain a level of care that can immediately be
15 noticed by users, which level is characterized by improved disentangling made easier, manageability of the hair, a smooth feel and smooth appearance of the hair, and also a coating of the fibers. These properties make it possible to confer a good level of perception of care given to the hair, without having a charged feel (no build-up effect).

20 The composition according to the invention advantageously has a thick, smooth texture which is pleasant to the touch and close to that of a haircare mask; it can be taken in the hand and deposited on the hair so as to produce a creamy foam after massaging of the scalp.

Advantageously, the composition according to the invention has a viscosity, measured
25 at 25°C and 1 atm, ranging from 200 to 10 000 cps (0.2 to 10 Pa.s), preferably from 500 to 8000 cps (0.5 to 8 Pa.s), preferentially from 1000 to 7000 cps (1 to 7 Pa.s).

The viscosity may be measured using a Rheomat RM180 machine at 25°C and 1 atm, with a 3 or 4 spindle, the spin speed being 200 rpm and the measuring time 30 seconds,
30 the shear rate being 200 s⁻¹.

The composition according to the invention also has the advantage of being stable on storage both at ambient temperature (20-25°C) and at 45°C, especially as regards its visual appearance and/or its viscosity. For the purposes of the present invention, the
35 term "stable" is intended to mean a composition which, after two months of storage, shows no change in appearance, color, odor or viscosity.

In the present description, the expression "at least one" is equivalent to the expression "one or more" and can substitute for said expression; the expression "between" is
40 equivalent to the expression "ranging from" and can substitute for said expression, which implies that the limits are included.

1/ Amino silicones

The composition according to the invention comprises one or more amino silicones comprising hydrocarbon-based end groups comprising 8 to 30 carbon atoms.

The term "amino silicone" is intended to mean any silicone comprising at least one primary, secondary or tertiary amine or a quaternary ammonium group.

The amino silicones according to the invention comprise one or more hydrocarbon-based end groups comprising 8 to 30 carbon atoms, it being possible for said groups optionally to be hydroxylated and/or to comprise one or more heteroatoms, notably O. For the purposes of the present invention, the term "end groups" is intended to mean that said groups are located in the alpha and omega positions of the main silicone chain, that is to say each end of the main silicone chain.

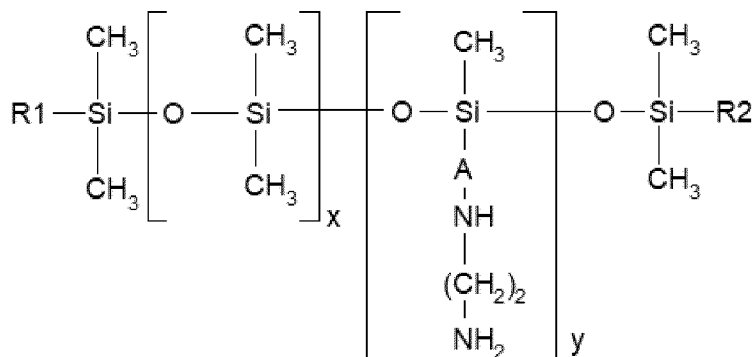
The hydrocarbon-based group comprising from 8 to 30 carbon atoms may be a linear or branched, saturated or unsaturated, preferably saturated, alkyl chain R comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably from 12 to 24 carbon atoms.

The hydrocarbon-based group can also comprise an oxygen atom, and thus can be an alkoxylated chain (-O-R) with R = linear or branched, saturated or unsaturated, preferably saturated, alkyl chain comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably from 12 to 24 carbon atoms.

Said alkyl chains R can optionally be substituted with one or more hydroxyl groups (OH).

The amino silicones comprising hydrocarbon-based end groups that may be used in the context of the invention may be chosen notably from, alone or as a mixture,

(i) the silicones of formula (I):



wherein:

- x is a number between 1 and 5000, preferably between 10 and 2000, better still between 100 and 1000:

- y is a number between 1 and 5000, preferably between 1 and 500, better still between 1 and 100;

- R1 and R2, which may be identical or different, preferably identical, are linear or branched, saturated or unsaturated alkyl radicals comprising from 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24 carbon atoms; and/or alkoxy

radicals OR, where R = linear or branched, saturated or unsaturated alkyl radical comprising from 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24 carbon atoms; it being possible for said alkyl radicals to optionally be substituted with one or more hydroxyl groups OH;

- 5 - A denotes a linear or branched, preferably branched, divalent alkylene radical having from 2 to 8 carbon atoms, notably from 3 to 6 carbon atoms.

Preferably, A is branched and comprises 3 to 4 carbon atoms; better still, A is one of the following divalent radicals: $-\text{CH}_2\text{CH}_2\text{CH}_2-$ and $-\text{CH}_2\text{-CH}(\text{CH}_3)\text{-CH}_2-$.

10

Preferably, R1 and R2, which may be identical or different, are saturated linear alkyl radicals comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24 carbon atoms; mention may be made in particular of dodecyl, tetradecyl, pentadecyl, hexadecyl, heptadecyl, octadecyl, nonadecyl and eicosyl radicals; preferen-

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tially, R1 and R2, which may be identical or different, are chosen from hexadecyl (cetyl) and octadecyl (stearyl) radicals.

Preferably, R1 and R2 are identical.

Most preferentially, R1 = R2 = cetyl, stearyl or cetearyl (mixture of C_{16} and C_{18}).

20

Preferentially, the composition may comprise one or more silicones of formula (I) wherein:

- x is a number between 100 and 1000;

- y is a number between 1 and 100;

- R1 and R2, which are identical, are saturated linear alkyl radicals comprising from 12

25

to 24 carbon atoms;

- A denotes a branched divalent alkylene radical having from 3 to 6 carbon atoms.

Even better still, the composition may comprise one or more silicones of formula (I) wherein:

30

- x is a number between 100 and 1000;

- y is a number between 1 and 100;

- R1 and R2, which are identical, are saturated linear alkyl radicals comprising from 16 to 18 carbon atoms;

- A denotes $-\text{CH}_2\text{-CH}(\text{CH}_3)\text{-CH}_2-$.

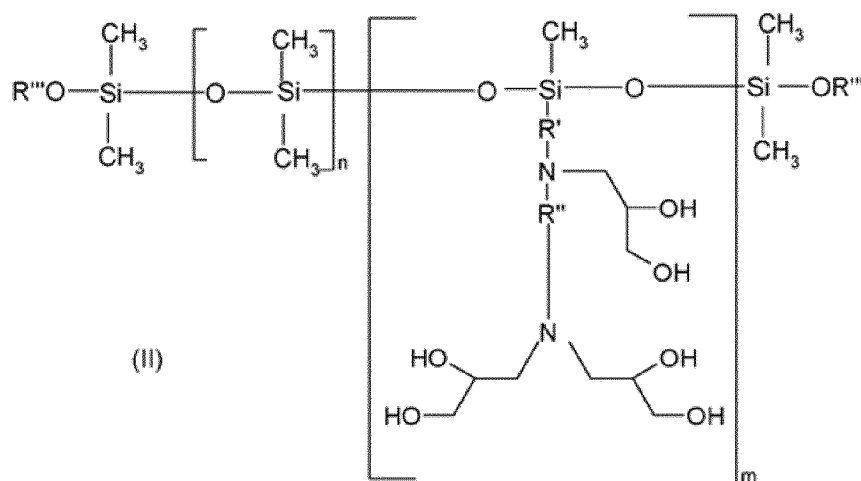
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A silicone of formula (I) that is particularly preferred is Bis-Cetearyl Amodimethicone (INCI name).

Mention may notably be made of the silicone sold under the name Silsoft AX by Momentive;

40

(ii) the silicones of formula (II):



wherein:

- n is a number between 1 and 1000, preferably between 10 and 500, better still between 25 and 100, even better still between 50 and 80;

5 - m is a number between 1 and 200, preferably between 1 and 100, better still between 1 and 10 and even better still between 1 and 5;

- R''', which may be identical or different, preferably identical, are linear or branched, saturated or unsaturated alkyl radicals comprising from 8 to 30 carbon atoms, preferably 10 to 24 carbon atoms, notably 12 to 18 carbon atoms; it being possible for said
10 radicals to optionally be substituted with one or more hydroxyl groups OH;

- R' is a linear or branched, divalent alkylene radical having from 1 to 6 carbon atoms, notably from 2 to 5 carbon atoms;

- R'' is a linear or branched, divalent alkylene radical having from 1 to 6 carbon atoms, notably from 1 to 5 carbon atoms.

15

Preferably, the R''', which may be identical or different, are saturated linear alkyl radicals comprising 8 to 30 carbon atoms, preferably 10 to 24 carbon atoms, notably 12 to 18 carbon atoms; mention may be made in particular of dodecyl, C₁₃, tetradecyl, pentadecyl, hexadecyl, heptadecyl, octadecyl radicals; preferentially, the R''', which may
20 be identical or different, are chosen from saturated linear alkyl radicals having 12 to 16 carbon atoms, notably which are C₁₃, C₁₄ or C₁₅, alone or as a mixture, and better still represent a mixture of C₁₃, C₁₄ and C₁₅.

Preferably, the R''' are identical.

25 Preferably, R' is a linear or branched, preferably branched, divalent alkylene radical comprising 1 to 6 carbon atoms, notably from 2 to 5 carbon atoms; notably a -CH₂-CH₂-CH₂-, -CH₂-CH(CH₃)-CH₂- or -CH₂-CH₂-CH(CH₃)- radical.

Preferably, R'' is a linear divalent alkylene radical comprising 1 to 6 carbon atoms, notably from 1 to 4 carbon atoms, in particular a -CH₂-CH₂- radical.

30

Preferentially, the composition may comprise one or more silicones of formula (II) wherein:

- n is a number between 50 and 80;

- m is a number between 1 and 5;
- R^{'''}, which are identical, are saturated linear alkyl radicals comprising from 12 to 18 carbon atoms;
- R' is a divalent alkylene radical having from 2 to 5 carbon atoms;
- 5 - R'' is a linear divalent alkylene radical having from 1 to 4 carbon atoms.

Even better still, the composition may comprise one or more silicones of formula (II) wherein:

- n is a number between 50 and 80;
- 10 - m is a number between 1 and 5;
- R^{'''}, which are identical, are saturated linear alkyl radicals comprising from 13 to 15 carbon atoms;
- R' is a $-(CH_2)_3-$, $-CH_2-CH(CH_3)-CH_2-$ or $-CH_2-CH_2-CH(CH_3)-$ radical, and
- R'' is a $-(CH_2)_2-$ radical.

15 A silicone of formula (II) that is particularly preferred is Bis(C₁₃₋₁₅ alkoxy) PG Amodimethicone (INCI name).

Mention may notably be made of the silicone sold under the name Dowsil 8500 Conditioning Agent by Dow.

20 Preferably, the composition may comprise one or more silicones of formula (II).

The composition according to the invention preferably comprises said amino silicone(s) comprising hydrocarbon-based end groups in a total amount ranging from 0.1% to 10%
25 by weight, preferably from 0.2% to 5% by weight and preferentially from 0.5% to 3% by weight, relative to the total weight of the composition.

2/ Solid fatty alcohol

The cosmetic composition according to the invention also comprises one or more solid
30 fatty alcohols, notably comprising 8 to 30 carbon atoms.

The term "solid fatty alcohol" is intended to mean a fatty alcohol which is solid at 25°C and 1 atm.

They are advantageously non-glycerolated and non-oxyalkylenated.

35 They preferably correspond to the formula R-OH wherein R is a linear or branched, saturated or unsaturated hydrocarbon-based radical comprising 8 to 30 carbon atoms, optionally comprising one or more OH groups.

Preferably, R comprises from 10 to 22 carbon atoms, or even from 12 to 20 carbon atoms.

40 Preferably, R is a linear or branched, saturated radical, better still a saturated linear radical.

Preferentially, R is a saturated linear radical comprising from 8 to 30 carbon atoms, better still from 10 to 22 carbon atoms, even from 12 to 20 carbon atoms, and not

comprising a hydroxyl group.

The solid fatty alcohols that may be used are preferably chosen from linear or branched, saturated or unsaturated, preferably saturated and linear, alcohols comprising from 8 to 30 carbon atoms, better still from 10 to 22 carbon atoms, even better still from 12 to 20 carbon atoms, and advantageously not comprising a hydroxyl group. Mention may be made of myristyl alcohol, and cetyl alcohol and stearyl alcohol and the mixture thereof, namely cetylstearyl alcohol.

- 10 Preferably, the composition comprises one or more solid fatty alcohols notably chosen from myristyl alcohol, cetyl alcohol, stearyl alcohol and cetylstearyl alcohol.

- 15 The composition according to the invention comprises the solid fatty alcohol(s) in a total content of greater than or equal to 2% by weight, notably greater than or equal to 3% by weight, relative to the total weight of the composition; preferably, the total content can be between 2% and 20% by weight, better still between 3% and 15% by weight, preferentially between 4% and 10% by weight, relative to the total weight of the composition.

20 **3/ Anionic surfactants**

The cosmetic composition according to the invention comprises one or more anionic surfactants.

Anionic surfactant is understood to mean a surfactant comprising, as ionic or ionizable groups, only anionic groups.

- 25 In the present description, an entity is described as being "anionic" when it possesses at least one permanent negative charge or when it can be ionized to give a negatively charged entity, under the conditions of use of the composition of the invention (medium or pH, for example) and not comprising a cationic charge.

- 30 The anionic surfactants may be sulfate, sulfonate and/or carboxylic (or carboxylate) surfactants. Very obviously, a mixture of these surfactants can be employed.

It is understood, in the present description, that:

- the carboxylate anionic surfactants comprise at least one carboxyl or carboxylate ($-\text{COOH}$ or $-\text{COO}^-$) function and can optionally additionally comprise one or more sulfate and/or sulfonate functions;
- the sulfonate anionic surfactants comprise at least one sulfonate function ($-\text{SO}_3\text{H}$ or $-\text{SO}_3^-$) and may optionally also comprise one or more sulfate functions, but do not comprise any carboxylate functions; and
- the sulfate anionic surfactants comprise at least one sulfate function but do not comprise a carboxylate or sulfonate function.

The carboxylic anionic surfactants that may be used thus comprise at least one carboxylic or carboxylate function ($-\text{COOH}$ or $-\text{COO}^-$).

They may be chosen from the following compounds: acylglycinates, acyllactylates, acylsarcosinates, acylglutamates; alkyl ether carboxylic acids, alkyl(C₆₋₃₀ aryl)ether carboxylic acids, alkyl-D-galactosideuronic acids, alkylamido ether carboxylic acids; and also the salts of these compounds; the alkyl and/or acyl groups of these compounds comprising from 6 to 30 carbon atoms, in particular from 12 to 28, even better still from 14 to 24 or even from 16 to 22 carbon atoms; the aryl group preferably denoting a phenyl or benzyl group; these compounds possibly being polyoxyalkylenated, in particular polyoxyethylenated, and then preferably comprising from 1 to 50 ethylene oxide units, better still from 2 to 10 ethylene oxide units.

Use may also be made of the C₆-C₂₄ alkyl monoesters of polyglycoside-polycarboxylic acids, such as C₆-C₂₄ alkyl polyglycoside-citrates, C₆-C₂₄ alkyl polyglycoside-tartrates and C₆-C₂₄ alkyl polyglycoside-sulfosuccinates, and salts thereof.

Among the above carboxylic surfactants, mention may be made most particularly of polyoxyalkylenated alkyl(amido) ether carboxylic acids and salts thereof, in particular those comprising from 2 to 50 alkylene oxide and in particular ethylene oxide groups, such as the compounds sold by Kao under the Akypo names.

The polyoxyalkylenated alkyl(amido) ether carboxylic acids that may be used are preferably chosen from those of formula (1):



wherein:

- R₁' represents a linear or branched C₆-C₂₄ alkyl or alkenyl radical, a (C₈-C₉)alkylphenyl radical, a radical R₂'CONH-CH₂-CH₂- with R₂' denoting a linear or branched C₉-C₂₁ alkyl or alkenyl radical; preferably, R₁' is a C₈-C₂₀, preferably C₈-C₁₈, alkyl radical;

- n' is an integer or decimal number (mean value) ranging from 2 to 24 and preferably from 2 to 10,

- A denotes H, ammonium, Na, K, Li, Mg or a monoethanolamine or triethanolamine residue.

Use may also be made of mixtures of compounds of formula (1), in particular mixtures of compounds bearing different groups R₁'.

The polyoxyalkylenated alkyl(amido) ether carboxylic acids that are particularly preferred are those of formula (1) wherein:

- R₁' denotes a linear or branched C₈-C₂₂, in particular C₁₀-C₁₆ or even C₁₂-C₁₄ alkyl radical, or alternatively a (C₈-C₉)alkylphenyl radical;

- A denotes a hydrogen or sodium atom; and

- n' ranges from 2 to 20, preferably from 2 to 10.

Even more preferentially, use is made of the compounds of formula (1) wherein R₁' denotes a C₁₂-C₁₄ alkyl, cocoyl, oleyl, nonylphenyl or octylphenyl radical, A denotes a hydrogen or sodium atom and n' ranges from 2 to 10.

Among the commercial products that may preferably be used are the products sold by

KAO under the names:

Akypo® NP 70 (R_1 = nonylphenyl, $n = 7$, $A = H$)

Akypo® NP 40 (R_1 = nonylphenyl, $n = 4$, $A = H$)

Akypo® OP 40 (R_1 = octylphenyl, $n = 4$, $A = H$)

5 Akypo® OP 80 (R_1 = octylphenyl, $n = 8$, $A = H$)

Akypo® OP 190 (R_1 = octylphenyl, $n = 19$, $A = H$)

Akypo® RLM 38 (R_1 = (C₁₂-C₁₄)alkyl, $n = 4$, $A = H$)

Akypo® RLM 38 NV (R_1 = (C₁₂-C₁₄)alkyl, $n = 4$, $A = Na$)

Akypo® RLM 45 CA (R_1 = (C₁₂-C₁₄)alkyl, $n = 4.5$, $A = H$)

10 Akypo® RLM 45 NV (R_1 = (C₁₂-C₁₄)alkyl, $n = 4.5$, $A = Na$)

Akypo® RLM 100 (R_1 = (C₁₂-C₁₄)alkyl, $n = 10$, $A = H$)

Akypo® RLM 100 NV (R_1 = (C₁₂-C₁₄)alkyl, $n = 10$, $A = Na$)

Akypo® RLM 130 (R_1 = (C₁₂-C₁₄)alkyl, $n = 13$, $A = H$)

Akypo® RLM 160 NV (R_1 = (C₁₂-C₁₄)alkyl, $n = 16$, $A = Na$),

15 or by the company Sandoz under the names:

Sandopan DTC-Acid (R_1 = (C₁₃)alkyl, $n = 6$, $A = H$)

Sandopan DTC (R_1 = (C₁₃)alkyl, $n = 6$, $A = Na$)

Sandopan LS 24 (R_1 = (C₁₂-C₁₄)alkyl, $n = 12$, $A = Na$)

Sandopan JA 36 (R_1 = (C₁₃)alkyl, $n = 18$, $A = H$),

20 and more particularly the products sold under the following names:

Akypo® RLM 45 (INCI: Laureth-5 carboxylic acid), Akypo®RLM 100, and Akypo® RLM 38.

25 Preferentially, the carboxylic anionic surfactants are chosen, alone or as a mixture, from:

- acylglutamates, in particular of C₆-C₂₄ or even C₁₂-C₂₀, such as stearylglutamates, and in particular disodium stearylglutamate;

- acylsarcosinates, in particular of C₆-C₂₄ or even C₁₂-C₂₀, such as palmitoylsarcosinates, and in particular sodium palmitoylsarcosinate;

30 - acyllactylates, in particular of C₁₂-C₂₈ or even C₁₄-C₂₄, such as behenoyllactylates, and in particular sodium behenoyllactylate;

- C₆-C₂₄ and in particular C₁₂-C₂₀ acylglycinates;

- (C₆-C₂₄)alkyl ether carboxylates, and in particular (C₁₂-C₂₀)alkyl ether carboxylates; in particular those comprising from 2 to 50 ethylene oxide groups;

35 - polyoxyalkylenated (C₆-C₂₄)alkylamido ether carboxylic acids, in particular those comprising from 2 to 50 ethylene oxide groups;

in particular in acid form or in the form of alkali metal or alkaline-earth metal, ammonium or amino alcohol salts.

40 Polyoxyalkylenated (C₆-C₂₄)alkyl ether carboxylic acids and salts thereof are preferably used.

The sulfonate anionic surfactants that may be used comprise at least one sulfonate

function ($-\text{SO}_3\text{H}$ or $-\text{SO}_3^-$). They may be chosen from the following compounds: alkyl-sulfonates, alkyl ether sulfonates, alkylamidesulfonates, alkylarylsulfonates, α -olefin sulfonates, paraffin sulfonates, alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkyl-amidesulfosuccinates, alkylsulfoacetates, N-acyltaurates, acylisethionates; alkyl-sulfolaurates; and also the salts of these compounds;

the alkyl groups of these compounds comprising from 6 to 30 carbon atoms, in particular from 12 to 28, even better still from 14 to 24 or even from 16 to 22 carbon atoms; the aryl group preferably denoting a phenyl or benzyl group; these compounds possibly being polyoxyalkylenated, in particular polyoxyethylenated, and then preferably comprising from 1 to 50 ethylene oxide units and better still from 2 to 10 ethylene oxide units.

Preferentially, the sulfonate anionic surfactants are chosen from, alone or as a mixture:

- C_6 - C_{24} and in particular C_{12} - C_{20} olefin sulfonates;

- C_6 - C_{24} and in particular C_{12} - C_{20} alkylsulfosuccinates, in particular laurylsulfosuccinates;

- C_6 - C_{24} and in particular C_{12} - C_{20} alkyl ether sulfosuccinates;

- (C_6 - C_{24})acylisethionates and preferably (C_{12} - C_{18})acylisethionates;

in particular in the form of alkali metal, alkaline-earth metal, ammonium or amino alcohol salts.

The sulfate anionic surfactants capable of being used comprise at least one sulfate ($-\text{OSO}_3\text{H}$ or $-\text{OSO}_3^-$) function.

They may be chosen from the following compounds: alkyl sulfates, alkyl ether sulfates, alkylamido ether sulfates, alkylaryl polyether sulfates, monoglyceride sulfates; and the salts of these compounds;

the alkyl groups of these compounds comprising from 6 to 30 carbon atoms, in particular from 12 to 28, even better still from 14 to 24 or even from 16 to 22 carbon atoms; the aryl group preferably denoting a phenyl or benzyl group;

these compounds possibly being polyoxyalkylenated, in particular polyoxyethylenated, and then preferably comprising from 1 to 50 ethylene oxide units and better still from 2 to 10 ethylene oxide units.

Preferentially, the sulfate anionic surfactants are chosen from, alone or as a mixture:

- alkyl sulfates, in particular of C_6 - C_{24} or even C_{12} - C_{20} , and

- alkyl ether sulfates, in particular of C_6 - C_{24} or even C_{12} - C_{20} , preferably comprising from 1 to 20 ethylene oxide units;

in particular in the form of alkali metal, alkaline earth metal, ammonium or amino alcohol salts.

When the anionic surfactant is in the salt form, said salt can be chosen from alkali metal salts, such as the sodium or potassium salt, ammonium salts, amine salts and

in particular amino alcohol salts, and alkaline-earth metal salts, such as the magnesium salt.

Mention may be made, as examples of amino alcohol salts, of mono-, di- and triethanolamine salts, mono-, di- or triisopropanolamine salts, 2-amino-2-methyl-1-propanol salts, 2-amino-2-methyl-1,3-propanediol salts and tris(hydroxymethyl)aminomethane salts.

The alkali metal or alkaline-earth metal salts and in particular the sodium or magnesium salts are preferably used.

- 10 Preferentially, the anionic surfactants are chosen, alone or as a mixture, from:
- C₆-C₂₄ and in particular C₁₂-C₂₀ alkyl sulfates;
 - C₆-C₂₄ and in particular C₁₂-C₂₀ alkyl ether sulfates; preferably comprising from 1 to 20 ethylene oxide units;
 - C₆-C₂₄ and notably C₁₂-C₂₀ alkylsulfosuccinates;
 - 15 - C₆-C₂₄ and in particular C₁₂-C₂₀ olefin sulfonates;
 - C₆-C₂₄ and in particular C₁₂-C₂₀ alkyl ether sulfosuccinates;
 - (C₆-C₂₄)acylisethionates and preferably (C₁₂-C₁₈)acylisethionates;
 - C₆-C₂₄ and notably C₁₂-C₂₀ acylsarcosinates;
 - (C₆-C₂₄)alkyl ether carboxylates, preferably (C₁₂-C₂₀)alkyl ether carboxylates; in particular those comprising from 2 to 50 ethylene oxide groups;
 - 20 - polyoxyalkylenated (C₆-C₂₄)alkylamido ether carboxylic acids and salts thereof, in particular those comprising from 2 to 50 alkylene oxide and in particular ethylene oxide groups;
 - C₆-C₂₄ and in particular C₁₂-C₂₀ acylglutamates;
 - 25 - C₆-C₂₄ and in particular C₁₂-C₂₀ acylglycinates;
- in particular in acid form or in the form of alkali metal or alkaline-earth metal, ammonium or amino alcohol salts.

- 30 Preferentially, the composition comprises one or more sulfate anionic surfactants, preferably one or more C₆-C₂₄ and in particular C₁₂-C₂₀ alkyl sulfates, and/or one or more C₆-C₂₄ and in particular C₁₂-C₂₀ alkyl ether sulfates; preferably comprising from 1 to 20 ethylene oxide units, particularly in the form of alkali metal or alkaline-earth metal, ammonium or amino alcohol salts.

- 35 Even more preferentially, the composition according to the invention comprises one or more anionic surfactants chosen from C₆-C₂₄ and notably C₁₂-C₂₀ alkyl sulfates and one or more anionic surfactants chosen from C₆-C₂₄ and notably C₁₂-C₂₀ alkyl ether sulfates preferably comprising from 1 to 20 ethylene oxide units; these surfactants being more particularly in the form of alkali metal or alkaline-earth metal, ammonium or
- 40 amino alcohol salts.

The anionic surfactant(s) are preferably present in the composition according to the invention in a total content ranging from 1% to 30% by weight, notably from 1% to 25%

by weight, better still from 2% to 30% by weight, better still from 2 to 25% by weight, even better still from 2 to 20% by weight, and even better still from 3% to 15% by weight relative to the total weight of the composition.

- 5 Better still, the composition according to the invention comprises the sulfate anionic surfactant(s) in a total amount preferably ranging from 1% to 30% by weight, notably from 1% to 25% by weight, better still from 2% to 30% by weight, better still from 2 to 25% by weight, even better still from 2 to 20% by weight, and even better still from 3% to 15% by weight, relative to the total weight of the composition.

10

4/ Amphoteric surfactants

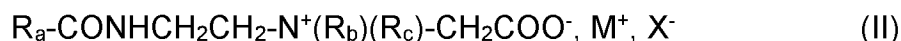
The composition according to the invention also comprises one or more amphoteric surfactants.

In particular, the amphoteric or zwitterionic surfactant(s) are nonsilicone surfactants.

- 15 They may in particular be optionally quaternized secondary or tertiary aliphatic amine derivatives, wherein 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.

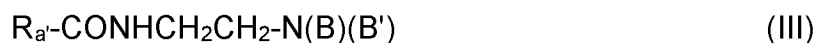
- 20 Mention may in particular be made of (C₈-C₂₀)alkylbetaines, (C₈-C₂₀)alkylsulfobetaines, (C₈-C₂₀)alkylamido(C₃-C₈)alkylbetaines and (C₈-C₂₀)alkylamido(C₆-C₈)alkylsulfobetaines.

- 25 Among the optionally quaternized derivatives of secondary or tertiary aliphatic amines that may be used, as defined above, mention may also be made of the compounds having the respective structures (II) and (III) below:



wherein:

- 30 - R_a represents a C₁₀ to C₃₀ alkyl or alkenyl group derived from an acid R_aCOOH preferably present in hydrolyzed coconut kernel oil, or a heptyl, nonyl or undecyl group;
 - R_b represents a β-hydroxyethyl group; and
 - R_c represents a carboxymethyl group;
 - M⁺ represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
 35 and
 - X⁻ represents an organic or mineral anionic counterion, such as that chosen from halides, acetates, phosphates, nitrates, (C₁-C₄)alkyl sulfates, (C₁-C₄)alkyl- or (C₁-C₄)alkylaryl-sulfonates, in particular methyl sulfate and ethyl sulfate; or alternatively M⁺ and
 40 X⁻ are absent;



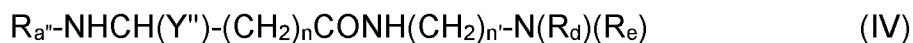
wherein:

- B represents the group $-\text{CH}_2\text{CH}_2\text{OX}'$;
- B' represents the group $-(\text{CH}_2)_z\text{Y}'$, with $z = 1$ or 2 ;
- X' represents the group $-\text{CH}_2\text{COOH}$, $-\text{CH}_2-\text{COOZ}'$, $-\text{CH}_2\text{CH}_2\text{COOH}$ or $\text{CH}_2\text{CH}_2-\text{COOZ}'$, or a hydrogen atom;
- 5 - Y' represents the group $-\text{COOH}$, $-\text{COOZ}'$ or $-\text{CH}_2\text{CH}(\text{OH})\text{SO}_3\text{H}$ or the group $\text{CH}_2\text{CH}(\text{OH})\text{SO}_3-\text{Z}'$;
- Z' represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
- R_a' represents a C_{10} to C_{30} alkyl or alkenyl group of an acid $\text{R}_a'-\text{COOH}$ which is preferably present in coconut kernel oil or in hydrolyzed linseed oil, or an alkyl group, in particular a C_{17} group, 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 Rhodia under the trade name Miranol® C2M Concentrate.

Use may also be made of compounds of formula (IV):



25 wherein:

- Y'' represents the group $-\text{COOH}$, $-\text{COOZ}''$ or $-\text{CH}_2-\text{CH}(\text{OH})\text{SO}_3\text{H}$ or the group $\text{CH}_2\text{CH}(\text{OH})\text{SO}_3-\text{Z}''$;
- R_d and R_e , independently of one another, represent a C_1 to C_4 alkyl or hydroxyalkyl radical;
- 30 - Z'' represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
- R_a'' represents a C_{10} to C_{30} alkyl or alkenyl group of an acid $\text{R}_a''-\text{COOH}$ which is preferably present in coconut kernel oil or in hydrolyzed linseed oil;
- n and n' denote, independently of one another, an integer ranging from 1 to 3.

35 Mention may be made, among the compounds of formula (II), of the compound classified in the CTFA dictionary under the name sodium diethylaminopropyl cocoaspartamide and sold by Noveal under the name Chimexane HB.

These compounds may be used alone or as mixtures.

40 Among the amphoteric or zwitterionic surfactants, use is preferably made of $(\text{C}_8-\text{C}_{20})$ alkylbetaines such as cocoylbetaine, $(\text{C}_8-\text{C}_{20})$ alkylamido (C_3-C_8) alkylbetaines such as cocamidopropylbetaine, and mixtures thereof, and the compounds of formula (IV) such as the sodium salt of diethylaminopropyl laurylamino succinamate (INCI name: sodium

diethylaminopropyl cocoaspartamide).

Preferentially, the amphoteric or zwitterionic surfactants are chosen from (C₈-C₂₀)alkylamido(C₃-C₈)alkylbetaines such as cocamidopropylbetaine.

- 5 Preferably, the amphoteric surfactant(s) are present in the composition according to the invention in a total content ranging from 1% to 20% by weight, preferentially in a content ranging from 1.5% to 15% by weight and better still from 2% to 10% by weight, relative to the total weight of the composition.

10 **5/ Cationic polymers**

The composition according to the invention comprises one or more cationic polymers.

- 15 The term "cationic polymer" is intended to mean any nonsilicone polymer (polymer not comprising any silicon atoms) containing cationic groups and/or groups that can be ionized into cationic groups and not containing any anionic groups and/or groups that can be ionized into anionic groups.

- 20 The cationic polymer(s) that can be used preferably has/have a cationic charge density of less than or equal to 5 milliequivalents/gram (meq/g), better still less than or equal to 4 meq/g.

The cationic polymer(s) that can be used preferably has/have a cationic charge density of more than or equal to 1 meq/g, better still more than or equal to 1,5 meq/g, even better still more than or equal to 2 meq/g.

- 25 The cationic charge density of a polymer corresponds to the number of moles of cationic charges per unit weight of polymer under conditions wherein it is totally ionized. It may be determined by calculation if the structure of the polymer is known, i.e. the structure of the monomers constituting the polymer and their molar proportion or weight proportion. It may also be determined experimentally by the Kjeldahl method.

- 30 Preferably, the composition according to the invention may comprise one or more cationic polymers having a cationic charge density of less than or equal to 5 meq/g, better still less than or equal to 4,5 meq/g, even better still less than or equal to 4 meq/g.

- 35 Preferably, the composition according to the invention may comprise one or more cationic polymers having a cationic charge density of more than or equal to 1 meq/g, better still more than or equal to 1,5 meq/g, even better still more than or equal to 2 meq/g.

Preferably, the composition according to the invention may comprise one or more cationic polymers having a cationic charge density of from 1 to 5 meq/g, better still of from 1,5 to 4,5 meq/g, and even better still of from 2 to 4 meq/g.

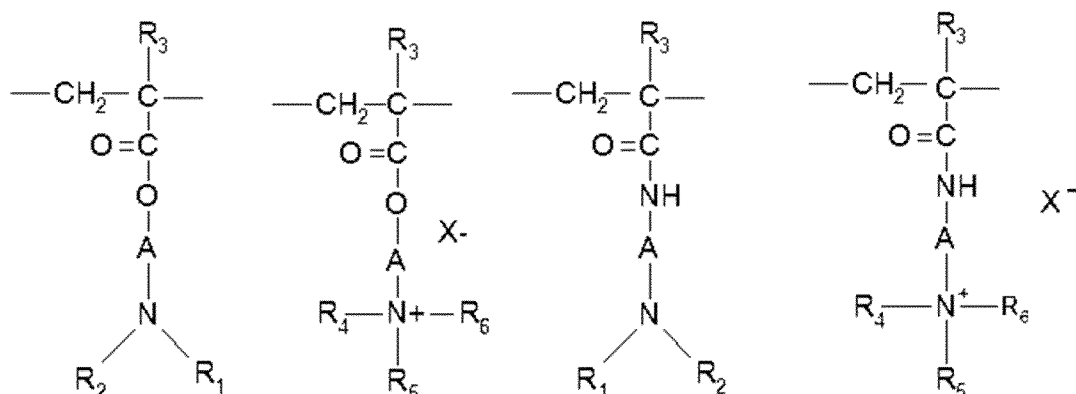
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The cationic polymers that may be used preferably have a weight-average molar mass (M_w) of between 500 and 5×10⁶ approximately and preferably between 10³ and 3×10⁶ approximately.

The cationic polymers that can be used are preferably non-associative.

Among the cationic polymers that can be used, mention may be made of:

- 5 (1) homopolymers or copolymers derived from acrylic or methacrylic esters or amides and comprising at least one of the units having the following formula:



- 10 wherein:

- R_3 , which may be identical or different, denote a hydrogen atom or a CH_3 radical;
- A, which may be identical or different, represent a linear or branched divalent alkyl group of 1 to 6 carbon atoms, preferably 2 or 3 carbon atoms, or a hydroxyalkyl group of 1 to 4 carbon atoms;
- 15 - R_4 , R_5 and R_6 , which may be identical or different, represent an alkyl group containing from 1 to 18 carbon atoms or a benzyl radical, preferably an alkyl group containing from 1 to 6 carbon atoms;
- R_1 and R_2 , which may be identical or different, represent a hydrogen atom or an alkyl group containing from 1 to 6 carbon atoms, preferably methyl or ethyl;
- 20 - X denotes an anion derived from a mineral or organic acid, such as a methosulfate anion or a halide such as chloride or bromide;

- 25 The copolymers of family (1) may also contain one or more units derived from comonomers that may be chosen from the family of acrylamides, methacrylamides, diacetone acrylamides, acrylamides and methacrylamides substituted on the nitrogen with lower ($\text{C}_1\text{-C}_4$) alkyls, acrylic or methacrylic acid esters, vinyl lactams such as vinylpyrrolidone or vinylcaprolactam, and vinyl esters.

Among these copolymers of 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,
- 30 - copolymers of acrylamide and of methacryloyloxyethyltrimethylammonium chloride, such as the products sold under the name Bina Quat P 100 by the company Ciba Geigy,

- the copolymer of acrylamide and of methacryloyloxyethyltrimethylammonium methosulfate, such as the product 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, for instance Gafquat 734 or Gafquat 755, or alternatively the products known as Copolymer 845, 958 and 937,
- dimethylaminoethyl methacrylate/vinylcaprolactam/vinylpyrrolidone terpolymers, such as the product sold under the name Gaffix VC 713 by the company ISP,
- vinylpyrrolidone/methacrylamidopropyl dimethylamine copolymers, such as the copolymers sold 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,
- preferably crosslinked polymers of methacryloyloxy(C₁-C₄)alkyltri(C₁-C₄)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 homopolymerization or copolymerization being followed by crosslinking with an olefinically unsaturated compound, in particular methylenebisacrylamide. Use may be made more particularly of a crosslinked acrylamide/methacryloyloxyethyltrimethylammonium chloride copolymer (20/80 by weight) in the form of a dispersion comprising 50% by weight of said copolymer in mineral oil. This dispersion is sold under the name Salcare® SC 92 by the company Ciba. Use may also be made of a crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymer comprising approximately 50% by weight of the homopolymer in mineral oil or in a liquid ester. These dispersions are sold under the names Salcare® SC 95 and Salcare® SC 96 by the company Ciba;

(2) cationic polysaccharides, notably cationic galactomannan gums and celluloses. Among the 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 notably described in FR 1 492 597; they are also defined in the CTFA dictionary as quaternary ammoniums of hydroxyethylcellulose that have reacted with an epoxide substituted with a trimethylammonium group.

Mention may notably be made of the polymers sold under the name Ucare Polymer JR (JR 400 LT, JR 125 and JR 30M) or LR (LR 400 and LR 30M) by the company Amerchol.

Cationic cellulose copolymers and cellulose derivatives grafted with a water-soluble quaternary ammonium monomer are described notably in patent US 4 131 576; mention may be made of hydroxyalkyl celluloses, for instance hydroxymethyl, hydroxyethyl

or hydroxypropyl celluloses notably grafted with a methacryloylethyltrimethylammonium, methacrylamidopropyltrimethylammonium or dimethyldiallylammonium salt. Mention may be made most particularly of crosslinked or non-crosslinked quaternized hydroxyethylcelluloses, the quaternizing agent notably possibly being diallyldimethylammonium chloride; and most particularly hydroxypropyltrimethylammonium hydroxyethylcellulose.

Among the commercial products corresponding to this definition, mention may be made of the products sold under the names Celquat L 200 and Celquat H 100 by the company National Starch.

A particularly preferred cationic cellulose that may notably be mentioned is the polymer having the INCI name Polyquaternium-10.

The cationic galactomannan gums are notably described in patents US 3 589 578 and US 4 031 307; mention may be made of cationic guar gums, notably those comprising cationic trialkylammonium groups, notably trimethylammonium. Mention may thus be made of guar gums modified with a 2,3-epoxypropyltrimethylammonium salt (for example a chloride).

Preferably, 2% to 30% by number of the hydroxyl functions of the guar gums bear cationic trialkylammonium groups. Even more preferentially, 5% to 20% by number of the hydroxyl functions of these guar gums are branched with cationic trialkylammonium groups. Among these trialkylammonium groups, mention may most particularly be made of the trimethylammonium and triethylammonium groups. Even more preferentially, these groups represent from 5% to 20% by weight relative to the total weight of the modified guar gum. Guar gums modified with 2,3-epoxypropyltrimethylammonium chloride may be used according to the invention.

Mention may be made in particular of the products having the INCI names Hydroxypropyl guar hydroxypropyltrimonium chloride and Guar hydroxypropyltrimonium chloride. Such products are notably sold under the names Jaguar C13S, Jaguar C15, Jaguar C17 or Jaguar C162 by the company Rhodia.

Among the cationic polysaccharides that may be used, mention may also be made of cationic derivatives of cassia gum, notably those comprising quaternary ammonium groups; in particular, mention may be made of the product having the INCI name Cassia hydroxypropyltrimonium chloride;

(3) polymers constituted of piperazinyl units and divalent alkylene or hydroxyalkylene radicals containing linear 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;

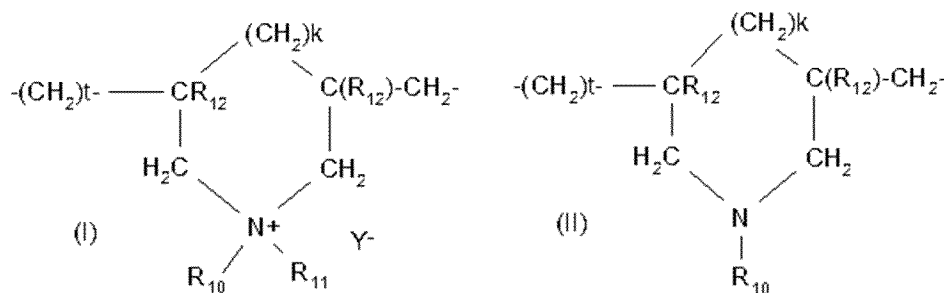
(4) water-soluble polyaminoamides prepared in particular by polycondensation of an acidic compound with a polyamine; these polyaminoamides can be crosslinked with an epihalohydrin, a diepoxide, a dianhydride, an unsaturated dianhydride, a bis-unsaturated derivative, a bis-halohydrin, a bis-azetidinium, 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-haloacyldi-amine, 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;

(5) 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/dialkylaminohydroxyalkyldialkylenetriamine polymers wherein the alkyl radical comprises from 1 to 4 carbon atoms and preferably denotes methyl, ethyl or propyl. Among these derivatives, mention may be made more particularly of the adipic acid/dimethylaminohydroxypropyl/diethylenetriamine polymers sold under the name Cartaretine F, F4 or F8 by the company Sandoz;

(6) polymers obtained by reacting a polyalkylene polyamine comprising two primary amine groups and at least one secondary amine group with a dicarboxylic acid chosen from diglycolic acid and saturated aliphatic dicarboxylic acids containing from 3 to 8 carbon atoms; the mole ratio between the polyalkylene polyamine and the dicarboxylic acid preferably being between 0.8:1 and 1.4:1; the resulting polyaminoamide being reacted with epichlorohydrin in a mole ratio of epichlorohydrin relative to the secondary amine group of the polyaminoamide preferably of between 0.5:1 and 1.8:1. Polymers of this type are sold in particular under the name Hercosett 57 by the company Hercules Inc. or else under the name PD 170 or Delsette 101 by the company Hercules in the case of the adipic acid/epoxypropyl/diethylenetriamine copolymer;

(7) cyclopolymers of alkylldiallylamine or of dialkylldiallylammonium, such as the homopolymers or copolymers comprising, as main constituent of the chain, units corresponding to formula (I) or (II):



wherein

- k and t are equal to 0 or 1, the sum k + t being equal to 1;

- R₁₂ denotes a hydrogen atom or a methyl radical;

- R₁₀ and R₁₁, independently of each other, denote a C₁-C₆ alkyl group, a C₁-C₅ hydroxyalkyl group, a C₁-C₄ amidoalkyl group; or alternatively R₁₀ and R₁₁ may denote, together with the nitrogen atom to which they are attached, a heterocyclic group such

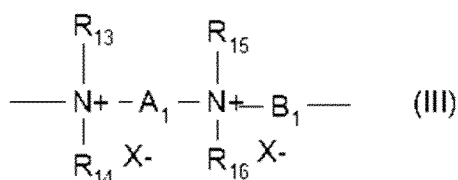
as piperidyl or morpholinyl; R₁₀ and R₁₁, independently of each other, preferably denote a C₁-C₄ alkyl group;

- Y⁻ is an anion such as bromide, chloride, acetate, borate, citrate, tartrate, bisulfate, bisulfite, sulfate or phosphate.

- 5 Mention may be made more particularly of the homopolymer of dimethyldiallylammonium salts (for example chloride) (INCI name polyquaternium-6) for example sold under the name Merquat 100 by the company Nalco and the copolymers of diallyldimethylammonium salts (for example chloride) and of acrylamide (INCI name polyquaternium-7), notably sold under the name Merquat 550 or Merquat 7SPR;

10

(8) quaternary diammonium polymers comprising repeating units of formula:



wherein:

- 15 - R₁₃, R₁₄, R₁₅ and R₁₆, which may be identical or different, represent aliphatic, alicyclic or arylaliphatic radicals comprising from 1 to 20 carbon atoms or C₁-C₁₂ hydroxyalkyl aliphatic radicals;

or else R₁₃, R₁₄, R₁₅ and R₁₆, together or separately, form, with the nitrogen atoms to which they are attached, heterocycles optionally comprising a second non-nitrogen heteroatom;

20

or else R₁₃, R₁₄, R₁₅ and R₁₆ represent a linear or branched C₁-C₆ alkyl radical substituted with a nitrile, ester, acyl, amide or -CO-O-R₁₇-D or -CO-NH-R₁₇-D group, where R₁₇ is an alkylene and D is a quaternary ammonium group;

- A₁ and B₁ represent linear or branched, saturated or unsaturated, divalent polymethylene groups comprising from 2 to 20 carbon atoms, which may contain, linked 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

25

- X⁻ denotes an anion derived from a mineral or organic acid;

- 30 it being understood that A₁, R₁₃ and R₁₅ can form, with the two nitrogen atoms to which they are attached, a piperazine ring;

in addition, if A₁ denotes a linear or branched, saturated or unsaturated alkylene or hydroxyalkylene radical, B₁ may also denote a group (CH₂)_n-CO-D-OC-(CH₂)_p- with n and p, which may be identical or different, being integers ranging from 2 to 20, and D denoting:

35

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

-(CH₂CH₂O)_x-CH₂CH₂- and -[CH₂CH(CH₃)O]_y-CH₂CH(CH₃)-, wherein x and y denote an integer from 1 to 4, representing a defined and unique degree of polymerization or

40

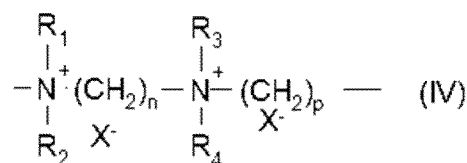
any number from 1 to 4 representing an average degree of polymerization;

b) a bis-secondary diamine residue, such as a piperazine derivative;
 c) a bis-primary diamine residue of formula -NH-Y-NH-, wherein Y denotes a linear or branched hydrocarbon-based radical, or else the divalent radical -CH₂-CH₂-S-S-CH₂-CH₂-;

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

Preferably, X⁻ is an anion, such as chloride or bromide. These polymers have a number-average molar mass (M_n) generally of between 1000 and 100 000.

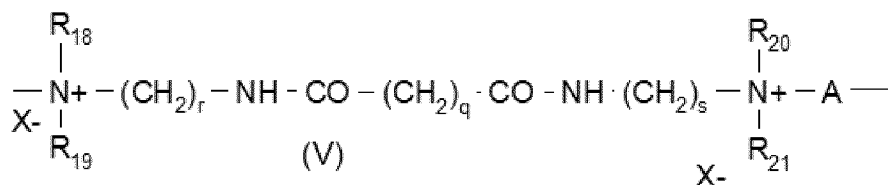
10 Mention may be made more particularly of polymers constituted of repeating units corresponding to the formula:



wherein R₁, R₂, R₃ and R₄, which may be identical or different, denote an alkyl or hydroxyalkyl radical containing from 1 to 4 carbon atoms, n and p are integers ranging from 2 to 20, and X⁻ is an anion derived from a mineral or organic acid.

15 A particularly preferred compound of formula (IV) is the one for which R₁, R₂, R₃ and R₄ represent a methyl radical, n = 3, p = 6 and X = Cl, known as Hexadimethrine chloride according to the INCI (CTFA) nomenclature;

(9) polyquaternary ammonium polymers comprising units of formula (V):



20

wherein:

- R₁₈, R₁₉, R₂₀ and R₂₁, which may be identical or different, represent a hydrogen atom or a methyl, ethyl, propyl, β-hydroxyethyl, β-hydroxypropyl or -CH₂CH₂(OCH₂CH₂)_pOH radical, wherein p is equal to 0 or to an integer between 1 and 6, with the proviso that

25 R₁₈, R₁₉, R₂₀ and R₂₁ do not simultaneously represent a hydrogen atom and

- r and s, which may be identical or different, are integers between 1 and 6,

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

- X⁻ denotes an anion such as a halide,

- A denotes a divalent dihalide radical or preferably represents -CH₂-CH₂-O-CH₂-CH₂-.

30 Examples that may be mentioned include the products Mirapol® A 15, Mirapol® AD1, Mirapol® AZ1 and Mirapol® 175 sold by Miranol;

(10) quaternary polymers of vinylpyrrolidone and of vinylimidazole, for instance the products sold under the names Luviquat® FC 905, FC 550 and FC 370 by the company

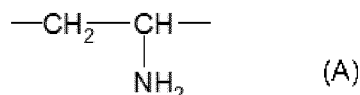
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BASF;

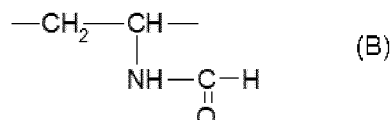
(11) polyamines such as Polyquart® H sold by Cognis, referred to under the name Polyethylene glycol (15) tallow polyamine in the CTFA dictionary;

(12) polymers comprising in their structure:

- 5 (a) one or more units corresponding to formula (A) below:



(b) optionally one or more units corresponding to formula (B) below:



- 10 In other words, these polymers may be in particular chosen from homopolymers or copolymers comprising one or more units derived from vinylamine and optionally one or more units derived from vinylformamide.

- Preferably, these cationic polymers are chosen from polymers comprising, in their structure, from 5 mol% to 100 mol% of units corresponding to formula (A) and from 0 to 95 mol% of units corresponding to formula (B), preferentially from 10 mol% to 100 mol% of units corresponding to formula (A) and from 0 to 90 mol% of units corresponding to formula (B).

These polymers may be obtained, for example, by partial hydrolysis of polyvinylformamide. This hydrolysis may take place in acidic or basic medium.

- 20 The weight-average molecular weight of said polymer, measured by light scattering, may range from 1000 to 3 000 000 g/mol, preferably from 10 000 to 1 000 000 and more particularly from 100 000 to 500 000 g/mol.

- The polymers comprising units of formula (A) and optionally units of formula (B) are notably sold under the name Lupamin by the company BASF, for instance, in a non-limiting manner, the products provided under the names Lupamin 9095, Lupamin 5095, 25 Lupamin 1095, Lupamin 9030 (or Luviquat 9030) and Lupamin 9010.

Cationic polymers chosen from those of families (1), (2) and (7) mentioned above are most particularly preferred.

- 30 Preferably, the cationic polymers that can be used in the context of the invention are chosen, alone or as a mixture, from:

- alkyldiallylamine or dialkyldiallylammonium cyclopolymers, and in particular homopolymers or copolymers of dimethyldiallylammonium salts (for example chloride), such as polyquaternium-6 and polyquaternium-7 (INCI name);
- 35 - cationic polysaccharides, notably cationic celluloses such as polyquaternium-10; and cationic galactomannan gums, notably cationic guar gums.

In one preferred embodiment, the composition may comprise at least two different cat-

ionic polymers, preferably at least two different cationic polymers, both having a cationic charge density of less than or equal to 5 milliequivalents/gram (meq/g), better still less than or equal to 4 meq/g.

In particular, the composition may comprise at least one cationic polysaccharide and at least one alkyldiallylamine or dialkyldiallylammonium cyclopolymer.

Better still, the composition may comprise at least one cationic polysaccharide chosen from cationic celluloses and cationic galactomannan gums; and at least one alkyldiallylamine or dialkyldiallylammonium cyclopolymer chosen from homopolymers and copolymers of dimethyldiallylammonium salts (for example chloride).

Even better still, the composition may comprise at least one cationic polysaccharide chosen from cationic galactomannan gums; and at least one alkyldiallylamine or dialkyldiallylammonium cyclopolymer chosen from homopolymers and copolymers of dimethyldiallylammonium salts (for example chloride).

The composition according to the invention may comprise the cationic polymer(s) in a total amount ranging from 0.01% to 10% by weight, better still from 0.05% to 5% by weight and even better still from 0.1% to 2% by weight, relative to the total weight of the composition.

6/ Additional liquid fatty substance

The composition according to the invention may advantageously comprise one or more additional liquid fatty substances other than the amino silicones above. Better still, the additional liquid fatty substance(s) are nonsilicone.

The term "fatty substance" is intended to mean an organic compound that is insoluble in water at ambient temperature (25°C) and at atmospheric pressure (1 atm), i.e. which has a solubility of less than 5% by weight, preferably less than 1% by weight. They are generally soluble in organic solvents under the same temperature and pressure conditions, for instance chloroform, ethanol, benzene, liquid petroleum jelly or decamethylcyclopentasiloxane.

The liquid fatty substances are liquid at ambient temperature and at atmospheric pressure (25°C, 1 atm).

Preferably, the composition can advantageously comprise one or more nonsilicone liquid fatty substances chosen from liquid esters of a fatty acid and/or of a fatty alcohol, liquid fatty ethers and liquid fatty alcohols, and mixtures thereof.

The liquid fatty esters are preferably esters derived from a C₆-C₃₂ fatty acid and/or from a C₆-C₃₂ fatty alcohol, and are liquid at 25°C, 1 atm. These esters are preferably liquid esters of saturated or unsaturated, linear or branched C₁-C₂₆ aliphatic monoacids or polyacids and of saturated or unsaturated, linear or branched C₁-C₂₆ 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, isononyl isononanoate, isodecyl neopentanoate and isostearyl neopentanoate.

- 5 Esters of C₄-C₂₂ dicarboxylic or tricarboxylic acids and of C₁-C₂₂ alcohols and esters of monocarboxylic, dicarboxylic or tricarboxylic acids and of C₄-C₂₆ dihydroxy, trihydroxy, tetrahydroxy or pentahydroxy non-sugar alcohols may also be used. Mention may be made notably 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) malate, triisopropyl citrate, triisocetyl citrate, triisostearyl citrate, glyceryl trilactate, glyceryl trioctanoate, trioctyldodecyl citrate, trio-
10 leyl citrate, neopentyl glycol diheptanoate, and diethylene glycol diisononanoate.

- Mention may also be made of sugar esters and diesters of C₆-C₃₀ and preferably C₁₂-
15 C₂₂ fatty acids. It is recalled that the term "sugar" is intended to mean 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,
20 fucose, maltose, fructose, mannose, arabinose, xylose and lactose, and derivatives thereof, notably alkyl derivatives, such as methyl derivatives, for instance methylglucose. The esters of sugars and of fatty acids can in particular be chosen from the group constituted of the esters or mixtures of esters of sugars described above and of saturated or unsaturated and linear or branched C₆-C₃₀, preferably C₁₂-C₂₂, fatty acids. If
25 they are unsaturated, these compounds can comprise one to three conjugated or non-conjugated carbon-carbon double bonds. The esters according to this variant can also be chosen from mono-, di-, tri- and tetraesters, polyesters and mixtures thereof. These esters can, for example, be oleates, laurates, palmitates, myristates, behenates, co-coates, stearates, linoleates, linolenates, caprates, arachidonates, and mixtures
30 thereof, such as, in particular, mixed oleate/palmitate, oleate/stearate or palmitate/stearate esters. More particularly, use is made of monoesters and diesters and notably of saccharose, 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
35 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 can be used in the composition of the invention as liquid
40 fatty esters, examples that may be mentioned include triglyceride oils of plant or synthetic origin, such as liquid fatty acid triglycerides comprising from 6 to 30 carbon atoms, for instance heptanoic or octanoic acid triglycerides, or alternatively, for example, sunflower oil, corn oil, soya bean oil, marrow oil, grapeseed oil, sesame oil, hazelnut oil,

apricot oil, macadamia oil, arara oil, castor oil, avocado oil, olive oil, rapeseed oil, coconut kernel oil, wheatgerm oil, sweet almond oil, apricot oil, safflower oil, candlenut oil, coconut oil, camelina oil, tamanu oil, babassu oil and pracaxi oil, caprylic/capric acid triglycerides, for instance those sold by the company Stéarinerie Dubois or those sold under the names Miglyol® 810, 812 and 818 by the company Dynamit Nobel, jojoba oil and shea butter oil.

As solid esters of fatty acids and/or of fatty alcohols, mention may be made of solid esters derived from C₉-C₂₆ fatty acids and from C₉-C₂₆ 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 or stearyl myristate, and hexyl stearate.

Esters of C₄-C₂₂ dicarboxylic or tricarboxylic acids and of C₁-C₂₂ alcohols and esters of mono-, di- or tricarboxylic acids and of C₂-C₂₆ di-, tri-, tetra- or pentahydroxylated alcohols may also be used. Mention may be made notably of diethyl sebacate, diisopropyl sebacate, diisopropyl adipate, di-n-propyl adipate, dioctyl adipate and dioctyl maleate.

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

The liquid fatty alcohols preferably correspond to the formula R'-OH wherein R' is a linear or branched, saturated or unsaturated hydrocarbon-based radical comprising 8 to 30 carbon atoms, optionally comprising one or more OH groups.

Preferably, R' comprises from 10 to 22 carbon atoms, or even from 12 to 20 carbon atoms.

Preferably, R' is an unsaturated or branched radical comprising from 8 to 30 carbon atoms, better still from 10 to 22 carbon atoms, even from 12 to 20 carbon atoms, and not comprising a hydroxyl group.

The liquid saturated fatty alcohols are preferably branched. They may optionally comprise in their structure at least one aromatic or non-aromatic ring. Preferably, they are acyclic. Among the saturated liquid fatty alcohols, mention may be made of octyldodecanol, isostearyl alcohol and 2-hexyldecanol.

The unsaturated liquid fatty alcohols exhibit, 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 can optionally comprise, in their structure, at least one aromatic or non-aromatic ring. Preferably, they are acyclic. Among the unsaturated liquid fatty alcohols, mention may be made of oleyl alcohol, linoleyl alcohol, linolenyl alcohol and undecylenyl alcohol.

Preferably, the composition can comprise one or more nonsilicone liquid fatty substances chosen from C₈-C₃₀ liquid fatty esters, plant oils and notably triglyceride oils of plant origin; and C₈-C₃₀ liquid fatty alcohols, and also mixtures thereof.

- 5 The composition may comprise the additional liquid fatty substance(s) in a total amount of preferably between 0.25% and 15% by weight, notably from 0.5% to 10% by weight and better still of between 1% and 5% by weight, relative to the total weight of the composition.

- 10 The composition may comprise the additional nonsilicone liquid fatty substance(s) chosen from C₈-C₃₀ liquid fatty esters, plant oils and notably triglyceride oils of plant origin, and C₈-C₃₀ liquid fatty alcohols, and mixtures thereof, in a total amount of preferably between 0.25% and 15% by weight, notably from 0.5% to 10% by weight and better still of between 1% and 5% by weight, relative to the total weight of the composition.

- 15 The composition according to the invention advantageously comprises water, notably at a concentration preferably ranging from 50% to 95% by weight, for example from 55% to 90% by weight, notably from 60% to 85% by weight and better still from 65% to 85% by weight, relative to the total weight of the composition.

- 20 The pH of the composition may be between 2.5 and 8, preferentially between 3 and 7, or even between 4 and 6.

- 25 The composition according to the invention may optionally comprise one or more organic solvents that are liquid at 25°C, 1 atm, preferably hydrophilic (water-soluble or water miscible), which can be chosen from C₂-C₈ polyols and C₃-C₇ polyol ethers. Advantageously, the organic solvent is chosen from C₂-C₄ diols and/or triols. It can advantageously be chosen from glycerol, 1,2-propanediol (propylene glycol) and mixtures thereof.

- 30 Preferably, the composition according to the invention may comprise less than 2% by weight relative to the total weight of the composition, better still less than 1,5% by weight, more preferably less than 1% by weight, even better still less than 0,5% by weight, and more preferably no (0%) of C₁-C₆ aliphatic or aromatic monoalcohols, such as ethanol, isopropanol, benzyl alcohol, and mixtures thereof.

- 35 The composition according to the invention may also comprise at least one or more common cosmetic ingredients chosen from nonionic surfactants; thickeners, gelling agents; anionic, amphoteric or nonionic polymers; sunscreens; moisturizers; anti-dandruff agents; antioxidants; chelating agents; reducing agents; oxidation bases, couplers, oxidizing agents, direct dyes; hair-relaxing agents; nacreous agents and pacifiers; micas, nacres, glitter flakes; plasticizers or coalescence agents; hydroxy acids; 40 pigments; fillers; fragrances; basifying or acidifying agents; silanes. Those skilled in the art will take care to select the ingredients included in the composition, and also the amounts thereof, so that they do not harm the properties of the compositions of the present invention.

The cosmetic composition according to the invention especially finds a particularly advantageous application in the hair sector, especially for cleansing and/or conditioning the hair. The hair compositions are preferably shampoos or conditioners; advantageously, the composition according to the invention is in the form of a shampoo, notably a conditioning shampoo, that can be rinsed off.

The cosmetic composition may or may not be rinsed off after having been applied to the keratin materials, notably the hair. It can thus optionally be rinsed off, for example with water, after an optional leave-on time. It is preferably rinsed off, after an optional leave-on time.

A subject of the invention is also a cosmetic treatment process, notably for washing and/or conditioning keratin materials, notably the hair, comprising the application to said keratin materials of a cosmetic composition according to the invention, preferably followed by rinsing, after an optional leave-on time.

It is preferably a hair treatment process, in particular for washing and/or conditioning the hair, most particularly sensitized, embrittled or damaged hair, or curly hair.

The present invention is illustrated in greater detail in the examples that follow (%AM = % of active material in the composition).

Example 1

The hair compositions according to the invention below were prepared, said compositions comprising (% by weight of AM):

[Table 1]

	Composition A	Composition B	Composition C
Bis-cetearyl amodimethicone	1.6	-	1.6
Bis(C13-15 Alkoxy) PG-Amodimethicone (DC8500 - Dow)	-	0.83	-
Anionic surfactants (Ammonium lauryl sulfate and Sodium laureth sulfate)	12.7	12.7	4.2
Cocamidopropyl betaine	6.6	6.6	3.3
Hydroxypropyl guar hydroxypropyltrimonium chloride	0.4	0.4	0.4
Polyquaternium-7	0.14	0.14	0.14
Cetearyl alcohol	5	5	5.4
Acrylates/C10-30 alkyl acrylate cross-polymer	0.36	0.36	0.36

PEG-30 dipolyhydroxystearate	0.02	0.02	0.02
Caprylyl glycol	0.05	0.05	0.05
Plant oil	-	-	0.01
NaCl	1.2	1.2	0.6
Preservatives	qs	qs	qs
Water	qs 100	qs 100	qs 100
Viscosity (25°C, 1 atm) Rheomat 200 revs/min	2740-3500 cps (2.7-3.5 Pa.s)	3610-5960 cps (3.6-6.0 Pa.s)	1480-2320 cps (1.5-2.3 Pa.s)

Hair cleansing compositions are obtained which make it possible to generate a foam that develops gradually and it makes it possible to massage the fibers very gently. The foam generated is different than that of conventional shampoos; it is more dense but just as effective in terms of washing capacity. It is very easy to rinse off.

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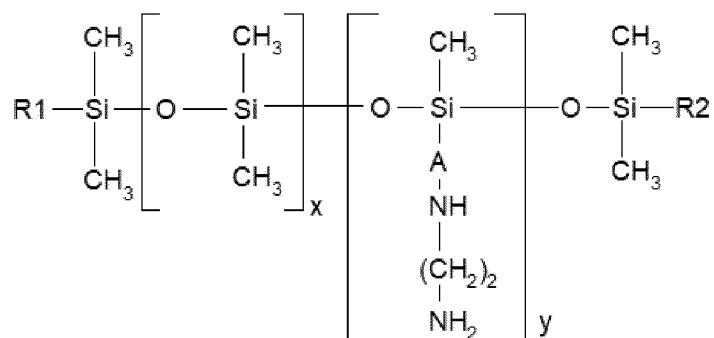
The cleansing compositions can be considered to be "washing creams" and generate a signal of care immediately perceived by users. They nourish like a mask and offer a cosmeticity that exceeds the prior art on the basis of nutrition and repair criteria.

After the composition has been rinsed off, the hair can be disentangled easily, is soft, manageable, light and smooth, and exhibits good hairstyle shape retention with long-lasting and clean hair effects.

10

CLAIMS

1. A cosmetic composition, preferably a hair composition, comprising:
- 5 (i) one or more anionic surfactants,
 (ii) one or more amphoteric surfactants,
 (iii) one or more cationic polymers,
 (iv) one or more solid fatty alcohols, the total content of solid fatty alcohols being greater than or equal to 2% by weight relative to the total weight of the composition,
 10 and
 (v) one or more amino silicones comprising hydrocarbon-based end groups comprising 8 to 30 carbon atoms.
2. The composition as claimed in claim 1, wherein the hydrocarbon-based end group(s) comprising 8 to 30 carbon atoms are chosen from:
- 15 a linear or branched, saturated or unsaturated, preferably saturated, alkyl chain R comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably from 12 to 24 carbon atoms;
 an alkoxyated chain (-O-R) where R = a linear or branched, saturated or unsaturated,
 20 preferably saturated, alkyl chain comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably from 12 to 24 carbon atoms;
 it being possible for said alkyl chains R to be optionally substituted with one or more hydroxyl groups (OH).
3. The composition as claimed in either of the preceding claims, wherein the amino silicones comprising hydrocarbon-based end groups are chosen from, alone or as a mixture,
- 25 (i) the silicones of formula (I):

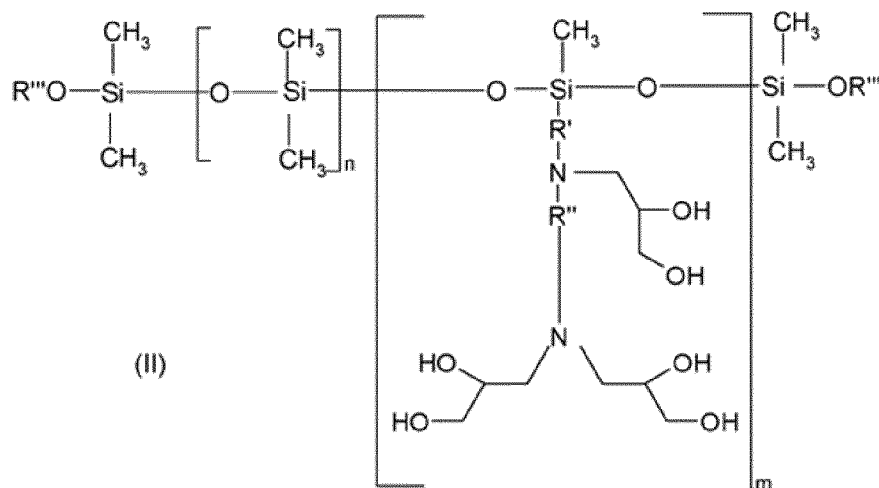


- 30 wherein:
- x is a number between 1 and 5000, preferably between 10 and 2000, better still between 100 and 1000;
 - y is a number between 1 and 5000, preferably between 1 and 500, better still between
- 35 1 and 100;

- R1 and R2, which may be identical or different, preferably identical, are linear or branched, saturated or unsaturated alkyl radicals comprising from 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24 carbon atoms; and/or alkoxy radicals OR, where R = linear or branched, saturated or unsaturated alkyl radical comprising from 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24 carbon atoms; it being possible for said alkyl radicals to optionally be substituted with one or more hydroxyl groups OH;
- A denotes a linear or branched, preferably branched, divalent alkylene radical having from 2 to 8 carbon atoms, notably from 3 to 6 carbon atoms;

10

(ii) the silicones of formula (II):



wherein:

- n is a number between 1 and 1000, preferably between 10 and 500, better still between 25 and 100, even better still between 50 and 80;
- m is a number between 1 and 200, preferably between 1 and 100, better still between 1 and 10 and even better still between 1 and 5;
- R''', which may be identical or different, preferably identical, are linear or branched, saturated or unsaturated alkyl radicals comprising from 8 to 30 carbon atoms, preferably 10 to 24 carbon atoms, notably 12 to 18 carbon atoms; it being possible for said radicals to optionally be substituted with one or more hydroxyl groups OH;
- R' is a linear or branched, divalent alkylene radical having from 1 to 6 carbon atoms, notably from 2 to 5 carbon atoms;
- R'' is a linear or branched, divalent alkylene radical having from 1 to 6 carbon atoms, notably from 1 to 5 carbon atoms.

4. The composition as claimed in claim 3, comprising one or more amino silicones comprising hydrocarbon-based end groups of formula (I) wherein:

- A is branched and comprises 3 to 4 carbon atoms; better still, A is one of the following divalent radicals: -CH₂CH₂CH₂- and -CH₂-CH(CH₃)-CH₂-; and/or
- R1 and R2, which may be identical or different, are saturated linear alkyl radicals comprising 8 to 30 carbon atoms, preferably 10 to 28 carbon atoms, notably 12 to 24

carbon atoms; mention may be made in particular of dodecyl, tetradecyl, pentadecyl, hexadecyl, heptadecyl, octadecyl, nonadecyl and eicosyl radicals; preferentially, R1 and R2, which may be identical or different, are chosen from hexadecyl (cetyl) and octadecyl (stearyl) radicals; preferably, R1 and R2 are identical; better still, R1=R2=cetyl, stearyl or cetearyl (mixture of C₁₆ and C₁₈);

preferably one or more amino silicones comprising hydrocarbon-based end groups of formula (I) wherein:

- x is a number between 100 and 1000;

- y is a number between 1 and 100;

- R1 and R2, which are identical, are saturated linear alkyl radicals comprising from 12 to 24 carbon atoms, better still from 16 to 18 carbon atoms;

- A denotes a branched divalent alkylene radical having from 3 to 6 carbon atoms; better still -CH₂-CH(CH₃)-CH₂-.

5. The composition as claimed in claim 3, comprising one or more amino silicones comprising hydrocarbon-based end groups of formula (II) wherein:

- the R^{'''}, which may be identical or different, are saturated linear alkyl radicals comprising 8 to 30 carbon atoms, preferably 10 to 24 carbon atoms, notably 12 to 18 carbon atoms; mention may be made in particular of dodecyl, C₁₃, tetradecyl, pentadecyl, hexadecyl, heptadecyl, octadecyl radicals; preferentially, the R^{'''}, which may be identical or different, are chosen from saturated linear alkyl radicals having 12 to 16 carbon atoms, notably which are C₁₃, C₁₄ or C₁₅, alone or as a mixture, and better still represent a mixture of C₁₃, C₁₄ and C₁₅; the R^{'''} preferably being identical; and/or

- R' is a linear or branched, preferably branched, divalent alkylene radical comprising 1 to 6 carbon atoms, notably from 2 to 5 carbon atoms; notably a -CH₂-CH₂-CH₂-, -CH₂-CH(CH₃)-CH₂- or -CH₂-CH₂-CH(CH₃)- radical; and/or

- R'' is a linear divalent alkylene radical comprising 1 to 6 carbon atoms, notably from 1 to 4 carbon atoms, in particular a -CH₂-CH₂- radical;

preferably one or more amino silicones comprising hydrocarbon-based end groups of formula (II) wherein:

- n is a number between 50 and 80;

- m is a number between 1 and 5;

- R^{'''}, which are identical, are saturated linear alkyl radicals comprising from 12 to 18 carbon atoms, better still from 13 to 15 carbon atoms;

- R' is a divalent alkylene radical having from 2 to 5 carbon atoms, better still chosen from -(CH₂)₃-, -CH₂-CH(CH₃)-CH₂- or -CH₂-CH₂-CH(CH₃)-,

- R'' is a linear divalent alkylene radical having from 1 to 4 carbon atoms, better still -(CH₂)₂-.

6. The composition as claimed in one of the preceding claims, comprising the amino silicone(s) comprising hydrocarbon-based end groups comprising 8 to 30 carbon atoms in a total amount ranging from 0.1% to 10% by weight, preferably from 0.2% to 5% by weight and preferentially from 0.5% to 3% by weight, relative to the total weight

of the composition.

7. The composition as claimed in any one of the preceding claims, comprising one or more solid fatty alcohols of formula R-OH wherein R is a linear or branched, saturated or unsaturated hydrocarbon-based radical comprising 8 to 30 carbon atoms, optionally comprising one or more OH groups; R preferably comprising from 10 to 22 carbon atoms, or even from 12 to 20 carbon atoms; R preferably being a linear or branched, saturated radical; better still a saturated linear radical; R preferentially being a saturated linear radical comprising from 8 to 30 carbon atoms, better still from 10 to 22 carbon atoms, even better still from 12 to 20 carbon atoms, and not comprising a hydroxyl group.

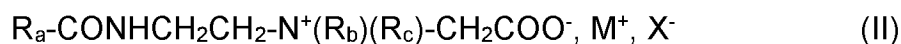
8. The composition as claimed in one of the preceding claims, comprising the solid fatty alcohol(s) in a total content of greater than or equal to 3% by weight, relative to the total weight of the composition; the total content preferably being between 2% and 20% by weight, better still between 3% and 15% by weight, preferentially between 4% and 10% by weight, relative to the total weight of the composition.

9. The composition as claimed in one of the preceding claims, comprising one or more sulfate, sulfonate and/or carboxylic (or carboxylate), preferably sulfate, anionic surfactants;

better still chosen from: alkyl sulfates, alkyl ether sulfates, alkylamido ether sulfates, alkylaryl/polyether sulfates, monoglyceride sulfates; and the salts of these compounds; the alkyl groups of these compounds comprising from 6 to 30 carbon atoms, especially from 12 to 28, better still from 14 to 24 or even from 16 to 22 carbon atoms; the aryl group preferably denoting a phenyl or benzyl group; these compounds may be polyoxyalkylenated, especially polyoxyethylenated, and then preferably comprising from 1 to 50 ethylene oxide units, better still from 2 to 10 ethylene oxide units; even better still chosen, alone or as a mixture, from:

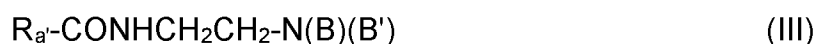
- alkyl sulfates, in particular of C₆-C₂₄ or even C₁₂-C₂₀, and
- alkyl ether sulfates, in particular of C₆-C₂₄ or even C₁₂-C₂₀, preferably comprising from 1 to 20 ethylene oxide units;
in particular in the form of alkali metal, alkaline-earth metal, ammonium or amino alcohol salts.

10. The composition as claimed in one of the preceding claims, comprising one or more amphoteric surfactants chosen from (C₈-C₂₀)alkylbetaines, (C₈-C₂₀)alkylamido(C₃-C₈)alkylbetaines, and the compounds having the respective structures (II), (III) and (IV) below:



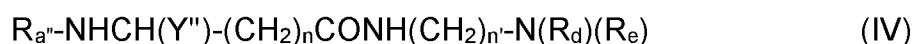
wherein:

- R_a represents a C_{10} to C_{30} alkyl or alkenyl group derived from an acid R_aCOOH preferably present in hydrolyzed coconut kernel oil, or a heptyl, nonyl or undecyl group;
- R_b represents a β -hydroxyethyl group; and
- R_c represents a carboxymethyl group;
- 5 - M^+ represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine; and
- X^- represents an organic or mineral anionic counterion, such as that chosen from halides, acetates, phosphates, nitrates, (C_1-C_4) alkyl sulfates, (C_1-C_4) alkyl- or (C_1-C_4) alkylaryl-sulfonates, in particular methyl sulfate and ethyl sulfate; or alternatively M^+ and X^- are absent;



wherein:

- 15 - B represents the group $-CH_2CH_2OX'$;
- B' represents the group $-(CH_2)_zY'$, with $z = 1$ or 2 ;
- X' represents the group $-CH_2COOH$, $-CH_2-COOZ'$, $-CH_2CH_2COOH$ or CH_2CH_2-COOZ' , or a hydrogen atom;
- Y' represents the group $-COOH$, $-COOZ'$ or $-CH_2CH(OH)SO_3H$ or the group
- 20 $CH_2CH(OH)SO_3-Z'$;
- Z' represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
- $R_{a'}$ represents a C_{10} to C_{30} alkyl or alkenyl group of an acid $R_{a'}-COOH$ which is preferably present in coconut kernel oil or in hydrolyzed linseed oil, or an alkyl group, in
- 25 particular a C_{17} group, and its iso form, or an unsaturated C_{17} group.



wherein:

- 30 - Y'' represents the group $-COOH$, $-COOZ''$ or $-CH_2-CH(OH)SO_3H$ or the group $CH_2CH(OH)SO_3-Z''$;
 - R_d and R_e , independently of one another, represent a C_1 to C_4 alkyl or hydroxyalkyl radical;
 - Z'' represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
 - 35 - $R_{a''}$ represents a C_{10} to C_{30} alkyl or alkenyl group of an acid $R_{a''}-COOH$ which is preferably present in coconut kernel oil or in hydrolyzed linseed oil;
 - n and n' denote, independently of one another, an integer ranging from 1 to 3.
- preferably chosen from (C_8-C_{20}) alkylbetaines, (C_8-C_{20}) alkylamido (C_3-C_8) alkylbetaines and compounds of formula (IV); preferentially, the amphoteric or zwitterionic surfactants being chosen from (C_8-C_{20}) alkylamido (C_3-C_8) alkylbetaines.

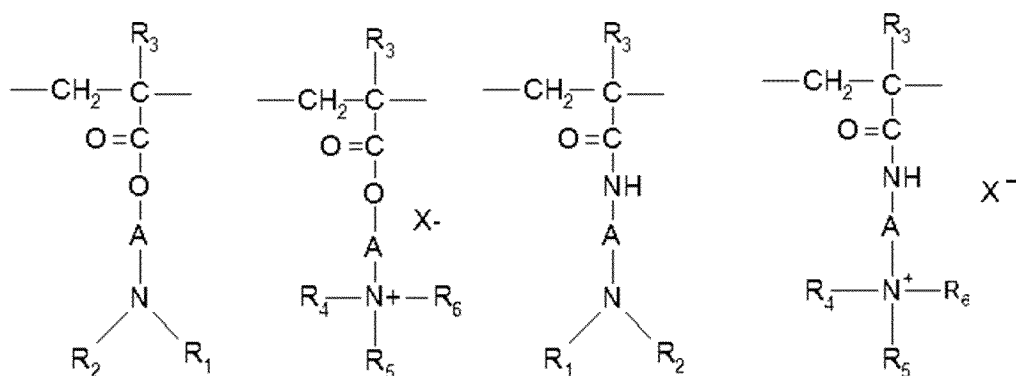
11. The composition as claimed in one of the preceding claims, comprising one or more cationic polymers having a cationic charge density of less than or equal to 5 meq/g,

better still less than or equal to 4,5 meq/g, even better still less than or equal to 4 meq/g; and/or one or more cationic polymers having a cationic charge density of more than or equal to 1 meq/g, better still more than or equal to 1,5 meq/g, even better still more than or equal to 2 meq/g;

- 5 preferably, the composition comprising one or more cationic polymers having a cationic charge density of from 1 to 5 meq/g, better still of from 1,5 to 4,5 meq/g, and even better still of from 2 to 4 meq/g.

- 10 12. The composition as claimed in one of the preceding claims, comprising one or more cationic polymers chosen from:

(1) homopolymers or copolymers derived from acrylic or methacrylic esters or amides and comprising at least one of the units having the following formula:



- 15 wherein:

- R₃, which may be identical or different, denote a hydrogen atom or a CH₃ radical;
- A, which may be identical or different, represent a linear or branched divalent alkyl group of 1 to 6 carbon atoms, preferably 2 or 3 carbon atoms, or a hydroxyalkyl group of 1 to 4 carbon atoms;
- R₄, R₅ and R₆, which may be identical or different, represent an alkyl group containing from 1 to 18 carbon atoms or a benzyl radical, preferably an alkyl group containing from 1 to 6 carbon atoms;
- R₁ and R₂, which may be identical or different, represent a hydrogen atom or an alkyl group containing from 1 to 6 carbon atoms, preferably methyl or ethyl;
- X denotes an anion derived from a mineral or organic acid, such as a methosulfate anion or a halide such as chloride or bromide;

- 30 (2) cationic polysaccharides, especially cationic celluloses and galactomannan gums, and more particularly cellulose ether derivatives comprising quaternary ammonium groups, cationic cellulose copolymers, cellulose derivatives grafted with a water-soluble quaternary ammonium monomer and cationic galactomannan gums;

- 35 (3) polymers constituted of piperazinyl units and divalent alkylene or hydroxyalkylene radicals containing linear or branched chains, optionally interrupted with oxygen, sulfur

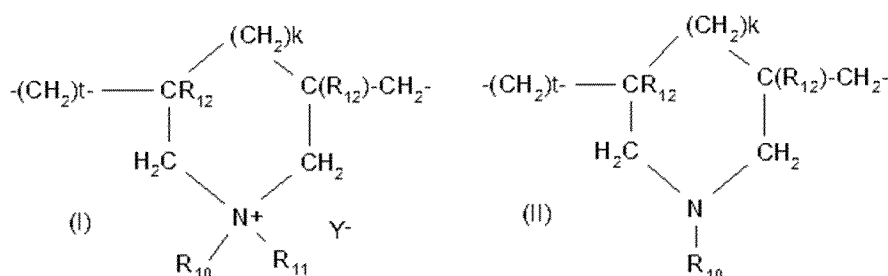
or nitrogen atoms or with aromatic or heterocyclic rings, and also the oxidation and/or quaternization products of these polymers;

(4) water-soluble polyaminoamides 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;

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

(6) polymers obtained by reacting a polyalkylene polyamine comprising two primary amine groups and at least one secondary amine group with a dicarboxylic acid chosen from diglycolic acid and saturated aliphatic dicarboxylic acids containing from 3 to 8 carbon atoms; the mole ratio between the polyalkylene polyamine and the dicarboxylic acid preferably being between 0.8:1 and 1.4:1; the resulting polyaminoamide being reacted with epichlorohydrin in a mole ratio of epichlorohydrin relative to the secondary amine group of the polyaminoamide preferably of between 0.5:1 and 1.8:1;

(7) cyclopolymers of alkylallylamine or of dialkylallyl ammonium, such as the homopolymers or copolymers comprising, as main constituent of the chain, units corresponding to formula (I) or (II):



wherein

- k and t are equal to 0 or 1, the sum k + t being equal to 1;

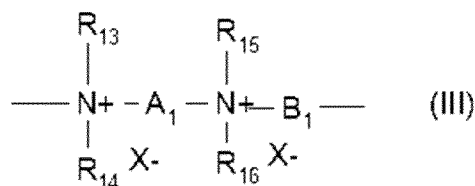
- R₁₂ denotes a hydrogen atom or a methyl radical;

- R₁₀ and R₁₁, independently of each other, denote a C₁-C₆ alkyl group, a C₁-C₅ hydroxyalkyl group, a C₁-C₄ amidoalkyl group; or alternatively R₁₀ and R₁₁ may denote, together with the nitrogen atom to which they are attached, a heterocyclic group such as piperidyl or morpholinyl; R₁₀ and R₁₁, independently of each other, preferably denote

a C₁-C₄ alkyl group;

- Y⁻ is an anion such as bromide, chloride, acetate, borate, citrate, tartrate, bisulfate, bisulfite, sulfate or phosphate;

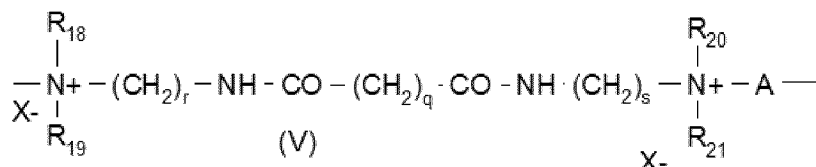
- 5 (8) quaternary diammonium polymers comprising repeating units of formula:



wherein:

- 10 - R₁₃, R₁₄, R₁₅ and R₁₆, which may be identical or different, represent aliphatic, alicyclic or arylaliphatic radicals comprising from 1 to 20 carbon atoms or C₁-C₁₂ hydroxyalkyl aliphatic radicals;
or else R₁₃, R₁₄, R₁₅ and R₁₆, together or separately, form, with the nitrogen atoms to which they are attached, heterocycles optionally comprising a second non-nitrogen heteroatom;
- 15 or else R₁₃, R₁₄, R₁₅ and R₁₆ represent a linear or branched C₁-C₆ alkyl radical substituted with a nitrile, ester, acyl, amide or -CO-O-R₁₇-D or -CO-NH-R₁₇-D group, where R₁₇ is an alkylene and D is a quaternary ammonium group;
- 20 - A₁ and B₁ represent linear or branched, saturated or unsaturated, divalent polymethylene groups comprising from 2 to 20 carbon atoms, which may contain, linked 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;
it being understood that A₁, R₁₃ and R₁₅ can form, with the two nitrogen atoms to which
- 25 they are attached, a piperazine ring;
in addition, if A₁ denotes a linear or branched, saturated or unsaturated alkylene or hydroxyalkylene radical, B₁ may also denote a group (CH₂)_n-CO-D-OC-(CH₂)_p- with n and p, which may be identical or different, being integers ranging from 2 to 20, and D denoting:
- 30 a) a glycol residue of formula -O-Z-O-, wherein Z denotes a linear or branched hydrocarbon-based radical or a group corresponding to one of the following formulae: -(CH₂CH₂O)_x-CH₂CH₂- and -[CH₂CH(CH₃)O]_y-CH₂CH(CH₃)-, wherein 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;
- 35 b) a bis-secondary diamine residue, such as a piperazine derivative;
- c) a bis-primary diamine residue of formula -NH-Y-NH-, wherein Y denotes a linear or branched hydrocarbon-based radical, or else the divalent radical -CH₂-CH₂-S-S-CH₂-CH₂-;
- d) a ureylene group of formula -NH-CO-NH-;

(9) polyquaternary ammonium polymers comprising units of formula (V):



wherein:

- 5 - R₁₈, R₁₉, R₂₀ and R₂₁, which may be identical or different, represent a hydrogen atom or a methyl, ethyl, propyl, β-hydroxyethyl, β-hydroxypropyl or -CH₂CH₂(OCH₂CH₂)_pOH radical, wherein p is equal to 0 or to an integer between 1 and 6, with the proviso that R₁₈, R₁₉, R₂₀ and R₂₁ do not simultaneously represent a hydrogen atom and
- r and s, which may be identical or different, are integers between 1 and 6,
- 10 - q is equal to 0 or to an integer between 1 and 34,
- X⁻ denotes an anion such as a halide,
- A denotes a divalent dihalide radical or preferably represents -CH₂-CH₂-O-CH₂-CH₂-.

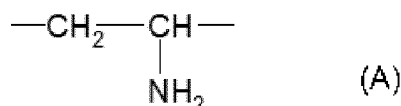
(10) quaternary polymers of vinylpyrrolidone and of vinylimidazole;

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(11) polyamines;

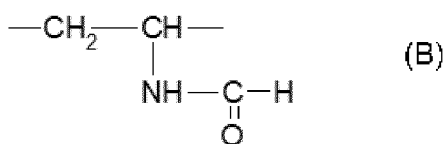
(12) polymers comprising in their structure:

(a) one or more units corresponding to formula (A) below:



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(b) optionally one or more units corresponding to formula (B) below:



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and most particularly the cationic polymers chosen from those of families (1), (2) and (7) above.

13. The composition as claimed in one of the preceding claims, comprising one or more cationic polymers chosen from, alone or as a mixture:

- 30 - alkyl diallylamine or dialkyldiallylammonium cyclopolymers, and in particular homopolymers or copolymers of dimethyldiallylammonium salts (for example chloride), such as polyquaternium-6 and polyquaternium-7 (INCI name);
- cationic polysaccharides, notably cationic celluloses such as polyquaternium-10; and cationic galactomannan gums, notably cationic guar gums.

14. The composition as claimed in one of the preceding claims, comprising one or more additional liquid fatty substances, which are preferably nonsilicone, and advantageously chosen from liquid esters of a fatty acid and/or of a fatty alcohol, liquid fatty ethers and liquid fatty alcohols, and mixtures thereof.

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15. The composition as claimed in one of the preceding claims, comprising less than 2% by weight relative to the total weight of the composition, better still less than 1,5% by weight, more preferably less than 1% by weight, even better still less than 0,5% by weight, and more preferably no (0%) of C1-C6 aliphatic or aromatic monoalcohols, such as ethanol, isopropanol, benzyl alcohol, and mixtures thereof.

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16. A cosmetic treatment process, notably for washing and/or conditioning keratin materials, notably the hair, comprising the application to said keratin materials of a cosmetic composition as defined in one of the preceding claims, preferably followed by rinsing, after an optional leave-on time.

15

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2021/068992

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A61K8/42	A61K8/46
	A61Q5/12	A61K8/34
		A61K8/73
		A61K8/81
		A61K8/893
		A61Q5/02
ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
A61K A61Q		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
EPO-Internal, 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	DE 10 2012 216606 A1 (HENKEL AG & CO KGAA [DE]) 20 March 2014 (2014-03-20)	1-5,8-16
Y	example E pages 2-3, paragraph 5-11	1-16
Y	WO 2009/059455 A1 (KAO CORP [JP]; WANG LU [CN]; MIZUSHIMA HIROKI [CN]) 14 May 2009 (2009-05-14) page 1, lines 17-30 page 2, lines 20-29 page 5, lines 3-13 examples	1-16
	----- -/-	
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
15 September 2021		23/09/2021
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Ruckebusch, Virginie

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2021/068992

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DATABASE GNPD [Online] MINTEL; 24 September 2014 (2014-09-24), anonymous: "Shampoo", XP055620371, Database accession no. 2682153 the whole document -----	1-16
Y	US 2020/170894 A1 (PARK ANGELA [US] ET AL) 4 June 2020 (2020-06-04) page 1, paragraph 6-18; tables 1-2 page 3, paragraph 56-59 page 7, paragraph 131 - page 8, paragraph 154 page 9, paragraph 160-169 page 14, paragraph 234-236 examples 1,2,5,6,8-17; tables 1,2 -----	1-16
A	WO 2008/010177 A2 (PROCTER & GAMBLE [US]; KHAN GOLAM FARUQUE [US]) 24 January 2008 (2008-01-24) page 2, lines 5-21 page 6, line 5 - page 7, line 2 page 10, lines 2-7 examples 1,3,4,7-9 -----	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2021/068992

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		WO 2014044602 A2	27-03-2014

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		WO 2009059455 A1	14-05-2009

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