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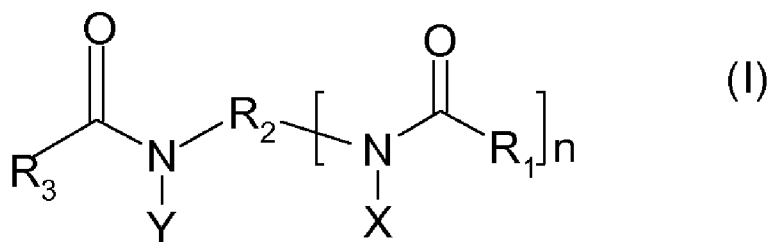
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(54) Title: COMPOSITION COMPRISING A SILANE AND A GEMINI SURFACTANT



(57) Abstract: The present invention relates to a cosmetic composition, especially in emulsion form, comprising at least one silane and at least one gemini surfactant in particular of formula (I), in which: - R₁ and R₃ denote, independently of each other, an alkyl radical having from 1 to 25 carbon atoms; - R₂ denotes a spacer consisting of a linear or branched alkylene chain having from 1 to 12 carbon atoms; - X and Y denote, independently of each other, a group -(C₂H₄O)_a-(C₃H₆O)_bZ, in which Z denotes a hydrogen atom or a radical -CH₂-COOM, -SO₃M, -P(O)(OM)₂, -C₂H₄-SO₃M, -C₃H₆-SO₃M or -CH₂(CHOH)₄CH₂OH, where M and M' represent H or an alkali metal or alkaline-earth metal or ammonium or alkanolammonium ion, · a ranges from 0 to 15, · b ranges from 0 to 10, and · the sum of a + b ranges from 1 to 25; and -n ranges from 1 to 10.

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Composition comprising a silane and a gemini surfactant

The present patent application relates to a composition comprising a silane and a
5 gemini surfactant, and to the use of the said composition in cosmetics and
dermatology, in particular for caring for or treating keratin materials.

It is known practice to use gemini surfactants in cosmetic compositions. In the
context of the present invention, the term "gemini surfactant" means compounds
10 comprising two hydrophilic heads and two hydrophobic tails linked together via a
spacer. These surfactants have already been described as being useful in
cosmetic compositions (WO-A-96/14926), in particular in compositions for
cleansing the hair or the skin (EP-0 915 945) or in pearlescent concentrates used
in cleansing compositions, optionally in combination with hydroxy acids and
15 vitamins such as retinol or tocopherol or derivatives thereof such as diascorbyl
palmitate (WO-A-01/74979).

Gemini surfactants have a quite particular structure since they comprise two
hydrophilic groups and two hydrophobic groups, which gives them not only
20 surfactant properties but also, for some of them, highly appreciated properties
associated with their particular structure which is close to that of ceramides, thus
enabling them to have similar properties thereto, in particular moisturizing
properties, without the formulation drawbacks of ceramides, which are difficult to
incorporate and may form crystals. Moreover, these gemini surfactants have a
25 very low surface tension, and they have good emulsifying properties for the
preparation of oil-in-water (O/W) emulsions. In addition, they are flexible
molecules of very small size, close to that of micelles, and are much less irritant
than other surfactants. Furthermore, they have very good affinity with the skin and
the hair and reduce lipoperoxidation, i.e. oxidation of the lipids that protect the
30 hair, this oxidation causing dehydration and loss of colour. In addition, they are
excellent wetting agents.

However, when they are used in cosmetic compositions, especially O/W emulsions, these surfactants have the drawback of giving compositions that do not have good cosmetic properties. Specifically, the compositions obtained are heavy on application since they do not glide well over the skin, they spread poorly and are considered as being absorbed too quickly. Consequently, these emulsions are not fresh enough, and, once absorbed on the skin, a dragging and coarse effect is observed. As a result, the consumer has a negative sensation when they are applied to the skin.

There is thus still a need for a composition, especially an O/W emulsion containing a gemini surfactant, which has good cosmetic properties, especially on application and after application. The cosmetic properties sought are a soft and pleasant effect on application, a fresh effect, no dragging or coarse effect, and good glidance during application and after application to keratin materials and more particularly the skin.

The object of the invention is to be able to prepare emulsions with good cosmetic properties without having the drawbacks of the prior art.

The Applicant has discovered, surprisingly, that this problem can be solved by combining a gemini surfactant and a silane.

One subject of the present invention is thus a composition, especially in emulsion form, comprising at least one silane and/or oligomers thereof and at least one gemini surfactant.

This composition may be obtained by mixing at least one silane and/or oligomers thereof and at least one gemini surfactant.

Since the composition of the invention is intended especially for topical application, it comprises a physiologically acceptable medium, i.e. a medium that is compatible with all keratin materials such as the skin, the nails, mucous membranes and keratin fibres (such as the hair or the eyelashes).

The composition obtained according to the invention has the advantage of having a homogeneous, non-tacky texture and of being very gentle on application to the skin and after penetration of the product, without a dragging or coarse effect on the skin.

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The compositions spread particularly well on keratin materials such as the skin and the hair.

A subject of the invention is also a cosmetic process for treating keratin materials, which consists in applying to the keratin materials a composition as defined above.

10

Silane

The silane(s) that may be used in the composition according to the invention are especially those corresponding to formula (I) below and/or oligomers thereof:

15



20 in which:

- R_1 is a linear or branched, saturated or unsaturated C1-C22 hydrocarbon-based chain, which may be substituted with an amine group NH_2 or NHR ($\text{R} = \text{C1-C20}$ alkyl or C6-C30 aromatic); or with a hydroxyl group, a thiol group, an aryl group (more particularly benzyl), which is substituted or unsubstituted; R_1 possibly being interrupted with a heteroatom (O, S or NH) or a carbonyl group (CO),
- R_2 and R_3 , which may be identical or different, represent a linear or branched alkyl group comprising from 1 to 6 carbon atoms,
- y denotes an integer ranging from 0 to 3,
- z denotes an integer ranging from 0 to 3,
- x denotes an integer ranging from 0 to 2, and
- with $z+x+y=3$,

25

30

the silane(s) being present in an active material content ranging from 5% to 20% by weight relative to the total weight of the composition.

The term "oligomer" means the polymerization products of the compounds of formula (I) comprising from 2 to 10 silicon atoms.

Preferably, R_3 represents an alkyl group comprising from 1 to 4 carbon atoms, better still a linear alkyl group comprising from 1 to 4 carbon atoms, and preferably methyl and ethyl groups.

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

Preferably, R_1 represents an alkyl group, and even more preferentially a linear alkyl group, comprising from 7 to 18 carbon atoms and more particularly from 7 to 12 carbon atoms or a C1-C6 and preferably C2-C4 aminoalkyl group.

More particularly, R_1 denotes an octyl radical.

Preferably, z ranges from 1 to 3. Even more preferentially, z is equal to 3.

Preferably, the composition comprises at least one silane chosen from octyltriethoxysilane, dodecyltriethoxysilane, octadecyltriethoxysilane, hexadecyltriethoxysilane and γ -aminopropyltriethoxysilane, preferably chosen from octyltriethoxysilane, dodecyltriethoxysilane, octadecyltriethoxysilane and hexadecyltriethoxysilane.

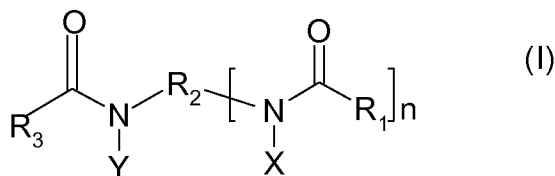
More particularly, the composition comprises at least octyltriethoxysilane (OTES).

The silane(s) and/or oligomers thereof may be present in the composition of the invention in an active material content preferably ranging from 5% to 15% by weight and more particularly from 8% to 12% by weight relative to the total weight of the composition.

30 **Gemini surfactant**

The gemini surfactant is preferably a surfactant of formula (I):

5



in which:

- R₁ and R₃ denote, independently of each other, an alkyl radical having
5 from 1 to 25 carbon atoms;

- R₂ denotes a spacer consisting of a linear or branched alkylene chain
having from 1 to 12 carbon atoms;

- X denotes a group $-(\text{C}_2\text{H}_4\text{O})_a-(\text{C}_3\text{H}_6\text{O})_b\text{Z}$,

- Y denotes a group $-(\text{C}_2\text{H}_4\text{O})_c-(\text{C}_3\text{H}_6\text{O})_d\text{Z}$,

10 where:

- Z denotes a hydrogen atom or a radical $-\text{CH}_2-\text{COOM}$, $-\text{SO}_3\text{M}$,
 $-\text{P}(\text{O})(\text{OM})_2$, $-\text{C}_2\text{H}_4-\text{SO}_3\text{M}$, $-\text{C}_3\text{H}_6-\text{SO}_3\text{M}$ or
 $-\text{CH}_2(\text{CHOH})_4\text{CH}_2\text{OH}$, where M and M' represent H or an alkali
metal or alkaline-earth metal or ammonium or
15 alkanolammonium ion,
- a and c, independently of each other, range from 0 to 15,
- b and d, independently of each other, range from 0 to 10, and
- the sum of a + b + c + d ranges from 1 to 25; and

- n ranges from 1 to 10.

20

R₁ and R₃ denote, independently of each other, preferably an alkyl
radical containing from 5 to 21 and more particularly from 7 to 19 carbon atoms;

25 The gemini surfactant is preferably such that each of the groups R₁-CO- and R₃-
CO- comprises from 8 to 20 carbon atoms, and preferably denotes a coconut fatty
acid residue (comprising mainly lauric acid and myristic acid).

Preferably, b and d are equal to 0.

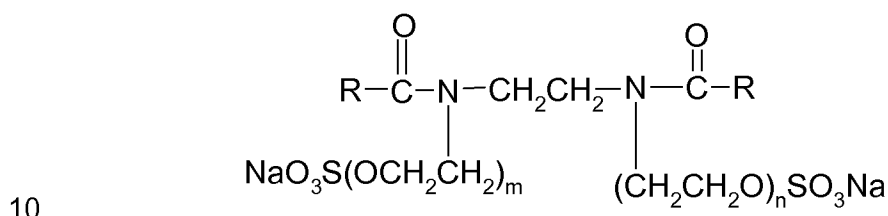
In addition, this surfactant is preferably such that the sum of a, b, c and d has a
30 mean value ranging from 10 to 20 and is preferably from 12 to 18 and more
particularly equal to 15.

A preferred group for Z is the group $-\text{SO}_3\text{M}$, where M is preferably an alkali metal ion such as a sodium ion.

The spacer R_2 advantageously consists of a linear $\text{C}_1\text{-C}_3$ alkylene chain, and preferably an ethylene ($-\text{CH}_2\text{CH}_2-$) chain.

- 5 Finally, n is advantageously equal to 1.

A surfactant of this type is in particular the one identified by the INCI name: Disodium Ethylene Dicocamide PEG-15 Disulfate, having the following structure:



RCO represents a coconut fatty acid radical and $m+n$ has a mean value of 15.

- 15 Preferably, the gemini surfactant according to the invention is used as a mixture with other surfactants, and especially as a mixture with (a) glyceryl ester of a $\text{C}_6\text{-C}_{22}$ fatty acid (preferably $\text{C}_{14}\text{-C}_{20}$ such as a stearate), (b) a diester of a $\text{C}_6\text{-C}_{22}$ fatty acid (preferably $\text{C}_{14}\text{-C}_{20}$ such as a stearate) and of citric acid and of glycerol (especially a diester of a $\text{C}_6\text{-C}_{22}$ fatty acid and of glyceryl monocitrate), and (c) a
- 20 $\text{C}_{10}\text{-C}_{30}$ fatty alcohol (preferably behenyl alcohol).

Advantageously, the composition according to the invention comprises a mixture of disodium ethylene dicocamide PEG-15 disulfate, glyceryl stearate, glyceryl stearate monocitrate and behenyl alcohol.

- 25 More preferentially, the gemini surfactant according to the invention represents from 10% to 20% by weight and advantageously 15% by weight; the glyceryl ester of a $\text{C}_6\text{-C}_{22}$ fatty acid represents from 30% to 40% by weight, advantageously 35% by weight; the diester of a $\text{C}_6\text{-C}_{22}$ fatty acid and of citric acid and of glycerol represents from 10% to 20% by weight, advantageously 15% by weight; and the $\text{C}_{10}\text{-C}_{30}$ fatty alcohol represents from 30% to 40% by weight, advantageously 35%

by weight, relative to the total weight of the mixture of surfactants containing the gemini surfactant.

Advantageously, the composition according to the invention comprises a mixture of from 10% to 20% by weight of disodium ethylene dicocamide PEG-15 sulfate, from 30% to 40% (in particular 35%) by weight of glyceryl stearate, from 10% to 20% (in particular 15%) by weight of glyceryl stearate monocitrate, and from 30% to 40% (in particular 35%) by weight of behenyl alcohol, relative to the total weight of the mixture of surfactants containing the gemini surfactant.

As a variant, the gemini surfactant according to the invention may be used as a mixture with an anionic surfactant, such as an ester of lauric acid, sodium lauroyl lactate. In this case, the gemini surfactant preferably represents from 30% to 50% by weight and the anionic surfactant represents from 50% to 70% by weight, relative to the total weight of the mixture.

The gemini surfactant may be used, for example, as a mixture with other surfactants in the form of the products sold by Sasol under the Ceralution® names, in particular the following products:

- Ceralution® H: Behenyl Alcohol, Glyceryl Stearate, Glyceryl Stearate Citrate and Disodium Ethylene Dicocamide PEG-15 Disulfate,
- Ceralution® F: Sodium Lauroyl Lactylate and Disodium Ethylene Dicocamide PEG-15 Disulfate,
- Ceralution® C: Capric/Caprylic Triglyceride, Cetareth-25, Disodium Ethylene Dicocamide PEG-15 Disulfate, Sodium Lauroyl Lactylate, Behenyl Alcohol, Glyceryl Stearate and Glyceryl Stearate Citrate (INCI names).

The gemini surfactant represents from 3% to 50% of the weight of these mixtures.

The gemini surfactant may be present in the composition according to the invention in an active material content ranging from 0.05% to 10% by weight, preferably ranging from 0.1% to 5% by weight and better still ranging from 0.2% to 2% by weight relative to the total weight of the composition.

According to the invention, the composition preferably comprises one aqueous phase and one fatty phase.

The aqueous phase of the compositions according to the invention comprises at least water. According to the formulation form of the composition, the amount of aqueous phase can range from 0.1% to 99% by weight, preferably from 0.5% to 98% by weight, better still from 30% to 95% by weight and even better still from 40% to 95% by weight, relative to the total weight of the composition. This amount depends on the formulation form of the composition desired. The amount of water may represent all or part of the aqueous phase, and it is generally at least 30% by weight relative to the total weight of the composition.

The aqueous phase may comprise at least one hydrophilic solvent, for instance substantially linear or branched lower monoalcohols containing from 1 to 8 carbon atoms, for instance ethanol, propanol, butanol, isopropanol or isobutanol; polyols such as propylene glycol, isoprene glycol, butylene glycol, glycerol, sorbitol or polyethylene glycols and derivatives thereof, and mixtures thereof.

When it is present, the proportion of the fatty phase of the emulsion may range, for example, from 1% to 80% by weight, preferably from 2% to 50% by weight and better still from 5% to 30% by weight relative to the total weight of the composition.

This indicated amount does not comprise the content of lipophilic surfactants.

The nature of the fatty phase (or oily phase) of the emulsion is not critical. The fatty phase may thus consist of any fatty substance conventionally used in cosmetics or dermatology; it especially comprises at least one oil (fatty substance that is liquid at 25°C).

As oils that may be used in the composition of the invention, examples that may be mentioned include:

- hydrocarbon-based oils of animal origin, such as perhydrosqualene;
- hydrocarbon-based oils of vegetable origin, such as liquid triglycerides of fatty acids comprising from 4 to 10 carbon atoms, such as heptanoic or octanoic acid triglycerides, or alternatively, for example, sunflower oil, maize oil, soybean oil, cucumber oil, grape seed oil, sesame seed oil, hazelnut oil, apricot oil,

- macadamia oil, arara oil, castor oil, avocado oil, caprylic/capric acid triglycerides, such as those sold by Stearineries Dubois or those sold under the names Miglyol 810, 812 and 818 by Dynamit Nobel, jojoba oil and shea butter oil;
- synthetic esters and ethers, especially of fatty acids, for instance the oils of formulae R^aCOOR^b and R^aOR^b in which R^a represents a fatty acid residue containing from 8 to 29 carbon atoms and R^b represents a branched or unbranched hydrocarbon-based chain containing from 3 to 30 carbon atoms, for instance Purcellin oil, isononyl isononanoate, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate or isostearyl isostearate; hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate or triisocetyl citrate; fatty alcohol heptanoates, octanoates or decanoates; polyol esters, for instance propylene glycol dioctanoate, neopentyl glycol diheptanoate and diethylene glycol diisononanoate; and pentaerythritol esters, for instance pentaerythrityl tetraisostearate;
- substantially linear or branched hydrocarbons of mineral or synthetic origin, such as volatile or nonvolatile liquid paraffins, and derivatives thereof, petroleum jelly, polydecenes, isohexadecane, isododecane or hydrogenated polyisobutene, such as Parleam[®] oil;
- fatty alcohols having from 8 to 26 carbon atoms, such as cetyl alcohol, stearyl alcohol and a mixture thereof (cetearyl alcohol), octyldodecanol, 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol, oleyl alcohol or linoleyl alcohol;
- alkoxyated and in particular ethoxyated fatty alcohols, such as oleth-12, cetareth-12 and cetareth-20;
- partially hydrocarbon-based and/or silicone-based fluoro oils, such as those described in the document JP-A-2-295 912. Fluoro oils that may also be mentioned include perfluoromethylcyclopentane and perfluoro-1,3-dimethylcyclohexane, sold under the names Flutec PC1[®] and Flutec PC3[®] by the company BNFL Fluorochemicals; perfluoro-1,2-dimethylcyclobutane; perfluoroalkanes such as dodecafluoropentane and tetradecafluorohexane, sold under the names PF 5050[®] and PF 5060[®] by the company 3M, or bromoperfluorooctyl sold under the name Foralkyl[®] by the company Atochem; nonafluoromethoxybutane sold under the name MSX 4518[®] by the company 3M

and nonafluoroethoxyisobutane; perfluoromorpholine derivatives such as 4-trifluoromethylperfluoromorpholine sold under the name PF 5052[®] by the company 3M;

- 5 - silicone oils, for instance volatile or nonvolatile polymethylsiloxanes (PDMS) with a substantially linear or cyclic silicone chain, which are liquid or pasty at room temperature, especially cyclopolydimethylsiloxanes (cyclomethicones) such as cyclohexadimethylsiloxane and cyclopentadimethylsiloxane; polydimethylsiloxanes comprising alkyl, alkoxy or phenyl groups, which are pendent or at the end of a silicone chain, these groups containing from 2 to 24
- 10 carbon atoms; phenylsilicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenyl dimethicones, diphenylmethyldiphenyltrisiloxanes or 2-phenylethyl trimethylsiloxo silicates, and polymethylphenylsiloxanes;
- mixtures thereof.

15

In the list of the abovementioned oils, the term "hydrocarbon-based oil" is understood to mean any oil predominantly comprising carbon and hydrogen atoms, and optionally ester, ether, fluoro, carboxylic acid and/or alcohol groups.

- 20 The other fatty substances which can be present in the oily phase are, for example, fatty acids comprising from 8 to 30 carbon atoms, such as stearic acid, lauric acid, palmitic acid and oleic acid; waxes, such as lanolin, beeswax, carnauba wax, candelilla wax, paraffin waxes, lignite or microcrystalline waxes, ceresin or ozokerite, or synthetic waxes, such as polyethylene waxes or Fischer-
- 25 Tropsh waxes; or petrolatum paste.

These fatty substances may be chosen in a varied manner by a person skilled in the art so as to prepare a composition having the desired properties, for example in terms of consistency or texture.

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In a known manner, all the compositions of the invention may contain one or more adjuvants that are common in cosmetics and dermatology: hydrophilic or lipophilic gelling agents and/or thickeners; moisturizers; emollients; hydrophilic or lipophilic

active agents; free-radical scavengers; sequestrants; antioxidants; preserving agents; acidifying or basifying agents; fragrances; film-forming agents; dyestuffs (pigments such as iron oxides and titanium dioxide, naces, soluble dyes), and fillers; and mixtures thereof.

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The amounts of these various adjuvants are those conventionally used in the fields under consideration. In particular, the amounts of active agents vary according to the desired objective and are those conventionally used in the fields under consideration, and for example from 0.1% to 20%, and preferably from
10 0.5% to 10% of the total weight of the composition.

Hydrophilic gelling agents that may be mentioned, for example, include carboxyvinyl polymers such as the Carbopol products (carbomers) and the Pemulen products (acrylate/C₁₀-C₃₀-alkylacrylate copolymer); polyacrylamides, for
15 instance the crosslinked copolymers sold under the names Sepigel 305 (CTFA name: polyacrylamide/C₁₃₋₁₄ isoparaffin/Laureth 7) or Simulgel 600 (CTFA name: acrylamide/sodium acryloyldimethyltaurate copolymer/isohexadecane/polysorbate 80) by the company SEPPIC; cellulose derivatives such as hydroxyethylcellulose; polysaccharides and especially gums such as xanthan gum; and mixtures thereof.

20

Lipophilic gelling agents that may be mentioned include modified clays such as hectorite and derivatives thereof, for instance the products sold under the name Bentone.

25 The composition according to the invention may also contain adjuvants that are common in the field under consideration, such as emulsifiers, lipophilic gelling agents, waxes, hydrophilic or lipophilic additives, preserving agents, antioxidants, solvents, fragrances, fillers, UVA and/or UVB screening agents (organic or mineral, soluble or insoluble), pigments, fibres, chelating agents, odour absorbers,
30 dyestuffs and other cosmetic active agents.

The composition may contain other emulsifiers in addition to the gemini surfactant, in a proportion ranging from 0.1% to 10% by weight, and preferably from 0.2% to 5% by weight relative to the total weight of the composition.

For the W/O emulsions, examples of emulsifiers that may be mentioned include

5 dimethicone copolyols such as the mixture of cyclomethicone and of dimethicone copolyol sold under the name DC 5225 C by the company Dow Corning, and alkyl dimethicone copolyols such as the laurylmethicone copolyol sold under the name Dow Corning 5200 Formulation Aid by the company Dow Corning and the cetyl dimethicone copolyol sold under the name Abil EM 90® by the company

10 Goldschmidt, or the mixture polyglyceryl-4 isostearate/cetyl dimethicone copolyol/hexyl laurate sold under the name Abil WE 09 by the company Goldschmidt. One or more co-emulsifiers may also be added thereto. The co-emulsifier can advantageously be chosen from the group consisting of polyol alkyl esters. Mention may in particular be made, as polyol alkyl esters, of glycerol

15 and/or sorbitan esters, for example polyglyceryl isostearate, such as the product sold under the name Isolan GI 34 by Goldschmidt, sorbitan isostearate, such as the product sold under the name Arlacel 987 by ICI, sorbitan glyceryl isostearate, such as the product sold under the name Arlacel 986 by ICI, and mixtures thereof.

Mention may be made, for the O/W emulsions, for example, as emulsifiers, of

20 nonionic surfactants and in particular esters of polyols and of fatty acid having a saturated or unsaturated chain comprising, for example, from 8 to 24 carbon atoms and better still from 12 to 22 carbon atoms, and their oxyalkylenated derivatives, that is to say derivatives comprising oxyethylene and/or oxypropylene units, such as glyceryl esters of C₈-C₂₄ fatty acid, and their oxyalkylenated

25 derivatives; polyethylene glycol esters of C₈-C₂₄ fatty acid, and their oxyalkylenated derivatives; sorbitol esters of C₈-C₂₄ fatty acid, and their oxyalkylenated derivatives; fatty alcohol ethers; sugar ethers of C₈-C₂₄ fatty alcohols, and mixtures thereof.

Mention may in particular be made, as glyceryl ester of fatty acid, of glyceryl

30 stearate (glyceryl mono-, di- and/or tristearate) (CTFA name: glyceryl stearate) or glyceryl ricinoleate, and mixtures thereof.

Mention may in particular be made, as polyethylene glycol ester of fatty acid, of polyethylene glycol stearate (polyethylene glycol mono-, di- and/or tristearate) and

more especially polyethylene glycol 50 OE monostearate (CTFA name: PEG-50 stearate), polyethylene glycol 100 OE monostearate (CTFA name: PEG-100 stearate) and mixtures thereof.

Use may also be made of mixtures of these surfactants, for instance the product
5 comprising glyceryl stearate and PEG-100 stearate, sold under the name Arlacel 165 by Uniqema, and the product comprising glyceryl stearate (glyceryl mono/distearate) and potassium stearate, sold under the name Tegin by Goldschmidt (CTFA name: glyceryl stearate SE).

Mention may be made, as fatty alcohol ethers, for example, of polyethylene glycol
10 ethers of fatty alcohol comprising from 8 to 30 carbon atoms and in particular from 10 to 22 carbon atoms, such as polyethylene glycol ethers of cetyl alcohol, stearyl alcohol or cetearyl alcohol (mixture of cetyl alcohol and stearyl alcohol). Mention may be made, for example, of ethers comprising from 1 to 200 and preferably from 2 to 100 oxyethylene groups, such as those with the CTFA name Cetareth-
15 20 or Cetareth-30, and mixtures thereof.

Mention may be made, as examples of sugar mono- or polyalkyl esters or ethers, of methyl glucose isostearate, sold under the name Isolan-IS by Degussa Goldschmidt, or else sucrose distearate, sold under the name Crodesta F50 by Croda, and sucrose stearate, sold under the name Ryoto sugar ester S 1570 by
20 Mitsubishi Kagaku Foods.

Mention may also be made of lipoamino acids and their salts, such as monosodium and disodium acylglutamates, for instance monosodium stearyl glutamate, sold under the name Amisoft HS-11PF, and disodium stearyl glutamate, sold under the name Amisoft HS-21P, by Ajinomoto.

25

As other active agents that may be used in the composition of the invention, examples that may be mentioned include moisturizing agents, such as protein hydrolysates and polyols, for instance glycerol, glycols, for instance polyethylene glycols; natural extracts; anti-inflammatory agents; oligomeric proanthocyanidins;
30 vitamins such as vitamin A (retinol), vitamin E (tocopherol), vitamin B5 (panthenol), vitamin B3 (niacinamide), derivatives of these vitamins (in particular esters) and mixtures thereof; urea; caffeine; depigmenting agents such as kojic acid, hydroquinone and caffeic acid; salicylic acid and derivatives thereof; α -

hydroxy acids, such as lactic acid and glycolic acid and derivatives thereof; retinoids, such as carotenoids and vitamin A derivatives; hydrocortisone; melatonin; extracts of algae, of fungi, of plants, of yeasts, of bacteria; steroids; antibacterial active agents, such as 2,4,4'-trichloro-2'-hydroxydiphenyl ether (or
5 triclosan), 3,4,4'-trichlorocarbanilide (or triclocarban) and the acids indicated above, and in particular salicylic acid and derivatives thereof; matting agents, for instance fibres; tensioning agents; and mixtures thereof.

Needless to say, a person skilled in the art will take care to select the optional
10 adjuvant(s) added to the composition according to the invention such that the advantageous properties intrinsically associated with the composition in accordance with the invention are not, or are not substantially, adversely affected by the envisaged addition.

15 The compositions according to the invention may be in the form of emulsions of liquid or semi-liquid consistency of milk type for example, obtained by dispersing a fatty phase in an aqueous phase (O/W) or conversely (W/O), or suspensions or emulsions of soft, semi-solid or solid consistency of the cream or gel type, or alternatively multiple emulsions (W/O/W or O/W/O), microemulsions, vesicular
20 dispersions of ionic and/or nonionic type, or wax/aqueous phase dispersions. These compositions are prepared according to the usual methods.

According to a preferred embodiment of the invention, the composition is in the form of an O/W emulsion.

In addition, the compositions used according to the invention may be more or less
25 fluid and may have the appearance of a gel, a white or coloured cream, an ointment, a milk, a lotion, a serum, a paste or a mousse.

The composition preferably exhibits a skin-friendly pH which generally ranges from 3 to 8 and preferably from 4.5 to 7.

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The examples that follow will allow the invention to be understood more clearly, without, however, being limiting in nature. Unless otherwise mentioned, the amounts indicated are percentages by weight.

Example 1: Moisturizing O/W emulsions

- 5 A composition (A) according to the invention comprising a gemini surfactant and a silane, and a comparative composition (B) comprising a gemini surfactant and silicones in place of the silane, are prepared:

Phase		A (invention)	B (comparative)
A	Water	qs 100	qs 100
	Glycerol	7	7
	Steareth-20	1	1
	Caprylyl glycol	0.1	0.1
	Preserving agents, sequestrant	qs	qs
	Mixture of α,ω -dihydroxylated polydimethylsiloxane/polydimethylsiloxane 5 cSt (Dow Corning 1503 Fluid from Dow Corning)		5
B	Isononyl isononanoate	5	5
	Octyltriethoxysilane	10	-
	Polymethylene wax (Cirebelle 303 from Cirebelle)	4	4
	Carnauba wax	2	2
	Cetyl alcohol	4	4
	Gemini surfactant (Disodium ethylene dicocamide PEG-15 disulfate) at 15% AM* (Ceralution [®] H from the company Sasol)	0.45% AM	0.45% AM
	Hydrogenated polyisobutene	4	4

	(Parleam from NOF Corporation)		
	Mixture (90/10 by weight) of cetyl ethylhexanoate and of isopropyl myristate	4	4
	Pentaerythrityl tetrakis(isostearate) (Crodamol PTIS-LQ-(MH) from Croda)	2	2
	Dimethicone		2.5
	Caprylylmethicone		1.5
C	Xanthan gum	0.25	0.25
	Crosslinked acrylamidomethylpropanesulfonic acid homopolymer (Hostacerin AMPS® from Clariant)	0.5	0.5
		-	-
D	Silica (Silaca SB 700 from Miyoshi)	3	3

* Active material

Procedure

Form the emulsion in a conventional manner with mixing at elevated temperature (75°C): fatty phase B in aqueous phase A. At 65-60°C, gel with mixing by adding phase C. Cool with mixing using a Rayneri blender and then, at about 40°C, incorporate phase D. Cool with gentle stirring to 25°C.

These compositions were evaluated by 10 individuals who applied each product to the back of their hands.

Composition A according to the invention was judged as being more glidant on application and softer after penetration of the product into the skin, when compared with composition B.

Example 2

The following composition was prepared:

		A	B*
A	Gemini surfactant (Disodium ethylene dicocamide PEG-15 disulfate) at 15% AM* (Ceralution® H from the company Sasol)	3% SM (0.45% AM)	3% SM (0.45% AM)
	Hexyldecyl laurate (and) hexyldecanol (Cetiol PGL)	4	4
	Isohexadecane	8	
	Poly(C10-30 alkyl) acrylate (Intelimer IPA 13-1)	0.5	0.5
	Isostearyl neopentanoate	2	
	Octyltriethoxysilane		10
B	Glycerol	15	15
	Preserving agents	qs	qs
	Water	qs 100	qs 100
	Xanthan gum	0.15	0.15
C	Ammonium polyacryloyldimethyl taurate (Hostacerin AMPS® from Clariant)	0.5	0.5
D	Aluminium starch octenylsuccinate (Dry Flo Plus)	3	3

5 * Composition according to the invention

Procedure:

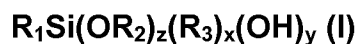
Form the emulsion in a conventional manner with mixing at elevated temperature (75°C): fatty phase A in aqueous phase B. At 65-60°C, gel with mixing by adding
 10 phase C. Cool with mixing using a Rayneri blender and then, at about 30°C, incorporate phase D.

These compositions were evaluated by 10 individuals who applied each product to the back of their hands.

Composition A according to the invention was judged as being more glidant on
5 application and softer after penetration of the product into the skin, when
compared with composition B.

CLAIMS

1. Cosmetic composition comprising at least one silane and/or oligomers thereof and at least one gemini surfactant,
 5 the said silane(s) corresponding to formula (I) below and/or oligomers thereof:



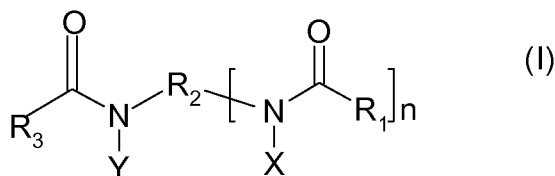
in which:

- 10 • R_1 is a linear or branched, saturated or unsaturated C1-C22 hydrocarbon-based chain, which may be substituted with an amine group NH_2 or NHR ($R = C1-C20$ alkyl or $C6-C30$ aromatic); or with a hydroxyl group, a thiol group, an aryl group (more particularly benzyl), which is substituted or unsubstituted; R_1 possibly being interrupted
 15 with a heteroatom (O, S or NH) or a carbonyl group (CO),
- R_2 and R_3 , which may be identical or different, represent a linear or branched alkyl group comprising from 1 to 6 carbon atoms,
- y denotes an integer ranging from 0 to 3,
- z denotes an integer ranging from 0 to 3,
- 20 • x denotes an integer ranging from 0 to 2, and
- with $z+x+y=3$,

the said silane(s) being present in an active material content ranging from 5% to 20% by weight relative to the total weight of the composition.

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2. Composition according to the preceding claim, characterized in that the gemini surfactant is of formula (I):



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in which:

- R_1 and R_3 denote, independently of each other, an alkyl radical having from 1 to 25 carbon atoms;

- R_2 denotes a spacer consisting of a linear or branched alkylene chain having from 1 to 12 carbon atoms;

5 - X denotes a group $-(C_2H_4O)_a-(C_3H_6O)_bZ$,

- Y denotes a group $-(C_2H_4O)_c-(C_3H_6O)_dZ$,

where:

- Z denotes a hydrogen atom or a radical $-CH_2-COOM$, $-SO_3M$, $-P(O)(OM)_2$, $-C_2H_4-SO_3M$, $-C_3H_6-SO_3M$ or $-CH_2(CHOH)_4CH_2OH$, where M represents H or an alkali metal or alkaline-earth metal or ammonium or alkanolammonium ion,
 - a and c, independently of each other, range from 0 to 15,
 - b and d, independently of each other, range from 0 to 10, and
 - the sum of $a + b + c + d$ ranges from 1 to 25; and
- 15 - n ranges from 1 to 10.

3. Composition according to the preceding claim, characterized in that R_1 and R_3 denote, independently of each other, an alkyl radical containing from 5 to 21 and more particularly from 7 to 19 carbon atoms.

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4. Composition according to either of Claims 2 and 3, characterized in that, for the gemini surfactant of formula (I), the sum of a, b, c and d has a mean value ranging from 10 to 20 and preferably from 12 to 18.

25 5. Composition according to any one of Claims 2 to 4, characterized in that, for the gemini surfactant of formula (I), Y is the group $-SO_3M$ where M is an alkali metal ion such as a sodium ion.

6. Composition according to any one of Claims 2 to 5, characterized in that, for the gemini surfactant of formula (I), n is equal to 1.

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7. Composition according to any one of Claims 2 to 6, characterized in that, for the gemini surfactant of formula (I), b and d are equal to zero.

8. Composition according to any one of the preceding claims, characterized in that the gemini surfactant is mixed with (a) a glyceryl ester of a C₆-C₂₂ fatty acid, (b) a diester of a C₆-C₂₂ fatty acid and of citric acid and of glycerol, and (c) a C₁₀-C₃₀ fatty alcohol.

9. Composition according to any one of the preceding claims, characterized in that the said gemini surfactant is present in a content ranging from 0.05% to 10% by weight, preferably ranging from 0.1% to 5% by weight and better still ranging from 0.2% to 2% by weight relative to the total weight of the composition.

10. Composition according to any one of the preceding claims, characterized in that the said silane(s) are those corresponding to formula (I) below and/or oligomers thereof:



in which:

R₂ represents an alkyl group comprising from 1 to 4 carbon atoms, better still a linear alkyl group comprising from 1 to 4 carbon atoms and preferably the ethyl group, and R₃ represents an alkyl group comprising from 1 to 4 carbon atoms, better still a linear alkyl group comprising from 1 to 4 carbon atoms and preferably methyl or ethyl groups.

11. Composition according to any one of Claims 1 to 10, characterized in that R₁ represents an alkyl group, more preferentially a linear alkyl group, comprising from 7 to 18 carbon atoms, and even more preferentially octyl or a C₁-C₆ aminoalkyl group.

12. Composition according to Claims 1 to 11, characterized in that z ranges from 1 to 3 and preferably z is equal to 3.

13. Composition according to Claims 1 to 13, characterized in that it comprises at least one silane chosen from octyltriethoxysilane, dodecyltriethoxysilane,

octadecyltriethoxysilane, hexadecyltriethoxysilane and γ -aminopropyltriethoxysilane, preferably chosen from octyltriethoxysilane, dodecyltriethoxysilane, octadecyltriethoxysilane and hexadecyltriethoxysilane.

- 5 14. Composition according to Claims 1 to 13, characterized in that it comprises at least octyltriethoxysilane.
15. Composition according to any one of the preceding claims, characterized in that the silane(s) are present in an active material content ranging from 5% to
10 15% by weight relative to the total weight of the composition.
16. Cosmetic composition, characterized in that it may be obtained by mixing at least one silane as described in one of Claims 1, 10 to 15 and at least one gemini surfactant as described in one of Claims 1 to 9.
- 15 17. Cosmetic process for treating a keratin material, characterized in that a cosmetic composition as defined in any one of Claims 1 to 16 is applied to the keratin material.
- 20 18. Use of a cosmetic composition as defined in any one of Claims 1 to 16, in the cosmetic or dermatological field, and in particular for caring for, protecting and/or making up bodily or facial skin, or for haircare.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/058521

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K8/58 A61Q19/00 A61K8/86
 ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 A61K A61Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/063925 A1 (CANDAU DIDIER [FR] ET AL) 24 March 2005 (2005-03-24) example 2	1-18
X	"Sunscreen", IP.COM JOURNAL, IP.COM INC., WEST HENRIETTA, NY, US, 4 February 2011 (2011-02-04), page 198-199, XP002690190, ISSN: 1533-0001 pages 198-199	1-18

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 5 June 2013	Date of mailing of the international search report 03/07/2013
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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 Vayssié, Stéphane
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/058521

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005063925	A1	US 2005063925	24-03-2005
		US 2011212038	01-09-2011
