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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 June 2008 (26.06.2008)

PCT

(10) International Publication Number
WO 2008/075281 A2

(51) International Patent Classification:
A61K 8/25 (2006.01)
A61K 8/26 (2006.01)
A61K 8/73 (2006.01)
A61K 8/88 (2006.01)
A61K 8/891 (2006.01)
A61K 8/895 (2006.01)
A61Q 19/10 (2006.01)

(21) International Application Number: PCT/IB2007/055180

(22) International Filing Date: 17 December 2007 (17.12.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0655703	20 December 2006 (20.12.2006)	FR
60/883,351	4 January 2007 (04.01.2007)	US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

(54) Title: CLEANSING COMPOSITION BASED ON ABSORBENT FILLERS AND SILICONE COMPOUNDS

(57) Abstract: The present invention relates to a cosmetic method for cleansing keratinous substance(s) comprising at least: - the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being silicone-based and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, when they are brought into contact with one another, and (d) of at least one catalyst, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and - removal of the film thus formed, preferably by peeling. It also relates to a cleansing kit.

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Cleansing composition based on absorbent fillers and silicone compounds

One subject of the present invention is a cosmetic method for cleansing keratinous substance(s) comprising the application on a keratinous substance of at least one compound X, a compound Y, and a filler that absorbs sebum, and optionally at least one catalyst or a peroxide, at least one of the compounds X or Y being a silicone compound, and said compounds X and Y being capable of reacting together, where appropriate, in the presence of a catalyst or a peroxide, followed by the removal of the resulting film, preferably by peeling. It also relates to a cosmetic cleansing kit combining these compounds X and Y and, where appropriate, at least one catalyst or a peroxide, with particles of acrylic polymer(s).

Within the context of the present invention, the expression "keratinous substance" is understood to denote the skin or lips, preferably the skin, and especially the skin of the face.

Deep cleansing of a keratinous substance, especially the skin, rests on removal of its dead cells, of fatty substances in excess at its surface, and also of blackheads.

With regard more particularly to cleansing the skin of the face, various types of masks are already used to carry out such deep cleansing.

Thus, there already exist masks based on absorbent fillers, such as, for example kaolin, which need to be removed by rinsing after they have dried.

However, such products are generally uncomfortable for the user due to a shrinkage of the mask during drying. Moreover, their removal by rinsing is tedious and not very convenient.

It is also known to use so-called "peel-off" masks based on polyvinyl alcohol (PVA) which have to be peeled off after drying.

Nevertheless, these masks generally form films that are easily broken, which must be removed in several steps by peeling.

The two types of masks described above additionally have the drawback of requiring drying times ranging from at least 10 to 20 minutes, which are judged too long by the users.

There is therefore a need to provide a deep cleansing method which does not have the aforementioned drawbacks.

Recently, the inventors have observed that it was possible to obtain suitable films by taking advantage of the ability of certain compounds, especially silicone compounds, to interact when they are brought together, where appropriate in the presence of a catalyst or a peroxide, and to form a polymer film at the end of their interaction.

Thus, compounds known as compound X and compound Y, such as defined below, prove capable of polymerizing *in situ*, at atmospheric pressure and at ambient temperature, where appropriate in the presence of a catalyst or a peroxide, and of forming films that advantageously are biocompatible and peelable. Such systems are in particular partly described in documents WO 0 196 450 and GB 2 407 496 by Dow Corning.

These polymer films, capable of being formed *in situ* on a support, especially of keratinous substance type, prove to be endowed with advantageous properties in terms of deep cleansing, namely good adhesion, comfort and ease of peeling.

The inventors have in particular discovered, unexpectedly, that the application of such compounds, where appropriate in the presence of a catalyst or a peroxide, in combination with at least one sebum-absorbing filler over all or part of a keratinous substance rapidly leads to the formation of a film that adheres to said keratinous substance without however causing feelings of tugging or itching for the user, the resulting film advantageously being capable of deep cleansing the keratinous substance by subsequent peeling of the film.

Thus, according to a first one of its aspects, one subject of the present invention is a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, or by a condensation reaction, or by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another, and (d) where appropriate of at least one catalyst or peroxide, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and
- removal of the film thus formed, preferably by peeling.

It also relates, according to another of its aspects, to a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, or by a condensation reaction, or by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another, and (d) where appropriate of at least one catalyst or peroxide, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and

- removal of the film thus formed, preferably by peeling,

with said filler being chosen from kaolin powders, talc powders, polyamide powders, starch particles, particles of polymethyl methacrylate, and mixtures thereof.

Thus, the compound or compounds X, the compound or compounds Y, may be applied to the keratinous substances starting from several compositions, the compositions respectively containing the compound or compounds X, the compound or compounds Y, the sebum-absorbing filler, and where appropriate a catalyst or a peroxide, alone or as a mixture, or starting from a single composition containing the compound or compounds X, the compound or compounds Y and the sebum-absorbing filler, and where appropriate a catalyst or a peroxide.

According to one particular embodiment of the invention, applied to the keratinous substances is a first composition comprising, in a physiologically acceptable medium, at least the compound or compounds X, and a second composition comprising, in a physiologically acceptable medium, at least the compound or compounds Y, with at least one of said first and second compositions additionally containing a sebum-absorbing filler, and at least one of said first and second compositions additionally containing, where appropriate, at least one catalyst or peroxide.

Thus, according to another of its aspects, the present invention relates to a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application over all or part of a keratinous substance of at least:
    - one layer of a first composition comprising, in a physiologically acceptable medium, one or more compounds X; and
    - one layer of a second composition comprising, in a physiologically acceptable medium, one or more compounds Y,

with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, or by a condensation reaction, or by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another, and where appropriate, at least one of the first and second compositions additionally comprising at least one catalyst or a peroxide, and at least one of the first and second compositions additionally containing at least one filler that absorbs the sebum; and

- removal of the film thus formed, preferably by peeling.

More particularly, said method may comprise at least the application to said keratinous substances of at least one composition comprising, in a physiologically acceptable medium, at least one compound X, at least one compound Y and at least one sebum-absorbing filler and, where appropriate, at least one catalyst or peroxide.

According to one variant, the method may comprise at least the application to said keratinous substances of at least one layer of the second composition comprising the compound Y and where appropriate a sebum-absorbing filler, then in depositing on the layer or layers of said second composition at least one layer of the first composition comprising the compound X and where appropriate a sebum-absorbing filler, at least one of the first and second compositions additionally containing, where appropriate, at least one catalyst or peroxide.

It is also possible to alternately apply several layers of each of the first and second compositions to the keratinous substance(s).

The composition applied may also be obtained by extemporaneously mixing a first composition comprising, in a physiologically acceptable medium, at least the compound or compounds X, and a second composition comprising, in a physiologically acceptable medium, at least the compound or compounds Y, at least one of the compounds X or Y being combined with said filler, and at least one of the first and second compositions additionally containing, where appropriate, at least one catalyst or peroxide.

According to a first aspect, the composition applied contains at least one of the compounds X and Y in an encapsulated form.

According to yet another embodiment, at least one additional layer of at least a third composition comprising a cosmetically acceptable medium, and preferably at least one film-forming polymer and at least an organic (or oily) or aqueous solvent medium, is applied to the layer or layers of the composition or compositions comprising the compounds X and Y, where appropriate the catalyst or the peroxide and the sebum-absorbing fillers, in order, for example, to improve the hold and/or comfort of this or these layer(s).

The cosmetic cleansing method according to the invention may also comprise a step of drying the applied composition(s), prior to removal of the film formed over all or part of the keratinous substance.

This drying step may have a duration that is advantageously reduced relative to the methods that are already known from the prior art, and may be, in particular, less than 10 minutes.

Thus, according to one particular embodiment of the invention, the cosmetic method according to the invention additionally comprises a drying step for the film thus formed having a duration of less than 10 minutes, or even less than 5 minutes.

Advantageously, the compositions additionally comprise at least one sebum-absorbing filler.

According to one advantageous embodiment of the invention, they may especially comprise particles of acrylic polymer(s), such as, for example, particles of polymethyl methacrylate.

In particular, the presence of particles of acrylic polymer(s), especially particles of polymethyl methacrylate, in a cosmetic composition makes it possible to optimize the properties of the latter, especially in terms of application.

The cosmetic method according to the invention furthermore has an improved comfort on application, especially due to a lower shrinkage of the deposited film, in particular in comparison with the masks based on absorbent fillers.

The deposited film, which is also less fragile than the PVA films used in the prior art, is moreover easier to remove by peeling, which consequently leads to greater comfort, and to a gain in time for the user.

As described previously, the compounds X and Y according to the invention may also advantageously be combined with particles of acrylic polymer(s) so as to form a cosmetic product useful for cleansing keratinous substance(s).

Thus, the present invention also relates, according to another of its aspects, to a cosmetic kit for cleansing keratinous substance(s), comprising at least two different compositions packaged separately, the kit comprising at least particles of acrylic polymer(s), at least one compound X, at least one compound Y, at least one of the compounds X or Y being a silicone compound and optionally at least one catalyst or a peroxide, in which the compounds X, Y and the catalyst or the peroxide when they are present, are not present simultaneously in the same composition, said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, or by a condensation reaction, or by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another.

It may especially be a cosmetic kit for cleansing keratinous substance(s), comprising at least:

- a first composition comprising, in a physiologically acceptable medium, at least one compound X; and
- a second composition comprising, in a physiologically acceptable medium, at least one compound Y,

with at least one of the first and second compositions additionally comprising at least particles of acrylic polymer(s), and with at least one of the first and second compositions additionally comprising, where appropriate, at least one catalyst or peroxide.

The particles of acrylic polymer(s) may preferably be chosen from particles of polymethyl methacrylate and particles of acrylate copolymers, and, especially for the reasons explained below, be advantageously chosen from particles of polymethyl methacrylate.

Preferably, the composition of the kit, and in particular the first composition comprising the compound X and the second composition comprising the compound Y are packaged in separate packaging.

For example, each composition may be packaged separately in one and the same packaging article, for example in a two-compartment pen, the bottom composition being delivered through one end of the pen and the top composition being delivered through the other end of the pen, each end being sealed, especially in a leaktight manner, by a cap. Each composition may also be packaged in a compartment within one and the same packaging article, the mixing of the two compositions being carried out at the end or ends of the packaging article during the delivery of each composition.

Alternatively, each of the first and second compositions may be packaged in a different packaging article.

The first and second compositions are different from one another.

For example, the first composition is advantageously devoid of compound Y and the second composition is advantageously devoid of compound X. This is because, with regard to their high reactivity with one another, the compounds X and Y are not present at the same time in a first and/or second composition forming a kit according to the invention when their interaction is not conditioned by the presence of a catalyst or a peroxide.

On the other hand, at the time of application or just before, the compounds X and Y are mixed and present in one and the same composition, resulting from the mixing of the first and second compositions forming the kit according to the invention.

In the sense of the invention, it is understood that the mixture thus formed comprises compounds X and/or Y in a form that has not yet reacted and not exclusively in the form of their reaction product by hydrosilylation, by polycondensation and/or by crosslinking in the presence of a peroxide.

Thus, formation of the reaction product according to the invention can either be carried out directly on the surface of the keratinous substance that is to be treated, or initiated just before application by extemporaneous mixing of compounds X and Y in conditions favourable for their interaction, formation of the reaction product being in the latter case finalized on the surface of the keratinous substance.

For obvious reasons, and in view of the great reactivity of compounds X and/or Y, it is in fact necessary that their application should be carried out in conditions that are favourable for the manageability of the composition containing it (or them) notably with respect to its spreading, for example. The method according to the invention therefore employs a composition containing compounds X and Y, and therefore not congealed in the form of the expected final film resulting from reaction of all of X and/or of all of Y.

According to another variant, the composition applied contains at least one of compounds X and Y in an encapsulated form.

Thus, the present invention relates, according to another of its aspects, to a cosmetic composition for cleansing keratinous substance(s) comprising, in a physiologically acceptable medium, at least particles of acrylic polymer(s), one or more compounds X, one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, or by a condensation reaction, or by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another, and where appropriate at least one catalyst or peroxide with at least one of the compounds X and Y being present in an encapsulated form.

Another subject of the invention, according to another of its aspects, is a cosmetic mask deriving from a cosmetic cleansing kit or from a cosmetic cleansing composition according to the invention.

COMPOUNDS X AND Y

Silicone compound means a polyorganosiloxane compound, i.e. comprising at least two organosiloxane units, for example at least 5 organosiloxane units, notably at least 10 organosiloxane units. According to a particular embodiment, at least one of compounds X and Y, or compounds X and compounds Y are silicone compounds. Compounds X and Y can be aminated or non-aminated.

According to another embodiment, at least one of compounds X and Y is a polymer whose main chain is formed primarily of organosiloxane units. Among the silicone compounds mentioned below, some may display both film-forming and adhesive properties, depending for example on their proportion of silicone or depending on whether they are used mixed with a particular additive. It is therefore possible to adjust the film-forming properties or the adhesive properties of said compounds according to the proposed use, which is the case in particular for the so-called "room temperature vulcanization" reactive elastomeric silicones.

Compounds X and Y can react with each other at a temperature varying between room temperature and 180°C. Advantageously, compounds X and Y are capable of reacting together at room temperature (20 ± 5°C) and atmospheric pressure, or advantageously in the presence of a catalyst, by a hydrosilylation reaction or a condensation reaction, or a crosslinking reaction in the presence of a peroxide.

Polar groups

According to a particular embodiment, at least one of compounds X and Y, for example compound X, bears at least one polar group that is able to form at least one hydrogen bond with keratinous substances.

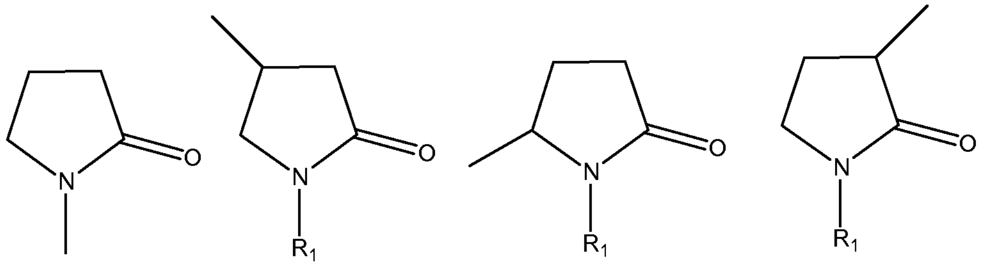
By polar group, we mean a group having carbon atoms and hydrogen atoms in its chemical structure and at least one heteroatom (such as O, N, S and P), such that said group is able to establish at least one hydrogen bond with keratinous substances.

Compounds bearing at least one group that can form a hydrogen bond are particularly advantageous, as they endow the compositions containing them with better adherence on keratinous substances.

The polar group or groups borne by at least one of compounds X and Y is/are able to establish a hydrogen bond, and include either a hydrogen atom bound to an electronegative atom, or an electronegative atom for example an oxygen, nitrogen or sulphur atom. When the group has a hydrogen atom bound to an electronegative atom, the hydrogen atom can interact with another electronegative atom borne for example by another molecule, such as keratin, to form a hydrogen bond. When the group has an electronegative atom, the electronegative atom can interact with a hydrogen atom bound to an electronegative atom borne for example by another molecule, such as keratin, to form a hydrogen bond.

Advantageously, these polar groups can be selected from the following groups:

- carboxylic acids -COOH,
- alcohols, such as: $-CH_2OH$ or -CH(R)OH, R being an alkyl radical having from 1 to 6 carbon atoms,
- amino of formula $-NR_1R_2$, in which R_1 and R_2, which may be identical or different, represent an alkyl radical having from 1 to 6 carbon atoms or one of R_1 or R_2 denotes a hydrogen atom, and the other one of R_1 and R_2 represents an alkyl radical having from 1 to 6 carbon atoms,
- pyridino,
- amido of formula -NH-COR' or -CO-NH-R' in which R' represents a hydrogen atom or an alkyl radical having from 1 to 6 carbon atoms,
- pyrrolidino preferably selected from the groups of formula:



R_1 being an alkyl radical having from 1 to 6 carbon atoms,

- carbamoyl of formula -O-CO-NH-R' or -NH-CO-OR', R' being as defined above,
- thiocarbamoyl such as -O-CS-NH-R' or -NH-CS-OR', R' being as defined above,
- ureyl such as $-NR'-CO-N(R')_2$, the groups R', which may be identical or different, being as defined above,
- sulphonamido such as $-NR'-S(=O)_2-R'$, R' corresponding to the above definition.

Preferably, these polar groups are present at a content less than or equal to 10 wt.% relative to the weight of each compound X or Y, preferably less than or equal to 5 wt.%, for example at a content ranging from 1 to 3 wt.%.

The polar group or groups can be located in the main chain of compound X and/or Y or can be pendant from the main chain or located at the ends of the main chain of compound X and/or Y.

1- Compounds X and Y capable of reacting by hydrosilylation

According to one embodiment, the invention relates to a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, when they are brought into contact with one another, and (d) at least one catalyst, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and
- removal of the film thus formed, preferably by peeling.

According to this embodiment, compounds X and Y are capable of reacting by hydrosilylation in the presence of a catalyst, said reaction being represented schematically in a simplified manner as follows:

$$-\overset{|}{\underset{|}{Si}}-H \quad + \quad CH_2=CH-W \longrightarrow -\overset{|}{\underset{|}{Si}}-CH_2\text{-}CH_2\text{-}W-$$

with W representing a carbon chain and/or silicone chain containing one or more unsaturated aliphatic groups.

In this case, compound X can be selected from silicone compounds comprising at least two unsaturated aliphatic groups. As an example, compound X can be a polyorganosiloxane comprising a silicone main chain whose unsaturated aliphatic groups are pendant from the main chain (side group) or located at the ends of the main chain of the compound (end group). These particular compounds will be called, hereinafter, polyorganosiloxanes with unsaturated aliphatic groups.

According to one embodiment, compound X and/or compound Y bear at least one polar group, as described above, capable of forming at least one hydrogen bond with keratinous substances. This polar group is advantageously carried by compound X, which has at least two unsaturated aliphatic groups.

According to one embodiment, compound X is selected from the polyorganosiloxanes comprising at least two unsaturated aliphatic groups, for example two or three vinyl or allyl groups, each attached to a silicon atom.

According to an advantageous embodiment, compound X is selected from the polyorganosiloxanes containing siloxane units of formula:

$$R_m R' SiO_{\frac{(3-m)}{2}} \quad (I)$$

in which:

- R represents a linear or cyclic, monovalent hydrocarbon group, having from 1 to 30 carbon atoms, preferably from 1 to 20, and better still from 1 to 10 carbon atoms, for example a short-chain alkyl radical, comprising for example from 1 to 10 carbon atoms, in particular a methyl radical or alternatively a phenyl group, preferably a methyl radical,

- m is equal to 1 or 2 and
- R' represents:
  - o an unsaturated aliphatic hydrocarbon group having from 2 to 10, preferably from 3 to 5 carbon atoms, for example a vinyl group or a group -R"-CH=CHR"' in which R" is a divalent aliphatic hydrocarbon chain, having from 1 to 8 carbon atoms, bound to the silicon atom and R"' is a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms, preferably a hydrogen atom; we may mention, as group R', the vinyl and allyl groups and mixtures thereof; or
  - o an unsaturated cyclic hydrocarbon group having from 5 to 8 carbon atoms, for example a cyclohexenyl group.

Preferably R' is an unsaturated aliphatic hydrocarbon group, preferably a vinyl group.

According to one embodiment, R represents an alkyl radical having from 1 to 10 carbon atoms or alternatively a phenyl group, and preferably a methyl radical, and R' is a vinyl group.

According to a particular embodiment, the polyorganosiloxane also contains units of formula:

$$R_nSiO_{\frac{(4-n)}{2}} \quad \text{(II)}$$

in which R is a group as defined previously, and n is equal to 1, 2 or 3.

According to a variant, compound X can be a silicone resin comprising at least two ethylenic unsaturations, said resin being capable of reacting with compound Y by hydrosilylation in the presence of a catalyst. We may mention for example the resins of type MQ or MT which themselves bear $-CH=CH_2$ unsaturated reactive end groups.

These resins are crosslinked organosiloxane polymers.

The class of the silicone resins is known by the name "MDTQ", the resin being described in relation to the different siloxane monomer units that it contains, each of the letters "MDTQ" characterizing a type of unit.

The letter M represents the monofunctional unit of formula $(CH_3)_3SiO_{1/2}$, the silicon atom being bound to a single oxygen atom in the polymer comprising said unit.

The letter D denotes a bifunctional unit $(CH_3)_2SiO_{2/2}$ in which the silicon atom is bound to two oxygen atoms.

The letter T represents a trifunctional unit of formula $(CH_3)SiO_{3/2}$.

In units M, D, T defined above, at least one of the methyl groups can be substituted with a group R other than the methyl group, such as a hydrocarbon radical (notably alkyl) having from 2 to 10 carbon atoms or a phenyl group or alternatively a hydroxyl group.

Finally, the letter Q denotes a tetrafunctional unit $SiO_{4/2}$ in which the silicon atom is bound to four hydrogen atoms which are themselves attached to the rest of the polymer. As examples of said resins, we may mention the MT silicone resins such as poly(phenyl-vinylsilsesquioxane) such as that marketed under the reference SST-3PV1 by the company Gelest.

Preferably, compounds X have from 0.01 to 1 wt.% of unsaturated aliphatic groups.

Advantageously, compound X is selected from the polyorganopolysiloxanes, notably those comprising the siloxane units (I) and optionally (II) described previously.

Compound Y preferably has at least two free Si-H groups (hydrogenosilane groups).

Compound Y can be selected advantageously from the polyorganosiloxanes comprising at least one alkylhydrogenosiloxane unit of the following formula:

$$R_pHSiO_{\frac{(3-p)}{2}} \qquad \text{(III)}$$

in which:

R represents a linear or cyclic, monovalent hydrocarbon group, having from 1 to 30 carbon atoms, for example an alkyl radical having from 1 to 30 carbon atoms, preferably from 1 to 20 and better still from 1 to 10 carbon atoms, in particular a methyl radical, or alternatively a phenyl group and p is equal to 1 or 2. Preferably R is a hydrocarbon group, preferably methyl.

These polyorganosiloxane compounds Y with alkylhydrogenosiloxane units can additionally contain units of formula:

$$R_nSiO_{\frac{(4-n)}{2}} \qquad \text{(II)}$$

as defined above.

Compound Y can be a silicone resin comprising at least one unit selected from the units M, D, T, Q as defined above and comprising at least one Si-H group such as the poly(methyl-hydridosilsesquioxane) marketed under the reference SST-3MH1.1 by the company Gelest.

Preferably, these polyorganosiloxane compounds Y have from 0.5 to 2.5 wt.% of Si-H groups.

Advantageously, the radicals R represent a methyl group in formulae (I), (II), (III) above.

Preferably, these polyorganosiloxanes Y have end groups of formula $(CH_3)_3SiO_{1/2}$.

Advantageously, the polyorganosiloxanes Y have at least two alkylhydrogenosiloxane units of formula $-(H_3C)(H)SiO-$ and optionally include $-(H_3C)_2SiO-$ units.

These polyorganosiloxane compounds Y with hydrogenosilane groups are described for example in document EP 0465744.

According to one variant, compound X is selected from the organic oligomers or polymers (by organic, we mean compounds whose main chain is not a silicone chain, preferably compounds not containing silicon atoms) or from hybrid organic/silicone polymers or oligomers, said oligomers or polymers bearing at least 2 unsaturated reactive aliphatic groups, compound Y being selected from the polyorganosiloxanes Y with hydrogenosilane groups mentioned above.

According to one embodiment, the organic or hybrid organic/silicone compounds X bearing at least 2 unsaturated reactive aliphatic groups, have at least one polar group as described above.

Compound X, of organic nature, can then be selected from the vinylic, (meth)acrylic polymers or oligomers, polyesters, polyurethanes and/or polyureas, polyethers, perfluoropolyethers, polyolefins such as polybutene, polyisobutylene, dendrimers or organic hyperbranched polymers, or mixtures thereof.

In particular, the organic polymer or the organic moiety of the hybrid polymer can be selected from the following polymers:

a) polyesters with ethylenic unsaturation(s):

This is a group of polymers of the polyester type having at least 2 ethylenic double bonds, randomly distributed in the main chain of the polymer. These unsaturated polyesters are obtained by polycondensation of a mixture:

- of linear or branched aliphatic or cycloaliphatic dicarboxylic acids notably having 3 to 50 carbon atoms, preferably from 3 to 20 and better still from 3 to 10 carbon atoms, such as adipic acid or sebacic acid, of aromatic dicarboxylic acids notably having from 8 to 50 carbon atoms, preferably from 8 to 20 and better still from 8 to 14 carbon atoms, such as phthalic acids, notably terephthalic acid, and/or of dicarboxylic acids derived from dimers of fatty acids with ethylenic unsaturations such as the dimers of oleic or linoleic acids described in application EP-A-959 066 (paragraph [0021]) marketed under the designations Pripol® by the company Unichema or Empol® by the company Henkel, all said diacids having to be free from polymerizable ethylenic double bonds,
- of linear or branched aliphatic or cycloaliphatic diols notably having from 2 to 50 carbon atoms, preferably from 2 to 20 and better still from 2 to 10 carbon atoms, such as ethylene glycol, diethylene glycol, propylene glycol, 1,4-butanediol or cyclohexanedimethanol, of aromatic diols having from 6 to 50 carbon atoms, preferably from 6 to 20 and better still from 6 to 15 carbon atoms such as bisphenol A and bisphenol B, and/or of diol dimers resulting from reduction of dimers of fatty acids as defined previously, and

- of one or more dicarboxylic acids or their anhydrides having at least one polymerizable ethylenic double bond and having from 3 to 50 carbon atoms, preferably from 3 to 20 and better still from 3 to 10 carbon atoms, such as maleic acid, fumaric acid or itaconic acid.

b) polyesters with (meth)acrylate side and/or end groups:

This is a group of polymers of the polyester type obtained by polycondensation of a mixture:

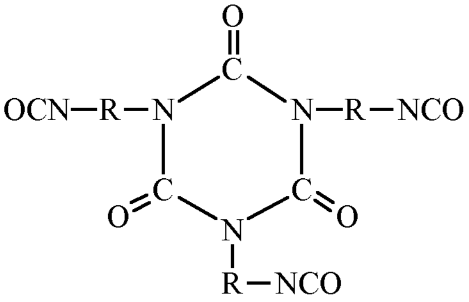
- of linear or branched aliphatic or cycloaliphatic dicarboxylic acids notably having from 3 to 50 carbon atoms, preferably from 3 to 20 and better still from 3 to 10 carbon atoms, such as adipic acid or sebacic acid, of aromatic dicarboxylic acids notably having from 8 to 50 carbon atoms, preferably from 8 to 20 and better still from 8 to 14 carbon atoms, such as phthalic acids, notably terephthalic acid, and/or of dicarboxylic acids derived from dimers of fatty acids with an ethylenic unsaturation such as the dimers of oleic or linoleic acids described in application EP-A-959 066 (paragraph [0021]) marketed under the designations Pripol® by the company Unichema or Empol® by the company Henkel, all said diacids having to be free from polymerizable ethylenic double bonds,
- of linear or branched aliphatic or cycloaliphatic diols notably having from 2 to 50 carbon atoms, preferably from 2 to 20 and better still from 2 to 10 carbon atoms, such as ethylene glycol, diethylene glycol, propylene glycol, 1,4-butanediol or cyclohexanedimethanol, of aromatic diols having from 6 to 50 carbon atoms, preferably from 6 to 20 and better still from 6 to 15 carbon atoms such as bisphenol A and bisphenol B, and
- of at least one ester of (meth)acrylic acid and of a diol or polyol having from 2 to 20 carbon atoms, preferably from 2 to 6 carbon atoms, such as 2-hydroxyethyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate and glycerol methacrylate.

These polyesters differ from those described above in section a) by the fact that the ethylenic double bonds are not located in the main chain but on side groups or at the end of the chains. These ethylenic double bonds are those of the (meth)acrylate groups present in the polymer.

Such polyesters are marketed for example by the company UCB under the designations EBECRYL® (EBECRYL® 450: molecular weight 1600, on average 6 acrylate functions per molecule, EBECRYL® 652: molecular weight 1500, on average 6 acrylate functions per molecule, EBECRYL® 800: molecular weight 780, on average 4 acrylate functions per molecule, EBECRYL® 810: molecular weight 1000, on average 4 acrylate functions per molecule, EBECRYL® 50 000: molecular weight 1500, on average 6 acrylate functions per molecule).

c) polyurethanes and/or polyureas with (meth)acrylate groups, obtained by polycondensation:

- of aliphatic, cycloaliphatic and/or aromatic diisocyanates, triisocyanates and/or polyisocyanates notably having from 4 to 50, preferably from 4 to 30 carbon atoms, such as hexamethylenediisocyanate, isophoronediisocyanate, toluenediisocyanate, diphenylmethanediisocyanate or isocyanurates of formula:



resulting from the trimerization of 3 molecules of diisocyanates OCN-R-CNO, where R is a linear, branched or cyclic hydrocarbon radical having from 2 to 30 carbon atoms;

- of polyols, notably of diols, free from polymerizable ethylenic unsaturations, such as 1,4-butanediol, ethylene glycol or trimethylolpropane, and/or of polyamines, notably of aliphatic, cycloaliphatic and/or aromatic diamines, notably having from 3 to 50 carbon atoms, such as ethylenediamine or hexamethylenediamine, and

- of at least one ester of (meth)acrylic acid and of a diol or polyol having from 2 to 20 carbon atoms, preferably from 2 to 6 carbon atoms, such as 2-hydroxyethyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate and glycerol methacrylate.

These polyurethanes/polyureas with acrylate groups are marketed for example under the designation SR 368 (tris(2-hydroxyethyl)isocyanurate-triacrylate) or CRAYNOR® 435 by the company CRAY VALLEY, or under the designation EBECRYL® by the company UCB (EBECRYL® 210: molecular weight 1500, 2 acrylate functions per molecule, EBECRYL® 230: molecular weight 5000, 2 acrylate functions per molecule, EBECRYL® 270: molecular weight 1500, 2 acrylate functions per molecule, EBECRYL® 8402: molecular weight 1000, 2 acrylate functions per molecule, EBECRYL® 8804: molecular weight 1300, 2 acrylate functions per molecule, EBECRYL® 220: molecular weight 1000, 6 acrylate functions per molecule, EBECRYL® 2220: molecular weight 1200, 6 acrylate functions per molecule, EBECRYL® 1290: molecular weight 1000, 6 acrylate functions per molecule, EBECRYL® 800: molecular weight 800, 6 acrylate functions per molecule).

We may also mention the water-soluble aliphatic diacrylate polyurethanes marketed under the designations EBECRYL® 2000, EBECRYL® 2001 and EBECRYL® 2002, and the diacrylate polyurethanes in aqueous dispersion marketed under the trade names IRR® 390, IRR® 400, IRR® 422 IRR® 424 by the company UCB.

d) polyethers with (meth)acrylate groups obtained by esterification, by (meth)acrylic acid, of the hydroxyl end groups of homopolymers or of C_{1-4} alkylene glycol copolymers, such as polyethylene glycol, polypropylene glycol, copolymers of ethylene oxide and of propylene oxide preferably having a weight-average molecular weight below 10 000, polyethoxylated or polypropoxylated trimethylolpropane.

Di(meth)acrylate polyoxyethylenes of suitable molecular weight are marketed for example under the designations SR 259, SR 344, SR 610, SR 210, SR 603 and SR 252 by the company CRAY VALLEY or under the designation EBECRYL® 11 by UCB. Polyethoxylated trimethylolpropane triacrylates are marketed for example under the designations SR 454, SR 498, SR 502, SR 9035, SR 415 by the company CRAY VALLEY or under the designation EBECRYL® 160 by the company UCB. Polypropoxylated trimethylolpropane triacrylates are marketed for example under the designations SR 492 and SR 501 by the company CRAY VALLEY.

e) epoxyacrylates obtained by reaction between

- at least one diepoxide selected for example from:
  - (i) bisphenol A diglycidyl ether,
  - (ii) a diepoxy resin resulting from the reaction between bisphenol A diglycidyl ether and epichlorohydrin,
  - (iii) an epoxyester resin with α,ω–diepoxy end groups resulting from the condensation of a dicarboxylic acid having from 3 to 50 carbon atoms with a stoichiometric excess of (i) and/or (ii),
  - (iv) an epoxyether resin with α,ω-diepoxy end groups resulting from the condensation of a diol having from 3 to 50 carbon atoms with a stoichiometric excess of (i) and/or (ii),
  - (v) natural or synthetic oils bearing at least 2 epoxide groups, such as epoxidized soya oil, epoxidized linseed oil and epoxidized vernonia oil,
  - (vi) a phenol-formaldehyde polycondensate (Novolac® resin), of which the end groups and/or side groups have been epoxidized,

and

- one or more carboxylic acids or carboxylic polyacids having at least one ethylenic double bond at α,β of the carboxyl group such as (meth)acrylic acid or crotonic acid or esters of (meth)acrylic acid and of a diol or polyol having from 2 to 20 carbon atoms, preferably from 2 to 6 carbon atoms such as 2-hydroxyethyl (meth)acrylate.

Such polymers are marketed for example under the designations SR 349, SR 601, CD 541, SR 602, SR 9036, SR 348, CD 540, SR 480, CD 9038 by the company CRAY VALLEY, under the designations EBECRYL® 600 and EBECRYL® 609, EBECRYL® 150, EBECRYL® 860, EBECRYL® 3702 by the company UCB and under the designations PHOTOMER® 3005 and PHOTOMER® 3082 by the company HENKEL.

f) (C_{1-50} alkyl) poly(meth)acrylates, said alkyl being linear, branched or cyclic, bearing at least two functions with ethylenic double bond carried by the lateral and/or terminal hydrocarbon chains.

Such copolymers are marketed for example under the designations IRR® 375, OTA® 480 and EBECRYL® 2047 by the company UCB.

g) polyolefins such as polybutene, polyisobutylene,

h) perfluoropolyethers with acrylate groups obtained by esterification, for example by (meth)acrylic acid, of perfluoropolyethers bearing hydroxyl side and/or end groups.

These α,ω–diol perfluoropolyethers are described notably in EP-A-1057849 and are marketed by the company AUSIMONT under the designation FOMBLIN® Z DIOL.

i) dendrimers and hyperbranched polymers bearing (meth)acrylate or (meth)acrylamide end groups obtained respectively by esterification or amidation of dendrimers and of hyperbranched polymers with hydroxyl or amino terminal functions, by (meth)acrylic acid.

The dendrimers (from the Greek dendron = tree) are "tree-like" polymer molecules, i.e. highly branched, invented by D.A. Tomalia and his team at the beginning of the 1990's (Donald A. Tomalia et al., Angewandte Chemie, Int. Engl. Ed., Vol. 29, No. 2, pages 138 - 175). They are structures constructed around a, generally polyvalent, central unit. Branched chain-extending units are arranged according to a perfectly defined structure around this central unit, thus giving rise to symmetrical, monodispersed macromolecules having a well-defined chemical and stereochemical structure. Dendrimers of the polyamidoamine type are marketed for example under the name STARBURST® by the company DENDRITECH.

The hyperbranched polymers are polycondensates, generally of the polyester, polyamide or polyethyleneamine type, obtained from multifunctional monomers, which have a tree-like structure similar to that of the dendrimers but far less regular than the latter (see for example WO-A-93/17060 and WO 96/12754).

The company PERSTORP markets hyperbranched polyesters under the name BOLTORN®. Hyperbranched polyethyleneamines are available under the name COMBURST® from the company DENDRITECH. Hyperbranched poly(esteramide)s with hydroxyl end groups are marketed by the company DSM under the name HYBRANE®.

These dendrimers and hyperbranched polymers, esterified or amidated by acrylic and/or methacrylic acid, differ from the polymers described in sections a) to h) above by the very large number of ethylenic double bonds present. This increased functionality, generally greater than 5, makes them particularly useful in enabling them to act as a "crosslinking node", i.e. a multiple crosslinking site.

It is therefore possible to use these dendritic and hyperbranched polymers in association with one or more of the above polymers and/or oligomers a) to h).

1a - Additional reactive compounds

According to one embodiment, the compositions containing compound X and/or Y can additionally comprise an additional reactive compound such as:

- organic or mineral particles having on their surface at least 2 unsaturated aliphatic groups – we may mention for example the silicas surface-treated for example with silicone compounds with vinylic groups such as for example cyclotetramethyltetravinylsiloxane-treated silica,
- silazane compounds such as hexamethyldisilazane.

1b - Catalyst

The hydrosilylation reaction takes place in the presence of a catalyst which can be present with one or other of the compounds X or Y or can be present on its own. For example, this catalyst can be present in the composition in an encapsulated form if the two compounds X and Y, which it must cause to interact, are present in this same composition in an unencapsulated form or conversely it can be contained there in an unencapsulated form if at least one of compounds X and Y is present in the composition in an encapsulated form. The catalyst is preferably based on platinum or tin.

We may mention for example platinum-based catalysts deposited on a support of silica gel or of powdered charcoal, platinum chloride, salts of platinum and of chloroplatinic acids.

The chloroplatinic acids are preferably used in hexahydrate or anhydrous form, which are easily dispersible in organosilicone media.

We may also mention platinum complexes, such as those based on chloroplatinic acid hexahydrate and divinyl tetramethyldisiloxane.

The catalyst can be present at a content in the range from 0.0001 to 20 wt.%

relative to the total weight of the composition containing it.

Compounds X and/or Y can be combined with polymerization inhibitors or retarders, and more particularly inhibitors of the catalyst. Non-limitatively, we may mention cyclic polymethylvinylsiloxanes, and in particular tetravinyl tetramethyl cyclotetrasiloxane, acetylenic alcohols, preferably volatile, such as methylisobutynol.

The presence of ionic salts, such as sodium acetate, can have an influence on the rate of polymerization of the compounds.

As an example of a combination of compounds X and Y reacting by hydrosilylation in the presence of a catalyst, we may mention the following references offered by the company Dow Corning: DC 7-9800 Soft Skin Adhesive Parts A & B, as well as the combination of the following mixtures A and B prepared by Dow Corning:

MIXTURE A:

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Dimethyl Siloxane, Dimethylvinylsiloxy-terminal	68083-19-2	55-95	Polymer
Silica Silylate	68909-20-6	10-40	Filler
1,3-Diethenyl-1,1,3,3-Tetramethyldisiloxane complexes	68478-92-2	Trace	Catalyst
Tetramethyldivinyldisiloxane	2627-95-4	0.1-1	Polymer

MIXTURE B:

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Dimethyl Siloxane, Dimethylvinylsiloxy-terminal	68083-19-2	55-95	Polymer
Silica Silylate	68909-20-6	10-40	Filler
Dimethyl, Methylhydrogen Siloxane, trimethylsiloxy-terminal	68037-59-2	1-10	Polymer

Advantageously, compounds X and Y are selected from silicone compounds capable of reacting by hydrosilylation in the presence of a catalyst; in particular compound X is selected from the polyorganosiloxanes comprising units of formula (I) described above and compound Y is selected from organosiloxanes comprising alkylhydrogenosiloxane units of formula (III) described above.

According to a particular embodiment, compound X is a polydimethylsiloxane with vinylic end groups, and compound Y is a polymethylhydrogenosiloxane.

2/ Compounds X and Y capable of reacting by condensation

According to one embodiment, the invention relates to a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a condensation reaction when they are brought into contact with one another, and (d) where appropriate of at least one catalyst, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and
- removal of the film thus formed, preferably by peeling.

According to this embodiment, compounds X and Y are capable of reacting by condensation, either in the presence of water (hydrolysis) by reaction of 2 compounds bearing alkoxysilane groups, or by so-called "direct" condensation by reaction of a compound bearing alkoxysilane group(s) and a compound bearing silanol group(s) or by reaction of 2 compounds bearing silanol group(s).

When the condensation is carried out in the presence of water, the latter can in particular be the ambient humidity, the residual water of the skin, of the lips, of the eyelashes and/or of the nails, or water from an external source, for example by prior moistening of the keratinous substance (for example by an atomizer, by natural or artificial tears).

In this manner of reaction by condensation, compounds X and Y, which may be identical or different, can therefore be selected from silicone compounds whose main chain contains at least two alkoxysilane groups and/or at least two silanol (Si-OH) side groups or end groups.

According to one embodiment, compound X and/or compound Y bears at least one polar group, as described above, capable of forming at least one hydrogen bond with keratinous substances.

According to an advantageous embodiment, compounds X and/or Y are selected from the polyorganosiloxanes comprising at least two alkoxysilane groups. By "alkoxysilane group", we mean a group comprising at least one -Si-OR moiety, R being an alkyl group having from 1 to 6 carbon atoms.

Compounds X and Y are notably selected from the polyorganosiloxanes comprising alkoxysilane end groups, more specifically those which have at least 2 alkoxysilane end groups, preferably trialkoxysilane end groups.

These compounds X and/or Y preferably mostly comprise units of formula:

$$R^9_sSiO_{(4-s)/2} \quad (IV)$$

in which the groups R^9 represent, independently of one another, a radical selected from alkyl groups having from 1 to 6 carbon atoms, phenyl groups, fluoroalkyl groups, and s is equal to 0, 1, 2 or 3. Preferably, groups R^9 represent, independently of one another, an alkyl group having from 1 to 6 carbon atoms. As alkyl group, we may notably mention methyl, propyl, butyl, hexyl and mixtures thereof, preferably methyl or ethyl. As fluoroalkyl group, we may mention 3,3,3-trifluoropropyl.

According to a particular embodiment, compounds X and Y, which may be identical or different, are polyorganosiloxanes comprising units of formula:

$$(R^9_2SiO_2)_f - \quad (V)$$

in which R^9 is as described above, preferably R^9 is a methyl radical, and f is such that the polymer advantageously has a viscosity at 25°C in the range from 0.5 to 3000 Pa.s, preferably in the range from 5 to 150 Pa.s; for example f can range from 2 to 5000, preferably from 3 to 3000, and more preferably from 5 to 1000.

These polyorganosiloxane compounds X and Y contain at least 2 trialkoxysilane end groups per molecule of polymer, said groups having the following formula

$$-ZSiR^1_x(OR)_{3-x} \quad (VI)$$

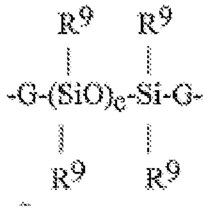
in which:

the radicals R represent, independently, a methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl group, preferably a methyl or ethyl group,

R^1 is a methyl or ethyl group,

x is equal to 0 or 1, preferably x is equal to 0 and

Z is selected from: the divalent hydrocarbon groups that do not have an ethylenic unsaturation and have from 1 to 18 carbon atoms, preferably from 2 to 18 carbon atoms (alkylene groups), the combinations of divalent hydrocarbon radicals and siloxane segments of the following formula (IX):



$$-G-(\underset{R^9}{\overset{R^9}{|}}{SiO})_c-\underset{R^9}{\overset{R^9}{\underset{|}{\overset{|}{Si}}}}-G- \quad (IX)$$

R^9 being as described above, G is a divalent hydrocarbon radical without an ethylenic unsaturation and having from 1 to 18 carbon atoms, preferably from 2 to 18 carbon atoms and c is an integer in the range from 1 to 6.

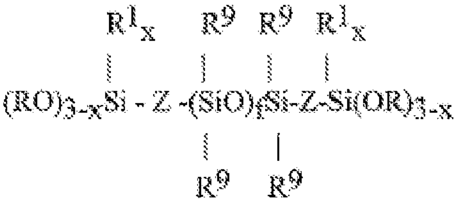
Z and G can notably be selected from the alkylene groups such as methylene, ethylene, propylene, butylene, pentylene, hexylene, the arylene groups such as phenylene.

Preferably, Z is an alkylene group, and more preferably ethylene.

These polymers can have on average at least 1.2 trialkoxysilane end groups or terminal chains per molecule, and preferably on average at least 1.5 trialkoxysilane end groups per molecule. These polymers that can have at least 1.2 trialkoxysilane end groups per molecule, some can include other types of end groups such as end groups of formula $CH_2=CH-SiR^9_2-$ or of formula R^6_3-Si-, in which R^9 is as defined previously and each group R^6 is selected independently from the R^9 or vinyl groups. As examples of said end groups, we may mention the trimethoxysilane, triethoxysilane, vinyldimethoxysilane and vinylmethyloxyphenylsilane groups.

Such polymers are notably described in documents US 3 175 993, US 4 772 675, US 4 871 827, US 4 888 380, US 4 898 910, US 4 906 719 and US 4 962 174, the contents of which are incorporated by reference in the present application.

We may mention, as compound X and/or Y, in particular the polyorganosiloxanes selected from the polymers of formula:

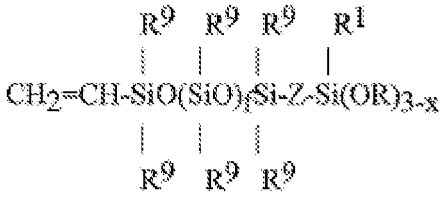


$$(RO)_{3-x}\overset{R^1_x}{Si} - Z - (\underset{R^9}{\overset{R^9}{Si}}O)_f\underset{R^9}{\overset{R^9}{Si}}-Z-\overset{R^1_x}{Si}(OR)_{3-x}$$

(VII)

in which R, R^1, R^9, Z, x and f are as described above.

Compounds X and/or Y can also include a mixture of polymers of formula (VII) above with polymers of the following formula (VIII):



$$CH_2=CH-\underset{R^9}{\overset{R^9}{Si}}O(\underset{R^9}{\overset{R^9}{Si}}O)_f\underset{R^9}{\overset{R^9}{Si}}-Z-\overset{R^1}{Si}(OR)_{3-x}$$

(VIII)

in which R, R^1, R^9, Z, x, and f are as described above.

When the polyorganosiloxane compound X and/or Y with alkoxysilane group(s) includes said mixture, the various polyorganosiloxanes are present at contents such that the organosilyl terminal chains represent less than 40%, preferably less than 25% in number of terminal chains.

Polyorganosiloxane compounds X and/or Y that are particularly preferred are those of formula (VII) described above. Such compounds X and/or Y are described for example in document WO 01/96450.

As stated above, compounds X and Y can be identical or different.

In particular, compounds X and Y can represent a mixture of polydimethylsiloxanes with methoxysilane groups.

According to a variant, one of the 2 reacting compounds X or Y is of silicone character and the other is of organic character. For example, compound X is selected from organic oligomers or polymers or hybrid organic/silicone oligomers or polymers, said polymers or oligomers comprising at least two alkoxysilane groups, and Y is selected from silicone compounds such as the polyorganosiloxanes described above. In particular, the organic oligomers or polymers are selected from the vinylic, (meth)acrylic oligomers or polymers, polyesters, polyamides, polyurethanes and/or polyureas, polyethers, polyolefins, perfluoropolyethers, dendrimers and hyperbranched organic polymers, and mixtures thereof.

According to one embodiment, compound X of organic character or of hybrid organic/silicone character bears at least one polar group, as described above, capable of forming at least one hydrogen bond with the keratinous substance.

The organic polymers of vinylic or (meth)acrylic character, bearing alkoxysilane side groups, can in particular be obtained by copolymerization of at least one vinylic or (meth)acrylic organic monomer with a (meth)acryloxypropyltrimethoxysilane, a vinyltrimethoxysilane, a vinyltriethoxysilane, an allyltrimethoxysilane etc.

We may mention for example the (meth)acrylic polymers described in the document of KUSABE, M, Pitture e Verniei – European Coating; 12-B, pages 43-49, 2005, and notably the polyacrylates with alkoxysilane groups with the designation MAX from Kaneka or those described in the work by PROBSTER, M, Adhesion-Kleben & Dichten, 2004, 481 (1-2), pages 12-14.

The organic polymers resulting from a polycondensation or a polyaddition, such as polyesters, polyamides, polyurethanes and/or polyureas, polyethers, and bearing alkoxysilane side and/or end groups, can result for example from reaction of an oligomeric prepolymer as described above with one of the following silane reaction partners bearing at least one alkoxysilane group: aminopropyltrimethoxysilane, aminopropyltriethoxysilane, aminoethyl aminopropyl trimethoxysilane, glycidoxypropyltrimethoxysilane, glycidoxypropyltriethoxysilane, epoxycyclohexylethyltrimethoxysilane, mercaptopropyltrimethoxysilane.

Examples of polyethers and polyisobutylenes with alkoxysilane groups are described in the work by KUSABE, M., Pitture e Verniei – European Coating; 12-B, pages 43-49, 2005. As examples of polyurethanes with alkoxysilane end groups, we may mention those described in the document PROBSTER, M., Adhesion-Kleben & Dichten, 2004, 481 (1-2), pages 12-14 or alternatively those described in the document LANDON, S., Pitture e Verniei Vol. 73, No. 11, pages 18-24, 1997 or in the document HUANG, Mowo, Pitture e Verniei Vol. 5, 2000, pages 61-67, and we may notably mention the polyurethanes with alkoxysilane groups from OSI-WITCO-GE.

As polyorganosiloxane compounds X and/or Y, we may mention the resins of type MQ or MT which themselves bear alkoxysilane and/or silanol end groups, for example the poly(isobutylsilsesquioxane) resins functionalized with silanol groups offered under reference SST-S7C41 (three Si-OH groups) by the company Gelest.

2a - Additional reactive compound

According to one embodiment, compound X and/or Y can additionally be combined with an additional reactive compound comprising at least two alkoxysilane or silanol groups.

We may mention for example:

- one or more organic or mineral particles with alkoxysilane and/or silanol groups on their surface, for example fillers surface-treated with said groups.

2b - Catalyst

The condensation reaction can take place in the presence of a metal-based catalyst which can be present with one or other of the compounds X or Y or can be present on its own. For example, said catalyst can be present in the composition in an encapsulated form if the two compounds X and Y, which it is to cause to interact, are present in this same composition in an unencapsulated form or conversely it can be present there in an unencapsulated form if at least one of compounds X and Y is present in the composition in an encapsulated form. The catalyst for use in this type of reaction is preferably a titanium-based catalyst.

We may notably mention the catalysts based on tetraalkoxytitanium of formula:

$$Ti(OR^2)_y(OR^3)_{4-y},$$

in which R^2 is selected from the tertiary alkyl radicals such as tert-butyl, tert-amyl and 2,4-dimethyl-3-pentyl; R^3 represents an alkyl radical having from 1 to 6 carbon atoms, preferably a methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, hexyl group and y is a number in the range from 3 to 4, preferably from 3.4 to 4.

The catalyst can be present at a content ranging from 0.0001 to 20 wt.% relative to the total weight of the composition containing it.

2c - Diluent

The compositions that can be used, comprising X and/or Y, can additionally include a volatile silicone oil (or diluent) for lowering the viscosity of the composition. Said oil can be selected from the short-chain linear silicones such as hexamethyldisiloxane, octamethyltrisiloxane, cyclic silicones such as octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane and mixtures thereof.

This silicone oil can represent from 5 to 95 wt.%, preferably from 10 to 80 wt.% relative to the weight of each composition.

As an example of a combination of compounds X and Y bearing alkoxysilane groups and reacting by condensation, we may mention the combination of the following mixtures A' and B' produced by the company Dow Corning:

Mixture A':

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Bis-Trimethoxysiloxyethyl Tetramethyldisiloxyethyl Dimethicone (1)	PMN87176	25-45	Polymer
Silica Silylate	68909-20-6	5-20	Filler
Disiloxane	107-46-0	30-70	Solvent

Mixture B':

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Disiloxane	107-46-0	80-99	Solvent
Tetra T Butyl Titanate	-	1-20	Catalyst

It should be noted that compounds X and Y, identical, are combined in mixture A' (cf. (1))

3/ Crosslinking in the presence of peroxide:

According to one embodiment, the invention relates to a cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a crosslinking reaction in the presence of a peroxide, when they are brought into contact with one another, and (d) at least one peroxide, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and
- removal of the film thus formed, preferably by peeling.

This reaction is preferably effected by heating to a temperature greater than or equal to 50°C, preferably greater than or equal to 80°C, and up to 120°C.

Compounds X and Y, which may be identical or different, have in this case at least two $-CH_3$ side groups and/or at least two side chains bearing a $-CH_3$ group.

Compounds X and Y are preferably silicone compounds and can be selected for example from the non-volatile linear polydimethylsiloxanes of high molecular weight, having a degree of polymerization above 6 and with at least two $-CH_3$ side groups attached to the silicon atom and/or at least two side chains bearing a $-CH_3$ group. We may mention for example the polymers described in the Catalogue "Reactive Silicones" of the company Gelest Inc., Edition 2004, page 6, and notably the copolymers (also called gums) of vinylmethylsiloxane-dimethylsiloxane of molecular weight in the range from 500 000 to 900 000 and notably with viscosity above 2 000 000 cSt.

As peroxides that can be used in the invention, we may mention benzoyl peroxide, 2,4-dichlorobenzoyl peroxide and mixtures thereof.

According to one embodiment, the hydrosilylation reaction in the presence of a catalyst, or the condensation reaction, or alternatively the crosslinking reaction in the presence of a peroxide, between compounds X and Y is accelerated by supply of heat, for example by raising the temperature of the system between 25°C and 180°C.

In general, regardless of the type of reaction by which compounds X and Y react with one another, the molar percentage of X relative to the total of compounds X and Y, i.e. the ratio X/(X+Y) x 100, can vary from 5 to 95%, preferably from 10 to 90%, and more preferably from 20 to 80%.

Similarly, the molar percentage of Y relative to the total of compounds X and Y, i.e. the ratio Y/(X+Y) x 100, can vary from 5 to 95%, preferably from 10 to 90%, and more preferably from 20 to 80%.

Compound X can have a weight-average molecular weight (Mw) in the range from 150 to 1 000 000, preferably from 200 to 800 000, more preferably from 200 to 250 000.

Compound Y can have a weight-average molecular weight (Mw) in the range from 200 to 1 000 000, preferably from 300 to 800 000, more preferably from 500 to 250 000.

Compound X can represent from 0.1 to 95 wt.% relative to the total weight of the composition containing it, preferably from 1 to 90%, and more preferably from 5 to 80%.

Compound Y can represent from 0.1 to 95 wt.% relative to the total weight of the composition containing it, preferably from 1 to 90%, and more preferably from 5 to 80%.

The ratio of compound X to compound Y can be varied so as to adjust the reaction rate and therefore the rate of formation of the film or alternatively so as to adapt the properties of the film formed (for example its adhesive properties) according to the intended application.

In particular, compounds X and Y can be present at a molar ratio X/Y in the range from 0.05 to 20 and preferably from 0.1 to 10.

Compounds X and Y can advantageously be combined with at least one filler. Thus, the kit according to the invention can for example include, in at least one of the compositions, a filler selected from silica or surface-treated silica.

As pointed out previously, according to one embodiment of the invention, compounds X and Y can be used in the form of a single composition which then contains at least one of them or, if applicable, the catalyst or the peroxide if necessary for their interaction, in an encapsulated form.

Within the scope of the present invention, consideration is given more particularly to the encapsulated forms of the core/shell type, also called microcapsules or nanocapsules, in which the shell is of polymeric character and the core contains compound X, compound Y, one of its compounds X and Y possibly being encapsulated with the catalyst or the peroxide if necessary for the interaction of the two compounds. In the case when this catalyst is not encapsulated with one or other of the compounds X or Y, it is present in the cosmetic composition containing the encapsulated forms.

Numerous techniques are currently available for making microcapsules or nanocapsules of this type.

However, according to a preferred embodiment, the encapsulated forms considered according to the invention are nanocapsules and are obtained by a technique called solvent nanoprecipitation, notably described in documents EP 274 961 and EP 1 552 820.

More particularly, the shell of the nanocapsules of compound X or Y, employed according to the invention, is of polymeric character, not crosslinked, not water-soluble and not soluble in the capsule core.

In general, all the polymers, of natural or synthetic origin, soluble in a solvent that is not miscible with water, and notably those having a melting point below the boiling point of water at atmospheric pressure (100°C), may be suitable.

These polymers can be biodegradable, for example polyesters, or non-biodegradable.

By way of illustration of polymers that are suitable for the invention, we may notably mention:

- C_2-C_{12} alkyl cyanoacrylate polymers
- polymers formed by poly-L-lactides, poly-DL-lactides, polyglycolides and the corresponding copolymers,
- polycaprolactones,
- polymers of 3-hydroxybutyric acid,
- copolymers of vinyl chloride and vinyl acetate,
- copolymers of methacrylic acid and methacrylic ester, notably of methacrylic acid and of methacrylate,
- polyvinyl acetophthalate,
- cellulose acetophthalate,
- polyvinylpyrrolidone-vinyl acetate copolymer,
- polyethylenevinyl acetates,
- polyacrylonitriles,
- polyacrylamides,
- polyethylene glycols,
- poly-(C_1 to C_4 hydroxyalkyl methacrylate)
- esters of cellulose and C_1-C_4 carboxylic acid,
- polystyrene and copolymers of styrene and maleic anhydride, copolymers of styrene and acrylic acid, styrene ethylene/butylene-styrene block terpolymers, styrene-ethylene/propylene-styrene block terpolymers,
- styrene alkyl-alcohol oligomers,
- terpolymers of ethylene, vinyl acetate and maleic anhydride,
- polyamides,

- polyethylenes,
- polypropylenes,
- organopolysiloxanes including polydimethylsiloxanes,
- poly(alkylene adipate),
- polyol polyesters,
- polysilsesquioxane silicone polymers,
- dendritic polyesters with a hydroxyl terminal function,
- polymers that are water-dispersible but are nevertheless soluble in solvents that are not miscible with water, for example: polyesters, poly(ester amides), polyurethanes and vinyl copolymers bearing carboxylic and/or sulphonic acid functions and in particular those described in document FR 2 787 729,
- block copolymers insoluble in water at room temperature and solid at room temperature, having at least one block of one of the aforementioned polymers, and
- mixtures thereof.

These polymers or copolymers can have a weight-average molecular weight between 1000 and 500 000 and in particular between 1500 and 100 000.

The following are quite particularly suitable for the invention: poly(alkylene adipate), organopolysiloxanes, polycaprolactones, cellulose acetophthalate, cellulose acetobutyrate, cellulose esters, polystyrene and its derivatives, and notably polycaprolactones.

Of course, a person skilled in the art is able, on the basis of his knowledge, to adjust the molecular weight of the polymer selected with respect to its concentration in the solvent so as have a mixture viscosity compatible with satisfactory emulsification.

With regard to the lipophilic core, it can contain at least one oil, in addition to compound X or compound Y. Said oil can be selected from the oils described hereunder for the oily phase. The oil is preferably a silicone oil.

According to a variant of the invention, the encapsulated forms of compound X or compound Y can be coated with a lamellar phase.

Regarding the operating procedure for production of nanocapsules suitable for the invention, a person skilled in the art can notably refer to the teaching in document EP 1 552 820 cited previously. The choice of the necessary surfactants as well as the carrying out of the method requires the knowledge of a person skilled in the art.

As indicated above, the composition which is applied on the keratinous substance comprises advantageously at least one filler that absorbs sebum. Said filler may be present in the composition comprising compound X and/or in the composition comprising compound Y.

SEBUM-ABSORBING FILLERS

In the sense of the invention, the expression "sebum-absorbing filler" is understood to mean a compound capable of absorbing and/or adsorbing sebum. Generally, this type of compound is in the form of a powder having a sebum uptake.

Advantageously, the sebum uptake of these compounds is greater than or equal to 1 ml/g, and may especially vary from 1 ml/g to 20 ml/g, in particular from 1 ml/g to 15 ml/g. It may especially be greater than or equal to 1.5 ml/g, and may especially vary from 1.5 ml/g to 20 ml/g, in particular from 1.5 ml/g to 15 ml/g.

According to one particular variant, the sebum uptake of said compound may be greater than or equal to 2 ml/g, and may especially vary from 2 ml/g to 20 ml/g, and in particular from 2 ml/g to 15 ml/g.

The sebum uptake corresponds to the amount of sebum absorbed and/or adsorbed on the available surface of the particles. It can be measured, for example, according to the Wet Point method described below in the examples.

According to one particular embodiment, the particles of compound that absorb and/or adsorb the sebum may have a BET specific surface area greater than or equal to 300 m^2/g, especially greater than or equal to 500 m^2/g, and in particular greater than or equal to 600 m^2/g, and especially less than or equal to 1500 m^2/g.

The "BET specific surface area" is determined according to the BET (Brunauer-Emmet-Teller) method described in "The Journal of the American Chemical Society", vol. 60, page 309, February 1938 and that corresponds to the international standard ISO 5794/1 (annex D). The BET specific surface area corresponds to the total specific surface area (therefore including micropores) of the powder.

The particles of compound that absorb and/or adsorb the sebum may be of mineral or organic origin.

They may especially be chosen from: kaolin powders; talc powders; clays; polyamide (Nylon®) powders; powders of acrylic polymers, especially of polymethyl methacrylate, polymethyl methacrylate/ethylene glycol dimethacrylate, polyallyl methacrylate/ethylene glycol dimethacrylate and ethylene glycol dimethacrylate/lauryl methacrylate copolymer; expanded hollow microspheres; particles of crosslinked polystyrene; starch particles or else silica powders; and mixtures thereof.

The particles of this compound may, where appropriate, be surface-treated by at least one hydrophobic treatment agent.

This hydrophobic treatment agent may especially be chosen from:

- silicones, such as methicones, dimethicones;
- fatty acids, such as stearic acid;
- metal soaps, such as aluminium dimyristate, the aluminium salt of hydrogenated tallow glutamate;
- perfluoroalkyl phosphates, perfluoroalkyl silanes, perfluoroalkyl silazanes, polyhexafluoropropylene oxides, polyorganosiloxanes comprising perfluoroalkyl perfluoropolyether groups;
- amino acids, N-acylated amino acids or their salts;
- lecithin, isopropyl triisostearyl titanate; and
- mixtures thereof.

The term “alkyl” mentioned in the compounds cited previously may especially denote a linear, branched or cyclic alkyl group comprising from 1 to 30 carbon atoms, especially from 5 to 16 carbon atoms.

The N-acylated amino acids may comprise an acyl group having from 8 to 22 carbon atoms, such as, for example a 2-ethylhexanoyl, caproyl, lauroyl, myristoyl, palmitoyl, stearoyl and cocoyl group.

The salts of these compounds may be aluminium, magnesium, calcium, zirconium, zinc, sodium or potassium salts.

The amino acid may be, for example, lysine, glutamic acid or alanine.

By way of non-limiting example of compounds that absorb sebum according to the invention, mention may most particularly be made of:

- kaolin powders, such as, for example those sold under the name SUPREME® or POLWHITE® by Imerys;
- talc powders, such as, for example those sold under the name LUZENAC PHARMA M® by Luzenac or LL-5 TALC JA-46R® by Diato Kasei Kogyo;

- clays, such as montmorillonite, hectorite, bentonite, such as, for example those sold under the names BENTONE 38 VCG, BENTONE GEL CAO V, BENTONE 27 V and BENTONE GEL MIO V by Elementis;
- powders of polyamides (Nylon®), such as, for example the product ORGASOL® 2002 EXD NAT COS sold by Arkema, or else the product PULPE POLYAMIDE 12185® having a size of 0.3 mm, sold by Utexbel;
- particles of acrylic polymer(s), especially of polymethyl methacrylate, such as, for example the product MICROPEARL® M 305 sold by Matsumoto Yushi, COVABEAD® LH85 sold by Wackherr or else JURYMER MB1 sold by Nihon Junyaku; polymethyl methacrylate/ethylene glycol dimethacrylate, such as, for example DOW CORNING 5640 MICROSPONGE® sold by Dow Corning or GANZPEARL® GMP-0820 sold by Ganz Chemical; polyallyl methacrylate/ethylene glycol dimethacrylate, such as, for example POLY-PORE® L200 or POLY-PORE® E200 sold by Amcol; ethylene glycol dimethacrylate/lauryl methacrylate copolymer, such as, for example POLYTRAP® 6603 sold by Dow Corning;
- expanded hollow microspheres, such as, for example the products EXPANCEL® 551 DE 40 or EXPANCEL® 551 DE 42 sold by Expancel;
- particles of crosslinked polystyrene, such as, for example the product IMBIBER BEADS 295® sold by Imbibitive Technology;
- starch particles, such as, for example the product DRYFLO PLUS® sold by National Starch; and
- silica powders, such as, for example the porous silica microspheres sold under the name SILICA BEADS SB-700 sold by Myoshi, SUNSPHERE® H51, SUNSPHERE® H33, SUNSPHERE® H53 sold by Asahi Glass; and the amorphous silica microspheres coated with polydimethylsiloxane sold under the name SA SUNSPHERE® H-33 and SA SUNSPHERE® H-53 sold by Asahi Glass; and
- mixtures thereof.

The sebum-absorbing fillers may preferably be chosen from:

- kaolin powders;
- talc powders;
- clays, such as montmorillonite, hectorite and bentonite;
- powders of polyamides (Nylon®);

- particles of acrylic polymer(s), especially of polymethyl methacrylate;
- expanded hollow microspheres;
- particles of crosslinked polystyrene;
- starch particles; and
- mixtures thereof.

According to one preferred embodiment of the invention, they may be chosen from kaolin powders, talc powders, polyamide powders, starch particles, particles of polymethyl methacrylate, and mixtures thereof, preferably from particles of polymethyl methacrylate.

These may especially be particles of crosslinked polymethyl methacrylate.

Of course, the amounts of sebum-absorbing filler vary depending on the nature of the compounds used, and especially on their sebum uptake, and also on the cleansing effect desired.

Generally, the sebum-absorbing fillers, and for example the particles of acrylic polymer(s), represent from 2 to 50 wt%, in particular from 5 to 30 wt%, and preferably from 5 to 20 wt%, relative to the total weight of the kit or of the deposit containing them.

The particles of acrylic polymer(s), and for example the particles of polymethyl methacrylate, may advantageously be present in an amount ranging from 1 to 20 wt%, in particular from 2 to 10 wt%, relative to the total weight of the kit containing them.

PHYSIOLOGICALLY ACCEPTABLE MEDIUM

As stated previously, the compositions according to the invention comprise a physiologically acceptable medium, that is to say a medium that is non-toxic and able to be applied to the keratinous substances of human beings and has a pleasant appearance, smell and feel.

The compositions according to the invention are preferably anhydrous.

When the compositions are in an anhydrous form, they may be in a liquid form.

In the sense of the invention, the expression “anhydrous composition” denotes a composition which contains less than 5 wt%, preferably less than 2 wt% of water, or even less than 0.5 wt% of water relative to its total weight, and especially a composition that is free of water.

The compositions of this type may have the form of a kit for cleansing the skin, especially the skin of the face, and may be packaged, for example, in the form of a cream in a pot or a fluid in a tube or in a pump dispenser.

The composition may comprise organic solvents, such as, for example primary alcohols (C_1-C_3 monohydric alcohol) such as ethanol and isopropanol, polyols such as propylene glycol, butylene glycol, glycerol, hexylene glycol, polyethylene glycols such as PEG-8, dipropylene glycol and mixtures thereof, on condition that their addition does not modify the properties of the film obtained. The amount of such solvents may range, for example, from 0.05 to 15 wt% and preferably from 0.1 to 10 wt% and better still from 0.5 to 10 wt% relative to the total weight of the composition or of the sum of the weights of the first and second compositions.

The compositions of the invention may also comprise one or more lipophilic surfactants which may help, in particular, in the dispersion of the fillers. The amount of surfactant(s) (as active material) preferably ranges from 0.01 to 10 wt%, more preferably from 0.05 to 5 wt% and better still from 0.05 to 3 wt% relative to the total weight of the compositions according to the invention.

ADDITIONAL COMPOUNDS

The compositions according to the invention may additionally contain various adjuvants commonly used in the cosmetics field, such as dyes, fillers, sequestrants (for example EDTA) or fragrances.

The compositions containing compounds X and Y according to the invention may also contain yet other conventional cosmetic or care adjuvants or additives, such as, for example active agents, preservatives, antioxidants, antiseptics, bactericides, antimicrobial agents, softeners, bleaching and/or exfoliating agents, humectants, UV screening agents (or sunscreens), hydrophilic or lipophilic cosmetic or dermatological active agents such as water-soluble or liposoluble vitamins, and also mixtures thereof. Of course a person skilled in the art will be sure to choose this or these optional additives and/or their amounts, so that the advantageous cleansing properties of the compositions according to the invention are not, or are not substantially, impaired by the envisaged addition.

As preservatives, it is possible to use any preservative commonly used in the fields in question, such as, for example parabens, chlorhexidine digluconate.

As a bactericide, it is possible, for example, to use benzoyl peroxide, salicylic acid, triclosan, azelaic acid, niacin (vitamin PP), a glycerol mono(C_3-C_9)alkyl- or (C_3-C_9)-alkenyl ether, the manufacture of which is described in the literature, in particular in E. Baer, H.O.L. Fischer - J. Biol. Chem. 140-397-1941. Among these glycerol mono(C_3-C_9)alkyl- or (C_3-C_9)alkenyl ethers, preferably 3-[(2-ethylhexyl)oxy]-1,2-propanediol, 3-[(heptyl)oxy]-1,2-propanediol, 3-[(octyl)oxy]-1,2-propanediol and 3-[(allyl)oxy]-1,2-propanediol are used. One glycerol mono(C_3-C_9)alkyl ether that is most particularly preferred according to the present invention is 3-[(2-ethylhexyl)oxy]-1,2-propanediol, sold by Schulke & Mayr GmbH under the trade name SENSIVA SC 50 (INCI name: Ethylhexylglycerin).

As active agents that can be used in the compositions of the invention, mention may be made, for example, of the antibacterial agents such as octopirox, triclosan and triclocarban; essential oils; vitamins such as, for example retinol (vitamin A), ascorbic acid (vitamin C), tocopherol (vitamin E), niacinamide (vitamin PP or B3), panthenol (vitamin B5) and derivatives thereof such as, for example, the esters (palmitate, acetate, propionate) of these vitamins, magnesium ascorbyl phosphate, glycosylated vitamin C or glucopyranosyl ascorbic acid (Ascorbyl glucoside), coenzymes such as the coenzyme Q10 or ubiquinone and the coenzyme R or biotin, and protein hydrolysates; plant extracts and plankton extracts, and the mixtures thereof. The amounts of these various adjuvants are those conventionally used in the field in question, and are for example from 0.01 to 10% and preferably from 0.01 to 5% of the total weight of the compositions according to the invention. These adjuvants and also their concentrations must be such that they do not modify the property desired for the compositions of the invention.

The compositions according to the invention may be independently in the form of a suspension or a dispersion.

A person skilled in the art will be able to choose the appropriate dosage form, and also its method of preparation, based on his general knowledge, by taking into account, on the one hand, the nature of the constituents used, especially their solubility in the support, and, on the other hand, the application envisaged for each composition.

Examples

The following formulations were prepared according to the preparation methods conventionally used in cosmetics.

Method for measuring the sebum uptake of a powder

The sebum uptake of a powder was measured according to the method for determining oil uptake of powder described in standard NF T 30-022. It corresponded to the amount of sebum adsorbed on the available surface area of the powder and/or absorbed by the powder by measurement of the Wet Point, described below.

An amount m (in grams) of powder between around 0.5 g and 5.0 g (the amount depends on the density of the powder) was placed on a glass plate, then, added dropwise, was artificial sebum, kept at a temperature of 29°C and having the following composition:

- triolein	29.00%
- oleic acid	28.50%
- oleyl oleate	18.50%
- squalene	14.00%
- cholesterol	7.00%
- cholesterol palmitate	3.00%

After the addition of 4 to 5 drops of artificial sebum, the artificial sebum was incorporated into the powder using a spatula and the artificial sebum continued to be added until the formation of agglomerates of artificial sebum and powder. From this point, the artificial sebum was added one drop at a time and the mixture was ground with the spatula. The addition of artificial sebum was stopped when a firm and smooth paste was obtained. This paste must be spread over the glass plate without cracks or forming lumps. The volume Vs (expressed in ml) of artificial sebum used is then noted.

The sebum uptake corresponds to the ratio Vs/m.

Examples of cosmetic kits according to the invention

In the examples of compositions described hereunder, the combination of the following mixtures A and B produced by the company Dow Corning is used as a combination of compounds X and Y:

MIXTURE A:

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Dimethyl Siloxane, Dimethylvinylsiloxy-terminal	68083-19-2	55-95	Polymer
Silica Silylate	68909-20-6	10-40	Filler
1,3-Diethenyl-1,1,3,3-Tetramethyldisiloxane complexes	68478-92-2	Trace	Catalyst
Tetramethyldivinyldisiloxane	2627-95-4	0.1-1	Polymer

MIXTURE B:

Ingredient (INCI name)	**CAS No.**	**Contents (%)**	**Function**
Dimethyl Siloxane, Dimethylvinylsiloxy-terminal	68083-19-2	55-95	Polymer
Silica Silylate	68909-20-6	10-40	Filler
Dimethyl, Methylhydrogen Siloxane, trimethylsiloxy-terminal	68037-59-2	1-10	Polymer

		Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
First composition	- Mixture A	50 g	50 g	42.5 g	45 g	44.5 g
Second composition	- Mixture B	45 g	45 g	42.5 g	45 g	40 g
	- Aluminium starch octenylsuccinate (1)	5 g	-	-	-	
	- Kaolin (2)	-	5 g	-		5 g
	- Talc (3)	-	-	10 g	-	-
	- Nylon-66 (4)	-	-	-	5 g	-
	- Crosslinked methyl methacrylate polymer (5)	-	-	-	5 g	-
	- Glycerol	-	-	5 g	-	-
	- Copper gluconate	-	-	-	-	0.5 g

(1) DRY FLO PLUS® from National Starch

(2) SUPREME® from Imerys

(3) LUZENAC PHARMA M® from Luzenac

(4) PULPE POLYAMIDE 12185® size 0.3 mm from Utexbel

(5) MICROPEARL M 305® from Matsumotoyushi-Seiyaky

The fillers were dispersed in the second composition.

The first and second compositions were mixed just before application as a thin film on the face or on an area of the face.

After application for 5 to 10 minutes, the film was peeled off.

CLAIMS

1. Cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst, when they are brought into contact with one another, and (d) of at least one catalyst, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and

- removal of the film thus formed, preferably by peeling.

2. Method according to Claim 1, in which said filler is chosen from kaolin powders, talc powders, polyamide powders, starch particles, particles of polymethyl methacrylate, and mixtures thereof.

3. Method according to Claim 1 or 2, in which a first composition comprising, in a physiologically acceptable medium, at least the compound or compounds X, and a second composition comprising, in a physiologically acceptable medium, at least the compound or compounds Y, are mixed extemporaneously before application, at least one of the compounds X or Y being combined with said filler, and at least one of the first and second compositions additionally containing at least one catalyst.

4. Cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application over all or part of a keratinous substance of at least:
  - one layer of a first composition comprising, in a physiologically acceptable medium, one or more compounds X; and
  - one layer of a second composition comprising, in a physiologically acceptable medium, one or more compounds Y,

with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst when they are brought into contact with one another, and at least one of the first and second compositions additionally comprising at least one catalyst, and at least one of the first and second compositions additionally containing at least one filler that absorbs sebum; and

- removal of the film thus formed, preferably by peeling.

5. Method according to the preceding claim, in which several layers of each of the first and second compositions are alternately applied to the keratinous substance.

6. Method according to any one of the preceding claims, additionally comprising a drying step for the film thus formed having a duration of less than 10 minutes, or even less than 5 minutes.

7. Method according to any one of the preceding claims, in which said filler has a sebum uptake greater than or equal to 1 ml/g.

8. Method according to any one of the preceding claims, in which said filler has a BET specific surface area greater than or equal to 300 m^2/g.

9. Method according to any one of Claims 4 to 8, in which said filler is chosen from kaolin powders, talc powders, polyamide powders, starch particles, particles of polymethyl methacrylate, and mixtures thereof.

10. Method according to any one of the preceding claims, in which said fillers represent from 2 to 50 wt%, in particular from 5 to 30 wt% relative to the total weight of the deposit containing them.

11. Method according to any one of the preceding claims, in which compound X is selected from silicone compounds comprising at least two unsaturated aliphatic groups.

12. Method according to the preceding claim, in which compound X is a polyorganosiloxane comprising a silicone main chain whose unsaturated aliphatic groups are pendant from the main chain (side group) or located at the ends of the main chain of the compound (end group).

13. Method according to the preceding claim, characterized in that compound X bears at least one polar group.

14. Method according to one of Claims 1 to 13, characterized in that compound X is selected from the polyorganosiloxanes comprising at least two unsaturated aliphatic groups each attached to a silicon atom.

15. Method according to one of Claims 1 to 14, characterized in that compound X is selected from the polyorganosiloxanes containing siloxane units of formula:

$$R_mR'SiO_{\frac{(3-m)}{2}} \quad \text{(I)}$$

in which:

- R represents a linear or cyclic, monovalent hydrocarbon group, having from 1 to 30 carbon atoms,
- m is equal to 1 or 2 and
- R' represents:
  - an unsaturated aliphatic hydrocarbon group having from 2 to 10, preferably from 3 to 5 carbon atoms or
  - an unsaturated cyclic hydrocarbon group having from 5 to 8 carbon atoms.

16. Method according to the preceding claim, in which the polyorganosiloxane of formula (I) is such that R' represents a vinyl group or a group -R"-CH=CHR"' in which R" is a divalent aliphatic hydrocarbon chain, having from 1 to 8 carbon atoms, bound to the silicon atom and R"' is a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms, preferably a hydrogen atom.

17. Method according to Claim 15 or 16, characterized in that R represents an alkyl radical having from 1 to 10 carbon atoms or alternatively a phenyl group, and preferably a methyl radical, and R' is a vinyl group.

18. Method according to one of Claims 12 to 17, characterized in that the polyorganosiloxanes additionally comprise units of formula:

$$R_nSiO_{\frac{(4-n)}{2}} \quad \text{(II)}$$

in which R represents a linear or cyclic, monovalent hydrocarbon group, having from 1 to 30 carbon atoms, and n is equal to 1, 2 or 3.

19. Method according to any one of Claims 1 to 10, characterized in that compound X is selected from organic oligomers or polymers, hybrid organic/silicone oligomers or polymers, said oligomers or polymers bearing at least 2 unsaturated reactive aliphatic groups.

20. Method according to one of Claims 1 to 19, in which compound Y comprises at least two free Si-H groups.

21. Method according to one of Claims 1 to 20, characterized in that compound Y is selected from the polyorganosiloxanes comprising at least one alkylhydrogenosiloxane unit with the following formula:

$$R_pHSiO_{\frac{(3-p)}{2}} \quad \text{(III)}$$

in which:

R represents a linear or cyclic, monovalent hydrocarbon group, having from 1 to 30 carbon atoms or a phenyl group, and p is equal to 1 or 2.

22. Method according to the preceding claim, in which compound Y is such that the radicals R represent a C_1-C_{10} alkyl group, preferably methyl.

23. Method according to one of Claims 20 to 22, in which Y is a polyorganosiloxane comprising at least two alkylhydrogenosiloxane units of formula $-(H_3C)(H)Si-O-$ and optionally contain units $-(H_3C)_2SiO-$.

24. Method according to one of Claims 1 to 23, in which the catalyst is a catalyst based on platinum or tin.

25. Method according to the preceding claim, characterized in that the catalyst is present at a content ranging from 0.0001 to 20 wt% relative to the total weight of the composition containing it.

26. Method according to any one of Claims 1 to 20, characterized in that compound X is a polydimethylsiloxane with vinylic end groups and compound Y is a polymethylhydrogenosiloxane.

27. Method according to any one of the preceding claims, in which compound X bears at least one polar group that is able to form a hydrogen bond with keratinous substances.

28. Method according to any one of the preceding claims, comprising, in at least one of the compositions, a filler selected from silica or surface-treated silica.

29. Method according to one of the preceding claims, characterized in that compound X has a weight-average molecular weight (Mw) in the range from 150 to 1 000 000, preferably from 200 to 800 000, more preferably from 200 to 250 000.

30. Method according to one of the preceding claims, characterized in that compound Y has a weight-average molecular weight (Mw) in the range from 200 to

1 000 000, preferably from 300 to 800 000, more preferably from 500 to 250 000.

31. Method according to one of the preceding claims, characterized in that compound X represents from 0.1 to 95 wt% relative to the total weight of the composition containing it, preferably from 1 to 90% and more preferably from 5 to 80%.

32. Method according to one of the preceding claims, characterized in that compound Y represents from 0.1 to 95 wt% relative to the total weight of the composition containing it, preferably from 1 to 90% and more preferably from 5 to 80%.

33. Method according to one of the preceding claims, characterized in that compounds X and Y are present in the compositions in a molar ratio X/Y in the range from 0.05 to 20, and preferably from 0.1 to 10.

34. Cosmetic kit for cleansing keratinous substance(s), comprising at least two different compositions packaged separately, the kit comprising at least particles of acrylic polymer(s), at least one compound X, at least one compound Y, at least one of the compounds X or Y being a silicone compound and at least one catalyst, in which the compounds X, Y and the catalyst are not present simultaneously in the same composition, said compounds X and Y being capable of reacting together by a hydrosilylation reaction in the presence of a catalyst when they are brought into contact with one another.

35. Kit according to the preceding claim, comprising at least:

- a first composition comprising, in a physiologically acceptable medium, at least one compound X; and
- a second composition comprising, in a physiologically acceptable medium, at least one compound Y,

with at least one of the first and second compositions additionally comprising at least particles of acrylic polymer(s), and with at least one of the first and second compositions additionally comprising at least one catalyst.

36. Kit according to Claim 34 or 35, in which the particles of acrylic polymer(s) are chosen from particles of polymethyl methacrylate and particles of acrylate copolymers, preferably from particles of polymethyl methacrylate.

37. Kit according to any one of Claims 34 to 36, in which said particles represent from 2 to 50 wt%, in particular from 5 to 30 wt%, and preferably from 5 to 20 wt%, relative to the total weight of the kit containing them.

38. Kit according to any one of Claims 34 to 37, in which the compositions are

such as defined in Claims 1 to 33.

39. Kit according to any one of Claims 34 to 38, in which each composition is packaged separately in one and the same packaging article.

40. Cosmetic mask that derives from a cosmetic cleansing kit such as defined in Claims 34 to 39.

41 Cosmetic method for cleansing keratinous substance(s) comprising at least:

- the application (a) of at least one filler that absorbs sebum, (b) of one or more compounds X, (c) of one or more compounds Y, with at least one of the compounds X and Y being a silicone compound and said compounds X and Y being capable of reacting together by a condensation reaction when they are brought into contact with one another, and (d) where appropriate of at least one catalyst, the applications (a), (b), (c) and (d) possibly being simultaneous or in sequence following any order on condition that it is favourable to the interaction of said compounds X and Y; and
- removal of the film thus formed, preferably by peeling.