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(54) Title: COSMETIC PROCESS FOR COATING KERATIN MATERIAL

(57) Abstract: The present invention relates to a cosmetic method for making up and/or non- therapeutically caring for keratin material comprising at least the application on said keratin material of a mixture comprising at least: - one reactive functional MQ resin A, - one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule, - one reactive organopolysiloxane compound C having at least two reactive functional groups per molecule and a molecular weight lower than 2500g/mol, and - one catalyst for hydrosilylation, said MQ resin(s) A and organopolysiloxanes B and C being capable of interacting together by a hydrosilylation reaction in presence of said catalyst.



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COSMETIC PROCESS FOR COATING KERATIN MATERIAL

The present invention relates to a cosmetic process for coating keratin materials, in particular a non-therapeutic process for making up or caring for keratin materials, which consists in forming on said keratin materials a polymer film made from at least two silicone-based compounds which are capable of reacting together, by hydrosilylation.

Lipstick and foundation compositions are commonly used to give the lips or the skin, and especially the face, an aesthetic colour. These makeup products generally contain fatty phases such as waxes and oils, pigments and/or fillers and optionally additives, for instance cosmetic or dermatological active agents.

When they are applied to the skin, some conventional cosmetic compositions have the drawback of exhibiting a mediocre persistence of the applied film. In particular, they exhibit an insufficient resistance to the contact with a third material like for example finger, handkerchief, glass.... By adhering to the applied film, the third material generally provokes during its withdrawal to some removal of the make-up. Accordingly, the surface of the make-up film applied on the keratin material generally keeps some traces of such a contact. This results in making necessary to correct it, generally by renewing the application of the corresponding make-up composition.

This phenomenon is also noticed with some eyelash coating compositions or mascaras. Unfortunately, the makeup film obtained after applying these cosmetic compositions is not sufficiently resistant to mechanical frictions. The mascara then has a tendency to wear away over time: grains are worn off and unattractive marks appear around the eyes.

Accordingly there is still a need for cosmetic compositions dedicated to the skin, lips and keratin fibers, and capable to form on surface of a keratin material a coating which exhibits an increased surface resistance towards the contact with a third material.

Thus, the aim of the present invention is to provide a new route for formulating cosmetic compositions, especially makeup compositions, which makes it possible to obtain in situ film forming, deposited on keratin materials, which combines the previous property with a good adhesion to substrate, a low tack surface and which shows staying power properties over time, in particular resistance to water and rubbing, and a comfortable deposit on the skin, the lips, the eyelashes or the nails.

The inventors have discovered that it is possible to achieve such properties by using a system comprising silicone compounds that polymerize in situ so as to form, on a keratin material, a slippery coating which advantageously is not altered by the contact with a third material. With respect to its slippery character, it efficiently minimizes the mechanical friction with this third material.

Thus, one subject of the instant invention is a cosmetic method for making up and/or non-therapeutically caring for keratin material comprising at least the application on said keratin material of a mixture comprising at least

- one reactive functional MQ resin A,
- one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule,
- one reactive organopolysiloxane compound C having at least two reactive functional groups per molecule and a molecular weight lower than 2500 g/mol, and
- one catalyst for hydrosilylation,

said MQ resin(s) A and organopolysiloxanes B and C being capable of interacting together by a hydrosilylation reaction, in presence of said catalyst.

According to the instant invention, the keratin material may be the skin, the lips, the nails, the hair, the eyelashes and more particularly is the skin and the eyelashes.

According to the instant invention, "capable of interacting together" means that each compound is capable to interact in presence of said catalyst and generally at room temperature with at least one of the others compounds.

According to the instant invention, the hydrosilylation reaction between the respective reactive functional groups of MQ resin A and organopolysiloxanes B and C has for result to promote the transformation of the corresponding mixture in a coating on said keratin material.

According to one specific variant, at least the reactive organopolysiloxane compound B is capable of reacting by hydrosilylation with said reactive MQ resin A.

According to another specific variant, the reactive organopolysiloxane compound C is capable of reacting by hydrosilylation with said reactive MQ resin A.

According to another specific variant the reactive organopolysiloxanes B and C are capable of interacting together by a hydrosilylation reaction.

In a preferred embodiment, the process according to the invention may involve a reactive MQ resin A with reactive alkylene groups, in mixture with at least one reactive organopolysiloxane compound B with reactive Si-H bonds and with at least one reactive organopolysiloxane C having reactive alkylene groups.

5 According to the invention, "reactive alkylene group" is used to designate a reactive alkylene group directly bonded to a silicon atom.

According to another embodiment, the mixture contains at least

- one reactive functional MQ resin A having at least three (a) reactive functional groups per molecule,

10 - one organopolysiloxane compound B having at least three (b) reactive functional groups per molecule,

- one organopolysiloxane compound C having at least two (c) reactive functional groups per molecule and a molecular weight lower than 2500 g/mole,

15 the groups (a) and (b) and (c) being either a reactive alkylene group directly bonded to a silicon atom (herein after called "SiAlk" group) or a reactive Si-bonded hydrogen group (hereinafter called "SiH" group), provided that when (b) is SiAlk, (c) is SiH, and (a) is SiAlk or SiH, and when (b) is SiH, (c) is SiAlk, and (a) is SiAlk or SiH.

Preferably, compounds A, B, and optionally C and the catalyst are in such quantity that $RH/Alk > 1.5$ wherein RH/Alk is the ratio of the number of reactive Si-bonded hydrogen group with respect to the number of reactive alkylene group.

20 The method according to the invention is particularly advantageous for providing a make-up and/or a care for keratin materials, in particular the skin, the lips, the eyelashes, the hair, the eyebrows or the nails.

25 The corresponding cosmetic product may be a make-up composition like a loose or compacted powder, a foundation, a makeup rouge, an eyeshadow, a concealer product, a blusher, a lipstick, a lip balm, a lip gloss, a lip pencil, an eye pencil, a mascara, an eyeliner, a body makeup product, a skin colouring product, a hair colouring product.

The corresponding cosmetic product may be also a care product for the eyelashes or the lips, or a care product for bodily and facial skin, especially a make-up removing compound, an antisun product or a care product for the hair like shampoo, hair conditioner or hair styling.

More particularly, the corresponding cosmetic product is dedicated to the make-up of the skin and the eyes.

In particular, it is a foundation or a mascara.

According to a specific embodiment said mixture is formed in situ on said
5 keratin material.

Thus, another subject of the instant invention is a cosmetic method for making up and/or non-therapeutically caring for keratin material comprising at least the application on said keratin material of at least

(a) one first composition,

10 (b) one second composition,

with at least one of the first and second compositions containing at least one reactive functional MQ resin A, one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule, one reactive organopolysiloxane compound C having at least two reactive functional groups per molecule and a molecular
15 weight lower than 2500 g/mol and, one catalyst for a hydrosilylation reaction, said MQ resin(s) A and reactive organopolysiloxane compound(s) being capable of interacting together by a hydrosilylation reaction in presence of said catalyst,

provided that the compounds capable of interacting by a hydrosilylation reaction with each other(s) and the catalyst are not present together in the same
20 composition,

the applications of (a) and (b) possibly being simultaneous and/or sequential in any order with the proviso that it is beneficial to the hydrosilylation of MQ resin(s) A and said organopolysiloxane compound(s).

Another subject of the instant invention is a kit for coating keratin materials,
25 comprising at least:

- one first composition and at least one second composition, and

- at least one reactive functional MQ resin A, one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule, one reactive organopolysiloxane compound C having at least two reactive functional groups per
30 molecule and a molecular weight lower than 2500 g/mol and at least one catalyst for a hydrosilylation reaction, with MQ resin(s) A and reactive organopolysiloxane

compound(s) being capable of interacting together by a hydrosilylation reaction in presence of said catalyst,

provided that the compounds capable of interacting by a hydrosilylation reaction with each other(s) and the catalyst are not present together in the same composition,

said kit being dedicated to be a make-up composition for the skin, the eyes lashes, the lips, the nails or the hair or a care or cleaning cosmetic product for body and/or the hair.

In particular, the make-up composition may be a loose or compacted powder, a foundation, a makeup rouge, an eyeshadow, a concealer product, a blusher, a lipstick, a lip balm, a lip gloss, a lip pencil, an eye pencil, a mascara, an eyeliner, a body makeup product, a hair colouring product.

In particular, the care cosmetic product may be a care or cleaning product for the eyelashes or the lips, or a care or cleaning product for bodily and facial skin. By way of non limiting examples, cosmetic care products may include any product intended to moisturize the skin; to cleanse, to nourish, and/or to maintain the skin and/or the hair; to deodorize the skin; to prepare the skin for exposure to the sun, especially an antison product; to reinforce the elasticity of the skin; and/or to enhance the softness of the skin, or a care product for the hair like shampoo, a hair conditioner or a hair styling.

According to a preferred variant, said kit is a make-up kit, more particularly dedicated to making-up the skin and the eyes and more particularly a foundation or a mascara.

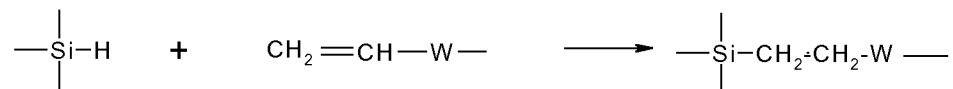
As used herein, "cosmetic treatment" means any treatment by means of a cosmetic product as defined above herein below.

As used herein, "cosmetic product" means any substance or preparation intended to be brought into contact with the various superficial parts of the human body (e.g., epidermis, body hair and hair system, lashes, nails, lips,) for the exclusive or main purpose of cleansing them, or of giving them a fragrant smell, of modifying their appearance, and/or of correcting body odors, and/or of protecting them, and/or of maintaining them in good condition (As set forth in cosmetic directive 76/768/EEC amended).

COSMETIC PROCESS

The cosmetic process for coating keratin materials, considered according to the invention comprises the application to the said keratin materials of one coat at least based on the reactional product of a mixture of specific compounds which are capable of reacting together via hydrosilylation.

This reaction may be represented schematically, in a simplified manner, as follows:



where W represents a silicon based chain containing one or several unsaturated aliphatic groups.

The so-obtained coating on the keratin materials, is an adherent film with good staying power.

According to one advantageous embodiment, the reactive compounds capable to interact by hydrosilylation and the catalyst are mixed together extemporaneously and the mixture is then applied to the keratin materials.

The cosmetic process for coating keratin materials described above preferably comprises the following steps:

a. extemporaneously mixing together:

- at least said first composition,
- at least said second composition,

the reactive compounds capable to interact by hydrosilylation, and the catalyst being contained in either one of said first and second compositions so that no hydrosilylation reaction occurs prior to said mixing of the first and second compositions, and then

b. applying to the said keratin materials at least one coat of the said mixture.

According to one variant, the reactive compounds capable to interact by hydrosilylation and as defined hereafter and the catalyst are applied via at least two different compositions, each comprising at least one reactive compound and/or at least a catalyst.

According to a preferred variant, the reactive compounds capable to interact by hydrosilylation and the catalyst are applied via at least two different cosmetic

compositions, one comprising at least one reactive compound and at least a catalyst, and the other one comprising at least the other reactive compound and optionally the compound capable to interact with it by hydrosilylation.

The terms first and second cosmetic compositions do not in any way determine the order of application of said compositions on the keratin materials.

Several coats of each of the first and second cosmetic compositions may also be applied alternately to the keratin materials.

According to the invention, at least a catalyst, as defined below, is applied on the keratin materials to activate the reaction between the reactive compound(s) capable to react each with other via hydrosilylation.

For example, the catalyst may be present in one of the first or second cosmetic composition applied on the keratin materials, or in an additional composition, and the order of application of the compositions does not matter.

According to a preferred embodiment, the first and second cosmetic compositions are as described above.

REACTIVE FUNCTIONAL MQ RESIN A

The reactive functional MQ resins A described in the present invention may also be designated "MQ" resins A.

The nomenclature of silicone resins is known under the name "MDTQ", the resin being described as a function of the various siloxane monomer units it comprises, each of the letters M, D, T and Q characterizing a type of unit.

The letter M represents the monofunctional unit of formula $(R)_3SiO_{1/2}$, the silicon atom being bonded to only one oxygen atom in the polymer comprising this unit.

The letter D means a difunctional unit $(R)_2SiO_{2/2}$ in which the silicon atom is bonded to two oxygen atoms.

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

Finally, the letter Q means a tetrafunctional unit $SiO_{4/2}$ in which the silicon atom is bonded to four hydrogen atoms, which are themselves bonded to the rest of the polymer.

Accordingly, MQ resins are macromolecular polymers comprised primarily of $(R)_3SiO_{1/2}$ and $SiO_{4/2}$ units (the M and Q units, respectively) wherein R is a functional or nonfunctional, substituted or unsubstituted monovalent radical.

More particularly, in the units M, D and T defined above, R may be a hydrogen atom, a hydrocarbon-based radical, especially alkyl or alkylene group containing from 1 to 10 carbon atoms, a phenyl group or a hydroxyl group, with the proviso that at least three or more R are either hydrogen or an alkylene group with both type of groups being not simultaneously present in said MQ resin A.

The hydrocarbon group of R can be exemplified by groups such as methyl, ethyl, propyl, butyl, hexyl, octyl, decyl, vinyl, allyl, hexenyl and cyclohexyl.

More particularly, the MQ resin structure contains as R, methyl groups and at least three alkylene groups. The alkylene groups are preferably chosen among vinyl, allyl and hexenyl. More preferably, the alkylene groups are vinyl groups.

Those skilled in the art will appreciate that such resins may also include a limited number of $(R)_2SiO_{2/2}$ and $(R)SiO_{3/2}$ units, respectively referred to as D and T units.

In particular, the resin can also contain triorganosiloxy units (T units), for example 0.5 to 1 triorganosiloxy group for every $SiO_{4/2}$ unit, alternatively 0.6 to 0.9 triorganosiloxy group for every $SiO_{4/2}$ unit.

As used herein, the term "MQ resin" means that, on average, no more than about 20 mole percent of the resin molecules are comprised of D and T units. According to a specific variant, the MQ resin A is free of D and T units.

According to another specific variant, the MQ resin A has a ratio M/Q ranging from 0.01 to 1.

Typically, the MQ silicone resin may have a general formula (I)



wherein:

- n ranges from 1.1 to 1.6 and

- each R^1 is monovalent and independently selected from hydrogen, a C_1 to C_{10} alkyl group like for example methyl, ethyl, propyl, butyl, hexyl, octyl, decyl, or cyclohexyl; a C_2 to C_{10} alkylene group like for example vinyl, allyl and hexenyl; a phenyl group, with the proviso that at least three or more R^1 are hydrogen or an alkylene group with both type of groups being not simultaneously present in said MQ resin A.

Subscript b in the above general formula (I) varies such that the group (R^2O) is 1 to 10 weight percent of the MQ resin A, alternatively 1 to 4 weight percent of the MQ resin A. Each R^2 is hydrogen or a monovalent C_1 to C_4 alkyl group, more preferably an hydrogen atom.

5 According to a variant, the MQ resin A of formula (I) contains as R^1 methyl group and at least three hydrogen atoms and as R^2 hydrogen atoms.

More preferably, the MQ resin A of formula (I) contains as R^1 methyl group and at least three alkylene groups and in particular three vinyl groups and as R^2 hydrogen atoms.

10 MQ resins A convenient for the invention are chosen from MQ resins having sufficient reactive either Si-H bonds or preferably alkylene groups and more preferably vinyl groups for formation of the polymer network.

Preferably, in one variant, such a MQ resin A comprises from 1% to 10% by weight of reactive alkylene groups and more preferably vinyl groups.

15 In particular, said MQ resin A may advantageously have reactive alkylene groups, in particular C_2 - C_{10} alkylene groups, and more particularly vinyl groups content ranging from 0.1 to 10 mol/1000 g and in particular from about 0.5 to 3 mol/1000 g .

As example of MQ resins A convenient for the invention, mention may be more particularly made of functional MQ resins having a number average molecular weight (M_n) ranging from 1 500 to 10 000, in particular ranging from 3 000 to 10 000 and more particularly from 3 000 to 5 000.

The amount in resin(s) MQ A is adjusted in regards of the amount in reactive organopolysiloxane(s) for allowing its total hydrosilylation. This adjustment is clearly from the knowledge of the man skilled in the art.

25 According to the instant invention, MQ resin(s) A may be used in an amount equal or greater than 50% by weight, and in particular from 50 to 80%, more particularly from 55 to 70% by weight relative to the total weight of the reactive compounds present in the mixture and capable of interacting together by a hydrosilylation reaction.

Such a MQ resin A may be for example used at amount ranging from 20 to 30 60% by weight and more particularly from 30 to 55% by weight of the total weight of the mixture involved in the hydrosilylation reaction.

MQ resins having reactive Si-H groups are in particularly disclosed in US 5,760,116 and MQ resins having reactive alkylene groups are in particularly disclosed in US 3,436,366, US 4,041,010, US 4,587,137, EP 535 687, EP 1 057 476 and EP 1 800 864.

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REACTIVE ORGANOPOLYSILOXANE COMPOUNDS

The term “organopolysiloxane compound” means a compound comprising at least two organosiloxane units, for example at least 5 organosiloxane units, notably at least 10 organosiloxane units.

10

For obvious reasons, one reactive organopolysiloxane is chosen for its capability to react via a hydrosilylation reaction with the reactive MQ resin considered together. The reactive organopolysiloxane(s) considered according to the invention react *via* a hydrosilylation reaction with at least one MQ resin A at room temperature ($20\pm 5^\circ\text{C}$) and atmospheric pressure in the presence of a catalyst.

15

According to one variant, reactive organopolysiloxane B and/or C may be chosen from organopolysiloxane compounds comprising reactive alkylene groups, such as $\text{C}_2\text{-C}_{10}$ alkylene groups.

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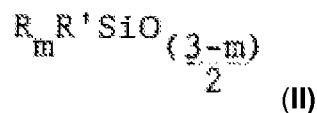
For example, it may be a organopolysiloxane comprising a silicone main chain whose reactive alkylene groups are pendent on the main chain (side group) or located at the ends of the main chain of the compound (terminal group).

In the rest of the description, these particular compounds will be referred to as organopolysiloxanes with reactive alkylene groups, such as $\text{C}_2\text{-C}_{10}$ alkylene groups.

25

According to a more specific embodiment, such organopolysiloxanes with reactive alkylene groups are chosen from organopolysiloxanes comprising at least two alkylene groups, such as $\text{C}_2\text{-C}_{10}$ alkylene groups, for example two or more vinyl or allylic groups, each bonded to a silicon atom.

According to one advantageous embodiment, such a compound B and/or C is chosen from organopolysiloxanes comprising siloxane units of formula:



30

in which:

- R represents a linear or cyclic monovalent hydrocarbon-based group containing from 1 to 10 carbon atoms, preferably from 1 to 4, and better still from 1 to 2 carbon atoms, in particular a methyl radical, or a phenyl group, with R being preferably a methyl radical,

5 - m is equal to 1 or 2, and

- R' represents:

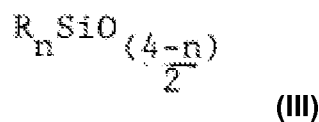
o a reactive alkylene group containing from 2 to 10 and preferably from 2 to 5 carbon atoms, for instance a vinyl group and/or an allylic groups; or

10 o an unsaturated cyclic hydrocarbon-based group containing from 5 to 8 carbon atoms, for instance a cyclohexenyl group.

Preferably, R' is an alkylene group, preferably a vinyl group.

Preferably, R represents a methyl radical and R' is a vinyl group.

15 According to one particular embodiment, the organopolysiloxane also comprises units of formula:



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

20 Preferably, the polysiloxanes B having reactive alkylene groups comprise from 0.01% to 10% by weight of reactive alkylene groups.

Preferably, the polysiloxanes B having reactive alkylene groups have from 0.00001 mol/g to 0.01 mol/g in particular from 0.00002 to 0.005 mol/g of alkylene groups, preferably vinyl group, based on the total weight of the polymer.

25 Preferably, the polysiloxanes C having reactive alkylene groups comprise from 1% to 10% by weight of reactive alkylene groups.

Preferably, the polysiloxanes C having reactive alkylene groups have from 0.0001 mol/g to 0.01 mol/g in particular from 0.0005 to 0.005 mol/g of alkylene groups, preferably vinyl group, based on the total weight of the polymer.

30 When no specific molecular weight is specified, the polysiloxanes having reactive alkylene groups preferably have viscosities on the order of about 3 mm²/s to about 600,000 mm²/s at 25°C.

The viscosity may be evaluated according to the method based on ASTM D 1084 or on ASTM D 445 as detailed here-after.

Thus, the viscosity in centipoises may be measured at 25 +/- 0.2°C using a rotational viscometer such as a Brookfield Synchro-lectric viscometer or a Wells-
5 Brookfield Cone/Plate viscometer. This method is based on ASTM D 1084 Method B (for cup/spindle) and ASTM D 4287 (for cone/plate).

The viscosity of liquids in centiStockes may be determined at 25 +/- 0.2°C by measuring the time required for a fixed volume of samples to pass through a calibrated glass capillary using "gravity-flow". The method is based on ASTM D-445, IP 71 and the
10 results are reported in Stokes. A set of one of the following types viscosimeter are appropriate, Cannon Fenski., Ostwald, and Ubbelohde.

The choice of the more convenient method may be easily performed by the man skilled in the art with respect to the texture of the specific organopolysiloxane to test.

When no specific molecular weight is specified, the organopolysiloxanes
15 having reactive alkylene groups may have a weight-average molecular mass (Mw) ranging from 150 to 1 000 000, preferably from 200 to 800 000 and more preferably from 200 to 250 000.

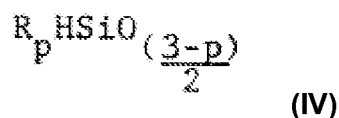
As examples of organopolysiloxanes having vinyl groups, mention may be more particularly made of:

- 20 - vinyl-terminated polydimethylsiloxane having a viscosity of 9000 cP and a vinyl group content of 0.05 mol/1000 g,
- vinyl-terminated polydimethylsiloxane having a viscosity of 60 000 cP and a vinyl group content of 0.03 mol/1000 g,
- vinyl-terminated polydimethylsiloxane having a viscosity of 4.5 cSt
25 and a vinyl group content of 2.6 mol/1000 g.

As examples of organopolysiloxane compounds C having at least two vinyl groups and a molecular weight lower than 2500 g/mol mention may be more particularly made of the vinyl-terminated polydimethylsiloxane having a viscosity of 4.5 cSt and a
30 vinyl group content of 2.6 mol/1000 g.

According to another variant, one reactive organopolysiloxane compound B and/or C may comprise at least two free Si-H groups (hydrogenosilane groups).

Such a organopolysiloxane may be chosen advantageously from organopolysiloxanes comprising at least one alkylhydrogenosiloxane unit having the following formula:



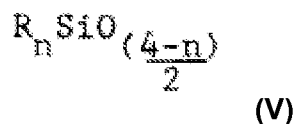
5 in which:

- p is equal to 1 or 2, and

- R represents a linear or cyclic monovalent hydrocarbon-based group containing from 1 to 10 carbon atoms, for instance an alkyl radical containing from 1 to 5 carbon atoms, preferably from 1 to 2, in particular a methyl radical, or alternatively a
10 phenyl group.

Preferably, R is a hydrocarbon-based group, and more preferably is a methyl group.

These organopolysiloxane compounds containing alkylhydrogenosiloxane units may also comprise units of formula:



15

with n equal to 2 or 3 and R as defined above.

Advantageously, the radicals R represent a methyl group in formula (IV) and (V) above.

Preferably, these organopolysiloxanes B comprise terminal groups of formula
20 $(\text{CH}_3)_3\text{SiO}_{1/2}$.

Advantageously, the organopolysiloxanes B comprise at least two alkylhydrogenosiloxane units of formula $-(\text{H}_3\text{C})(\text{H})\text{SiO}-$ and $-(\text{H}_3\text{C})_2\text{SiO}-$ units.

Polysiloxanes having silicon bonded hydrogen can also form cyclics, for example tetramethylcyclotetrasiloxane (or 2,4,6,8-tetramethylcyclotetrasiloxane, having
25 CAS Number 2370-88-9), or pentamethylcyclopentasiloxane (or 2,4,6,8,10-pentamethylcyclopentasiloxane, having CAS Number 6166-86-5).

Preferably, the organopolysiloxane B compounds having silicon bonded hydrogen atoms comprise from 0.1% to 60% by weight of Si-H groups.

Preferably, the organopolysiloxanes B having silicon bonded hydrogen atoms have from 0.0001 mol/g to 0.02 mol/g, preferably from 0.001 to 0.02 mol/g and more particularly from 0.002 to 0.02 mol/g of reactive Si-H group based on the total weight of the polymer.

5 Preferably, the organopolysiloxane C compounds having silicon bonded hydrogen atoms comprise from 1% to 10% by weight of Si-H groups.

Preferably, the organopolysiloxanes C having silicon bonded hydrogen atoms have from 0.0001 mol/g to 0.01 mol/g, preferably from 0.0005 to 0.005 mol/g of reactive Si-H group based on the total weight of the polymer.

10 When no specific molecular weight is specified, the polysiloxanes having silicon bonded hydrogen preferably have viscosities on the order of from about 1 mm²/s to about 1000 mm²/s.

When no specific molecular weight is specified, the polysiloxanes having silicon bonded hydrogen may have a weight-average molecular mass (Mw) ranging from
15 200 to 1 000 000, preferably 300 to 800 000 and more preferably from 500 to 250 000.

Such organopolysiloxane compounds containing hydrogenosilane groups are described, for example, in document EP 0 465 744.

As example of compounds having Si-H groups, mention may be more
20 particularly made of:

- methyl hydrogencyclopolsiloxane having a viscosity of 1 cst and a Si-H group content of 1.7 mol/100 g,
- dimethyl methylhydrogen polysiloxane having viscosity of 5 cst and Si-H group content of 0.8 mol/100 g,
- 25 - Dimethylhydrogen-terminated polydimethylsiloxane having viscosity of 10 cst and Si-H group content of 0.2 mol/100 g,
- methyl hydrogenpolysiloxane having a viscosity of 30 cst and a Si-H group content of 1.5 mol/100 g.

30 As examples of organopolysiloxane compound B having at least three Si-H groups mention may be more particularly made of:

- dimethyl methylhydrogen polysiloxane having viscosity of 5 cst and Si-H group content of 0.8 mol/100 g,

- methyl hydrogenpolysiloxane having a viscosity of 30 cst and a Si-H group content of 1.5 mol/100 g.

5 As examples of organopolysiloxane compound C having at least two Si-H groups and a molecular weight lower than 2500 g/mol mention may be more particularly made of:

- methylhydrogen cyclopolsiloxane having a viscosity of 1 cst and a Si-H group content of 1.7 mol/100 g, and

10 - dimethyl methylhydrogen polysiloxane having viscosity of 5 cst and Si-H group content of 0.8 mol/100 g,

- dimethylhydrogen-terminated polydimethylsiloxane having viscosity of 10 cst and Si-H group content of 0.2 mol/100 g.

15 As specified previously, the mixture considered for the hydrosilylation includes at least one reactive organopolysiloxane C having a molecular weight lower than 2500 g/mol.

The reactive organopolysiloxane C having a molecular weight lower than 2500 g/mol, has preferably a molecular weight lower than 1500 g/mol, more preferably lower than 1000 g/mol.

20 The reactive organopolysiloxane C having a molecular weight lower than 2500 g/mol, has preferably a molecular weight greater than 118 g/mol,

Advantageously, such organopolysiloxane(s) C is in an amount preferably greater than 15%, more preferably greater than 20%, and more preferably greater than 25% by weight of the dry solid content of the mixture applied on keratin material.

25 In the mixture considered for the hydrosilylation according to the invention at least one of the organopolysiloxanes B and C is capable of reacting by hydrosilylation reaction with said MQ resin A.

30 According to a specific variant, the mixture considered for the hydrosilylation may include, further to the organopolysiloxanes B and C, another organopolysiloxane as disclosed previously and having a molecular weight greater than 2500 g/mol.

When only one of them is capable react with the compound A, the other one(s) are also capable to react via a hydrosilylation but with the other organopolysiloxanes.

More particularly, the process according to the invention is performed in a way wherein the compounds are applied via at least a first and a second cosmetic compositions to be mixed either extemporaneously prior to application on the keratin materials or upon application on said keratin materials, the compounds being contained in
5 either one of said first and second cosmetic compositions so that no hydrosilylation reaction occurs prior to said mixing of the first and second cosmetic compositions.

The compounds with alkylene groups and more particularly vinyl groups and the compounds with silicon bonded hydrogen are applied in such a way that the hydrosilylation reaction occurs at least in part on the keratin material to be treated and/or
10 made up.

According to a specific variant, the compound with reactive alkylene groups is at least the MQ resin A.

For example, in one embodiment, the process according to the invention, may involve a MQ resin A with reactive alkylene groups, in particular vinyl groups in mixture
15 with at least one compound B with three reactive alkylene groups, in particular vinyl groups and at least one compound C with at least two reactive Si-H bonds and having a molecular weight lower than 2500 g/mol.

In another embodiment, the process according to the invention may involve a MQ resin A with reactive alkylene groups, in particular vinyl groups in mixture with two
20 or more compounds B, said compounds B being such that at least one of them has reactive Si-H bonds and at least one of them has alkylene groups, in particular vinyl groups, and at least a compound C having Si-H bonds and having a molecular weight lower than 2500 g/mol.

In still another embodiment, the process according to the invention may involve a MQ resin A with reactive alkylene groups, in particular vinyl groups in mixture
25 with at least two compounds B having reactive alkylene groups, in particular vinyl groups, and at least a compound C having Si-H bonds.

In another preferred embodiment, the process according to the invention may involve a MQ resin A with reactive alkylene groups, in mixture with at least a compound
30 B having reactive Si-H bonds and at least a compound C having reactive alkylene groups.

Particularly, the process according to the invention may involve a MQ resin A with reactive vinyl groups, in mixture with at least a compound B having reactive Si-H

bonds and at least a compound C having reactive vinyl groups and having a molecular weight lower than 2500 g/mol.

According to another embodiment, the mixture contains at least

5 - one reactive functional MQ resin A having at least three (a) groups per molecule,

 - one reactive organopolysiloxane compound B having at least three (b) groups per molecule, and

 - one reactive organopolysiloxane compound C which is a organopolysiloxane
10 having two (c) groups and a molecular weight lower than 2500 g/mol,

 the groups (a) and (b) and (c) being either a reactive alkylene group directly bonded to a silicon atom (herein after called "SiAlk" group) or a reactive Si-bonded hydrogen group (hereinafter called "SiH" group), provided that when (b) is SiAlk, (c) is SiH, and (a) is SiAlk or SiH, and when (b) is SiH, (c) is SiAlk, and (a) is SiAlk or SiH.

15 Preferably, compounds A, B, and C and the catalyst are in such quantity that: $RH/Alk > 1.5$ wherein the term "RH/Alk" corresponds to the ratio of the number of SiH moles with respect to the number of Si-Alkylene moles in the mixture considered for the hydrosilylation.

 Preferably, $RHAlk > 2$, preferably $RHAlk > 2.5$, more preferably $RHAlk > 3$.

20 When the compounds A, B, C and the catalyst meet these requirements of RH/Alk , they are able to cure quickly as a film on a substrate.

CATALYST

25 The hydrosilylation reaction is advantageously performed in the presence of a catalyst that may be present in one of the compositions comprising the compounds with vinyl groups and/or the compounds with silicon bonded hydrogen or in a separate composition, the catalyst preferably being platinum-based or rhodium-based.

 Examples that may be mentioned include platinum- or rhodium-based catalysts deposited on a support of silica gel or charcoal (coal) powder, platinum chloride,
30 platinum salts and chloroplatinic acids.

 Chloroplatinic acids in hexahydrate or anhydrous form, which are readily dispersible in organosilicone media, are preferably used.

Mention may also be made of platinum complexes in particular such as those based on chloroplatinic acid hexahydrate and on divinyltetramethyldisiloxane.

The catalyst may be present in the composition(s) in a content ranging from 0.0001% to 20% by weight relative to the total weight of the composition comprising it.

5 When the compounds with vinyl groups, the compounds with silicon bonded hydrogen, and the catalyst of the invention are mixed, they cure at room temperature ($20 \pm 5^\circ\text{C}$) within 10 minutes or, more preferably, within five minutes or less.

10 In order to achieve satisfactory cure it is important that the ratio of silicon-bonded hydrogen atoms of the polysiloxanes to all groups reactive therewith in the cosmetic composition(s) (e.g., the unsaturated groups) is appropriate to affect the desired cure. The curing time is dependent on various factors including the type and proportion of other component materials present in the formulation.

15 Polymerization inhibitors, and more particularly catalyst inhibitors, may also be introduced into the cosmetic compositions of the invention, in order to increase the stability of the composition over time or to retard the polymerization. Non-limiting examples that may be mentioned include cyclic polymethylvinylsiloxanes, in particular tetravinyl tetramethyl cyclotetrasiloxane, acetylenic alcohols, preferably volatile, such as methylisobutynol.

20 The presence of ionic salts in one and/or the other of the compositions may have an influence on the rate of polymerization of the compounds.

 The ratio between the compounds with reactive alkylene groups and the compounds with reactive silicon bonded hydrogen may be varied so as to modify the rate of reaction and thus the rate of formation of the film or so as to adapt the properties of the formed film according to the desired use.

25

KIT

Each composition may be packaged separately in the same packaging article.

Each composition may also be packaged in the same packaging article, the mixing of the at least two compositions being performed at the end(s) of the packaging article during the delivery of each composition.

30

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

Indeed, the reactive compounds capable to interact by hydrosilylation and the catalyst can either be separated into a plurality of containers to inhibit curing prior to spreading or can be packaged into a unique container wherein the hydrosilylation catalyst is temporarily inhibited, wherein the temporary inhibition is obtained by encapsulating the hydrosilylation catalyst or by adding transient inhibitors.

In case of one part system in which the catalyst is encapsulated or temporarily inhibited, an external factor triggers the cure (i.e. by the hydrosilylation reaction) by releasing the catalyst. For instance, such factors can be, but are not limited to elevated temperature (e.g. body or skin temperature, hair dryer), shearing effect or evaporation of certain formulation additives (e.g. liquid fatty or aqueous phase).

The formulation of the invention can be applied by spreading the formulation onto the desired site, wherein said spreading can cause mixing the formulation or the mixing of the formulation is achieved prior spreading the formulation.

The activation of the catalyst can occur prior to spread the formulation, or can be caused by spreading the formulation, or can be caused by mixing the formulation, or can occur after spreading the formulation.

After spreading, the formulation cures in situ on the desired site to form a film.

According to the method of the invention, the compounds, and the catalyst, and any other optional components, are delivered and spread onto the desired site in a manner which causes mixing of the component materials. The formulation cures after being applied and results in a film suitable for cosmetic applications.

The delivery herein is performed by conventional techniques known in the art. For instance the delivery systems include, but not limited to can, tube, sachet, syringe, stick, pencil, brush, sponge, wet stamp and roll-on as known in the art. These delivery devices can comprise one or more than one chamber according to the need to separate the components of the formulation.

Whichever of the above means of delivery is chosen, the formulation components are delivered and spread to the desired site. Mixing of the formulation components can occur either in the delivery packaging, during the delivery or during the spreading onto the desired site.

For instance, a mixing chamber can be built into the delivery packaging such that as the formulation components are drawn or forced out of their separate containers they are mixed prior to being delivered.

5 In an embodiment the formulation components are separated by fragile walls which can easily be broken to allow the formulation components for getting in contact together. The mixing then occurs by hand kneading or with a mixing tool as known in the art.

In another embodiment the formulation components are forced into a mixing device such as a static mixer and then delivered to the site.

10 In still another embodiment, the formulation components can be delivered sequentially and then be mixed on the desired site.

A subject of the invention is also the use of a kit as described above for obtaining a film deposited on keratin materials, which shows improved staying power and/or comfort properties.

15 Needless to say, the composition comprises a cosmetically acceptable medium, i.e. a non-toxic medium that may be applied to human keratin materials and that has a pleasant appearance, odour and feel.

Thus, the composition(s) according to the invention can comprise a liquid fatty or aqueous phase to adjust the inviscosity and the comfort of the resulting film after
20 curing.

The liquid fatty or aqueous phase which may be employed includes volatile and non volatile fluids such as silicone volatiles, silicone fluids, hydrocarbons, alcohols, ketones, esters and any other liquid material.

25 **Liquid aqueous phase**

It may consist essentially of water, it may also comprise a mixture of water and/or of water- miscible solvent (miscibility in water of greater than 50% by weight at 25°C), for instance lower monoalcohols containing from 1 to 5 carbon atoms, such as ethanol or isopropanol, glycols containing from 2 to 8 carbon atoms, such as propylene
30 glycol, ethylene glycol, 1,3-butylene glycol or dipropylene glycol, and mixtures thereof.

The aqueous phase (water and optionally the water-miscible solvent) may be present in a content ranging from 5% to 95% by weight, preferably from 10% to 85% by

weight and better still from 20% to 80% by weight relative to the total weight of the composition.

The water may be present in a content ranging from 5% to 95% by weight, preferably from 10% to 85% by weight and better still from 20% to 80% by weight relative to the total weight of the composition.

Liquid fatty phase

For the purposes of the present invention, the term “liquid fatty phase” means a fatty phase that is liquid at room temperature (25°C) and atmospheric pressure (760 mmHg), composed of one or more mutually compatible non-aqueous fatty substances that are liquid at room temperature, also known as organic solvents or oils.

The oil may be chosen from volatile oils and/or non-volatile oils, and mixtures thereof.

The oil may be present in a content ranging from 1% to 90% by weight and preferably from 5% to 50% by weight relative to the total weight of the composition.

It is noticed that the previous content in oils does not include the content in MQ resin(s) and/or organopolysiloxane(s) as disclosed previously.

The term “non-volatile oil” means an oil that remains on the skin or the keratin materials at room temperature and atmospheric pressure for at least several hours and that especially has a vapor pressure of less than 10^{-3} mmHg (0.13 Pa).

These oils may be hydrocarbon-based oils, silicone oils or fluoro oils, or mixtures thereof.

The term “hydrocarbon-based oil” means an oil mainly containing hydrogen and carbon atoms and optionally oxygen, nitrogen, sulfur or phosphorus atoms.

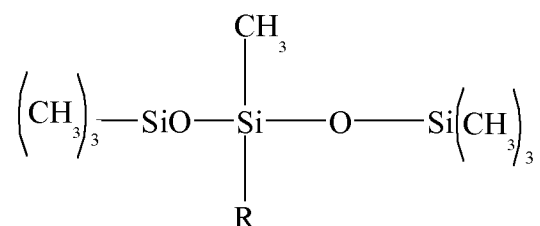
The volatile hydrocarbon-based oils may be chosen from hydrocarbon-based oils containing from 8 to 16 carbon atoms, and especially branched C₈-C₁₆ alkanes, for instance C₈-C₁₆ isoalkanes of petroleum origin (also known as isoparaffins), for instance isododecane (also known as 2,2,4,4,6-pentamethylheptane), isodecane and isohexadecane, for example the oils sold under the trade names Isopar or Permethyl, branched C₈-C₁₆ esters and isohexyl neopentanoate, and mixtures thereof. Other volatile hydrocarbon-based oils, for instance petroleum distillates, especially those sold under the name Shell Solt by the company Shell, may also be used. The volatile solvent is preferably chosen from

volatile hydrocarbon-based oils containing from 8 to 16 carbon atoms, and mixtures thereof.

Volatile oils that may also be used include volatile silicones, for instance volatile linear or cyclic silicone oils, especially those with a viscosity ≤ 8 centistokes ($8 \times 10^{-6} \text{ m}^2/\text{s}$) and especially containing from 2 to 7 silicon atoms, these silicones optionally comprising alkyl or alkoxy groups containing from 1 to 10 carbon atoms.

As volatile silicone oils that may be used in the invention, mention may be made especially of octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, heptamethylhexyltrisiloxane, heptamethyloctyltrisiloxane, hexamethyldisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane and dodecamethylpentasiloxane, and mixtures thereof.

Mention may also be made of the linear volatile alkyltrisiloxane oils of general formula (I):



in which R represents an alkyl group containing from 2 to 4 carbon atoms and of which one or more hydrogen atoms may be substituted with one or more fluorine or chlorine atoms.

Among the oils of general formula (I) that may be mentioned are:

3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane,

3-propyl-1,1,1,3,5,5,5-heptamethyltrisiloxane, and

3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane,

corresponding to the oils of formula (I) for which R is, respectively, a butyl group, a propyl group or an ethyl group.

Volatile fluorinated solvents such as nonafluoromethoxybutane or perfluoromethylcyclopentane may also be used.

The oil of formula (I) for which R is an ethyl group is especially sold under the name Baysilone TP 3886 and the oil for which R is a butyl group is especially sold under the name Baysilone TP 3887 by the company Bayer Silicones.

Preferably, the compositions used in the process according to the invention each have a volatile oil content of less than or equal to 30% by weight, preferably less than or equal to 20% and better still less than or equal to 5% by weight relative to the total weight of each first and second composition. More preferably, the composition(s) are free of volatile oil.

According to one advantageous embodiment, at least one of the first and second compositions used in the process according to the invention comprises at least one non-volatile oil, chosen in particular from non-volatile hydrocarbon-based oils and/or silicone oils and/or fluoro oils.

Non-volatile hydrocarbon-based oils that may especially be mentioned include:

- hydrocarbon-based oils of plant origin, such as triesters of fatty acids and of glycerol, the fatty acids of which may have varied chain lengths from C₄ to C₂₄, these chains possibly being linear or branched, and saturated or unsaturated; these oils are especially wheatgerm oil, sunflower oil, grapeseed oil, sesame seed oil, corn oil, apricot oil, castor oil, shea oil, avocado oil, olive oil, soybean oil, sweet almond oil, palm oil, rapeseed oil, cottonseed oil, hazelnut oil, macadamia oil, jojoba oil, alfalfa oil, poppyseed oil, pumpkin oil, marrow oil, blackcurrant oil, evening primrose oil, millet oil, barley oil, quinoa oil, rye oil, safflower oil, candlenut oil, passionflower oil or musk rose oil; or caprylic/capric acid triglycerides, for instance those sold by the company Stéarineries Dubois or those sold under the names Miglyol 810, 812 and 818 by the company Dynamit Nobel;

- synthetic ethers containing from 10 to 40 carbon atoms;

- apolar hydrocarbon-based oils, for instance squalene, linear or branched hydrocarbons such as liquid paraffin, liquid petroleum jelly and naphthalene oil, hydrogenated or partially hydrogenated polyisobutene, isoeicosane, squalane, decene/butene copolymers and polybutene/polyisobutene copolymers, especially Indopol L-14, and polydecenes such as Puresyn 10, and mixtures thereof;

- synthetic esters, for instance oils of formula R₁COOR₂ in which R₁ represents a linear or branched fatty acid residue containing from 1 to 40 carbon atoms and R₂ represents a hydrocarbon-based chain, which is especially branched, containing from 1 to 40 carbon atoms, on condition that R₁ + R₂ ≥ 10, for instance Purcellin oil (cetostearyl

octanoate), isopropyl myristate, isopropyl palmitate, C₁₂ to C₁₅ alkyl benzoates, hexyl laurate, diisopropyl adipate, isononyl isononanoate, 2-ethylhexyl palmitate, isostearyl isostearate, alcohol or polyalcohol octanoates, decanoates or ricinoleates, for instance propylene glycol dioctanoate; hydroxylated esters, for instance isostearyl lactate or diisostearyl malate; and pentaerythritol esters;

- fatty alcohols that are liquid at room temperature with a branched and/or unsaturated carbon-based chain containing from 12 to 26 carbon atoms, for instance octyldodecanol, isostearyl alcohol, oleyl alcohol, 2-hexyldecanol, 2-butyloctanol or 2-undecylpentadecanol;

- higher fatty acids such as oleic acid, linoleic acid or linolenic acid;
- and mixtures thereof.

The non-volatile silicone oils may be:

- non-volatile polydimethylsiloxanes (PDMS),
- polydimethylsiloxanes comprising alkyl or alkoxy groups, which are pendent and/or at the end of a silicone chain, these groups each containing from 3 to 40 carbon atoms,

- phenylsilicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenyl dimethicones, diphenylmethyl-diphenyltrisiloxanes and 2-phenylethyl trimethylsiloxysilicates;

- optionally fluorinated polyalkylmethysiloxanes, for instance polymethyltrifluoropropylmethysiloxanes,

- polyalkylmethysiloxanes substituted with functional groups such as hydroxyl, thiol and/or amine groups;

- polysiloxanes modified with fatty acids, fatty alcohols or polyoxyalkylenes,
- and mixtures thereof.

According to one embodiment, the liquid fatty phase comprises an ester oil. This ester oil may be chosen from the esters of monocarboxylic acids with monoalcohols and polyalcohols.

Advantageously, the said ester corresponds to formula (VI) below:

$$R_1-CO-O-R_2 \quad (VI)$$

where R_1 represents a linear or branched alkyl radical of 1 to 40 carbon atoms and preferably of 7 to 19 carbon atoms, optionally comprising one or more ethylenic double bonds, and optionally substituted,

R_2 represents a linear or branched alkyl radical of 1 to 40 carbon atoms, preferably of 3 to 30 carbon atoms and better still of 3 to 20 carbon atoms, optionally comprising one or more ethylenic double bonds, and optionally substituted.

The term "optionally substituted" means that R_1 and/or R_2 can bear one or more substituents chosen, for example, from groups comprising one or more hetero atoms chosen from O, N and S, such as amino, amine, alkoxy and hydroxyl.

10 Preferably, the total number of carbon atoms of $R_1 + R_2$ is ≥ 9 .

R_1 may represent the residue of a linear or, preferably, branched fatty acid, preferably a higher fatty acid, containing from 1 to 40 and even better from 7 to 19 carbon atoms, and R_2 may represent a linear or, preferably, branched hydrocarbon-based chain containing from 1 to 40, preferably from 3 to 30 and even better from 3 to 20 carbon atoms. Once again, preferably the number of carbon atoms of $R_1 + R_2 \geq 9$.

15 Examples of groups R_1 are those derived from fatty acids chosen from the group consisting of acetic acid, propionic acid, butyric acid, caproic acid, caprylic acid, pelargonic acid, capric acid, undecanoic acid, lauric acid, myristic acid, palmitic acid, stearic acid, isostearic acid, arachidic acid, behenic acid, oleic acid, linolenic acid, linoleic acid, oleostearic acid, arachidonic acid and erucic acid, and mixtures thereof.

Examples of esters include purcellin oil (cetostearyl octanoate), isononyl isononanoate, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate, and heptanoates, octanoates, decanoates or ricinoleates of alcohols or polyalcohols, for example of fatty alcohols.

25 Advantageously, the esters are chosen from the compounds of formula (IV) above, in which R_1 represents an unsubstituted linear or branched alkyl group of 1 to 40 carbon atoms and preferably of 7 to 19 carbon atoms, optionally comprising one or more ethylenic double bonds, and R_2 represents an unsubstituted linear or branched alkyl group of 1 to 40 carbon atoms, preferably of 3 to 30 carbon atoms and even better of 3 to 20 carbon atoms, optionally comprising one or more ethylenic double bonds.

30 Preferably, R_1 is an unsubstituted branched alkyl group of 4 to 14 carbon atoms and preferably of 8 to 10 carbon atoms, and R_2 is an unsubstituted branched alkyl

group of 5 to 15 carbon atoms and preferably of 9 to 11 carbon atoms. Preferably, in formula (I),

R₁-CO- and R₂ have the same number of carbon atoms and are derived from the same radical, preferably an unsubstituted branched alkyl, for example isononyl, i.e. the ester oil molecule is advantageously symmetrical.

The ester oil will preferably be chosen from the following compounds:

- isononyl isononanoate,
- cetostearyl octanoate,
- isopropyl myristate,
- 2-ethylhexyl palmitate,
- 2-octyldodecyl stearate,
- 2-octyldodecyl erucate,
- isostearyl isostearate.

Advantageously, the non-volatile oil is chosen from the ester oils of formula

(VI) above and phenyl silicones, and mixtures thereof.

The non-volatile oil may be present in a content ranging from 0.1% to 80% by weight, preferably from 1% to 60% by weight, better still from 5% to 50% by weight and even better still from 14% to 40% by weight relative to the total weight of each composition or relative to the total weight of the composition when all compounds A and B are present in the same composition.

The compositions according to the invention may also include at least one fatty substance that is solid at room temperature, chosen especially from waxes and mixtures thereof. These fatty substances may be of animal, plant, mineral or synthetic origin.

Thus, at least one of the first and second compositions according to the invention may comprise a wax or a mixture of waxes.

The wax under consideration in the context of the present invention is in general a lipophilic compound, which is solid at room temperature (25°C), with a reversible solid/liquid change of state, having a melting point of greater than or equal to 30°C that may be up to 120°C.

Hydrocarbon-based waxes, for instance beeswax, lanolin wax or Chinese insect wax; rice wax, carnauba wax, candelilla wax, ouricury wax, esparto grass wax, cork fibre wax, sugarcane wax, Japan wax and sumach wax; montan wax, microcrystalline waxes, paraffins and ozokerite; polyethylene waxes, the waxes obtained by Fisher-Tropsch synthesis and waxy copolymers, and also esters thereof, may especially be used.

Mention may also be made of waxes obtained by catalytic hydrogenation of animal or plant oils containing linear or branched C₈-C₃₂ fatty chains.

Among these waxes that may especially be mentioned are hydrogenated jojoba oil, isomerized jojoba oil such as the trans-isomerized partially hydrogenated jojoba oil manufactured or sold by the company Desert Whale under the commercial reference Iso-Jojoba-50[®], hydrogenated sunflower oil, hydrogenated castor oil, hydrogenated coconut oil, hydrogenated lanolin oil and bis(1,1,1-trimethylolpropane) tetrastearate sold under the name Hest 2T-4S by the company Heterene, bis(1,1,1-trimethylolpropane) tetrabeheenate sold under the name Hest 2T-4B by the company Heterene.

The nature and amount of the wax(es) depend on the desired mechanical properties and textures. As a guide, the waxes may represent from 0.1% to 70% by weight, better still from 1% to 40% and even better still from 5% to 30% by weight relative to the total weight of the composition.

The compositions according to the invention may also advantageously comprise at least one dyestuff.

It may be present in a content ranging from 0.01% to 50% by weight and preferably from 0.01% to 30% by weight relative to the weight of each first and second composition or relative to the total weight of their mixture.

The pigments that are useful in the present invention may be in the form of powder or of pigmentary paste.

The term "dyes" should be understood as meaning compounds, generally organic, which are soluble in at least one oil or in an aqueous-alcoholic phase.

The term "pigments" should be understood as meaning white or coloured, mineral or organic particles, which are insoluble in an aqueous medium, and which are intended to colour and/or opacify the resulting film.

The term "nacres" or nacreous pigments should be understood as meaning coloured particles of any form, which may or may not be iridescent, especially produced

by certain molluscs in their shell or else synthesized, and which have a colour effect via optical interference.

The pigment may be an organic pigment. The term "organic pigment" means any pigment that satisfies the definition in Ullmann's encyclopaedia in the chapter on organic pigments. The organic pigment may especially be chosen from nitroso, nitro, azo, xanthene, quinoline, anthraquinone, phthalocyanin, metal complex, isoindolinone, isoindoline, quinacridone, perinone, perylene, diketopyrrolopyrrole, thioindigo, dioxazine, triphenylmethane and quinophthalone compounds.

The organic pigment(s) may be chosen, for example, from carmine, carbon black, aniline black, melanin, azo yellow, quinacridone, phthalocyanin blue, sorghum red, the blue pigments codified in the Color Index under the references CI 42090, 69800, 69825, 73000, 74100 and 74160, the yellow pigments codified in the Color Index under the references CI 11680, 11710, 15985, 19140, 20040, 21100, 21108, 47000 and 47005, the green pigments codified in the Color Index under the references CI 61565, 61570 and 74260, the orange pigments codified in the Color Index under the references CI 11725, 15510, 45370 and 71105, the red pigments codified in the Color Index under the references CI 12085, 12120, 12370, 12420, 12490, 14700, 15525, 15580, 15620, 15630, 15800, 15850, 15865, 15880, 17200, 26100, 45380, 45410, 58000, 73360, 73915 and 75470, and the pigments obtained by oxidative polymerization of indole or phenolic derivatives as described in patent FR 2 679 771.

These pigments may also be in the form of composite pigments as described in patent EP 1 184 426. These composite pigments may be composed especially of particles comprising an inorganic nucleus at least partially coated with an organic pigment and at least one binder to fix the organic pigments to the nucleus.

The pigment may also be a lake. The term "lake" means insolubilized dyes adsorbed onto insoluble particles, the assembly thus obtained remaining insoluble during use.

The inorganic substrates onto which the dyes are adsorbed are, for example, alumina, silica, calcium sodium borosilicate or calcium aluminium borosilicate, and aluminium.

Among the organic dyes, mention may be made of cochineal carmine. Mention may also be made of the products known under the following names: D&C Red

21 (CI 45 380), D&C Orange 5 (CI 45 370), D&C Red 27 (CI 45 410), D&C Orange 10 (CI 45 425), D&C Red 3 (CI 45 430), D&C Red 4 (CI 15 510), D&C Red 33 (CI 17 200), D&C Yellow 5 (CI 19 140), D&C Yellow 6 (CI 15 985), D&C Green (CI 61 570), D&C Yellow 1 O (CI 77 002), D&C Green 3 (CI 42 053), D&C Blue 1 (CI 42 090).

5 An example of a lake that may be mentioned is the product known under the following name: D&C Red 7 (CI 15 850:1).

 The pigment may also be a pigment with special effects. The term “pigments with special effects” means pigments that generally create a non-uniform coloured appearance (characterized by a certain shade, a certain vivacity and a certain lightness)
10 that changes as a function of the conditions of observation (light, temperature, observation angles, etc.). They thus contrast with white or coloured pigments that afford a standard uniform opaque, semi-transparent or transparent shade.

 The pigment may be a mineral pigment. The term “mineral pigment” means any pigment that satisfies the definition in Ullmann’s encyclopaedia in the chapter on
15 inorganic pigments. Among the mineral pigments that are useful in the present invention, mention may be made of zirconium oxide or cerium oxide, and also iron oxide or chromium oxide, manganese violet, ultramarine blue, chromium hydrate, ferric blue and titanium dioxide. The following mineral pigments may also be used: Ta_2O_5 , Ti_3O_5 , Ti_2O_3 , TiO , ZrO_2 as a mixture with TiO_2 , ZrO_2 , Nb_2O_5 , CeO_2 , ZnS .

20 The pigment may also be a nacreous pigment such as white nacreous pigments, for example mica coated with titanium or with bismuth oxychloride, coloured nacreous pigments such as mica coated with titanium and with iron oxides, mica coated with titanium and especially with ferric blue or chromium oxide, mica coated with titanium and with an organic pigment as defined above, and also nacreous pigments based
25 on bismuth oxychloride. Examples that may be mentioned include the Cellini pigments sold by Engelhard (Mica- TiO_2 -lake), Prestige sold by Eckart (Mica- TiO_2) or Colorona sold by Merck (Mica- TiO_2 - Fe_2O_3).

 In addition to nacles on a mica support, multilayer pigments based on synthetic substrates such as alumina, silica, calcium sodium borosilicate or calcium
30 aluminium borosilicates, and aluminium, may be envisaged.

The size of the pigment that is useful in the context of the present invention is generally between 10 nm and 200 μm , preferably between 20 nm and 80 μm and more preferentially between 30 nm and 50 μm .

5 **Cosmetic agents**

The compositions according to the invention may also contain one cosmetic agent(s) commonly used in cosmetics, such as fillers, thickeners, pasty compounds, gelling agents, film-forming polymers, surfactants, fibres, or mixtures thereof.

10 The proportion of cosmetic agent in the composition may vary widely depending on the intended site of application and the use of the composition. For example, the compositions may contain from 0.01% to 95% by weight of such additives.

15 The cosmetic compositions according to the invention may also comprise any cosmetic active agent, such as active agents chosen from antioxidants, preserving agents, fragrances, bactericidal or antiperspirant active agents, neutralizers, emollients, moisturizers, vitamins and screening agents, in particular sunscreens.

20 Needless to say, a person skilled in the art will take care to select this or these optional additional compound(s), and/or the amount thereof, such that the advantageous properties of the corresponding composition according to the invention are not, or are not substantially, adversely affected by the envisaged addition, especially so as not to interfere expected with the hydrosilylation reaction.

Formulations

25 The first and second, and where appropriate third, compositions of the process according to the invention may be, independently, in the form of a suspension, a dispersion, a solution, a gel, an emulsion, especially an oil-in-water (O/W) emulsion, a wax-in-water or water-in-oil (W/O) emulsion or a multiple emulsion (W/O/W or polyol/O/W or O/W/O) or in the form of a cream, a paste, a mousse, a vesicular dispersion, especially of ionic or nonionic lipids, a two-phase or multiphase lotion, a powder or a paste, especially a soft paste.

30 The first and/or second compositions may be also anhydrous.

According to the instant invention, the term “anhydrous” means that said composition contains less than 5% by weight, preferably less than 2% and more preferably is free from water.

The process according to the invention may be advantageously used for making up the skin, the lips, the eyelashes and/or the nails depending on the nature of the ingredients used. In particular, the compositions in the process according to the invention may be, independently, in the form of a solid foundation, a lipstick wand or paste, a concealer product, an eye contour product, an eyeliner, a mascara, an eyeshadow, a body makeup product or a skin colouring product.

According to another embodiment, the first and second, and where appropriate third, compositions are compositions for coating the eyelashes or the eyebrows and more particularly mascaras.

According to another embodiment, the first and second, and where appropriate third, compositions are compositions for coating bodily or facial skin, more particularly compositions for making up bodily or facial skin, for instance foundations or body makeup compositions.

A person skilled in the art may select the appropriate galenical form, and also the method for preparing it, on the basis of his general knowledge, taking into account firstly the nature of the constituents used, especially their solubility in the support, and secondly the intended use of the composition.

The invention is illustrated in greater detail by the examples described below. Unless otherwise mentioned, the amounts indicated are expressed as mass percentages, and all viscosities are at 25°C.

The viscosity of the different raw materials was assessed using either one of the following, as previously disclosed.

EXAMPLE 1:

Make-up product for foundation:

Description	Mol. Weight Mn (g/mol)	Viscosity	vinyl (mol/g x 1000)	H as SiH (mol/g x 100)	%	First composition	Second composition
Vinyl-functional MQ resin A	[3,000-5,000]	NA (powder)	1.1	-	36,67	39,46	33,88
Vinyl-terminated polydimethylsiloxane (compound C)		4.5 cSt	2.6	-	28,19	39,46	16,89
Vinyl-terminated polydimethylsiloxane		60,000 cPs	0.03	-	9,65	19,31	
Methylhydrogenpolysiloxane (compound B)		30 cSt	-	1.5	24,61		49,23
Platinum divinyltetramethyldisiloxane complex		400 cSt	0.8	-	0,88	1,78	

5 5% of iron oxide are then added to the first and second compositions and dispersed using three-roll-mill.

When applied to the skin, the mixture of the first and second composition is easy to spread and the so-formed film is not tacky, has a good adhesion to the skin, and has good staying power properties, good surface resistance towards the contact with a
 10 third material such as contact with fingers or nails, or with clothes.

The composition of foundation has been applied on a contrast card BYK GARDNER Prufkarte 2853, with a deposit of 100 µm thickness and with 24 hours of drying at ambient temperature (25°C). The dried film obtained has a very good surface resistance, for example the film is not scratched with contact of nails of fingers. Such
 15 property induce good surface resistance with contact of third material.

EXAMPLE 2:

Make-up product for eyelashes:

Description	Mol. Weight Mn (g/mol)	Viscosity	vinyl (mol/g x 1000)	H as SiH (mol/g x 100)	%	First composition	Second composition
Vinyl-functional MQ resin A	[3,000-5,000]	NA (powder)	1.1	-	36,67	39,46	33,88
Vinyl-terminated polydimethylsiloxane (compound C)		4.5 cSt	2.6	-	28,19	39,46	16,89
Vinyl-terminated polydimethylsiloxane		60,000 cPs	0.03	-	9,65	19,31	
Methylhydrogenpolysiloxane (compound B)		30 cSt	-	1.5	24,61		49,23
Platinum divinyltetramethyldisiloxane complex		400 cSt	0.8	-	0,88	1,78	

4% of black iron oxide and 10% of silica dimethyl silylate (AEROSIL[®] R 972 from Evonik Degussa) are then added to the first and second compositions and dispersed using three-roll-mill.

The mixture of the first and second compositions is applied to the eyelashes using a mascara brush. When applied to the eyelashes, the mixture of the first and second compositions leads to a film which is quickly dried. The formulation leads to a film, which is not tacky and has a good adhesion to the eyelashes, and has good resistance to rubbing such as with fingers, clothes, and handkerchief.

CLAIMS

1. A cosmetic method for making up and/or non-therapeutically caring for keratin material comprising at least the application on said keratin material of a mixture comprising at least

- 5 - one reactive functional MQ resin A,
 - one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule,
 - one reactive organopolysiloxane compound C having at least two reactive functional groups per molecule and a molecular weight lower than 2500 g/mol, and
10 - one catalyst for hydrosilylation,

said MQ resin(s) A and organopolysiloxanes B and C being capable of interacting together by a hydrosilylation reaction in presence of said catalyst.

2. The cosmetic method according to claim 1 wherein the mixture contains at least

- 15 - one reactive functional MQ resin A having at least three (a) reactive functional groups per molecule,
 - one reactive organopolysiloxane compound B having at least three (b) reactive functional groups per molecule,
 - one reactive organopolysiloxane compound C having at least two (c) reactive
20 functional groups per molecule and a molecular weight lower than 2500 g/mol,
 the groups (a) and (b) and (c) being either a reactive alkylene group directly bonded to a silicon atom (herein after called "SiAlk" group) or a reactive Si-bonded hydrogen group (hereinafter called "SiH" group), provided that when (b) is SiAlk, (c) is SiH, and (a) is SiAlk or SiH, and when (b) is SiH, (c) is SiAlk, and (a) is SiAlk or SiH.

25 3. The cosmetic method according to anyone of previous claims wherein said mixture is formed in situ on said keratin material.

4. The cosmetic method according to anyone of previous claims comprising at least the application on said keratin material of at least

- (a) one first composition,
30 (b) one second composition,
with at least one of the first and second compositions containing at least one reactive functional MQ resin A, one reactive organopolysiloxane compound B having at least three

reactive functional groups per molecule, one reactive organopolysiloxane compound C having at least two reactive functional groups per molecule and a molecular weight lower than 2500 g/mole and, one catalyst for hydrosilylation, said reactive MQ resin(s) A and reactive organopolysiloxane compound(s) being capable of interacting together by a hydrosilylation reaction in presence of said catalyst,

provided that the compounds capable of interacting by a hydrosilylation reaction with each other(s) and the catalyst are not present together in the same composition,

the applications of (a) and (b) possibly being simultaneous and/or sequential in any order with the proviso that it is beneficial to the hydrosilylation of MQ resin A and said organopolysiloxane compound(s).

5. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane C has a molecular weight lower than 1500 g/mol, more preferably lower than 1000 g/mol.

6. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane C is in an amount greater than 15%, preferably greater than 20%, and more preferably greater than 25% by weight of the dry solid content of the mixture applied on said keratin material.

7. The cosmetic method according to anyone of the previous claims wherein the reactive functional MQ resin A has reactive alkylene groups, in particular vinyl groups content ranging from 0.1 to 10 mol/1000 g and in particular from 0.5 to 3 mol/1000 g.

8. The cosmetic method according to anyone of the previous claims wherein the reactive functional MQ resin A has a number average molecular weight (Mn) ranging from 1500 to 10 000, in particular ranging from 3 000 to 10 000 and more particularly from 3 000 to 5 000.

9. The cosmetic method according to anyone of the previous claims wherein the reactive functional MQ resin(s) A is/are used in an amount ranging from 20 to 60% by weight and more particularly from 30 to 55% by weight of the total weight of the mixture.

10. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane B and/or C is at least one polysiloxane having reactive alkylene group which has a weight-average molecular mass (Mw) ranging from 150 to 1 000 000, preferably from 200 to 800 000 and more preferably from 200 to 250 000.

11. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane B is at least one organopolysiloxane having reactive alkylene groups which has from 0.00001 to 0.01 mol/g in particular from 0.00002 to 0.005 mol/g of alkylene group based on the total weight of the polymer.

5 12. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane C is at least one organopolysiloxane having reactive alkylene groups which has from 0.0001 mol/g to 0.01 mol/g in particular from 0.0005 to 0.005 mol/g of alkylene group based on the total weight of the polymer.

10 13. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane B is at least one polysiloxane having silicon bonded hydrogen atoms which has from 0.0001 to 0.02 mol/g, preferably from 0.001 to 0.02 mol/g, and more particularly from 0.002 to 0.02 mol/g of reactive Si-H group based on the total weight of the polymer.

15 14. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane C is at least one polysiloxane having silicon bonded hydrogen atoms which has from 0.0001 mol/g to 0.01 mol/g, preferably from 0.0005 to 0.005 mol/g of reactive Si-H group based on the total weight of the polymer.

20 15. The cosmetic method according to anyone of the previous claims wherein the organopolysiloxane B and/or C is at least one polysiloxane having silicon bonded hydrogen which has a weight-average molecular mass (Mw) ranging from 200 to 1 000 000, preferably 300 to 800 000 and more preferably from 500 to 250 000.

25 16. The cosmetic method according to anyone of the previous claims wherein the mixture contains at least a MQ resin A with reactive alkylene groups, in mixture with at least one compound B having reactive alkylene groups and at least compound C having Si-H bonds and having a molecular weight lower than 2500 g/mol.

17. The cosmetic method according to anyone of the previous claims wherein the mixture contains a MQ resin A with reactive alkylene groups, in mixture with at least a compound B having reactive Si-H bonds and at least a compound C having reactive alkylene groups and a molecular weight lower than 2500 g/mol.

30 18. The cosmetic method according to anyone of the previous claims wherein the mixture contains a MQ resin A with reactive vinyl groups, in mixture with at least a

compound B having reactive Si-H bonds and at least a compound C having reactive vinyl groups and a molecular weight lower than 2500 g/mol.

19. The cosmetic method according to anyone of the previous claims wherein the catalyst is a platinum based catalyst.

- 5 20. Kit for coating keratin materials, comprising at least
- one first composition and at least one second composition, and
 - at least one reactive functional MQ resin A, one reactive organopolysiloxane compound B having at least three reactive functional groups per molecule, one reactive organopolysiloxane compound C having at least two reactive functional groups per
- 10 molecule and a molecular weight lower than 2500 g/mole and at least one catalyst for a hydrosilylation reaction, with MQ resin(s) A and reactive organopolysiloxane compound(s) being capable of interacting together by a hydrosilylation reaction in presence of said catalyst,
- provided that the compounds capable of interacting by a hydrosilylation reaction with each
- 15 other(s) and the catalyst are not present together in the same composition,
- said kit being dedicated to be a make-up composition for the skin, the eyes lashes, the lips, the nails or the hair or a care or cleaning cosmetic product for body and/or the hair.

21. Kit according to the previous claim wherein said MQ resin A is as defined in anyone of claims 7 to 9.

- 20 22. Kit according to claim 20 or 21 wherein said organopolysiloxanes B and C are as defined in anyone of claims 10 to 15.

23. Kit according to the claims 20 to 22 dedicated to be a foundation or a mascara.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2009/052902

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K8/891 A61K8/895 A61Q19/00 A61Q1/00
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61K A61Q

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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