COSMETIC COMPOSITION COMPRISING A VOLATILE LINEAR ALKYLTRISILOXANE

\[ \text{(I)} \]

\[ \left( \text{CH}_3 \right)_3 \text{SiO} \text{Si} \text{O} \text{Si} \left( \text{CH}_3 \right)_3 \]

(57) Abstract: The present invention relates to a cosmetic composition comprising, in a physiologically acceptable medium, at least two volatile oils, one of which at least is a volatile linear alkyltrisiloxane oil of general formula (I): in which R represents an alkyl group containing from 2 to 4 carbon atoms, optionally substituted with one or more fluorine or chlorine atoms, the mixture of said volatile oils having an evaporation profile such that the mass of volatile oil evaporated after 30 minutes ranges from 12.5 to 370 mg/cm².
Cosmetic composition comprising a volatile linear alkyltrisiloxane

The present invention relates to a cosmetic composition comprising at least two volatile oils, at least one of which is a volatile linear alkyltrisiloxane oil.

The invention also relates to a non-therapeutic process for making up or caring for human keratin materials, comprising the application of the composition to the keratin materials.

Low molecular weight siloxanes are known for their use as volatile compounds in cosmetic compositions. In this respect, cyclic silicone oils are most particularly used. They are usually designated D4 (also known as octamethylcyclohexasiloxane), D5 (decamethylcyclopentasiloxane) and D6 (dodecamethylcyclohexasiloxane). They especially allow a pleasant feel to be obtained on contact with the skin.

In the context of the formulation of cosmetic compositions, it would be advantageous to have available substitutes for these cyclic silicone oils or alternatively for other non-silicone volatile oils such as isododecane, which are capable of showing the same type of behavior, especially in terms of volatility.

WO 03/042221 describes the use of certain volatile linear alkyltrisiloxanes as volatile compounds in a cosmetic composition.

US 6 350 440 discloses a mixture of linear organosiloxanes with a particular evaporation profile.

However, none of these documents mentions cosmetic compositions comprising at least two volatile oils, at least one of which is a volatile linear alkyltrisiloxane oil with a particular evaporation profile.

The inventors have discovered that such a composition makes it possible to obtain an advantageous evaporation profile range while at the same time conserving good compatibility of this volatile linear alkyltrisiloxane oil with the ingredients usually used in cosmetics.

More precisely, a subject of the invention is a cosmetic composition comprising, in a physiologically acceptable medium, at least two volatile oils, one of which at least is a volatile linear alkyltrisiloxane oil of general formula (I):
in which R represents an alkyl group containing from 2 to 4 carbon atoms, optionally substituted with one or more fluorine or chlorine atoms, the mixture of said volatile oils having an evaporation profile such that the mass of volatile oil evaporated after 30 minutes ranges from 12.5 to 370 mg/cm².

A subject of the invention is also a non-therapeutic cosmetic process for making up or treating keratin materials, comprising the application to the keratin materials of a composition as defined above.

Finally, a subject of the invention is the use of a mixture of volatile oils as defined above for the preparation of a cosmetic composition.

In the context of the substitutions of the group R, the term “one or more” preferably means “one to four” and even more preferably “one or two”.

The term “volatile oil” means an oil (or nonaqueous medium) capable of evaporating on contact with the skin or the keratin fiber, and more generally the keratin material, in less than one hour, at room temperature and atmospheric pressure. The volatile oil is a volatile cosmetic oil, which is liquid at room temperature, especially having a nonzero vapor pressure at room temperature and atmospheric pressure, especially having a vapor pressure ranging from 0.13 Pa to 40 000 Pa (10⁻³ to 300 mmHg), in particular ranging from 1.3 Pa to 13 000 Pa (0.01 to 100 mmHg) and more particularly ranging from 1.3 Pa to 8000 Pa (0.01 to 60 mmHg).

The term “at least one” means one or more individual compounds and also mixtures thereof. Thus, the expression “the volatile linear alkyltrisiloxane oil of general formula (I)” covers the case in which it is a mixture of several oils of formula (I).

In the context of the present invention, the term “keratin materials” includes the skin, the lips, the nails, the hair, the eyelashes and the eyebrows, and the term “keratin fibers” includes the hair, the eyelashes and the eyebrows.

The composition according to the invention comprises a physiologically acceptable medium, especially a cosmetically or dermatologically acceptable medium, i.e. a medium that is compatible with keratin materials as defined above.
According to the present invention, the evaporation profile of the volatile fatty phase of the composition is such that the mass of volatile oil evaporated after 30 minutes ranges from 12.5 to 370 mg/cm². According to one particular embodiment of the invention, the mass of volatile oil evaporated after 30 minutes ranges from 15 to 70 mg/cm², preferably from 16 to 29.5 mg/cm² and better still from 16 to 24.6 mg/cm².

The rate of evaporation of the oil is measured according to the protocol described below.

Among the oils of general formula (I), mention may be made of:

- 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane,
- 3-propyl-1,1,1,3,5,5,5-heptamethyltrisiloxane,
- 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane, and
- mixtures thereof

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

According to one particular embodiment of the invention, the mixture of volatile oils of the composition of the invention comprises one or more volatile linear alkyltrisiloxane oils of formula (I), preferably two of them, and in particular a mixture of 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane.

According to yet another embodiment of the invention, the mixture of volatile oils is composed of several volatile linear alkyltrisiloxane oils of formula (I), preferably two of them, and in particular a mixture of 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane. In other words, according to this particular embodiment of the invention, the composition is free of any volatile oil not in accordance with formula (I), i.e. it comprises less than 0.1% by weight of volatile oil not in accordance with formula (I) with respect to the total weight of the composition.

In the case of a mixture of 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane free of any volatile oil not in accordance with formula (I), the evaporation profile is such that the mass of volatile oil evaporated after 30 minutes ranges from 8 to 25 mg/cm².

The volatile linear alkyltrisiloxane oil of formula (I) may be prepared according to known processes for the synthesis of silicone compounds.
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 GE Bayer Silicones.

According to the invention, the content of volatile linear alkyltrisiloxane oil(s) of general formula (I) ranges from 0.1% to 80% by weight, preferably from 1% to 65% by weight and more preferably from 1% to 50% by weight with respect to the total weight of the composition.

A subject of the invention is also a composition whose mixture of volatile oils comprises a content of volatile linear alkyltrisiloxane oil of formula (I) ranging from 1% to 100% by weight, preferably from 10% to 95% and even more preferably between 20% and 90% with respect to the total weight of said mixture.

According to another embodiment, the composition may comprise a linear alkyltrisiloxane oil of formula (I) and also one or more volatile oils not in accordance with formula (I), especially in a weight ratio between the volatile linear alkyltrisiloxane oil of formula (I) and this or these volatile oil(s) not in accordance with formula (I) that may range from 0.01 to 99, preferably from 0.5 to 67 and even more preferably from 0.7 to 45.

**VOLATILE OILS**

The composition according to the invention may also comprise one or more volatile oil(s) not in accordance with formula (I).

Among the volatile oils not in accordance with formula (I), mention may be made of cyclic or noncyclic volatile silicone oils, or volatile nonsilicone oils, chosen especially from hydrocarbon-based or fluoro volatile oils, and also mixtures thereof.

According to one particular embodiment of the invention, the composition of the present invention is free of these cyclic or noncyclic volatile silicone oils not in accordance with formula (I), i.e. it comprises less than 0.1% by weight of these cyclic or noncyclic volatile silicone oils with respect to the total weight of the composition.

The composition may then comprise, as volatile oil not in accordance with formula (I), one or more nonsilicone volatile hydrocarbon-based oil(s) or fluoro oil(s).

According to another embodiment of the invention, the composition is free of non-silicone volatile oils, i.e. it comprises less than 0.1% by weight of these nonsilicone volatile oils with respect to the total weight of the composition.
The composition may then comprise, as volatile oil not in accordance with formula (I), one or more cyclic or noncyclic volatile silicone oils.

Among the "cyclic or noncyclic volatile silicone oils", mention may be made especially of those with a viscosity $\leq 6$ centistokes ($6 \times 10^{-6} \text{ m}^2/\text{s}$) and especially containing from 3 to 6 silicon atoms, these silicones optionally comprising one or more alkyl or alkoxy groups containing 1 or 2 carbon atoms. In this category of volatile silicone oils that may be used in the invention, mention may be made especially of octamethylcyclootetrasiloxane (D4), decamethylcyclopentasiloxane (D5), dodecamethylcyclohexasiloxane (D6), and mixtures thereof.

The noncyclic volatile silicone oils may also be chosen from linear or branched volatile silicone oils.

The noncyclic volatile silicone oil may be chosen from:

- noncyclic linear silicones of formula (II) different than the volatile silicone oils of formula (I)

$$R_3SiO-(R_2SiO)_n-SiR_3 \quad (II)$$

in which R, which may be identical or different, denotes:

- a saturated or unsaturated hydrocarbon-based radical containing from 1 to 10 carbon atoms and preferably 1 to 6 carbon atoms, optionally substituted with one or more fluorine atoms or with one or more hydroxyl groups, or

- a hydroxyl group,

one of the radicals R possibly being a phenyl group,

n is an integer ranging from 0 to 8, preferably ranging from 2 to 6 and better still ranging from 3 to 5,

the silicone compound of formula (II) containing up to 18 carbon atoms;

- the branched silicones of formula (III) or (IV) below:

$$R_3SiO-[(R_3SiO)RSiO]-(R_2SiO)_k-SiR_3 \quad (III)$$

$$[R_3SiO]_4Si \quad (IV)$$

in which R, which may be identical or different, denotes:
- a saturated or unsaturated hydrocarbon-based radical containing from 1 to 10 carbon atoms, optionally substituted with one or more fluorine atoms or with one or more hydroxyl groups, or
- a hydroxyl group,
5 one of the radicals R possibly being a phenyl group,
x is an integer ranging from 0 to 8,
the silicone compound of formula (III) or (IV) containing up to 18 carbon atoms.

Preferably, for the compounds of formulae (II), (III) and (IV), the ratio between the number of carbon atoms and the number of silicon atoms is between 2.25 and 4.33. Advantageously, the compounds of formula (II), (III) or (IV) contain up to 17 carbon atoms, preferably up to 16 carbon atoms and preferentially up to 15 carbon atoms.

The silicones of formulae (II) to (IV) may be prepared according to the known processes for synthesizing silicone compounds.

Among the silicones of formula (II) that may be mentioned are:

a) the following disiloxanes:
  - hexamethyldisiloxane (surface tension = 15.9 mN/m), especially sold under the name DC 200 FLUID 0.65 cSt by the company Dow Corning,
  - 1,3-di-tert-butyl-1,1,3,3-tetramethyldisiloxane;
  - 1,3-dipropyl-1,1,3,3-tetramethyldisiloxane;
  - heptylpentamethyldisiloxane;
  - 1,1,1-triethyl-3,3,3-trimethyldisiloxane;
  - hexaethyldisiloxane;
  - 1,1,3,3-tetramethyl-1,3-bis(2-methylpropyl)disiloxane;
  - pentamethyloctyldisiloxane;
  - 1,1,1-trimethyl-3,3,3-tris(1-methylethyl)disiloxane;
  - 1-butyl-3-ethyl-1,1,3-trimethyl-3-propyldisiloxane;
  - pentamethylpentyldisiloxane;
  - 1-butyl-1,1,3,3-tetramethyl-3-(1-methylethyl)disiloxane;
  - 1,1,3,3-tetramethyl-1,3-bis(1-methylpropyl)disiloxane;
  - 1,1,3-triethyl-1,3,3-tripropyldisiloxane;
  - (3,3-dimethylbutyl)pentamethyldisiloxane;
  - (3-methylbutyl)pentamethyldisiloxane;
- (3-methylpentyl)pentamethyldisiloxane;
- 1,1,1-triethyl-3,3-dimethyl-3-propyldisiloxane;
- 1-(1,1-dimethylethyl)-1,1,3,3,3-pentamethyldisiloxane;
- 1,1,1-trimethyl-3,3,3-tripropyldisiloxane;
- 1,3-dimethyl-1,1,3,3,3-tetrakis(1-methylethyl)disiloxane;
- 1,1-dibutyl-1,3,3,3-tetramethyldisiloxane;
- 1,1,3,3-tetramethyl-1,3-bis(1-methylethyl)disiloxane;
- 1,1,1,3-tetramethyl-3,3-bis(1-methylethyl)disiloxane;
- 1,1,1,3-tetramethyl-3,3-dipropyldisiloxane;
- 1,1,3,3-tetramethyl-1,3-bis(3-methylbutyl)disiloxane;
- butylpentamethyldisiloxane;
- pentaethylmethylsiloxane;
- 1,1,3,3-tetramethyl-1,3-dipentyldisiloxane;
- 1,3-dimethyl-1,1,3,3,3-tetrapropyldisiloxane;
- 1,1,1,3-tetraethyl-3,3-dimethyldisiloxane;
- 1,1,1-triethyl-3,3,3-tripropyldisiloxane;
- 1,3-dibutyl-1,1,3,3-tetramethyldisiloxane;
- hexylpentamethyldisiloxane;

b) the following trisiloxanes:
- octamethyltrisiloxane (surface tension = 17.4 mN/m), sold especially under the name DC 200 Fluid 1 cSt by the company Dow Corning;
- 3-pentyl-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1-hexyl-1,1,3,3,5,5,5-heptamethyltrisiloxane;
- 1,1,1,3,3,5,5-heptamethyl-5-octyltrisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-octyltrisiloxane, sold especially under the name Silsoft 034® by the company OSI;
- 1,1,1,3,5,5,5-heptamethyl-3-hexyltrisiloxane (surface tension = 20.5 mN/m), sold especially under the name “DC 2-1731” by the company Dow Corning;
- 1,1,3,3,5,5-hexamethyl-1,5-dipropyldisiloxane;
- 3-(1-ethylbutyl)-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-(1-methylpentyl)trisiloxane;
- 1,5-diethyl-1,1,3,3,5,5-hexamethyltrisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-(1-methylpropyl)trisiloxane;
- 3-(1,1-dimethylethyl)-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1,1,1,5,5,5-hexamethyl-3,3-bis(1-methylethyl)trisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-1,5-bis(1-methylpropyl)trisiloxane;
- 1,5-bis(1,1-dimethylethyl)-1,1,1,3,5,5,5-hexamethyltrisiloxane;
- 3-(3,3-dimethylbutyl)-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-(3-methylbutyl)trisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-(3-methylpentyl)trisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-(2-methylpropyl)trisiloxane;
- 1-butyl-1,1,3,3,5,5,5-heptamethyltrisiloxane;
- 3-isohexyl-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1,3,5-triethyl-1,1,1,3,5,5,5-pentamethyltrisiloxane;
- 3-tert-pentyl-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1,1,1,5,5,5-hexamethyl-3,3-dipropyltrisiloxane;
- 3,3-diethyl-1,1,1,5,5,5-hexamethyltrisiloxane;
- 1,5-dibutyl-1,1,1,3,5,5,5-hexamethyltrisiloxane;
- 1,1,1,5,5,5-hexaethyl-3,3-dimethyltrisiloxane;
- 3,3-dibutyl-1,1,1,5,5,5-hexamethyltrisiloxane;
- 3-heptyl-1,1,1,3,5,5,5-heptamethyltrisiloxane;
- 1-ethyl-1,1,3,3,5,5,5-heptamethyltrisiloxane;

c) the following tetrasiloxanes:
- decamethyltetrasiloxane (surface tension = 18 mN/m), sold especially under
  the name DC 200 Fluid 1.5 cSt by the company Dow Corning;
- 1,1,3,3,5,5,7,7-octamethyl-1,7-dipropyltetrasiloxane;
- 1,1,1,3,3,5,7,7,7-nonamethyl-5-(1-methylethyl)tetrasiloxane;
- 1-butyl-1,1,3,3,5,5,7,7,7-nonamethyltetrasiloxane;
- 3,5-diethyl-1,1,1,3,5,7,7,7-octamethyltetrasiloxane;
- 1,3,5,7-tetraethyl-1,1,1,3,5,7,7,7-hexamethyltetrasiloxane;
- 3,3,5,5-tetraethyl-1,1,1,7,7,7-hexamethyltetrasiloxane;
- 1,1,1,3,3,5,7,7,7-nonamethyl-7-phenyltetrasiloxane;
- 3,3-diethyl-1,1,1,5,5,7,7,7-octamethyltetrasiloxane;
- 1,1,1,3,3,5,7,7,7-nonamethyl-5-phenyltetrasiloxane;
d) the following pentasiloxanes:
   - dodecamethylpentasiloxane (surface tension = 18.7 mN/m), sold especially under the name DC 200 Fluid 2 cSt by the company Dow Corning;
   - 1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-dipropylpentasiloxane;
   - 3,3,5,5,7,7-hexaethyl-1,1,1,9,9,9-hexamethylpentasiloxane;
   - 1,1,1,3,3,5,7,7,9,9,9-undecamethyl-5-phenylpentasiloxane;
   - 1-butyl-1,1,3,3,5,5,7,7,9,9,9-undecamethylpentasiloxane;
   - 3,3-diethyl-1,1,1,5,5,7,7,9,9,9-decamethylpentasiloxane;
   - 1,3,5,7,9-pentaethyl-1,1,3,5,7,9,9-heptamethylpentasiloxane;
   - 3,5,7-triethyl-1,1,1,3,5,7,9,9,9-nonamethylpentasiloxane;
   - 1,1,1-triethyl-3,3,5,5,7,7,9,9,9-nonamethylpentasiloxane;

e) the following hexasiloxanes:
   - 1-butyl-1,1,3,3,5,5,7,7,9,9,11,11,11-tridecamethylhexasiloxane;
   - 3,5,7,9-tetramethyl-1,1,1,3,5,7,9,11,11,11-decamethylhexasiloxane;
   - tetradecamethylhexasiloxane;

f) hexadecamethylheptasiloxane;

g) octadecamethyloctasiloxane;

Among the silicones of formula (III) that may be mentioned are:

a) the following tetrasiloxanes:
   - 2-[3,3,3-trimethyl-1,1-bis[(trimethylsilyl)oxy]disiloxanyl]ethyl;
   - 1,1,1,5,5,5-hexamethyl-3-(2-methylpropyl)-3-[(trimethylsilyl)oxy]-trisiloxane;
   - 3-(1,1-dimethylhexyl)-1,1,1,5,5,5-hexamethyl-3-[(trimethylsilyl)oxy]-trisiloxane;

b) 3-butyl-1,1,1,5,5,5-hexamethyl-3-[(trimethylsilyl)oxy]trisiloxane;
   - 1,1,1,5,5,5-hexamethyl-3-propyl-3-[(trimethylsilyl)oxy]trisiloxane;
   - 3-ethyl-1,1,1,5,5,5-hexamethyl-3-[(trimethylsilyl)oxy]trisiloxane;
   - 1,1,1-triethyl-3,5,5,5-tetramethyl-3-(trimethylsilyloxy)trisiloxane;
   - 3-methyl-1,1,1,5,5,5-hexamethyl-3-[(trimethylsilyl)oxy]trisiloxane;

- 3-[(dimethylphenylsilyl)oxy]-1,1,1,3,5,5,5-heptamethyltrisiloxane;
   - 1,1,1,5,5,5-hexamethyl-3-(2-methylpentyl)-3-[(trimethylsilyl)oxy]-trisiloxane;
- 1,1,1,5,5,5-hexamethyl-3-(4-methylpentyl)-3-[(trimethylsilyl)oxy]trisiloxane;
- 3-hexyl-1,1,1,5,5,5-hexamethyl-3-[(trimethylsilyl)oxy]trisiloxane;
- 1,1,1,3,5,5,5-heptamethyl-3-[(trimethylsilyl)oxy]trisiloxane;

5 b) the following pentasiloxanes:
- 1,1,1,3,5,5,7,7,7-nonamethyl-3-(trimethylsiloxyl)tetrasiloxane;
- 1,1,1,3,7,7,7-octamethyl-5-phenyl-5-[(trimethylsilyl)oxy]tetrasiloxane;

c) the following heptasiloxanes:
- 1,1,1,3,5,5,7,7,9,9,11,11,11-tridecamethyl-3-[(trimethylsilyl)oxy]-hexasiloxane;

Among the silicones of formula (IV) that may be mentioned is:
- 1,1,1,5,5,5-hexamethyl-3,3-bis(trimethylsiloxy)trisiloxane.

It is also possible to use other volatile silicone oils chosen from:

a) the following tetrasiloxanes:
15 - 2,2,8,8-tetramethyl-5-[(pentamethyldisiloxanyl)methyl]-3,7-dioxa-2,8-disilanonane;
- 2,2,5,8,8-pentamethyl-5-[(trimethylsilyl)methoxy]-4,6-dioxa-2,5,8-trisilanonane;
- 1,3-dimethyl-1,3-bis[(trimethylsilyl)methyl]-1,3-disiloxanediol;
20 - 3-ethyl-1,1,1,5,5,5-hexamethyl-3-[3-(trimethylsiloxyl)propyl]trisiloxane,
- 1,1,1,5,5,5-hexamethyl-3-phenyl-3-[(trimethylsilyl)oxy]trisiloxane (Dow 556 Fluid);

b) the following pentasiloxanes:
25 - 2,2,7,7,9,9,11,11,16,16-decamethyl-3,8,10,15-tetraoxa-2,7,9,11,16-
pentasilahexadecane;
- silicic acid tetrakis[(trimethylsilyl)methyl] ester;

c) the following hexasiloxanes:
- 3,5-diethyl-1,1,1,7,7,7-hexamethyl-3,5-bis[(trimethylsilyl)oxy]tetrasiloxane,
- 1,1,1,3,5,7,7-octamethyl-3,5-bis[(trimethylsilyl)oxy]tetrasiloxane;
30 d) the heptasiloxane:
- 1,1,1,3,7,7,7-heptamethyl-3,5,5-tris[(trimethylsilyl)oxy]tetrasiloxane;

e) the following octasiloxanes:
- 1,1,1,3,5,5,9,9,9-nonamethyl-3,7,7-tris[(trimethylsilyl)oxy]pentasiloxane;
- 1,1,1,3,5,7,9,9,9-nonamethyl-3,5,7-tris[(trimethylsilyl)oxy]pentasiloxane;
- 1,1,1,7,7,7-hexamethyl-3,3,5,5-tetrakis[(trimethylsilyl)oxy]tetrasiloxane.

The term “hydrocarbon-based oil” means an oil formed essentially from, or even consisting of, carbon and hydrogen atoms, and possibly oxygen, nitrogen, sulfur or phosphorus atoms, and containing no silicon or fluorine atoms. It may contain alcohol, ester, ether, carboxylic acid, amine and/or amide groups.

The volatile hydrocarbon-based oil may be chosen from volatile hydrocarbon-based oils containing from 8 to 16 carbon atoms and mixtures thereof and especially branched C₈-C₁₆ alkanes, for instance isoalkanes (also known as isoparaffins), isododecane (also known as 2,2,4,4,6-pentamethylheptane), isodecane and isohexadecane and, for example, the oils sold under the trade names Isopar® and Permethyl®, and branched Cs-C₁₆ esters, for instance isohexyl neopentanoate, and mixtures thereof; isododecane is preferably used.

The nonsilicone volatile oil may be present in a content ranging from 0.1% to 50% by weight, preferably ranging from 0.1% to 40% by weight and more preferably ranging from 0.1% to 30% by weight relative to the total weight of the composition.

Other volatile hydrocarbon-based oils, for instance petroleum distillate, especially those sold under the name Shell Solt® by the company Shell, may be used.

It is also possible to use volatile fluoro oils such as nonafluoromethoxybutane or perfluoromethylcyclopentane.

Advantageously, the composition according to the invention comprises a mixture of volatile oils consisting of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane or 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane combined with isododecane or with decamethylcyclopentasiloxane or alternatively with dodecamethylcyclohexasiloxane. The mixture of said volatile oils may thus have an evaporation profile such that the mass of volatile oil evaporated after 30 minutes ranges from 16 to 29.5 mg/cm².

For example, the weight ratios that may be suitable between the various oils for which the evaporation profile of the mixture is such that the mass of oil evaporated after 30 minutes ranges from 16 to 24.6 mg/cm² are the following:

- mixture of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of isododecane: the weight ratio between the 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and the
isododecane may range from 0.01 to 1.86, preferably from 0.1 to 1.5, even more preferably from 0.12 to 1 and better still from 0.15 to 0.5,

- mixture of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of decamethylcyclopentasiloxane (D5): the weight ratio between the 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and decamethylcyclopentasiloxane may range from 1.38 to 66.66,

- mixture of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of dodecamethylcyclohexasiloxane (D6): the weight ratio between the 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and the dodecamethylcyclohexasiloxane may range from 1.8 to 99,

- mixture of 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of isododecane: the weight ratio between the 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and the isododecane may range from 1.0 to 0.01 and preferably from 0.1 to 0.5.

**NONVOLATILE OILS**

The composition according to the invention may also comprise a nonvolatile oil which may be chosen in particular from nonvolatile hydrocarbon-based and/or silicone and/or fluoro oils.

The term “nonvolatile oil” means an oil that remains on the skin or the keratin fiber, and more generally on the keratin material, 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).

Nonvolatile hydrocarbon-based oils that may especially be mentioned include:

- hydrocarbon-based oils of plant origin, such as triglycerides consisting of fatty acid esters of glycerol, the fatty acids of which may have varied chain lengths from C$_4$ to C$_{24}$, these chains possibly being linear or branched and saturated or unsaturated, for instance heptanoic or octanoic acid triglycerides; these oils are especially wheatgerm oil, sunflower oil, grapeseed oil, sesame seed oil, maize 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, sesame seed oil, marrow oil, rapeseed 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 Stéarinerie
Dubois or those sold under the names Miglyol 810®, 812® and 818® by the company Dynamit Nobel,

- oils of animal origin, for instance mink oil, turtle oil or perhydrosqualene;
- synthetic ethers containing from 10 to 40 carbon atoms;
- linear or branched hydrocarbons of mineral or synthetic origin, such as liquid paraffin or derivatives thereof, petroleum jelly, polydecenes, hydrogenated polyisobutene such as Parleam® sold by the company Nippon Oil Fats, and squalane, and mixtures thereof;
- fatty acid esters, in particular of 4 to 22 carbon atoms, and especially of octanoic acid, of heptanoic acid, of lanolic acid, of oleic acid, of lauric acid or of stearic acid, for instance propylene glycol dioctanoate, propylene glycol monoisooleate, polyglyceryl-2 diisostearate or neopentyl glycol diheptanoate;
- synthetic esters, for instance the oils of formula $R_1{COOR}_2$ in which $R_1$ represents a linear or branched fatty acid residue containing from 1 to 40 carbon atoms and $R_2$ represents a hydrocarbon-based chain that is especially branched containing from 1 to 40 carbon atoms, on condition that $R_1 + R_2 \geq 10$, for instance purcellin oil (cetostearyl octanoate), isononyl isononanoate, C_{12} to C_{15} alkyl benzoate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate, 2-octyldodecyl benzoate, alcohol or polyalcohol octanoates, decanoates or ricinoleates, isopropyl myristate, isopropyl palmitate, butyl stearate, hexyl laurate, diisopropyl adipate, 2-ethylhexyl palmitate, 2-hexyldecyl laurate, 2-octyldodecyl palmitate, 2-octyldodecyl myristate, 2-diethylhexyl succinate, diisostearyl malate and isodecyl neopentanoate;
- hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate, triisocetyl citrate, glycercyl or diglyceryl triisostearate; diethylene glycol diisononanoate; and
- pentaerythritol esters; esters of aromatic acids and of alcohols containing 4 to 22 carbon atoms, especially tridecyl trimellitate;
- fatty alcohols that are liquid at room temperature, with a branched and/or unsaturated carbon-based chain containing from 8 to 26 carbon atoms, for instance oleyl alcohol, linoleyl alcohol, linolenyl alcohol, isostearyl alcohol or octyldodecanol;
- C_{8}-C_{26} higher fatty acids such as oleic acid, linoleic acid, linolenic acid or isostearic acid;
- and mixtures thereof.

The nonvolatile silicone oils that may be used in the composition according to the invention may be nonvolatile polydimethylsiloxanes (PDMS), polydimethylsiloxanes comprising alkyl or alkoxy groups, which are pendant and/or at the end of a silicone chain, these groups each containing from 2 to 24 carbon atoms, phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxysiloxanes, diphenyl dimethicones, diphenylmethyldiphenyltrisiloxanes and 2-phenylethyl trimethyl-siloxysilicates.

According to one aspect of the invention, the composition is free of nonvolatile oil, i.e. it comprises less than 0.1% by weight of nonvolatile oil relative to the total weight of the composition.

According to another aspect of the invention, the nonvolatile oil may be present in a content ranging from 0.1% to 60% by weight, preferably ranging from 0.5% to 50% by weight and more preferably ranging from 1% to 40% by weight relative to the total weight of the composition.

**AQUEOUS AND/OR WATER-SOLUBLE PHASE**

The composition according to the invention may comprise at least one aqueous phase containing water. The water may be a floral water such as cornflower water and/or a mineral water such as eau de Vittel, eau de Lucas or eau de La Roche Posay and/or a spring water.

The aqueous phase may also comprise organic solvents that are water-miscible (at 25°C), for instance primary alcohols such as ethanol and isopropanol, glycols such as glycerol, propylene glycol, butylene glycol, dipropylene glycol, diethylene glycol, glycol ethers, and C\(_1\) to C\(_4\) alkyl ethers of mono-, di- or tripropylene glycol or of mono-, di- or triethylene glycol, and mixtures thereof.

The composition may be an anhydrous composition, i.e. a composition containing less than 2% by weight of water, or even less than 0.5% of water, and especially free of water, the water not being added during the preparation of the composition, but corresponding to the residual water provided by the mixed ingredients.
ADDITIVES

The composition may contain other usual cosmetic or dermatological ingredients which may be chosen especially from polymers, especially film-forming polymers and fixing polymers; surfactants; hair conditioning agents, dyestuffs; pearlescent agents; opacifiers; organic solvents; fragrances; thickeners; gelling agents; waxes; pasty products; hair dyes; silicone resins; silicone gums; preserving agents; antioxidants; cosmetic active agents; sunscreens; pH stabilizers; vitamins; moisturizers; antiperspirant agents; deodorants; self-tanning compounds, and mixtures thereof.

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 composition according to the invention are not, or are not substantially, adversely affected by the envisioned addition.

The composition may advantageously contain a dyestuff, which may be chosen from the lipophilic dyes, hydrophilic dyes, pigments and nacres usually used in cosmetic or dermatological compositions, and mixtures thereof. This dyestuff is generally present in a proportion of from 0.01% to 40%, preferably from 1% to 35% and better still from 5% to 25% of the total weight of the composition.

FORMULATION

The composition according to the invention may be in liquid, pasty or solid form or in the form of a mousse or a spray. It may also be an emulsion or an anhydrous composition.

The composition according to the invention may be used for making up, caring for or cleansing human keratin materials such as the skin (of the face or the body, the scalp and the lips), mucous membranes (inner edge of the eyelids), the hair, the nails, the eyelashes and the eyebrows.

The composition thus finds a particular application as a body or facial care composition; a body or facial cleansing composition such as a shower gel, a bath gel or a makeup remover; a body or facial makeup composition such as a foundation, a lipstick, a lipcare product, a nail varnish, a nailcare product, a mascara or an eyeliner; a fragrancing composition; a hair composition such as a hair dye composition or a composition for permanently reshaping the hair; an antisun composition; a deodorant composition; a hair
cleansing or haircare composition such as a shampoo or a rinse-out or leave-in conditioner, a rinse-out composition to be applied before or after dyeing, bleaching, permanent-waving or relaxing the hair, or alternatively between the two steps of a permanent-waving or hair-relaxing operation; a hair composition for holding the hairstyle, such as a styling lacquer, gel, mousse or spray.

**Measurement of the rate of evaporation of an oil (protocol)**

15 g of oil or of the mixture of oils to be tested are introduced into a crystallizing dish (diameter: 7 cm) placed on a balance located in a chamber of about 0.3 m³ with a regulated temperature (25°C) and hygrometry (50% relative humidity). The liquid is allowed to evaporate freely, without stirring, ventilation being provided by means of a ventilator (Papst-Motoren, reference 8550 N, operating at 2700 rpm) arranged vertically above the crystallizing dish containing the solvent, the vanes being directed toward the crystallizing dish and 20 cm away from the base of the crystallizing dish. The mass of oil remaining in the crystallizing dish is measured at regular intervals. The evaporation rates are expressed as mg of oil evaporated per unit of surface area (cm²) and per unit of time (minutes).

As a guide, the respective profiles of certain volatile oils are given below, as mass of volatile oil evaporated after 30 minutes:

- isododecane: 24 mg/cm²,
- octamethylcyclotetrasiloxane (D4): 18.7 mg/cm²,
- decamethylcyclohexasiloxane (D5): 4.1 mg/cm²,
- 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane: 24.6 mg/cm², and
- 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane: 8.2 mg/cm².

It is moreover noted that, according to this protocol, the mixture of linear organosiloxanes disclosed in US 6 350 440 has an evaporation profile such that the mass of volatile oil evaporated after 30 minutes ranges from 10.4 to 12.4 mg/cm².

The invention is illustrated in greater detail by the examples described below.

**Example 1: Foundation stick**

<table>
<thead>
<tr>
<th>% by weight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene wax (Performalene 500, New Phase Technologies)</td>
<td>4.00</td>
</tr>
</tbody>
</table>
Polyethylene wax (Permalene 400, New Phase Technologies)  8.00
Cyclopentamethylsiloxane (D5)  5.00
Cyclohexamethylsiloxane (D6)  20.00
Heptamethyltriethoxysiloxane  19.00
Phenyl trimethicone (DC 556, Dow Corning)  19.00
Yellow iron oxide coated with aluminum stearoyl glutamate  2.24
Brown iron oxide coated with aluminum stearoyl glutamate  0.49
Ultramarine blue coated with aluminum stearoyl glutamate  0.31
Titanium oxide coated with aluminum stearoyl glutamate  6.96
Polymethyl methacrylate (PMMA) particles  15.00

Procedure
The pigments are ground with a portion of the phenyl trimethicone (3 treatments in a three-roll mill).

The waxes are melted at 100°C, and the ground pigments and the rest of the phenyl trimethicone are then added with stirring.

After about ten minutes at 100°C, the two cyclomethicones are incorporated slowly, followed by the PMMA particles.

The temperature is then reduced slowly to 80°C and the heptamethyltriethoxysiloxane (INCI name of 3-ethyl-1,1,1,3,5,5,5-heptamethyltriethoxysiloxane) is then added slowly.

After homogenization for about ten minutes at 80°C, the composition is poured into suitable molds at room temperature.

The molds are then left to cool for 6 minutes at room temperature and then for 20 minutes at -4°C.

The evaporation profile of the mixture of cyclopentamethylsiloxane, cyclohexamethylsiloxane and heptamethyltriethoxysiloxane is such that the mass of volatile oil evaporated after 30 minutes is 20.5 mg/cm².

Example 2: Water-in-oil emulsion foundation
Cetyl dimethicone copolyol (Abil® EM 90 from the company Goldschmidt)  0.80 g
Polyglyceryl-4 isostearate  0.60 g
Dimethicone copolyol (KF 6017 from Shin-etsu) 5.00 g
Isostearyl neopentanoate 0.50 g
Isoeicosane 2.00 g
Dimethicone DC 200 Fluid - 5 cSt from Dow Corning 2.30 g
Cyclohexasiloxane 3.00 g
Distearyldimethylammonium-modified hectorite (Bentone 38V®
from Elementis) 1.60 g
Cyclopentasiloxane 12.00 g
Heptamethylethyltrisiloxane 22.00 g
Iron oxides 2.13 g
Titanium dioxide 5.87 g
Polymethyl methacrylate 4.00 g
Butylene glycol 10.00 g
Sodium chloride 0.70 g
Preserving agents qs
Water qs 100.00 g

The mixture of cyclohexasiloxane, cyclopentasiloxane and
heptamethylethyltrisiloxane has an evaporation profile such that the mass of volatile oil
evaporated after 30 minutes is 16.3 mg/cm².

**Examples 3 and 4: Mascaras**

<table>
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<tr>
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<th>Example 3 (in grams)</th>
<th>Example 4 (in grams)</th>
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<tbody>
<tr>
<td>Paraffin wax</td>
<td>2.18</td>
<td>2.18</td>
</tr>
<tr>
<td>Carnauba wax</td>
<td>4.52</td>
<td>4.52</td>
</tr>
<tr>
<td>Beeswax</td>
<td>9.90</td>
<td>9.90</td>
</tr>
<tr>
<td>Polyvinyl laurate (Mexomer PP® from Chimex)</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>Modified hectorite (Bentone 38V® from Elementis)</td>
<td>5.32</td>
<td>5.32</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>1.74</td>
<td>1.74</td>
</tr>
<tr>
<td>Polycarboxyl</td>
<td>2.21</td>
<td>2.21</td>
</tr>
<tr>
<td></td>
<td>10.00</td>
<td>20.00</td>
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<tr>
<td>Heptamethylethyltrisiloxane</td>
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<tr>
<td>Isododecane</td>
<td>57.74</td>
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<tr>
<td>Pigments</td>
<td>4.60</td>
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<tr>
<td>Talc</td>
<td>0.84</td>
<td>0.84</td>
</tr>
<tr>
<td>Preserving agent</td>
<td>qs</td>
<td>qs</td>
</tr>
</tbody>
</table>

The mixture of heptamethylethyltrisiloxane and isododecane has an evaporation profile such that the mass of volatile oil evaporated after 30 minutes is 24.2 mg/cm² for example 3 and example 4.
CLAIMS

1. A cosmetic composition comprising, in a physiologically acceptable medium, at least two volatile oils, one of which at least is a volatile linear alkyltrisiloxane oil of general formula (I):

\[
\begin{array}{c}
\text{CH}_3 \\
\text{CH}_3 \\
\text{SiO} \\
\text{Si} \\
\text{O} \\
\text{Si} \\
\text{CH}_3 \\
\text{R}
\end{array}
\] (I)

where R represents an alkyl group containing from 2 to 4 carbon atoms, optionally substituted with one or more fluorine or chlorine atoms, the mixture of said volatile oils having an evaporation profile such that the mass of volatile oil evaporated after 30 minutes ranges from 12.5 to 370 mg/cm².

2. The composition as claimed in claim 1, characterized in that the mass of volatile oil evaporated after 30 minutes ranges from 15 to 70 mg/cm², preferably from 16 to 29.5 mg/cm² and better still from 16 to 24.6 mg/cm².

3. The composition as claimed in claim 1 or 2, characterized in that the volatile linear alkyltrisiloxane oil of general formula (I) is chosen from:
   - 3-buty1,1,1,3,5,5-heptamethyltrisiloxane,
   - 3-propyl-1,1,1,3,5,5-heptamethyltrisiloxane,
   - 3-ethyl-1,1,1,3,5,5-heptamethyltrisiloxane, and
   - mixtures thereof.

4. The composition as claimed in any one of claims 1 to 3, characterized in that it comprises a content of volatile linear alkyltrisiloxane oil(s) of general formula (I) ranging from 1% to 80% by weight, preferably from 1% to 65% and more preferably from 1% to 50% by weight relative to the total weight of the composition.

5. The composition as claimed in any one of claims 1 to 4, characterized in that the mixture of volatile oils comprises a content of volatile linear alkyltrisiloxane oil of formula (I) ranging from 1% to 100% by weight, preferably from 10% to 95% and even more preferably between 20% and 90% with respect to the total weight of said mixture.
6. The composition as claimed in any one of claims 1 to 5, characterized in that the composition comprises a linear alkyltrisiloxane oil of formula (I) and one or more volatile oil(s) not in accordance with formula (I).

7. The composition as claimed in claim 6, characterized in that the weight ratio between the volatile linear alkyltrisiloxane oil(s) of formula (I) and the volatile oil(s) not in accordance with formula (I) ranges from 0.001 to 99, preferably from 0.1 to 67 and even more preferably from 0.7 to 45.

8. The composition as claimed in claim 6 or 7, characterized in that the volatile oil(s) not in accordance with formula (I) is (are) chosen from cyclic or noncyclic volatile silicone oils and nonsilicone volatile oils, chosen especially from hydrocarbon-based and fluoro volatile oils, and also mixtures thereof.

9. The composition as claimed in any one of claims 1 to 8, characterized in that it comprises less than 0.1% by weight of cyclic or noncyclic volatile silicone oils with respect to the total weight of the composition.

10. The composition as claimed in claim 9, characterized in that the volatile oil(s) not in accordance with formula (I) is (are) chosen from nonsilicone volatile hydrocarbon-based oils or fluoro oils.

11. The composition as claimed in any one of claims 1 to 8, characterized in that it comprises less than 0.1% by weight of nonsilicone volatile oils with respect to the total weight of the composition.

12. The composition as claimed in claim 11, characterized in that the volatile oil(s) not in accordance with formula (I) is (are) chosen from one or more cyclic or noncyclic volatile silicone oil(s).

13. The composition as claimed in any one of claims 6 to 12, characterized in that the volatile oil(s) not in accordance with formula (I) is (are) a volatile silicone oil chosen from octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6), and mixtures thereof.

14. The composition as claimed in any one of claims 1 to 13, characterized in that it comprises one or more volatile linear alkyltrisiloxane oils of formula (I), preferably two of them.
15. The composition as claimed in claim 14, characterized in that it comprises a mixture of 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane and of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane.

16. The composition as claimed in claim 15, characterized in that said mixture of volatile oils is free of any volatile oil not in accordance with formula (I) and has an evaporation profile such that the mass of volatile oil evaporated after thirty minutes ranges from 8 to 25 mg/cm².

17. The composition as claimed in any one of claims 1 to 15, characterized in that the mixture of volatile oils consists of 3-ethyl-1,1,1,3,5,5,5-heptamethyltrisiloxane or 3-butyl-1,1,1,3,5,5,5-heptamethyltrisiloxane combined with isododecane or with decamethylcyclopentasiloxane or alternatively with octamethylcyclotetrasiloxane, the evaporation profile being such that the mass of volatile oil evaporated after thirty minutes ranges from 16 to 29.5 mg/cm².

18. The composition as claimed in any one of claims 1 to 17, characterized in that it also comprises at least one nonvolatile oil that may be chosen from nonvolatile hydrocarbon-based and/or silicone and/or fluoro oils.

19. The composition as claimed in claim 18, characterized in that the nonvolatile oil is present in a content ranging from 0.1% to 60% by weight, preferably ranging from 0.5% to 50% by weight and more preferably ranging from 1% to 40% by weight relative to the total weight of the composition.

20. The composition as claimed in any one of the preceding claims, characterized in that it comprises a cosmetic or dermatological ingredient chosen from film-forming polymers and fixing polymers; surfactants; hair conditioning agents; dyestuffs; pearlescent agents; opacifiers; organic solvents; fragrances; thickeners; gelling agents; waxes; pasty products; hair dyes; silicone resins; silicone gums; preserving agents; antioxidants; cosmetic active agents; sunscreens; pH stabilizers; vitamins; moisturizers; antiperspirant agents; deodorants; self-tanning compounds, and mixtures thereof.

21. The composition as claimed in any one of the preceding claims, characterized in that it is in the form of a body or facial cleansing composition such as a shower gel, a bath gel or a makeup remover; a body or facial makeup composition such as a foundation, a lipstick, a lipcare product, a nail varnish, a nailcare product, a mascara or an eyeliner; a fragrancing composition; a hair
composition such as a hair dye composition or a composition for permanently reshaping the hair; an antisun composition; antiperspirant agents; deodorants; a hair cleansing or haircare composition such as a shampoo or a rinse-out or leave-in conditioner, a rinse-out composition to be applied before or after dyeing, bleaching, permanent-waving or relaxing the hair, or alternatively between the two steps of a permanent-waving or hair-relaxing operation; a hair composition for holding the hairstyle, such as a styling lacquer, gel, mousse or spray.

22. A nontherapeutic cosmetic process for making up or treating keratin materials, comprising the application to the keratin materials of a composition as claimed in any one of the preceding claims.

23. The use of a mixture of at least two volatile oils as defined according to any one of claims 1 to 3, 5 to 8, 10 and 12 to 17, for the preparation of a cosmetic composition.
## INTERNATIONAL SEARCH REPORT

### A. CLASSIFICATION OF SUBJECT MATTER

<table>
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<th>A61K8/31</th>
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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)

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

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

EPO-Internal, PAJ, WPI Data, CHEM ABS Data

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<tr>
<td>P,X</td>
<td>WO 2004/087077 A (L’OREAL; AUGUSTE, FREDERIC) 14 October 2004 (2004-10-14) page 16, line 5 - line 26 page 18, line 3 - line 17</td>
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<tr>
<td>X,Y</td>
<td>WO 03/042221 A (GE BAYER SILICONES GMBH &amp; CO. KG; EVERSHEIM, HUBERTUS; KROPPGANS, MART) 22 May 2003 (2003-05-22) cited in the application examples 5-7 page 11, line 10 - line 12 page 6, line 9 - line 15</td>
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<td>Y</td>
<td>EP 1 374 835 A (L’OREAL) 2 January 2004 (2004-01-02) paragraph ‘0038!; claim 1; examples</td>
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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**“”** 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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* “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

* “O” document referring to an oral disclosure, use, exhibition or other means

* “P” document published prior to the international filing date but later than the priority date claimed

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

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

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

* “S” document member of the same patent family

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Date of the actual completion of the international search

25 October 2005

Date of mailing of the international search report

04/11/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2NL – 2280 HV RijswijkTel. (+31-70) 340-0040, TX. 31 651 epo nl,Fax (+31-70) 340-3016

Authorized officer

Simon, F
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<td>WO 98/32418 A (THE GILLETTE COMPANY; KARASSIK, NANCY, M; ANGELONE, PHILIP, P., JR; B0) 30 July 1998 (1998-07-30) example 6 page 5, line 6 - line 30</td>
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<tr>
<td>X</td>
<td>EP 0 610 014 A (DOW CORNING CORPORATION) 10 August 1994 (1994-08-10) claim 1</td>
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<td>X</td>
<td>FR 2 749 505 A (L'OREAL) 12 December 1997 (1997-12-12) claim 1 page 4, line 26 - line 30</td>
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<td>A</td>
<td>WO 01/97773 A (L'OREAL; LEMANN, PATRICIA) 27 December 2001 (2001-12-27) page 15, line 23 - page 16, line 31</td>
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<td>WO 03042221 A</td>
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