Abstract:
The invention relates to a cosmetic method for making up and/or non-therapeutically treating skin imperfections, i.e. recessed areas of the skin, comprising the application to said areas, of at least one anhydrous composition comprising, in a physiologically acceptable medium: (i) at least one adhesive compound; (ii) at least one pulverulent phase containing less than 20% by weight of colorants relative to the total weight of said composition; and (iii) at least one liquid fatty phase, the weight ratio of the liquid fatty phase to the pulverulent phase advantageously being between 0.3 and 5.
Method of filling skin imperfections

The invention relates to a method of filling imperfections such as recessed areas, in particular of the skin, with improved resistance that consists in applying, advantageously using an applicator suitable for the areas to be treated, an anhydrous cosmetic composition containing at least one adhesive compound, one liquid fatty phase and one pulverulent phase. The invention also relates to a particular cosmetic composition for making up and/or non-therapeutically treating the skin.

The term "filling" is intended to mean, not simply depositing a layer which moulds the profile of the recessed areas and which fills only the bottom thereof, but, on the contrary, filling at least a large part (typically 50% or more), preferably to the brim, of the recessed area to be masked, in particular wrinkles, pores or scars.

Preferably, the deposit of filling product is limited so as not to spread beyond the recessed area.

The presence of skin imperfections such as particular recessed areas of the skin on the face, such as pores, wrinkles or scars, poses aesthetic problems which may be difficult to live with.

Various means exist for attempting to solve the problem of masking these imperfections. It is possible, for example to use cosmetic compositions that bring about an optical blurring or else a tightening effect. However, these two solutions are only effective on slight imperfections such as enlarged pores, and the durability of the effect is generally very short. It is also possible to use cosmetic active agents. This solution only leads to a result that is more or less satisfactory over the long term and unfortunately does not apply to scars, but only to minor blemishes. It is also possible to resort to plastic surgery to repair these imperfections on the skin. However, this severe and expensive method has many contraindications, presents certain risks and, in certain cases, does not guarantee results for all that.

One advantageous solution appears to consist in covering the skin with a complete layer (without being limited to the sole recessed area to be masked), a little bit like film industry skin camouflage. However, the result is uncomfortable, especially in the event of perspiration, and often the thick layer does not stay in place over time. In addition, the aesthetic appearance of the skin is lost. Finally, this technique poses the problem of demarcations, in particular for compositions comprising a high content of colorants, such as those described in Application EP 2 168 565. On the contrary, such compositions make surface imperfections more visible after application. Indeed, unless all
the visible skin is covered, an outside observer quickly notices that certain parts of the skin do not have the same appearance as the rest. It is therefore necessary, if an aesthetic result is desired, to treat the thick layer and also the skin that is not covered in order to limit the demarcation effects. This technique is furthermore contraindicated for sensitive skin.

There therefore remains the need to have a composition that can be applied in a single action to the keratin materials and that makes it possible to lastingly, effectively and comfortably fill the recessed area, advantageously with no demarcation effect.

We have found that it is possible to locally apply an anhydrous cosmetic composition containing at least one adhesive compound, one liquid fatty phase and one pulverulent phase. This discontinuous application gives an effective, lasting and comfortable filling. The application can be carried out with the fingers or preferably with a suitable applicator.

Surprisingly, the composition is not tacky despite the presence of the adhesive compound. It has a high stiffness which, combined with its adhesive nature, makes it possible to stay in place throughout the day. It may also flow above a certain yield stress, which enables an easy application.

The remarkable and unexpected properties obtained with the composition according to the invention are especially due, on the one hand, to its rheological behaviour and, on the other hand, to its chemical composition.

**Rheological properties**

The composition according to the present invention is advantageously in the form of a paste.

The term "paste" is here intended to mean a product or a composition for which the viscosity can be measured, as opposed to the solid structure of a wand or stick, the viscosity of which cannot be measured.

The products or compositions used for implementing the method according to the invention advantageously have characteristic rheological parameters comprising the flow point, the elastic modulus and the viscosity.

The flow point or destructuring yield stress $\tau_0$ of the filling product is defined as being the pressure required to cause a macroscopic flow of the product; it can be determined by performing a stress sweep, for example using a Haake CS150 controlled
stress rheometer at a temperature of 25°C in striated plate-plate geometry. The destructuring yield stress, also referred to as the flow point, will advantageously be between 10 and 1000 Pa, preferably between 50 and 800 Pa.

Moreover, the elastic modulus of the filling product can be measured for a stress frequency of 1 Hz, in the "linear viscoelasticity" zone defined by the fact that the stress applied during the measurement is lower than the destructuring yield stress of the composition.

The composition according to the invention may thus be characterized by its elastic modulus in the linear viscoelasticity zone. This modulus, measured at 25°C with a stress frequency of 1 Hz will advantageously range from 10 000 to 500 000 Pa, preferably from 20 000 to 200 000 Pa.

With regard to their viscosity, the compositions according to the invention exhibit a deformability that makes it possible to carry out modelling of the skin, in particular of the facial skin, which is therefore effective for reducing the cutaneous microrelief thereof.

The viscosity is measured at 25°C with a Haake Rheostress RS 150 instrument in striated plate-plate configuration under an increasing applied stress. The viscosity of the filling product used for implementing the method according to the invention is preferably between 10 000 and 1 000 000 Pa.s, preferably between 20 000 and 500 000 Pa.s for an applied stress of 100 Pa.

These conditions are advantageous for obtaining a composition which spreads well, especially with an applicator, and which is stiff enough to stay in place well over time.

The present invention therefore relates to a cosmetic method for making up and/or non-therapeutically treating skin imperfections, i.e. recessed areas of the skin, comprising the application at least to said areas, of at least one anhydrous composition comprising, in a physiologically acceptable medium:

(i) at least one adhesive compound;
(ii) at least one pulverulent phase containing less than 20% by weight of colorants relative to the total weight of the composition; and
(iii) at least one liquid fatty phase,

the weight ratio of the liquid fatty phase to the pulverulent phase advantageously being between 0.3 and 5.
Examples of adhesive compounds are described below.

According to one particular embodiment of the method according to the invention, the composition is applied to the skin using an applicator, such as an applicator comprising at least one tip made of silicone, of foam or of flocked fabric, especially of flat, cylinder of revolution or cone shape.

The method of the invention is especially intended to mask pores, wrinkles or scars, such as acne scars.

The invention also relates to an anhydrous cosmetic composition for topical application to the skin comprising, in a physiologically acceptable medium:

(i) at least one tackifying resin;
(ii) at least one pulverulent phase; and
(iii) at least one liquid fatty phase comprising at least one non-volatile hydrocarbon-based oil,

the weight ratio of the liquid fatty phase to the pulverulent phase advantageously being between 0.3 and 5.

According to one particular embodiment, the pulverulent phase contains less than 20% by weight of colorants relative to the total weight of said composition.

According to one preferred embodiment, the tackifying resin is chosen from indene hydrocarbon-based resins, in particular from hydrogenated indene/methyl/styrene/styrene copolymers.

The invention also relates to a cosmetic packaging and application assembly, for application to keratin materials, especially the skin, comprising at least:

(a) a packaging device comprising at least one composition as defined in the invention; and
(b) an applicator.

**Adhesive compound**

An 'adhesive compound' according to the invention means in particular a compound having an adhesion energy on keratin materials, in particular the skin, which is superior to the cohesion energy of the compound itself.
The adhesion energy relates to the interaction strength between the compound and a substrate (keratin material), whereas the cohesion energy relates to the interaction forces inside the compound itself.


The adhesive compound is especially chosen from adhesive polymers and resins. In particular, the adhesive compound is chosen from tackifying resins, silicone resins and copolymers of silicone resins, silicone copolymers especially acrylate/silicone copolymers and vinyl polymers comprising at least one carbosiloxane dendrimer-derived unit, polycondensates (polyesters), polyalkene-based supramolecular polymers, and mixtures thereof.

According to one particular embodiment, the composition according to the invention comprises at least one tackifying resin.

According to one particular embodiment, the composition according to the invention comprises at least one silicone copolymer especially acrylate/silicone copolymers and vinyl polymers comprising at least one carbosiloxane dendrimer-derived unit.

These ingredients make it possible to improve the adhesion of the cosmetic composition to the skin without obtaining a significant tacky effect.

The adhesive compound is generally present in the composition in a content ranging from 1% to 30% by weight, preferably from 3% to 20% by weight and preferably from 5% to 15% by weight (of active material) relative to the total weight of said composition.

**Tackifying resins**

Such a resin generally has a number-average molecular weight of less than or equal to 10 000 g/mol, especially ranging from 250 to 10 000 g/mol, preferably less than or equal to 5000 g/mol, especially ranging from 250 to 5000 g/mol, better still less than or equal to 2000 g/mol, especially ranging from 250 to 2000 g/mol and better still less than or equal to 1000 g/mol, especially ranging from 250 to 1000 g/mol.
The number-average molecular weights (Mn) are determined by gel permeation liquid chromatography (THF solvent, calibration curve established with linear polystyrene standards, refractometric detector).

This resin is advantageously a resin as described in the Handbook of Pressure Sensitive Adhesive Technology, edited by Donatas Satas, 3rd ed., 1989, p. 609-619.

It is advantageously chosen from rosin, rosin derivatives, hydrocarbon-based resins and mixtures thereof.

- Rosin is a mixture predominantly comprising organic acids known as rosin acids (mainly acids of abietic type and of pimaric type).

There are three types of rosin: rosin ("gum rosin") obtained by incision on live trees, wood rosin, which is extracted from pine wood or stumps, and tall oil ("tall oil rosin"), which is obtained from a by-product originating from the production of paper.

The rosin derivatives may be derived in particular from the polymerization, hydrogenation and/or esterification (for example with polyhydric alcohols such as ethylene glycol, glycerol or pentaerythritol) of rosin acids. Examples that may be mentioned include the rosin esters sold under the reference Foral 85, Pentalyn H and Staybelite Ester 10 by the company Hercules; Sylvatac 95 and Zonester 85 by the company Arizona Chemical, or Unirez 3013 by the company Union Camp.

- The hydrocarbon-based resins are chosen from low molecular weight polymers that may be classified, according to the type of monomer they comprise, as:

  - indene hydrocarbon-based resins such as resins resulting from the polymerization, in the majority proportion, of indene monomers and, in the minority proportion, of monomers chosen from styrene, methylindene, methylstyrene and mixtures thereof. These resins may optionally be hydrogenated. These resins may have a molecular weight ranging from 290 to 1150 g/mol.

Examples of indene resins that may be mentioned include those sold under the reference Escorez 7105 by the company Exxon Chem., Nevchem 100 and Nevex 100 by the company Neville Chem., Norsolene S105 by the company Sartomer, Picco 6100 by the company Hercules and Resinall by the company Resinall Corp., or the hydrogenated indene/methylstyrene/styrene copolymers sold under the name "Regalite" by the company Eastman Chemical, in particular Regalite R1100, Regalite R1090, Regalite R-7100, Regalite R1010 Hydrocarbon Resin and Regalite R1125 Hydrocarbon Resin.

- aliphatic pentadiene resins such as those derived from the polymerization majoritarily of 1,3-pentadiene (trans- or cis-piperylene) monomers and of
minority monomers chosen from isoprene, butene, 2-methyl-2-butene, pentene and 1,4-pentadiene, and mixtures thereof. These resins may have a molecular weight ranging from 1000 to 2500 g/mol.

Such 1,3-pentadiene resins are sold, for example, under the references Piccotac 95 by the company Eastman Chemical, Escorez 1304 by the company Exxon Chemicals, NevTac 100 by the company Neville Chem. or Wingtack 95 by the company Goodyear;

- mixed resins of pentadiene and of indene, which are derived from the polymerization of a mixture of pentadiene and indene monomers such as those described above, for instance the resins sold under the reference Escorez 2101 by the company Exxon Chemicals, Nevpene 9500 by the company Neville Chem., Hercotac 1148 by the company Hercules, Norsolene A 100 by the company Sartomer, and Wingtack 86, Wingtack Extra and Wingtack Plus by the company Goodyear;

- diene resins of cyclopentadiene dimers such as those derived from the polymerization of a first monomer chosen from indene and styrene, and of a second monomer chosen from cyclopentadiene dimers such as dicyclopentadiene, methylidicyclopentadiene and other pentadiene dimers, and mixtures thereof. These resins generally have a molecular weight ranging from 500 to 800 g/mol, for instance those sold under the reference Betaprene BR 100 by the company Arizona Chemical Co., Neville LX-685-125 and Neville LX-1000 by the company Neville Chem., Piccodiene 2215 by the company Hercules, Petro-rez 200 by the company Lawter or Resinall 760 by the company Resinall Corp.;

- diene resins of isoprene dimers such as terpenic resins derived from the polymerization of at least one monomer chosen from opinene, β-pinene and limonene, and mixtures thereof. These resins may have a molecular weight ranging from 300 to 2000 g/mol. Such resins are sold, for example, under the names Piccolyte A 115 and S125 by the company Hercules, and Zonarez 7100 or Zonatak 105 Lite by the company Arizona Chem.

Mention may also be made of certain modified resins such as hydrogenated resins, for instance those sold under the name Eastotac C6-C20 Polyolefin by the company Eastman Chemical Co., under the reference Escorez 5300 by the company Exxon Chemicals, or the resins Nevillac Hard or Nevroz sold by the company Neville Chem., the resins Piccofyn A-100, Piccotex 100 or Piccovar AP25 sold by the company Hercules or the resin SP-553 sold by the company Schenectady Chemical Co.

According to one preferred embodiment, the resin is chosen from indene hydrocarbon-based resins, in particular the hydrogenated indene/methylstyrene/styrene
copolymers sold under the name "Regalite" by the company Eastman Chemical, such as Regalite R1100, Regalite R1090, Regalite R-7100, Regalite R1010 Hydrocarbon Resin and Regalite R1125 Hydrocarbon Resin.

Silicone resin

More generally, the term "resin" is understood to mean a compound which has a three-dimensional structure. They are referred to as "silicone resins" or "siloxane resins". Thus, within the meaning of the present invention, a polydimethylsiloxane is not a silicone resin.

The nomenclature of silicone resins (also referred to as siloxane 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 $R_1R_2R_3SiO_i^{1/2}$, the silicon atom being bonded to only one oxygen atom in the polymer comprising this unit.

The letter "D" means a difunctional unit $R_1R_2SiO_2^{1/2}$ in which the silicon atom is bonded to two oxygen atoms.

The letter T represents a trifunctional unit of formula $R_1SiO_3^{1/2}$.


In the M, D and T units defined previously R, namely R1, R2 and R3, represents a hydrocarbon-based radical (especially alkyl) having from 1 to 10 carbon atoms, a phenyl group, a phenylalkyl group or else a hydroxyl group.

Finally, the letter "Q" means a tetrafunctional unit $SiO_4^{1/2}$ in which the silicon atom is bonded to four oxygen atoms, which are themselves bonded to the rest of the polymer.

As silicone resins that may be used in the compositions according to the invention, use may be made, for example, of silicone resins of MQ type, of T type or of MQT type.
As examples of silicone resins of MQ type, mention may be made of the alkyl siloxysilicates of formula \( [(R_1)_3SiO/2]_{x}(SiO4/2)_{y} \) (MQ units) in which \( x \) and \( y \) are integers ranging from 50 to 80, and such that the group \( R_1 \) represents a radical as defined previously, and is preferably an alkyl group containing from 1 to 8 carbon atoms, or a hydroxyl group, preferably a methyl group.

- As examples of solid silicone resins of MQ type of trimethyl siloxysilicate type, mention may be made of those sold under the reference SR1000 by the company General Electric, under the reference TMS 803 by the company Wacker, or under the name KF-7312J by the company Shin-Etsu or DC 749 or DC 593 by the company Dow Corning.

- As silicone resins comprising MQ siloxysilicate units, mention may also be made of phenylalkyl siloxysilicate resins, such as phenylpropyl(dimethyl siloxysilicate (Silshine 151 sold by the company General Electric). The preparation of such resins is described especially in patent US 5 817 302.

**T resins:**

Examples of silicone resins of T type that may be mentioned include the polysilsesquioxanes of formula \( (RSiO_{3/2})_x \) (T units) in which \( x \) is greater than 100 and such that the group \( R \) is an alkyl group containing from 1 to 10 carbon atoms, said polysilsesquioxanes also possibly comprising Si-OH end groups.

Polymethylsilsesquioxane resins that may preferably be used are those in which \( R \) represents a methyl group, for instance those sold:

- by the company Wacker under the reference Resin MK, such as Belsil PMS MK: polymer comprising \( CH_3SiO_{3/2} \) repeating units (T units), which may also comprise up to 1% by weight of \( CH_3SiO_{3/2} \) units (D units) and having an average molecular weight of about 10 000 g/mol, or

- by the company Shin-Etsu under the reference KR220L, which are composed of T units of formula \( CH_3SiO_{3/2} \) and have Si-OH (silanol) end groups, under the reference KR242A, which comprise 98% of T units and 2% of dimethyl D units and have Si-OH end groups, or alternatively under the reference KR251 comprising 88% of T units and 12% of dimethyl D units and have Si-OH end groups.

**MQT resins:**

Resins comprising MQT units that are especially known are those mentioned
in document US 5 110 890.

A preferred form of resins of MQT type are MQT-propyl (also known as MQTpr) resins. Such resins that may be used in the compositions according to the invention are especially the resins described and prepared in patent application WO 2005/075542.

The MQT-propyl resin preferably comprises the units:

(i) \( (R_1_3SiO_{(1/2)})_a \)
(ii) \( (R_2_2SiO_{(2/2)})_b \)
(iii) \( (R_3SiO_{(3/2)})_c \) and
(iv) \( (SiO_{4/2})_d \)

with

\( R_1, R_2 \) and \( R_3 \) independently representing a hydrocarbon-based radical (especially alkyl) containing from 1 to 10 carbon atoms, a phenyl group, a phenylalkyl group or else a hydroxyl group and preferably an alkyl radical containing from 1 to 8 carbon atoms or a phenyl group,

\( a, b, c \) and \( d \) being molar fractions,

\( a \) being between 0.05 and 0.5,
\( b \) being between 0 and 0.3,
\( c \) being greater than 0,
\( d \) being between 0.05 and 0.6,
\( a + b + c + d = 1 \),

on condition that more than 40 mol% of the \( R_3 \) groups of the siloxane resin are propyl groups.

Preferably, the siloxane resin comprises the units:

(i) \( (R_1_3SiO_{(1/2)})_a \)
(iii) \( (R_3SiO_{(3/2)})_c \) and
(iv) \( (SiO_{4/2})_d \)

with

\( R_1 \) and \( R_3 \) independently representing an alkyl group containing from 1 to 8 carbon atoms, \( R_1 \) preferably being a methyl group and \( R_3 \) preferably being a propyl group,

\( a \) being between 0.05 and 0.5, preferably between 0.15 and 0.4,
\( c \) being greater than 0, preferably between 0.15 and 0.4,
\( d \) being between 0.05 and 0.6, preferably between 0.2 and 0.6, or else between 0.2 and 0.55,
a + b + c + d = 1, and a, b, c and d being molar fractions,
on condition that more than 40 mol% of the R3 groups of the siloxane resin
are propyl groups.

The siloxane resins that can be used according to the invention may be
obtained by a process comprising the reaction of:

A) an MQ resin comprising at least 80 mol% of \((R_1_3SiO_{1/2})_a\) and \((SiO_{3/2})_d\)
units;

\(R_1\) representing an alkyl group containing from 1 to 8 carbon atoms, an aryl
group, a carbinol group or an amino group,
a and d being greater than 0,
the a/d ratio being between 0.5 and 1.5,
and of

B) a T-propyl resin comprising at least 80 mol% of \((R_3SiO_{3/2})_c\) units;

\(R_3\) representing an alkyl group containing from 1 to 8 carbon atoms, an aryl
group, a carbinol group or an amino group,
c being greater than 0,
on condition that at least 40 mol% of the R3 groups are propyl groups,
where the A/B weight ratio is between 95/5 and 15/85, preferably the A/B
weight ratio is 30/70.

Advantageously, the A/B weight ratio is between 95/5 and 15/85. Preferably,
the A/B ratio is less than or equal to 70/30. These preferred ratios have proved to make
comfortable depositions possible.

Silicone resin copolymers

The silicone copolymer defined according to the invention is derived from the reaction
between a silicone resin and a silicone fluid.

Copolymers of this kind are described in, for example, "Silicone Pressure Sensitive
Adhesives", Sobieski and Tangney, Handbook of Pressure Sensitive Adhesive

In the copolymer, the silicone resin is present at a content between 45 and 75% (relative
to the total weight of silicone) and the silicone fluid is present at a content between 25
and 55%, with the sum of the percentages of silicone resin and silicone fluid which is equal to 100. Preferably, the silicone resin is present at a content between 55 and 65% (relative to the total weight of silicone) and the silicone fluid is present at a content between 35 and 45%, with the sum of the percentages of silicone resin and silicone fluid which is equal to 100.

Preferably, the silicone resin according to the invention is the condensation product of SiO₂ groups and R₃(SiO)₁₂ (triorganosilyl) groups for which each R group is independently selected from methyl, ethyl, propyl or vinyl radicals and for which the ratio between the SiO₂ functions and the R₃(SiO)₁₂ functions of the silicone resin ranges from 0.6 to 0.9. Triorganosilyl groups that can be used to form the silicone resin may be trimethylsilyl, triethylsilyl, methylmethylpropylsilyl or dimethylvinylsilyl units and mixtures thereof. The trimethylsilyl group is the preferred group within the context of the invention.

The silicone fluid according to the invention is preferably a diorganopolysiloxane having terminal OH functions which has a viscosity of between 100 and 10 000 cSt at 25°C and for which the substituents of the diorganopolysiloxane are selected independently from methyl, ethyl, propyl or vinyl radicals. The diorganopolysiloxanes are preferably linear polymers. Examples of diorganopolysiloxane may be, without limitation, a polydimethylsiloxane, an ethylmethylpolysiloxane, a copolymer of dimethylsiloxane and methylvinylsiloxane, and mixtures of such polymers or copolymers having OH ends. The preferred diorganopolysiloxane is a polydimethylsiloxane.

Examples of synthesis of such a copolymer are described in, for example, patent US 5162410 or patent CA 711756.

The preferred copolymers are sold by Dow Corning under the reference BIO-PSA®, it being possible for these BIO-PSA® products to be in two forms, standard or amine compatible, which are provided in different solvents with a number of silicone resin/silicone fluid ratios. Mention may especially be made of the 7-4400, 7-4500 and 7-4600 grades. The BIO-PSA® product which is particularly preferred according to the invention is the 7-4400 grade, especially the 7-4408 grade.

Silicone copolymers

Silicone acrylate copolymers
According to one particular embodiment, a composition used according to the invention may comprise, as adhesive compound, at least one copolymer comprising carboxylate groups and polydimethylsiloxane groups.

In the present patent application, the expression "copolymer comprising carboxylate groups and polydimethylsiloxane groups" means a copolymer obtained from (a) one or more carboxylic (acid or ester) monomers, and (b) one or more polydimethylsiloxane (PDMS) chains.

In the present patent application, the term "carboxylic monomer" means both carboxylic acid monomers and carboxylic acid ester monomers. Thus, the monomer (a) may be chosen, for example, from acrylic acid, methacrylic acid, maleic acid, fumaric acid, itaconic acid, crotonic acid, esters thereof and mixtures of these monomers. Esters that may be mentioned include the following monomers: acrylate, methacrylate, maleate, fumarate, itaconate and/or crotonate. According to one preferred embodiment of the invention, the monomers in ester form are more particularly chosen from linear or branched, preferably C1-C24 and better still C1-C22 alkyl acrylates and methacrylates, the alkyl radical preferably being chosen from methyl, ethyl, stearyl, butyl and 2-ethylhexyl radicals, and mixtures thereof.

Thus, according to one particular embodiment of the invention, the copolymer comprises as carboxylate groups at least one group chosen from acrylic acid and methacrylic acid, and methyl, ethyl, stearyl, butyl or 2-ethylhexyl acrylates or methacrylates, and mixtures thereof.

In the present patent application, the term "polydimethylsiloxanes" (also known as organopolysiloxanes and abbreviated as PDMS) denotes, in accordance with what is generally accepted, any organosilicon polymer or oligomer of linear structure, of variable molecular weight, obtained by polymerization and/or polycondensation of suitably functionalized silanes, and consisting essentially of a repetition of main units in which the silicon atoms are linked together via oxygen atoms (siloxane bond \(=Si-0-Si\equiv\)), comprising trimethyl radicals directly linked via a carbon atom to said silicon atoms. The PDMS chains that may be used to obtain the copolymer used according to the invention comprise at least one polymerizable radical group, preferably located on at least one of the ends of the chain, i.e. the PDMS may contain, for example, a polymerizable radical group on the two ends of the chain or one polymerizable radical group on one end of the chain and one trimethylsilyl end group on the other end of the chain. The polymerizable radical group may especially be an acrylic or methacrylic group, in particular a group \(\text{CH}_2 = \text{CR}_1 - \text{CO} - \text{O} - \text{R}_2\), in which \(\text{R}_1\) represents a hydrogen or a methyl group, and \(\text{R}_2\) represents \(-\text{CH}_2-, -(\text{CH}_2)n-\) with \(n = 3, 5, 8 \text{ or } 10, -\text{CH}_2-\text{CH}(\text{CH}_3)-\text{CH}_2-\), \(-\text{CH}_2-\text{CH}_2-0-\)
CH2-CH2-, -CH2-CH2-0-CH2-CH2-, -CH2-CH2-0-CH2 CH2-0-CH2-CH2-CH2-CH2-.

The copolymers used in the composition of the invention are generally obtained according to the usual methods of polymerization and grafting, for example by free-radical polymerization (A) of a PDMS comprising at least one polymerizable radical group (for example on one of the ends of the chain or on both ends) and (B) of at least one carboxylic monomer, as described, for example, in documents US-A-5 061 481 and US-A-5 219 560.

The copolymers obtained generally have a molecular weight ranging from about 3000 to 200 000 and preferably from about 5000 to 100 000.

The copolymer used in the composition of the invention may be in its native form or in dispersed form in a solvent such as lower alcohols containing from 2 to 8 carbon atoms, for instance isopropyl alcohol, or oils, for instance volatile silicone oils (for example cyclopentasiloxane).

As copolymers that may be used in the composition of the invention, mention may be made, for example, of copolymers of acrylic acid and of stearyl acrylate containing polydimethylsiloxane grafts, copolymers of stearyl methacrylate containing polydimethylsiloxane grafts, copolymers of acrylic acid and of stearyl methacrylate containing polydimethylsiloxane grafts, copolymers of methyl methacrylate, butyl methacrylate, 2-ethylhexyl acrylate and stearyl methacrylate containing polydimethylsiloxane grafts. As copolymers that may be used in the composition of the invention, mention may be made in particular of the copolymers sold by the company Shin-Etsu under the names KP-561 (CTFA name: acrylates/dimethicone), KP-541 in which the copolymer is dispersed at 60% by weight in isopropyl alcohol (CTFA name: acrylates/dimethicone and isopropyl alcohol), and KP-545 in which the copolymer is dispersed at 30% in cyclopentasiloxane (CTFA name: acrylates/dimethicone and cyclopentasiloxane). According to one preferred embodiment of the invention, KP561 is preferably used; this copolymer is not dispersed in a solvent, but is in waxy form, its melting point being about 30°C.

Mention may also be made of the grafted copolymer of polyacrylic acid and dimethyldimethoxysiloxane dissolved in isododecane, sold by the company Shin-Etsu under the name KP-550.

**Vinyl polymer comprising at least one carbosiloxane dendrimer-derived unit**

According to one particular embodiment, a composition used according to the invention may comprise, as adhesive compound, at least one vinyl polymer comprising at least one carbosiloxane dendrimer-derived unit.
The vinyl polymer used according to the invention especially has a backbone and at least one side chain, which comprises a carbosiloxane dendrimer-derived unit having a carbosiloxane dendrimer structure.

Vinyl polymers comprising at least one carbosiloxane dendrimer unit as described in patent applications WO 03/045 337 and EP 963 751 by the company Dow Corning may be used in particular.

The term "carbosiloxane dendrimer structure" in the context of the present invention represents a molecular structure with branched groups of high molecular weights, said structure having high regularity in the radial direction starting from the bond to the backbone. Such carbosiloxane dendrimer structures are described in the form of a highly branched siloxane-silylalkylene copolymer in the laid-open Japanese patent application Kokai 9-171 154.

A vinyl polymer containing at least one carbosiloxane dendrimer-derived unit has a molecular side chain containing a carbosiloxane dendrimer structure, and may result from the polymerization of:

(A) from 0 to 99.9 parts by weight of a vinyl monomer; and

(B) from 100 to 0.1 part by weight of a carbosiloxane dendrimer containing a radical-polymerizable organic group, represented by the general formula:

\[
\begin{align*}
\text{Y} & \quad \text{Si} \quad \text{O} \quad \text{Si} \quad \text{X}^i \\
& \quad \text{R}^1 \quad \text{R}^1 \\
\end{align*}
\]

in which Y represents a radical-polymerizable organic group, \( R^1 \) represents an aryl group or an alkyl group containing from 1 to 10 carbon atoms, and \( X^i \) represents a silylalkyl group which, when \( i = 1 \), is represented by the formula:

\[
X^i = R^2 \quad \text{Si} \quad \text{O} \quad \text{Si} \quad X^{i+1} \\
R^1 \quad R^1 \quad R^1
\]

in which \( R^1 \) is as defined above, \( R^2 \) represents an alkylene group containing from 2 to 10 carbon atoms, \( R^3 \) represents an alkyl group containing from 1 to 10 carbon atoms, \( X^{i-1} \) represents a hydrogen atom, an alkyl group containing from 1 to 10 carbon atoms, an aryl group, or the silylalkyl group defined above with \( i = i + 1 \); \( i \) is an integer from 1 to 10 that represents the generation of said silylalkyl group, and \( a' \) is an integer from 0 to 3;
in which said radical-polymerizable organic group contained in the component (B) is chosen from:

- organic groups containing a methacrylic group or an acrylic group and that are represented by the formulae:

\[
\begin{align*}
\text{CH}_2 &= C \quad \text{C} \quad \text{O} \quad \text{R}^5 \\
\text{CH}_2 &= C \quad \text{C} \quad \text{NH} \quad \text{R}^6 
\end{align*}
\]

in which \( R^4 \) represents a hydrogen atom or an alkyl group, \( R^5 \) represents an alkylene group containing from 1 to 10 carbon atoms; and

- organic groups containing a styryl group and that are represented by the formula:

\[
\text{CH}_2 = C \quad \text{C} \quad \text{R}^6 \\
\text{R}^7_b \\
\text{(R}^8_c) 
\]

in which \( R^6 \) represents a hydrogen atom or an alkyl group, \( R^7 \) represents an alkyl group containing from 1 to 10 carbon atoms, \( R^8 \) represents an alkylene group containing from 1 to 10 carbon atoms, \( b \) is an integer from 0 to 4, and \( c \) is 0 or 1, such that if \( c \) is 0, \(-(R^8)_c \) represents a bond.

According to one preferred embodiment, a vinyl polymer that is suitable for the invention may be one of the polymers described in the examples of patent application EP 0 963 751.

According to one preferred embodiment, a vinyl polymer grafted with a carbosiloxane dendrimer may result from the polymerization of:

(A) from 0.1 to 99 parts by weight of one or more acrylate or methacrylate monomers; and

(B) from 100 to 0.1 part by weight of an acrylate or methacrylate monomer of a tris[tri(trimethylsiloxy)silylethyl(dimethylsilylethyl)silylpropyl] carbosiloxane dendrimer.

According to one embodiment, a vinyl polymer containing at least one carbosiloxane dendrimer-derived unit may comprise a tris[tri(trimethylsiloxy)silylethyl(dimethylsilylethyl)silylpropyl] carbosiloxane dendrimer-derived unit corresponding to one of the formulae:
According to one preferred embodiment, a vinyl polymer containing at least one carbosiloxane dendrimer-derived unit used in the invention comprises at least one butyl acrylate monomer.

According to one embodiment, a vinyl polymer may also comprise at least one fluoro organic group. A fluoro vinyl polymer may be one of the polymers described in the examples of patent application WO 03/045337.

According to one preferred embodiment, a vinyl polymer grafted in the sense of the present invention may be conveyed in an oil or a mixture of oils, which are preferably volatile, chosen in particular from silicone oils and hydrocarbon-based oils, and mixtures thereof.

According to one particular embodiment, a silicone oil that is suitable for the invention may be cyclopentasiloxane.

According to another particular embodiment, a hydrocarbon-based oil that is suitable for the invention may be isododecane.

Vinyl polymers grafted with at least one carbosiloxane dendrimer-derived unit that may be particularly suitable for the present invention are the polymers sold under the names TIB 4-100, TIB 4-101, TIB 4-120, TIB 4-130, TIB 4-200, FA 4002 ID (TIB 4-202), TIB 4-220 and FA 4001 CM (TIB 4-230) by the company Dow Corning. The polymers sold under the names FA 4002 ID (TIB 4-202) and FA 4001 CM (TIB 4-230) by the company Dow Corning will preferably be used.

Preferably, the vinyl polymer grafted with at least one carbosiloxane dendrimer-derived unit that may be used in a composition of the invention is an acrylate/polytrimethyl siloxymethacrylate copolymer, especially the product sold in isododecane under the name Dow Corning FA 4002 ID Silicone Acrylate by the company Dow Corning.
A polyester that is suitable for the invention may advantageously be obtained by reacting a polyol, a polycarboxylic acid, a non-aromatic monocarboxylic acid and an aromatic monocarboxylic acid.

In particular, a polyester that is suitable for the invention may be preferentially obtained by reacting:
- a tetraol containing from 4 to 10 carbon atoms;
- a linear or branched saturated monocarboxylic acid containing from 9 to 23 carbon atoms;
- a cyclic dicarboxylic acid containing from 6 to 12 carbon atoms; and
- an aromatic monocarboxylic acid containing from 7 to 11 carbon atoms.

Advantageously, a polyester of the invention may be obtained by reacting:
- from 10% to 30% by weight of a tetraol containing from 4 to 10 carbon atoms;
- from 40% to 80% by weight of a linear or branched saturated monocarboxylic acid containing from 9 to 23 carbon atoms;
- from 5% to 30% by weight of a cyclic dicarboxylic acid containing from 6 to 12 carbon atoms; and
- from 0.1% to 10% by weight of an aromatic monocarboxylic acid containing from 7 to 11 carbon atoms.

The contents being expressed as weight percentages relative to the total weight of the polyester.

A polyester used according to the invention comprises a tetraol. The term "tetraol" means a polyol comprising 4 hydroxyl groups.

A tetraol used for the preparation of the polyester is advantageously a linear, branched and/or cyclic, saturated or unsaturated hydrocarbon-based compound containing from 4 to 10 carbon atoms, and possibly also comprising one or more oxygen atoms intercalated in the chain (ether function). Obviously, a mixture of such tetraols may be used.

Preferably, the tetraol is chosen from pentaerythritol and diglycerol.

The content of tetraol, or tetraol mixture, may represent from 10% to 30% by weight, especially from 12% to 25% by weight and better still from 14% to 22% by weight relative to the total weight of the polyester.
A polyester used according to the invention also comprises a linear or branched, saturated monocarboxylic acid containing from 9 to 23 carbon atoms and especially 12 to 22 carbon atoms.

The term "saturated monocarboxylic acid" means a compound of formula RCOOH in which R is a saturated, linear or branched hydrocarbon-based radical containing from 8 to 22 carbon atoms and especially from 11 to 21 carbon atoms. Obviously, a mixture of such monocarboxylic acids may be used.

Preferably, lauric acid, myristic acid, isononanoic acid, nonanoic acid, palmitic acid, isostearic acid, stearic acid or behenic acid, and mixtures thereof, may be used.

Preferentially, isostearic acid or stearic acid is used.

The content of saturated monocarboxylic acid, or the mixture of said acids, represents from 40% to 80% by weight, especially from 42% to 75% by weight, or even 45% to 70% by weight and better still 50% to 65% by weight of the total weight of the polyester.

The polyester used according to the invention also comprises a cyclic dicarboxylic acid containing from 6 to 12 carbon atoms and especially containing 8 carbon atoms. The cyclic dicarboxylic acid may be aromatic or non-aromatic. The cyclic dicarboxylic acid is preferably aromatic.

Obviously, a mixture of such cyclic dicarboxylic acids may be used.

Preferably, the cyclic dicarboxylic acid is chosen from phthalic acid, terephthalic acid and isophthalic acid. Phthalic acid may be advantageously used in its anhydride form.

A cyclic dicarboxylic acid, or a mixture of such diacids, may represent from 5% to 30% by weight and preferably from 15% to 25% by weight of the total weight of the polyester.

A polyester used according to the invention also comprises an aromatic monocarboxylic acid containing from 7 to 11 carbon atoms.

The term "aromatic monocarboxylic acid" means a compound of formula R'COOH, in which R' is an aromatic hydrocarbon-based radical containing 6 to 10 carbon atoms; R' is in particular a phenyl radical, optionally substituted with 1 to 3 alkyl radicals containing from 1 to 4 carbon atoms.

Obviously, a mixture of such aromatic monocarboxylic acids may be used.

The aromatic monocarboxylic acid may be chosen from benzoic acid and 4-tert-butylbenzoic acid.

Said aromatic monocarboxylic acid, or the mixture of said acids, represents from 0.1% to 10% by weight, especially from 0.5% to 9.95% by weight and better still
from 1% to 9.5% by weight, or even from 1.5% to 8% by weight relative to the total weight of the polyester.

According to one embodiment of the invention, a polyester of the invention may be chosen from benzoic acid/isophthalic acid/isostearic acid/pentaerythritol polyesters and benzoic acid/isophthalic acid/stearic acid/pentaerythritol polyesters, and mixtures thereof.

These monomers are especially used in the monomer concentration ranges described previously.

Preferably, the polyester has:

- an acid number, expressed as mg of potassium hydroxide per g of polyester, of greater than or equal to 1; especially between 2 and 30 and better still between 2.5 and 15; and/or
- a hydroxyl number, expressed as mg of potassium hydroxide per g of polyester, of greater than or equal to 40; especially between 40 and 120 and better still between 40 and 80.

These acid and hydroxyl numbers may be readily determined by a person skilled in the art via the usual analytical methods.

Preferably, a polyester of the invention has a weight-average molecular weight (M_w) of between 3000 and 1 000 000, or even between 3000 and 300 000.

The average molecular weight may be determined by gel permeation chromatography or by light scattering, depending on the solubility of the polymer under consideration.

Preferably, a polyester of the invention has a viscosity, measured at 110°C, of between 20 and 4000 mPa.s, especially between 30 and 3500 mPa.s, or even between 40 and 3000 mPa.s and better still between 50 and 2500 mPa.s. This viscosity is measured in the manner described hereinbelow.

According to one preferred embodiment, the polyester may be in liquid form at room temperature. A liquid polyester may have a weight-average molecular weight (M_w) ranging from 40 000 to 1 000 000 and preferably ranging from 50 000 to 300 000.

A liquid polyester may have a viscosity, measured at 110°C, ranging from 1000 to 4000 mPa.s and preferably ranging from 1500 to 3000 mPa.s.

In particular, a liquid polyester may be a benzoic acid/isophthalic acid/isostearic acid/pentaerythritol polyester, these monomers especially being present in the monomer concentration ranges described previously.

According to another embodiment, the polyester may also be in solid form at room temperature. A solid polyester may have a weight-average molecular weight (M_w) ranging from 3000 to 30 000 and preferably ranging from 8000 to 15 000.
The solid polyester may have a viscosity, measured at 80°C, ranging from 20 to 1000 mPa.s and preferably ranging from 50 to 600 mPa.s. In particular, a solid polyester may be a benzoic acid/isophthalic acid/stearic acid/pentaerythritol polyester, these monomers being present especially in the monomer concentration ranges described previously.

A polyester of the invention may be prepared according to the method of synthesis described in patent application EP-A-1 870 082.

The viscosity of a polyester of the invention may be measured in the manner described hereinbelow.

The viscosity at 80°C or at 110°C of a polyester is measured using a Brookfield CAP 1000+ cone-plate viscometer.

The appropriate cone-plate is determined by a person skilled in the art on the basis of his knowledge; especially:

- between 50 and 500 mPa.s, use may be made of a 02 cone,
- between 500 and 1000 mPa.s: 03 cone,
- between 1000 and 4000 mPa.s: 05 cone, and
- between 4000 and 10 000 mPa.s: 06 cone.

A polyester that is suitable for use in the invention may be readily conveyed in cosmetic oily or solvent media, especially oils, fatty alcohols and/or fatty esters.

Polyalkene-based (i.e. polyolefin-based) supramolecular polymer

According to another embodiment, the composition of the invention may comprise, as adhesive compound, at least one polyalkene-based supramolecular polymer, as described in patent application EP 2 189 151.

For the purposes of the present invention, the term "polyalkene-based supramolecular polymer" means a polymer derived from the reaction, especially the condensation, of at least one polyalkene polymer functionalized with at least one reactive group, with at least one joining group functionalized with at least one reactive group capable of reacting with the reactive group(s) of the functionalized polyalkene polymer, said joining group being capable of forming at least three H (hydrogen) bonds and preferably at least four H bonds, preferentially four H bonds.

The terms "polyalkene" and "polyolefin" mean a polymer derived from the polymerization of at least one monomer of alkene type, comprising an ethylenically unsaturated group, said monomer possibly being pendent or in the main chain of said polymer. The terms "polyalkene" and "polyolefin" are thus directed towards polymers that may or may not comprise a double bond. Preferably, the supramolecular polymers used
according to the invention are prepared from a polymer derived from the polymerization of an alkene comprising at least two ethylenically unsaturated groups.

**Functionalized polyalkene**

The polyalkene polymers are functionalized with at least one reactive group and preferably with at least two reactive groups. The functionalization preferably occurs at the chain ends. They are then referred to as telechelic polymers.

The functionalization groups, or reactive groups, may be attached to the polyalkene polymer via linkers, preferably linear or branched C\textsubscript{1}-C\textsubscript{4} alkylene groups, or directly via a single bond.

Preferably, the functionalized polyalkene polymers have a number-average molecular weight (\(M_n\)) of between 1000 and 8000.

More preferably, they have a number-average molecular weight of between 1000 and 5000, or even between 1500 and 4500.

More preferably, they have a number-average molecular weight of between 2000 and 4000.

Preferably, the functionalized polyalkene polymer, capable of forming all or part of the polymer backbone of the supramolecular polymer according to the invention (preferably, it forms all of the backbone of the polymer), is of formula HO-P-OH in which:

- P preferably represents a homopolymer or copolymer that may be obtained by polymerization of one or more linear or branched, C\textsubscript{2}-C\textsubscript{4} diunsaturated alkenes.

More preferably, P represents a polymer chosen from a polybutylene, a polybutadiene (such as a 1,4-polybutadiene or a 1,2-polybutadiene), a polyisoprene, a poly(1,3-pentadiene) and a polyisobutylene, and copolymers thereof.

According to one preferred embodiment, P represents a poly(ethylene/butylene) copolymer.

Preferably, the polyalkene polymers are hydrogenated and functionalized with at least two reactive OH groups, which are preferably at the ends of the polymers.

Preferably, they have functionality as hydroxyl end groups of from 1.8 to 3 and preferably in the region of 2.

The polydienes containing hydroxyl end groups are especially defined, for example, in FR 2 782 723. They may be chosen from polybutadiene, polyisoprene and poly(1,3-pentadiene) homopolymers and copolymers. Mention will be made in particular of the hydroxylated polybutadienes sold by the company Sartomer, for instance the Krasol\textsuperscript{®} Resins and the Poly bd\textsuperscript{®} Resins. Preferably, they are dihydroxylated hydrogenated 1,2-polybutadiene homopolymers, such as the range Nisso-PB 1, GI3000,
GI2000 and GI1000 sold by the company Nisso, which may be represented schematically by the following formula:

![Chemical structure](image)

Preferably, n is between 14 and 105, preferably between 20 and 85.

These polymers have the following number-average molecular weights:
- GI3000 of $M_n = 4700$
- GI2000 of $M_n = 3300$
- GI1000 of $M_n = 1500$

**Joining group**

The supramolecular polymers according to the invention also have in their structure at least one residue of a joining group capable of forming at least three H bonds and preferably at least four H bonds, said joining group being initially functionalized with at least one reactive group.

Unless otherwise mentioned, the term "joining group" means in the present description the group without its reactive function.

The reactive groups are attached to the joining group via linkers L.

Preferably, the linker is chosen from the groups:
- \(-\text{C}_5\text{-C}_{20}\) \((\text{alkyl})\text{cycloalkylene}\) alkylene, such as isophorone,
- \(-\text{C}_1\text{-C}_{25}\) alkylene-biscycloalkylene, such as 4,4'-methylene bis(cyclohexylene),
- \(-\text{C}_1\text{-C}_{20}\) alkylene such as -(CH$_2$)$_2$; -(CH$_2$)$_6$; -CH$_2$CH(CH$_3$)$_2$C(CH$_3$)$_2$CH$_2$CH$_2$;
- CH$_2$ and
- \(-\text{C}_6\text{-C}_{20}\) (alkyl) phenylene, such as 2-methyl-1,3-phenylene.

Preferably, L is chosen from: -isophorone--; -(CH$_2$)$_2$; -(CH$_2$)$_6$; -CH$_2$CH(CH$_3$)$_2$CH$_2$C(CH$_3$)$_2$CH$_2$; 4,4'-methylene bis(cyclohexylene); 2-methyl-1,3-phenylene.

According to one particularly preferred embodiment, the linker is an alkylcycloalkylene alkylene.

Preferably, according to this embodiment, the linker is an isophorone group.

The term "isophorone" means the following group:
Said reactive groups functionalizing the joining group must be capable of reacting with the -OH reactive group(s) borne by the functionalized polyalkene.

Reactive groups that may be mentioned include isocyanate (-N=C=0) and thioisocyanate (-N=C=S) groups. Preferably, it is a group -N=C=0 (isocyanate).

The functionalized joining groups capable of forming at least three H bonds may comprise at least three identical or different functional groups, and preferably at least four functional groups, chosen from:

\[
\begin{align*}
\text{C}=\text{O} & \quad \text{C}=\text{N} & \quad \text{NH}
\end{align*}
\]

Preferably, the joining groups may establish four H bonds with an identical (or self-complementary) partner group among which are two donor bonds (for example NH) and two acceptor bonds (for example CO and -C=N-).

Preferably, the joining groups capable of forming at least four H bonds are chosen from:

ureidopyrimidones of formula:

\[
\begin{align*}
\text{R}2 & \quad \text{R}3 \\
\text{N} & \text{NH} \quad \text{C} \quad \text{NHR}_1
\end{align*}
\]

it being understood that all the tautomeric forms are included.

In this formula, the radicals have the following meanings:

- the R$_1$ radicals (or the R$_1$ and R$_2$ radicals) are single bonds constituting the point of attachment of the joining group to the linker capable of forming at least three (preferably four) H bonds to the rest of the graft. Preferably, said point of attachment is borne solely by R-$i$, which is a single bond.

- the R$_2$ radical represents a divalent group chosen from a single bond or a C$_1$-C$_6$ alkylene or a monovalent group chosen from a single bond, a hydrogen atom or a linear or branched C$_1$-C$_{10}$ saturated monovalent hydrocarbon-based group, which may contain one or more heteroatoms such as O, S or N, these groups being optionally substituted with a hydroxyl, amino and/or thio function.
Preferably, the R₂ radical may be a single bond or a monovalent group chosen from H, CH₂OH and (CH₂)₂-OH or CH₃.

According to one particularly preferred embodiment, R₂ is H.

- the R₃ radical represents a monovalent or divalent group, in particular, R₃ is chosen from a hydrogen atom or a linear or branched C-I-C-I0 saturated monovalent hydrocarbon-based group, which may contain one or more heteroatoms such as O, S or N, these groups being optionally substituted with a hydroxyl, amino and/or thio function.

Preferably, the R₃ radical may be a monovalent group chosen from H, CH₂OH and (CH₂)₂-OH or CH₃.

According to one particularly preferred embodiment, R₃ is a methyl group.

According to one preferred embodiment, the joining groups are chosen from 2-ureidopyrimidone and 6-methyl-2-ureidopyrimidone.

Preferably, the preferred joining group is 6-methyl-2-ureidopyrimidone.

In particular, the functionalized joining groups capable of reacting with the functionalized polyalkene polymer to give the supramolecular polymer according to the invention are preferably of formula:

\[
\begin{array}{c}
\text{O} \\
\text{N} \\
\text{N} \\
\text{NH} \\
\text{NH} \\
\text{L} \\
\text{NCO}
\end{array}
\]

in which L is as defined above.

Preferably, L is chosen from the groups:

- C₅-C₂₀ (alkyl)cycloalkylene alkylene, such as isophorone,
- C₁₂I-C₂₅ alkylene-biscycloalkylene, such as 4,4'-methylenebis(cyclohexylene),
- C₁-C₂₀ alkylene such as -(CH₂)₁₂; -(CH₂)₁₆; -CH₂CH(CH₃)-CH₂-C(CH₃)₂-CH₂-CH₂-CH₂, and
- C₆-C₂₀ (alkyl) phenylene, such as 2-methyl-1,3-phenylene.

According to one particularly preferred embodiment, the joining group is of formula:

\[
\begin{array}{c}
\text{O} \\
\text{N} \\
\text{N} \\
\text{NH} \\
\text{NH} \\
\text{L} \\
\text{NCO}
\end{array}
\]

in which L is isophorone.

In one particularly preferred embodiment, the supramolecular polymer of the invention corresponds to the formula:
in which:
- L’ and L” have, independently of each other, the meaning given above for L;
- X, X’ = O and P has the meaning given above for the functionalized polyalkene polymer.

Preferably, L’ and L” represent a saturated or unsaturated C1-C20 divalent carbon-based group, chosen in particular from a linear or branched C1-C20 alkylene; a C5-C20 (alkyl)cycloalkylene, an alkylene-biscycloalkylene and a C6-C20 (alkyl)arylene.

Preferably, L’ and L” represent a group from among: -isophorone-; -(CH2)2; -(CH3)6; -CH2CH(CH3)-CH2-C(CH3)2-CH2-CH2; 4,4’-methylene bis(cyclohexylene); 2-methyl-1,3-phenylene.

Preferably, L’ and L” are identical.
Preferably, L’ and L” are an isophorone group.
Preferably, P is hydrogenated and represents a polyethylene, a polybutylene, a polybutadiene, a polyisoprene, a poly(1,3-pentadiene), a polysobutylene, or a copolymer thereof, especially a poly(ethylene/butylene).

Preferably, P is a hydrogenated polybutadiene, preferably a hydrogenated 1,2-polybutadiene.

In one particularly preferred embodiment, the supramolecular polymer of the invention corresponds to the formula:

According to one particular mode, said supramolecular polymer is dissolved in a hydrocarbon-based oil, which is preferably volatile, in particular isododecane.

**Pulverulent phase**
The composition according to the invention contains a pulverulent phase comprising at least fillers and colorants and advantageously fibres.
This pulverulent phase, present in a large amount, makes it possible to reduce the tack of the composition and to provide material in order to fill the imperfections, in particular the recessed area of the skin.

This pulverulent phase will be present in the composition in a content generally ranging from 10% to 60% by weight, preferably from 20% to 50% by weight and better still from 20% to 40% by weight relative to the total weight of the composition.

This pulverulent phase preferably contains fibres.

**Fillers**

The term "fillers" should be understood as meaning colourless or white, mineral or organic particles, which are insoluble in the medium of the composition irrespective of the temperature at which the composition is manufactured, and which do not colour the composition.

The fillers may be of any shape, platelet-shaped, spherical, fibrous, hemispherical or oblong, irrespective of the crystallographic form (for example lamellar, cubic, hexagonal, orthorhombic, etc.).

By way of illustration of these fillers, mention may be made of talc, mica, silica, kaolin, poly-p-alanine powder and polyethylene powder, tetrafluoroethylene polymer (Teflon®) powders, lauroyllysine, starch, boron nitride, hollow polymer microspheres such as those of polyvinylidene chloride/acrylonitrile, for instance Expancel® (Nobel Industrie), or of acrylic acid copolymers, silicone resin microbeads (Tospearls® from Toshiba, for example), elastomeric polyorganosiloxane particles, precipitated calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, hydroxyapatite, barium sulphate, aluminium oxides, polyurethane powders, composite fillers, hollow silica microspheres, and glass or ceramic microcapsules.

Very particularly suitable for the invention, are the fillers chosen from:

- porous silica microparticles, for instance the Silica Beads SB150® and SB700® from Miyoshi, with a mean size of 5 microns; H series Sunsphere® products from Asahi Glass, for instance the products Sunsphere H33®, H51®, and H53® having respective sizes of 3, 5 and 5 microns;

- polytetrafluoroethylene (PTFE) powders, for instance the PTFE Ceridust 9205F® from Clariant, with a mean size of 8 microns;
- silicone resin powders, for instance the silicone resin Tospearl 145A® from GE Silicone, with a mean size of 4.5 microns;
- hollow hemispherical silicone particles, for instance NLK 500, NLK 506 and NLK 510 from Takemoto Oil and Fat;
- acrylic copolymer powders, especially polymethyl methacrylate (PMMA) powders, for instance the Jurymer MBI® PMMA particles from Nihon Junyoki, with a mean size of 8 microns, hollow PMMA spheres, for instance sold under the name Covabead LH85® by the company Wacker®;
- polyethylene powders, especially comprising at least one ethylene/acrylic acid copolymer, and in particular consisting of ethylene/acrylic acid copolymers, for instance the polyethylene particles AC540® or else the Flobead EA 209® particles from Sumitomo, with a mean size of 10 microns;
- elastomeric crosslinked organopolysiloxane powders coated with silicone resin, especially with silsesquioxane resin, as described, for example, in patent US 5 538 793. Such elastomer powders are especially sold under the names KSP-100®, KSP-101®, KSP-102®, KSP-103®, KSP-104® and KSP-105® by the company Shin Etsu;
- talc/titanium dioxide/alumina/silica composite powders for instance those sold under the name Coverleaf AR-80® by the company Catalyst & Chemicals;
- polyamide powders (Nylon®), for instance Nylon-12 particles of the Orgasol® type from Arkema, with a mean size of 10 microns;
- expanded powders such as hollow microspheres and especially the microspheres formed from a vinylidene chloride/acylonitrile/methacrylate terpolymer, for instance those sold under the name EXPANCEL® by the company Kemanord Plast under the references 551 DE 12® (particle size of around 12 μm and density of 40 kg/m³), 551 DE 20® (particle size of around 30 μm and density of 65 kg/m³) and 551 DE 50® (particle size of around 40 μm);
- microspheres sold under the name MICROPEARL F 80 ED® by the company Matsumoto;
- powders of natural organic materials such as starch powders, especially crosslinked or non-crosslinked corn, wheat or rice starch powders, such as the starch powders crosslinked with octenyl succinate anhydride, and especially those sold under the name DRY-FLO® by the company National Starch;
- and mixtures thereof.

According to one preferred embodiment, a composition according to the invention comprises at least one filler chosen from silica, porous silica microparticles, silicone resin powders, polyethylene powders, mixtures of crosslinked
polydimethylsiloxane and of polydimethylsiloxane, expanded powders and mixtures thereof.

Fibres

As specified above, a composition according to the invention may comprise fibres, especially at least 5% by weight of fibres, relative to its total weight.

The term "fibre" should be understood as meaning an object of length L and of diameter D such that L is greater than D and preferably very much greater than D, D being the diameter of the circle in which the cross section of the fibre is inscribed. In particular, the ratio L/D (or aspect ratio) is chosen in the range from 3.5 to 2500, preferably from 5 to 500 and better still from 5 to 150.

The fibres that may be used in the composition of the invention may be mineral or organic fibres, of synthetic or natural origin, and they may be flexible or rigid. They may be short or long, individual or organized, for example braided. They may have any shape and may especially have a circular or polygonal (square, hexagonal or octagonal) cross section depending on the specific application envisaged. In particular, their ends are blunted and/or polished to prevent injury.

In particular, the fibres according to the invention preferably have a circular cross section.

In particular, the fibres have a length ranging from 1 µm to 10 mm, preferably from 0.1 mm to 5 mm and better still from 0.1 mm to 3 mm. Their cross section may be included in a circle with a diameter ranging from 2 nm to 500 µm, preferably ranging from 100 nm to 100 µm. The weight of the fibres is often given in denier or decitex.

The fibres may be those used in the manufacture of textiles and especially silk fibres, cotton fibres, wool fibres, flax fibres, cellulose fibres extracted, for example, from wood, from vegetables or from algae, polyamide (Nylon®, especially under the names Nylon 6 = polyamide 6; Nylon 6,6 or Nylon 66 = polyamide 6,6; Nylon 12 = polyamide 12) fibres, rayon fibres, viscose fibres, acetate fibres, in particular rayon acetate fibres, cellulose acetate fibres or silk acetate fibres, poly(p-phenylene terephthalamide) fibres, acrylic polymer fibres, especially polymethyl methacrylate fibres or poly-2-hydroxyethylmethacrylate fibres, polyolefin fibres and especially polyethylene or polypropylene fibres, glass fibres, silica fibres, carbon fibres, especially in graphite form, polytetrafluoroethylene (such as Teflon®) fibres, insoluble collagen fibres, polyester fibres, polyvinyl chloride fibres or polyvinylidene chloride fibres, polyvinyl alcohol fibres, polyacrylonitrile fibres, chitosan fibres, polyurethane fibres, polyethylene phthalate fibres, and fibres formed from a blend of polymers such as those
mentioned above, for instance trilobed polyamide/polyester fibres, and mixtures of these fibres.

Moreover, the fibres may or may not be surface-treated, and may be coated or uncoated. As coated fibres that can be used in the invention, mention may be made of polyamide fibres coated with copper sulphide to give an antistatic effect (for example, R-STAT fibres from the company Rhodia) or fibres coated with another polymer enabling a particular organization of the fibres (specific surface treatment) or a surface treatment inducing colour/hologram effects (Lurex fibre from the company Sildorex, for example).

The fibres that can be used in the composition according to the invention are preferably chosen from polyamide fibres, cellulose fibres and polyethylene fibres, and mixtures thereof. The length thereof may range from 0.1 to 5 mm, preferably from 0.25 to 1.6 mm, and the mean diameter thereof may range from 5 to 50 µm.

Fibres chosen from Nylon 6 (or polyamide 6), Nylon 6,6 or Nylon 66 (or polyamide 6,6) and Nylon 12 (or polyamide 12) fibres, and mixtures thereof, are very particularly suitable.

In particular, use may be made of the polyamide fibres sold by Etablissements P. Bonte under the name polyamide 0.9 dtex 0.3 mm (INCI name: Nylon 6,6), having a mean diameter of 6 µm, a weight of approximately 0.9 dtex and a length ranging from 0.3 mm to 3 mm, or alternatively the polyamide fibres sold under the name Fiberlon 931-D1-S by the company LCW, having a yarn count of approximately 0.9 dtex and a length of approximately 0.3 mm. Use may also be made of Nylon-66 fibres, having a yarn count of approximately 2 dtex, and a length of approximately 0.3 mm, sold under the name “Polyamide brillante trilobee” by the company Utexbel (INCI name: Nylon-66).

Use may also be made of cellulose (or rayon) fibres having an average diameter of 50 µm and a length ranging from 0.5 mm to 6 mm, such as those sold under the name Natural rayon flock fibre RC1 BE-N003-M04 by the company Claremont Flock. Use may also be made of polyethylene fibres such as those sold under the name Shurt Stuff 13 099 F by the company Mini Fibers.

**Colorants**

A cosmetic composition in accordance with the invention may incorporate at least one colorant chosen from organic or mineral colorants, especially such as the pigments or nacres conventionally used in cosmetic compositions, liposoluble or watersoluble colorant and mixtures thereof.

The term "pigments" should be understood as meaning white or coloured, mineral or organic particles, which are insoluble in an aqueous solution and which are intended to colour and/or opacify the resulting film.
The pigments may be present in a proportion of from 0.1% to 20% by weight and especially from 0.5% to 10% by weight relative to the total weight of the cosmetic composition.

As mineral pigments that may be used in the invention, mention may be made of titanium oxide, zirconium oxide or cerium oxide, and also zinc oxide, iron oxide or chromium oxide, ferric blue, manganese violet, ultramarine blue and chromium hydrate.

The colorant may also comprise a pigment having a structure that may be, for example, of silica microsphere type containing iron oxide. An example of a pigment having this structure is the product sold by the company Miyoshi under the reference PC Ball PC-LL-100 P, this pigment consisting of silica microspheres containing yellow iron oxide.


The term "nacres" should be understood as meaning iridescent or non-iridescent coloured particles of any form, especially produced by certain molluscs in their shell, or else synthesized, and which have a colour effect by optical interference.

The nacres may be chosen from nacreous pigments such as titanium mica coated with an iron oxide, titanium mica coated with bismuth oxychloride, titanium mica coated with chromium oxide, titanium mica coated with an organic colorant and also nacreous pigments based on bismuth oxychloride. They may also be mica particles at the surface of which are superposed at least two successive layers of metal oxides and/or of organic colorants.

Examples of nacres that may also be mentioned include natural mica coated with titanium oxide, with iron oxide, with natural pigment or with bismuth oxychloride.

Among the nacres available on the market, mention may be made of the nacres Timica, Flamenco and Duochrome (based on mica) sold by the company Engelhard, the Timiron nacres sold by the company Merck, the Prestige mica-based nacres, sold by the company Eckart, and the Sunshine synthetic mica-based nacres, sold by the company Sun Chemical.

The nacres may more particularly have a yellow, pink, red, bronze, orange, brown, gold and/or coppery colour or tint.

The cosmetic composition according to the invention may also comprise water-soluble or liposoluble colorants. The liposoluble colorants are, for example, Sudan Red, DC Red 17, DC Green 6, β-carotene, soybean oil, Sudan Brown, DC Yellow 11, DC
Violet 2, DC Orange 5 and quinoline yellow. The water-soluble colorants are, for example, beetroot juice and caramel.

The colorants may be present in a proportion of from 0.1% to 20% by weight and especially from 0.5% to 10% by weight relative to the total weight of the cosmetic composition.

According to one particular embodiment, the composition of the invention comprises less than 20% by weight, in particular less than 15% by weight, or even less than 10% by weight of colorants, relative to the total weight of the composition, so as to colour it without opacifying it.

According to another particular embodiment, the composition will be free of colorant in order to be as transparent as possible.

**Fatty phase**

The composition contains at least one liquid fatty phase. This liquid fatty phase is used to transport the adhesive compound.

The liquid fatty phase in the composition is present in a content generally ranging from 20% to 70% by weight, preferably from 25% to 60% by weight and better still from 30% to 50% by weight relative to the total weight of said composition.

This liquid fatty phase generally comprises volatile oils and non-volatile oils. Preferably a majority of non-volatile oils will be present. In particular, the non-volatile oils may represent at least 85% by weight, especially at least 90% by weight, in particular at least 95% by weight or even at least 99% by weight of non-volatile oils relative to the total weight of the oils in the composition.

The weight ratio between liquid fatty phase and pulverulent phase will advantageously range from 0.3 to 5, preferably from 0.5 to 3, preferably from 0.6 to 2.5, or even from 0.7 to 2. According to one particular embodiment, the weight ratio between liquid fatty phase and pulverulent phase will range from 0.9 to 1.5, in particular from 0.9 to 1.2, and especially 1.
Indeed, too high a weight ratio may result in a composition that is too liquid and which is applied as too thin a layer; conversely, too low a weight ratio may result in a composition that is too friable, or even pulverulent.

**Oils**

The term "oil" means any fatty substance that is in liquid form at room temperature (20-25°C) and at atmospheric pressure. The oils may be volatile or non-volatile. They may be of animal, plant, mineral or synthetic origin.

For the purposes of the present invention, the term "volatile oil" means an oil capable of evaporating on contact with the skin 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 non-zero vapour pressure, at room temperature and atmospheric pressure, in particular having a vapour pressure ranging from 0.13 Pa to 40 000 Pa \( (10^{-3} \text{ to } 300 \text{ mmHg}) \), preferably ranging from 1.3 Pa to 13 000 Pa \( (0.01 \text{ to } 100 \text{ mmHg}) \), and preferentially ranging from 1.3 Pa to 1300 Pa \( (0.01 \text{ to } 10 \text{ mmHg}) \).

For the purposes of the present invention, the term "non-volatile oil" means an oil with a vapour pressure of less than 0.13 Pa.

For the purposes of the present invention, the term "silicone oil" means an oil comprising at least one silicon atom, and especially at least one Si-O group. The term "fluoro oil" means an oil comprising at least one fluorine atom. The term "hydrocarbon-based oil" means an oil mainly containing hydrogen and carbon atoms.

The oils may optionally comprise oxygen, nitrogen, sulphur and/or phosphorus atoms, for example in the form of hydroxyl or acid radicals.

**Volatile oils**

The volatile oils may be chosen from hydrocarbon-based oils containing from 8 to 16 carbon atoms, and especially C8-C16 branched alkanes (also known as isoparaffins), for instance isododecane (also known as 2,2,4,4,6-pentamethylheptane), isodecane and isohexadecane, and for instance the oils sold under the trade names Isopar® or Permethyl®; volatile linear alkanes, and mixtures thereof. According to one advantageous embodiment, the "volatile linear alkanes" that are suitable for the invention have an evaporation rate ranging from 0.01 to 3.5 mg/cm²/minute, at room temperature \( (25^\circ \text{C}) \) and atmospheric pressure \( (760 \text{ mmHg}) \), and comprise from 9 to 14 carbon atoms. As examples, mention may be made of n-nonane
(C9), n-decane (C10), n-undecane (C11), n-dodecane (C12), n-tridecane (C13) and n-tetradecane (C14), and mixtures thereof. According to one particular embodiment, the volatile linear alkane is chosen from n-nonane, n-undecane, n-dodecane, n-tridecane and n-tetradecane, and mixtures thereof. Preferably, the volatile linear alkane(s) is (are) chosen from n-undecane, n-dodecane, n-tridecane, n-tetradecane, and mixtures thereof. According to one preferred embodiment, the composition according to the invention comprises dodecane. According to another preferred embodiment, the composition according to the invention comprises tetradecane. According to another preferred embodiment, mention may be made of mixtures of n-undecane (C11) and of n-tridecane (C13) obtained in Examples 1 and 2 of patent application WO 2008/155059 of the company Cognis. Mention may also be made of n-dodecane (C12) and n-tetradecane (C14), such as those sold by Sasol under the references, respectively, Parafol 12-97 and Parafol 14-97, and also 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 \( \leq 8 \) centistokes (cSt) \((8 \times 10^{-6} \text{ m}^2/\text{s})\), and especially containing from 2 to 10 silicon atoms and in particular 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 dimethicones of viscosity 5 and 6 cSt, octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, heptamethylhexyltrisiloxane, heptamethyloctyltrisiloxane, hexamethyldisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane and dodecamethylpentasiloxane, and mixtures thereof.

Volatile fluoro oils such as nonafluoromethoxybutane or perfluoromethylcyclopentane, and mixtures thereof, may also be used.

Non-volatile oils

The non-volatile oils may be chosen especially from non-volatile hydrocarbon-based, fluoro and/or silicone oils.

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

- hydrocarbon-based oils of animal origin,
- hydrocarbon-based oils of plant origin, such as phytostearyl esters, such as phytostearyl oleate, phytostearyl isostearate and lauroyl/octyldodecyl/phytostearyl glutamate (Ajinomoto, Eldew PS203), triglycerides formed from fatty acid esters of glycerol, in particular in which the fatty acids may have chain lengths ranging from C4 to
C₃₆ and especially from C₁₈ to C₄₆, these oils possibly being linear or branched, and saturated or unsaturated; these oils may especially be heptanoic or octanoic triglycerides, shea oil, alfalfa oil, poppy oil, millet oil, barley oil, rye oil, candlenut oil, passionflower oil, shea butter, aloe vera oil, sweet almond oil, peach stone oil, groundnut oil, argan oil, avocado oil, baobab oil, borage oil, broccoli oil, calendula oil, camellina oil, canola oil, carrot oil, safflower oil, flax oil, rapeseed oil, cotton oil, coconut oil, marrow seed oil, wheatgerm oil, jojoba oil, lily oil, macadamia oil, corn oil, meadowfoam oil, St John's Wort oil, monoi oil, hazelnut oil, apricot kernel oil, walnut oil, olive oil, evening primrose oil, palm oil, blackcurrant pip oil, kiwi seed oil, grapeseed oil, pistachio oil, winter squash oil, pumpkin oil, quinoa oil, musk rose oil, sesame oil, soybean oil, sunflower oil, castor oil and watermelon oil, and mixtures thereof, or alternatively caprylic/capric acid triglycerides, such as 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, such as dicapryl ether;

- synthetic esters, for instance the 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. The esters may be chosen especially from esters of alcohol and of fatty acid, for instance cetostearyl octanoate, esters of isopropyl alcohol, such as isopropyl myristate, isopropyl palmitate, ethyl palmitate, 2-ethylhexyl palmitate, isopropyl stearate, octyl stearate, hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, alcohol or polyalcohol ricinoleates, hexyl laurate, neopentanoic acid esters, for instance isodecyl neopentanoate, isotridecyl neopentanoate, and isononanoic acid esters, for instance isononyl isononanoate and isotridecyl isononanoate.

- polyol esters and pentaerythritol esters, for instance dipentaerythrityl tetrahydroxystearate/tetraoisostearate,

- 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 2-octyldodecanol, isostearyl alcohol and oleyl alcohol;

- C₁₂-C₂₂ higher fatty acids, such as oleic acid, linoleic acid or linolenic acid, and mixtures thereof;

- dialkyl carbonates, the two alkyl chains possibly being identical or different, such as dicaprylyl carbonate sold under the name CETIOL CC® by Cognis; and
oils of high molar mass, in particular with a molar mass ranging from about 400 to about 2000 g/mol and in particular from about 650 to about 1600 g/mol. As oils of high molar mass that may be used in the present invention, mention may be made especially of linear fatty acid esters with a total carbon number ranging from 35 to 70, for instance pentaerythritol tetrapelargonate, hydroxylated esters, such as polyglycerol-2 triisostearate, aromatic esters, such as tridecyl trimellitate, esters of branched C₄₋₈ fatty alcohols or fatty acids, such as those described in patent US 6 491 927, and pentaerythritol esters, and especially triisoarachidyl citrate, glyceryl triisostearate, glyceryl tris(2-decyl)tetradecanoate, polyglyceryl-2 tetraisostearate or pentaerythrityl tetras(2-decyl)tetradecanoate; phenyl silicones, such as Belsil PDM 1000 from the company Wacker (MM = 9000 g/mol), non-volatile polydimethylsiloxanes (PDMS), PDMSs comprising alkyl or alkoxy groups that are pendent and/or at the end of the silicone chain, these groups each containing from 2 to 24 carbon atoms, phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyl trimethylsiloxy diphenylsiloxanes, diphenyl dimethicones, diphenyl methylidiphenyl trisiloxanes and 2-phenylethyl trimethylsiloxy silicates, dimethicones or phenyl trimethicones with a viscosity of less than or equal to 100 cSt, and mixtures thereof; and also mixtures of these various oils.

According to one particular embodiment, the composition comprises at least one non-volatile hydrocarbon-based oil.

Preferably, the liquid fatty phase will predominantly comprise non-volatile hydrocarbon-based oils. Thus, the non-volatile hydrocarbon-based oils may represent at least 85% by weight, especially at least 90% by weight, in particular at least 95% by weight or even at least 99% by weight of non-volatile hydrocarbon-based oils relative to the total weight of the non-volatile oils in the composition.

**Fatty phase structuring or gelling agent**

To strengthen the rigid nature of the composition and prevent exudation of the liquid fatty phase, a lipophilic structuring or gelling agent may advantageously be added to the composition according to the invention.

The fatty phase structuring or gelling agent will generally be present in the composition in a content ranging from 1% to 30% by weight, preferably from 3% to 20% by weight and preferably from 5% to 15% by weight relative to the total weight of said composition.

**Mineral lipophilic gelling agents**
A lipophilic gelling agent may be mineral or organic (especially polymeric). Examples of mineral lipophilic gelling agents that may be mentioned include hydrophobic modified clays such as modified magnesium silicate (Bentone Gel VS38 from Rheox), or hectorite modified with distearyldimethylammonium chloride (CTFA name: Distearidimonium hectorite) sold under the name Bentone 38 CE by the company Rheox. Mineral lipophilic gelling agents that may be mentioned include optionally modified clays, for instance hectorites modified with a C18 to C22 fatty acid ammonium chloride, for instance hectorite modified with distearyldimethylammonium chloride, for instance the product sold under the name Bentone 38V® by the company Elementis.

**Polymeric organic gelling agents**

The polymeric organic lipophilic gelling agents are, for example, partially or totally crosslinked elastomeric organopolysiloxanes of three-dimensional structure, for instance those sold under the names KSG6®, KSG16® and KSG18® by the company SHIN-ETSU, Trefil E-505C® and Trefil E-506C® by the company Dow-Corning, Gransil SR-CYC®, SR DMF10®, SR-DC556®, SR 5CYC gel®, SR DMF 10 gel® and SR DC 556 gel® by the company GRANT Industries, SF 1204® and JK 113® by the company General Electric; ethyl cellulose for instance the product sold under the name Ethocel® by the company Dow Chemical; the polycondensates of polyamide type resulting from the condensation between a dicarboxylic acid comprising at least 32 carbon atoms and an alkylenediamine and in particular ethylenediamine, in which the polymer comprises at least one terminal carboxylic acid group esterified or amidified with at least one monoalcohol or one monoamine comprising from 12 to 30 linear and saturated carbon atoms, and in particular, ethylenediamine/stearyl dilinoleate copolymers such as that sold under the name Uniclear 100 VG® by the company Arizona Chemical; galactomannans comprising from one to six and in particular from two to four hydroxyl groups per saccharide, substituted with a saturated or unsaturated alkyl chain, for instance guar gum alkylated with C1 to C6, and in particular C1 to C3 alkyl chains, and mixtures thereof. Mention may also be made of polyamide silicone block polymers also known as silicone polyamides or PSPAs. Silicone polyamides are preferably solid at room temperature (25°C) and atmospheric pressure (760 mmHg). The silicone polyamides of the composition of the invention may be polymers of polyorganosiloxane type for instance those described in documents US-A-5,874,069, US-A-5,919,441, US-A-6,051,216 and US-A-5,981,680. According to the invention, the silicone polymers may belong to the following two families:
(1) polyorganosiloxanes comprising at least two amide groups, these two groups being located in the polymer chain, and/or

(2) polyorganosiloxanes comprising at least two amide groups, these two groups being located on grafts or branches.

As lipophilic gelling agents that are suitable for the invention, mention may also be made of copolymers of the polystyrene/polyalkylene type, and more particularly block copolymers of "diblock", "triblock" or "radial" type, of the polystyrene/polyisoprene or polystyrene/polybutadiene type, such as the products sold under the name Luvitol HSB® by the company BASF, of the polystyrene/copoly(ethylene-propylene) type, such as the products sold under the name Kraton® by the company Kraton Polymers, or of the polystyrene/copoly(ethylene-butylene) type, and mixtures of triblock and radial (star) copolymers in isododecane, such as those sold by the company Penreco under the name Versagel®, for instance the mixture of butylene/ethylene/styrene triblock copolymer and of ethylene/propylene/styrene star copolymer in isododecane (Versagel M 5960).

Among the lipophilic gelling agents that may be used in a cosmetic composition of the invention, mention may also be made of fatty acid esters of dextrin, such as dextrin palmitates, especially the products sold under the names Rheopearl TL® or Rheopearl KL® by the company Chiba Flour, hydrogenated plant oils such as hydrogenated castor oil, fatty alcohols, in particular C₈ to C₁₂, and more particularly C₁₂ to C₂₂ fatty alcohols, for instance myristyl alcohol, cetyl alcohol, stearyl alcohol or behenyl alcohol.

According to one particular embodiment, the composition according to the invention does not contain polyamide silicone block polymers.

Mention may also be made of organogelling agents, especially chosen from those described in patent application WO-A-03/105788.

Examples that may be mentioned include:

- bis-urea derivatives of general formula (II):

\[
\begin{array}{ccc}
\text{R} & \text{N} & \text{N} \\
\text{H} & \text{H} & \text{H} \\
\text{A} & \text{N} & \text{N} \\
\text{H} & \text{H} & \text{H} \\
\end{array}
\]

(II)

in which:

- A is a group of formula:
with \( R' \) being a linear or branched \( \text{C}_1 \) to \( \text{C}_4 \) alkyl radical, and the 's symbolizing the points of attachment of the group \( A \) to each of the two nitrogen atoms of the rest of the compound of general formula (I), and

- \( R \) is a saturated or unsaturated, non-cyclic, monobranched \( \text{C}_6 \) to \( \text{C}_{15} \) alkyl radical, the hydrocarbon-based chain of which is optionally interrupted by 1 to 3 heteroatoms chosen from O, S and N, or a salt or isomer thereof in particular described in patent application FR-A-2892303;

- silicone bis-urea derivatives of general formula (I) or a salt and/or isomer thereof:

\[
\begin{array}{c}
\text{R} \quad \text{N} \quad \text{N} \quad \text{A} \quad \text{N} \quad \text{N} \quad \text{R'} \\
\text{H} \quad \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \\
\end{array}
\]

in which:

- \( A \) is a group of formula (IV):

\[
\begin{array}{c}
\text{R}_1 \quad \text{*} \quad \text{*} \\
\text{*} \quad \text{*} \quad \text{*} \\
\end{array}
\]

with \( R_1 \) being a linear or branched \( \text{C}_1 \) to \( \text{C}_4 \) alkyl radical, and the 's symbolizing the points of attachment of the group \( A \) to each of the two nitrogen atoms of the rest of the compound of general formula (I), and

- \( R \) and \( R' \), which may be identical or different, are chosen from:

- i) radicals of formula (V):
in which:
- \(L\) is a single bond or a divalent carbon-based radical, especially a linear, branched and/or cyclic, saturated or unsaturated hydrocarbon-based radical (alkylene), comprising 1 to 18 carbon atoms, and possibly comprising 1 to 4 heteroatoms chosen from N, O and S; or
- \(R_a\) is:
a) a carbon-based radical, especially a linear, branched and/or cyclic, saturated or unsaturated hydrocarbon-based radical (alkyl), comprising 1 to 18 carbon atoms, and possibly comprising 1 to 8 heteroatoms chosen from N, O, Si and S; or
b) a silicone radical of formula:

\[
\begin{align*}
\text{Si} & \text{O} \cdot \quad \text{Si} \quad R_6 \\
R_3 & R_5 \\
\end{align*}
\]

with \(n\) being between 0 and 100, especially between 1 and 80, or even 2 to 20; and \(R_2\) to \(R_6\) being, independently of each other, carbon-based radicals, especially linear or branched hydrocarbon-based radicals (alkyls) comprising 1 to 12 and especially 1 to 6 carbon atoms, and possibly comprising 1 to 4 heteroatoms, especially O; or
- \(R_b\) and \(R_c\) are, independently of each other, chosen from:
a) carbon-based radicals, especially linear, branched and/or cyclic, saturated or unsaturated hydrocarbon-based radicals (alkyls), comprising 1 to 18 carbon atoms, and possibly comprising 1 to 4 heteroatoms chosen from N, O, Si and S; or
b) radicals of formula:
with \( n \) being between 0 and 100, especially between 1 and 80, or even 2 to 20;

and \( R'2 \) to \( R'6 \) being, independently of each other, carbon-based radicals, especially linear or branched hydrocarbon-based radicals (alkyls) comprising 1 to 12 and especially 1 to 6 carbon atoms, and possibly comprising 1 to 4 heteroatoms, especially O;

and

- ii) linear, branched and/or cyclic, saturated or unsaturated \( C_1 \) to \( C_{30} \) alkyl radicals, optionally comprising 1 to 3 heteroatoms chosen from O, S, F and N;

it being understood that at least one of the \( R \) and/or \( R' \) radicals is of formula (III) such as those described in patent application FR-A-2900819.

- The bis-urea derivatives described in patent application FR-A-2894476.

According to one particularly preferred embodiment, a composition according to the invention may comprise at least one polymeric organic lipophilic gelling agent, in particular chosen from copolymers of the polystyrene/polyalkylene type, and more particularly copolymers of the polystyrene/copoly(ethylene-propylene) type, especially those sold under the name Kraton® by the company Kraton Polymers.

**Lipophilic structuring agents**

In particular, said lipophilic structuring agent may be chosen from at least one wax, at least one gum and/or at least one pasty fatty substance, of plant, animal, mineral or synthetic origin, or even silicone origin, and mixtures thereof.

**Waxes**

Among the waxes that are solid at room temperature that are capable of being present in the composition according to the invention, mention may be made of
hydrocarbon-based waxes such as beeswax; carnauba wax, candelilla wax, ouricury wax, Japan wax, cork fibre wax or sugarcane wax; paraffin wax, lignite wax; microcrystalline waxes; lanolin wax, Montan wax; ozokerites; polyethylene waxes; waxes obtained by Fischer-Tropsch synthesis; hydrogenated oils, fatty esters and glycerides that are solid at 25°C. It is also possible to use silicone waxes, for instance alkyl or alkoxy polymethylsiloxanes and/or polymethylsiloxane esters. The waxes may be in the form of stable dispersions of colloidal wax particles such as may be prepared according to known methods, such as those from "Microemulsions Theory and Practice", L. M. Prince Ed., Academic Press (1977), pages 21-32. As wax that is liquid at room temperature, mention may be made of jojoba oil.

Mention may also be made of hydrogenated plant oils, such as hydrogenated castor oil.

As lipophilic structuring agent that is also suitable for the invention, mention may be made of fatty alcohols, in particular C₈ to C₁₆, and more particularly C₁₂ to C₂₂, fatty alcohols.

According to one embodiment, a fatty alcohol that is suitable for the invention may be chosen from myristyl alcohol, cetyl alcohol, stearyl alcohol or behenyl alcohol.

As lipophilic structuring agent that is also suitable for the invention, mention may be made of fatty acid esters of glycerols, such as glyceryl tristearate.

According to one particular embodiment, the composition may also contain at least one wax having an initial melting point greater than or equal to 50°C, and better still at least one wax for which the initial melting point is greater than or equal to 65°C.

The expression "initial melting point" is understood in the present application to mean the temperature at which a wax begins to melt. This temperature can be determined by DTA (differential thermal analysis) which makes it possible to obtain the thermogram (or melting curve) of the wax in question. The initial melting point corresponds to the temperature at which a significant change of gradient can be observed in the thermogram. The melting point itself represents the minimum point of said thermogram.

More specifically, such a wax may be chosen from carnauba wax, certain polyethylene waxes and certain microcrystalline waxes such as those sold under the name Microwax®, in particular that sold under the name Microwax HW®, by the company Paramelt.

It may make it possible to thicken and stabilize the composition according to the invention.
The amount of wax may generally range from 0.1% to 25% by weight, preferably from 1% to 15% by weight and preferably from 2% to 12% by weight relative to the total weight of said composition.

Pasty fatty compounds

Pasty fatty compounds can be defined using at least one of the following physicochemical properties:
- a viscosity of 0.1 to 40 Pa.s (1 to 400 poise), preferably 0.5 to 25 Pa.s, measured at 40°C with a CONTRAVES TV rotary viscometer equipped with an MS-r3 or MS-r4 spindle at a frequency of 60 Hz;
- a melting point of 25-70°C, preferably 25-55°C.

The compositions of the invention may also comprise at least one alkyldimethicone, alkoxydimethicone or phenyldimethicone such as, for example, the product sold under the name "Abil wax 2440" by the company Goldschmidt.

Thus, the composition according to the invention advantageously also comprises at least one fatty phase structuring or gelling agent, especially chosen from waxes, polymeric thickeners or gelling agents, organogelling agents and mixtures thereof.

In particular, it may especially be chosen from:
1) waxes,
2) polymeric thickeners or gelling agents, for example the silicone elastomers, polyamides, silicone polyamides, block copolymers of Kraton type,
3) organogelling agents.

Galenic form

The composition according to the invention advantageously contains less than 2% by weight of water and preferably less than 1% by weight of water relative to the total weight of the composition, or is anhydrous. The term "anhydrous" especially means that water is preferably not deliberately added to the composition, but may be present in trace amount in the various compounds used in the composition.

The composition is advantageously in the form of a solid, a paste or a cream.

Preparation process
The composition according to the invention may be produced by known processes, generally used in the cosmetics or dermatological field.

A composition according to the invention may be prepared advantageously by using, for at least one step of the process, a mixing device such as a roll mill comprising two rolls revolving in opposite directions, between which the paste passes, or a screw-mixer extruder. A screw-mixer extruder is preferably used.

The rest of the liposoluble ingredients may then be mixed together at a temperature of about 100°C. The ground material or the predispersed active agents may then be added to the oily phase.

The composition is obtained preferably by a high-temperature mixing process or by an extrusion process.

In order to effectively incorporate the waxes and the fillers, it is advantageous to carry out the preparation of the composition or at least one step of this preparation, in particular the preparation of the oily phase or one step of the preparation of the oily phase, in a screw-mixer extruder, subjected to a temperature gradient ranging from 100°C to 20°C. In particular, it is advantageous to carry out the mixing of the fillers, waxes and at least one oil, in a screw-mixer extruder, subjected to a temperature gradient ranging from 100°C to 20°C. Such a preparation is especially described in patent applications EP 1 005 856, EP 1 005 857 and EP 1 013 267.

Application process

The application process consists in spreading the composition described previously over the recessed areas, in particular of the skin, using the fingers or preferably with a suitable applicator.

Thus, the composition may be applied with precision using a tool, especially a spatula. Alternatively, the composition may be applied with less precision, and slightly overflow beyond the edges of the recessed area to be treated. In the latter case, the composition that is found at the sides will be able to be levelled off, for example with a tool that will act as a scraper. It is also possible to remove the product via absorption, suction, evaporation, or rinsing, for example with a special composition.

The applicator will ideally be chosen to both remove and spread the product.
The applicator could be separate from the cosmetic composition or in the same packaging.
Any applicator capable of removing the composition could be used, for example one having a tip made of silicone, of foam or of flocked fabric. The applicator may comprise a flat tip, of cylinder of revolution or cone shape. Preferably, the applicator will have a flat silicone tip, of silicone spatula type. The applicator will have a tip with a size suitable for the area to be treated. The applicator could comprise a vibrating member or a heating member to facilitate the application of the composition.

Application to the face may be carried out before or after the application of other facial products, such as for example a foundation.

The invention is illustrated in greater detail in the examples that follow, which are given as non-limiting illustrations. The percentages are weight percentages.

**Example 1: Example of coloured smoothing base**

The following composition was prepared:

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<th>INCI name</th>
<th>Invention example</th>
<th>Comparative example</th>
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<td>1.0</td>
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<td>HYDROGENATED POLYISOBUTENE</td>
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<td>DIMETHICONE (4)</td>
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<td>11.7</td>
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<tr>
<td></td>
<td>ISONONYL ISONONANOATE</td>
<td>3.8</td>
<td>3.8</td>
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<tr>
<td></td>
<td>DIMETHICONEA/INYL DIMETHICONE CROSSPOLYMER (and) DIMETHICONE (5)</td>
<td>9.7</td>
<td>9.7</td>
</tr>
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</table>
The powder phase B is mixed using a Baker Perkins mixer. Phase A is heated at 100°C and stirred until a uniform mixture is obtained. The two phases are introduced at the inlet of an extruder heated to 90°C then cooled to 10°C in the last barrel of the extruder.

The composition according to the invention contains 8% of adhesive resin, 38.3% of liquid fatty phase and 37.5% of pulverulent phase. The comparative composition does not contain adhesive resin.

The composition according to the invention was characterized by the following rheological parameters:
- the destructuring yield stress or flow point $\tau_0$ was determined by performing a stress sweep, using a Haake CS150 controlled stress rheometer at a temperature of 25°C;

- the elastic modulus was measured for a stress frequency of 1 Hz, in the "linear viscoelasticity" zone defined by the fact that the stress applied during the measurement is lower than the destructuring yield stress of the composition. Its elastic modulus is 100 000 Pa and its yield stress is 600 Pa.

The composition was applied, using an LPE-05 silicone spatula sold by the company TOKIWA Corporation, to the imperfections of relief before application of a liquid foundation to the whole of the face.

The two compositions are applied easily to the face and make it possible to effectively mask the skin imperfections, ie recessed area, such as pores or acne scars, even deep ones. The composition according to the invention has a very good hold over time on the skin, whereas the comparative composition readily detaches from the face or has highlight points after several hours.

Example 2: Example of transparent smoothing base

The following composition was prepared:

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<th>Invention example</th>
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<tr>
<td></td>
<td>HYDROGENATED STYRENE/BUTADIENE COPOLYMER (3)</td>
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<td>HYDROGENATED POLYISOBUTENE</td>
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<td>DIMETHICONE (4)</td>
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<td>ISONONYL ISONONANOATE</td>
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</tr>
<tr>
<td>Component</td>
<td>Percentage</td>
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<tr>
<td>---------------------------------------------------------------</td>
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<td>ACRYLATES COPOLYMER (7)</td>
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<td>TALC</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>DIMETHICONEA/INYL DIMETHICONE CROSSPOLYMERIC (11)</td>
<td>5.85</td>
<td></td>
</tr>
</tbody>
</table>

1. POLYETHYLENE AC 540 from HONEYWELL
2. REGALITE R1100 from EASTMAN CHEMICAL
3. KRATON G1657M from KRATON POLYMERS
4. SILICONE FLUID 5CS from DOW CORNING
5. KSG-6 from SHIN-ETSU
6. SB700 from MIYOSHI KASEI
7. EXPANCEL 551 DE40 D42 from EXPANCEL
8. TOSPEARL 145A from MOMENTIVE PERFORMANCE MATERIAL
9. PULPE POLYAMIDE 12185 Taille 0.3 mm (POLYAMIDE PULP 12185 Size 0.3 mm) from UTEXBEL
10. DRY FLO PLUS from AKZO NOBEL
11. DOW CORNING 9506 POWDER from DOW CORNING

The powder phase B is mixed using a Baker Perkins mixer. Phase A is heated at 100°C and stirred until a uniform mixture is obtained. The two phases are introduced at the inlet of an extruder heated to 90°C then cooled to 10°C in the last barrel of the extruder.

The composition according to the invention contains 8% of adhesive resin, 39.1% of liquid fatty phase and 35.1% of pulverulent phase. Its elastic modulus is 80 000 Pa.
The composition was applied, using an LPE-05 silicone spatula sold by the company TOKIWA Corporation, to the skin imperfections, i.e., recessed area, before application of a liquid foundation to the whole of the face. It effectively fills imperfections such as pores and acne scars and adheres well to the skin.

Example 3: Example of transparent smoothing base

The following composition was prepared:

<table>
<thead>
<tr>
<th>Phase</th>
<th>INCI name</th>
<th>Invention example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>MICROCRYSTALLINE WAX</td>
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<tr>
<td></td>
<td>ETHYLENE/ACRYLIC ACID COPOLYMER (1)</td>
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<td></td>
<td>HYDROGENATED STYRENE/BUTADIENE COPOLYMER (3)</td>
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</tr>
<tr>
<td></td>
<td>HYDROGENATED POLYISOBUTENE</td>
<td>20.50</td>
</tr>
<tr>
<td></td>
<td>DIMETHICONE (4)</td>
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<td>ISONONYL ISONONANOATE</td>
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<td>DIMETHICONE/VINYL DIMETHICONE CROSSPOLYMER (and) DIMETHICONE (5)</td>
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</tr>
<tr>
<td>B</td>
<td>SILICA (6)</td>
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</tr>
<tr>
<td></td>
<td>ALUMINUM STARCH OCTENYL SUCCINATE (9)</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>TALC</td>
<td>8.00</td>
</tr>
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<td></td>
<td>DIMETHICONE/VINYL DIMETHICONE CROSSPOLYMER (10)</td>
<td>5.30</td>
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</tbody>
</table>

(1) POLYETHYLENE AC 540 from HONEYWELL
The powder phase B is mixed using a Baker Perkins mixer. Phase A is heated at 100°C and stirred until a uniform mixture is obtained. The two phases are introduced at the inlet of an extruder heated to 90°C then cooled to 10°C in the last barrel of the extruder.

The composition according to the invention contains 8.5% of adhesive resin and 32% of pulverulent phase. Its elastic modulus is 70 000 Pa.

The composition was applied, using a spatula or with the fingers, to the whole of the face. The composition adheres well to the skin and the recessed area (pores, wrinkles, scars) are transparently smoothed.
1. Cosmetic method for making up and/or non-therapeutically treating skin imperfections, i.e., recessed areas of the skin, comprising the application at least to said areas, of at least one anhydrous composition comprising, in a physiologically acceptable medium:
   (i) at least one adhesive compound;
   (ii) at least one pulverulent phase containing less than 20% by weight of colorants relative to the total weight of the composition; and
   (iii) at least one liquid fatty phase,
the weight ratio of the liquid fatty phase to the pulverulent phase advantageously being between 0.3 and 5.

2. Cosmetic method according to Claim 1, in which the adhesive compound is chosen from the tackifying resins, silicone resins and copolymers of silicone resins, silicones copolymers especially acrylate/silicone copolymers and vinyl polymers comprising at least one carbosiloxane dendrimer-derived unit, polycondensates, polyalkene-based supramolecular polymers, and mixtures thereof.

3. Cosmetic method according to either of the preceding claims, in which the adhesive compound is present in the composition in a content ranging from 1% to 30% by weight, preferably from 3% to 20% by weight and preferably from 5% to 15% by weight (of active material) relative to the total weight of said composition.

4. Cosmetic method according to any one of the preceding claims, in which the pulverulent phase present in the composition comprises at least fillers and colorants, and advantageously fibres.

5. Cosmetic method according to the preceding claim, in which the pulverulent phase is present in the composition in a content ranging from 10% to 60% by weight, preferably from 20% to 50% by weight and better still from 20% to 40% by weight relative to the total weight of the composition.

6. Cosmetic method according to any one of the preceding claims, in which the liquid fatty phase is present in a content ranging from 20% to 70% by weight, preferably
from 25% to 60% by weight and better still from 30% to 50% by weight relative to the total weight of said composition.

7. Cosmetic method according to any one of the preceding claims, in which the composition also comprises at least one fatty phase structuring or gelling agent, especially chosen from waxes, polymeric thickeners or gelling agents, organogelling agents and mixtures thereof.

8. Cosmetic method according to any one of the preceding claims, in which the composition is in the form of a solid, a paste or a cream.

9. Cosmetic method according to any one of the preceding claims, in which the composition is characterized by an elastic modulus, measured at 25°C with a stress frequency of 1 Hz, ranging from 10 000 to 500 000 Pa, preferably from 20 000 to 200 000 Pa.

10. Cosmetic method according to any one of the preceding claims, in which the composition is applied to the skin using an applicator, such as an applicator comprising at least one tip made of silicone, of foam or of flocked fabric, especially of flat, cylinder of revolution or cone shape.

11. Cosmetic method according to any one of the preceding claims, intended to mask pores, wrinkles or scars, such as acne scars.

12. Anhydrous cosmetic composition for topical application to the skin comprising, in a physiologically acceptable medium:
   (i) at least one tackifying resin;
   (ii) at least one pulverulent phase; and
   (iii) at least one liquid fatty phase comprising at least one non-volatile hydrocarbon-based oil,
   the weight ratio of the liquid fatty phase to the pulverulent phase advantageously being between 0.3 and 5.

13. Cosmetic composition according to the preceding claim, characterized in that the tackifying resin, the pulverulent phase and the liquid fatty phase are as defined in any one of Claims 2 to 7.
14. Cosmetic composition according to either of Claims 12 and 13, characterized in that the tackifying resin is chosen from indene hydrocarbon-based resins, in particular from hydrogenated indene/methylstyrrene/styrene copolymers.

15. Cosmetic packaging and application assembly, for application to keratin materials, especially the skin, comprising at least:
   a) a packaging device comprising at least one composition as defined in any one of Claims 1 to 9 and 12 to 14; and
   b) an applicator.
A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K8/81 A61K8/895 A61Q1/02

ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61K A61Q

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<td>FR 2 868 297 Al (OREAL [FR]) 7 October 2005 (2005-10-07) page 1, lines 14-16; claims; examples 1</td>
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<td>FR 2 940 024 Al (OREAL [FR]) 25 June 2010 (2010-06-25) page 1, lines 15-21; claims; examples</td>
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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
  *B* earlier document but published on or after the international filing date
  *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  *O* document referring to an oral disclosure, use, exhibition or other means
  *P* document published prior to the international filing date but later than the priority date claimed
  *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  *Z* document member of the same patent family

Date of the actual completion of the international search: 26 October 2011

Date of mailing of the international search report: 04/11/2011

Name and mailing address of the ISA:
European Patent Office, P.B. 5018 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Pregetter, Magdalena
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