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(54) Title: POWDERY COSMETIC COMPOSITION

(57) Abstract: The present invention relates a powdery cosmetic composition in the form of a compacted powder comprising: at least one spherical filler in an amount of 10wt% or more based on the total weight of the composition; and a first non-spherical filler with an average particle size of less than 6 µm and being surface treated with a surface treatment agent comprising at least one silic-  
one oil, and a second filler being surface-treated with a surface treatment agent comprising at least one amino acid and/or a derivat-  
ive thereof. The powdery cosmetic composition according to the present invention has good hardness or compactability as well as good cosmetic properties such as even adhesion to the skin and good spreadability on the skin even though it comprises a relatively large amount of spherical filler (s).



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## DESCRIPTION

## POWDERY COSMETIC COMPOSITION

## TECHNICAL FIELD

The present invention relates to a powdery cosmetic composition in the form of a compacted powder.

## BACKGROUND ART

Skin make up compositions may commonly be used to give an attractive color to the skin, such as the face, but also to mask skin imperfections, such as redness, marks and wrinkles.

Certain makeup compositions may be in the form of compacted powders. These compositions generally comprise a high content of powders, for example, at least about 70% by weight of powders, relative to the total weight of the composition. For example, please refer to US-A-2005-276776.

## DISCLOSURE OF INVENTION

Depending on the type of powders used, the cosmetic properties of the makeup compositions may be very variable.

For example, if a relatively large amount of spherical filler(s) is in a powdery cosmetic composition in the form of a compacted powder, hardness or compactability of the composition deteriorates, and some aspects of the cosmetic properties of the composition such as even adhesion to the skin or spreadability on the skin also deteriorate.

Thus, an objective of the present invention is to provide good hardness or compactability as well as good cosmetic properties to a powdery cosmetic composition in the form of a compacted powder even if it comprises a relatively large amount of spherical fillers.

The above objective of the present invention can be achieved by a powdery cosmetic composition in the form of a compacted powder comprising:

at least one spherical filler in an amount of 10wt% or more based on the total weight of the composition; and  
a first non-spherical filler with an average particle size of less than 6  $\mu\text{m}$  and being surface treated with a surface treatment agent comprising at least one silicone oil, and  
a second filler being surface-treated with a surface treatment agent comprising at least one amino acid and/or a derivative thereof.

It is preferable that the second filler is a non-spherical filler.

It is preferable that the ratio of the amount of the first non-spherical filler to the amount of the second filler is 1 or more, more preferably 2 or more, and furthermore preferably 3 or more.

It is preferable that the ratio of the total amount of the first non-spherical filler and the second filler to the amount of the spherical filler is 1 or more, more preferably 2 or more, and furthermore preferably 3 or more.

The amino acid may be selected from the group consisting of proline, hydroxyproline, alanine, glycine, sarcosine, aspartic acid, and glutamic acid.

The first non-spherical filler and the second filler may be independently selected from the group consisting of talc, mica, silica, kaolin, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, lauroyl lysine, metal soap, bismuth oxychloride, barium sulfate, boron nitride, calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, and hydroxyapatite.

It is preferable that the first non-spherical filler and the second filler are talc and/or mica.

The first non-spherical filler may be a dimethicone-treated talc.

The second filler may be a filler coated with a mixture of at least one fatty acid, such as a C<sub>12</sub>-C<sub>18</sub> fatty acid, and/or a salt of the fatty acid, and

- (a) at least one selected from proline, hydroxyproline and derivatives thereof; and/or
- (b) at least one selected from alanine, glycine, sarcosine and derivatives thereof; and/or
- (c) at least one selected from aspartic acid, glutamic acid and derivatives thereof.

It is preferable that the second filler is a mica coated with a mixture of palmitic acid, palmitoyl proline, sodium palmitoyl sarcosinate, and magnesium palmitoyl glutamate.

The spherical filler may comprise at least one organopolysiloxane elastomer powder.

In a preferred embodiment, 50wt% or more of the spherical filler may be the organopolysiloxane elastomer powder(s).

The organopolysiloxane elastomer powder may be chosen from those obtained from:

a crosslinking addition reaction of diorganopolysiloxane comprising at least one hydrogen linked to silicon and of

diorganopolysiloxane comprising at least one ethylenically unsaturated group linked to silicon;  
a dehydrogenation crosslinking condensation reaction between a diorganopolysiloxane comprising at least one hydroxyl end group and a diorganopolysiloxane comprising at least one hydrogen linked to silicon;  
a crosslinking condensation reaction of a diorganopolysiloxane comprising at least one hydroxyl end group and of a hydrolysable organopolysilane;  
thermal crosslinking of organopolysiloxane; and  
crosslinking of organopolysiloxane by high-energy radiation.

The organopolysiloxane elastomer powder may be obtained via a crosslinking addition reaction of a diorganopolysiloxane comprising at least two hydrogens each linked to silicon, and a diorganopolysiloxane comprising at least two ethylenically unsaturated groups linked to silicon.

The organopolysiloxane elastomer powder may be obtained by reaction of a dimethylpolysiloxane comprising dimethylvinylsiloxy end groups and of methylhydrogenopolysiloxane comprising trimethylsiloxy end groups, in the presence of a platinum catalyst.

The organopolysiloxane elastomer powder may comprise an elastomeric organopolysiloxane powder which has been coated with at least one silicone resin.

The silicone resin may be silsesquioxane resin.

The powdery cosmetic composition may be anhydrous.

The powdery cosmetic composition according to the present invention can show good physical properties such as good hardness or compactability as well as good cosmetic properties such as even adhesion to the skin or good spreadability on the skin, although it comprises a relatively large amount of spherical filler(s).

The present invention also relates to a cosmetic process including a step of coating a face with the powdery cosmetic composition as defined above.

#### BEST MODE FOR CARRYING OUT OF THE INVENTION

After diligent research, the inventors have discovered that it is possible to provide a powdery cosmetic composition in the form of a compacted powder with good hardness or compactability as well as good cosmetic properties such as even adhesion to the skin and spreadability on the skin, by using a combination with two fillers, wherein one (a non-spherical filler with an average particle size of less than 6  $\mu\text{m}$ ) of the two fillers is coated with at least one silicone oil, and the other is coated with at least one amino acid

and/or a derivative thereof, even if the cosmetic composition comprises at least one spherical filler in an amount of 10 wt% or more based on the total weight of the cosmetic composition.

The powdery cosmetic composition according to the present invention will be explained below in a detailed manner.

The powdery cosmetic composition according to the present invention comprises a pulverulent phase, as a main component. The total amount of the pulverulent phase, may be from 70 to 100% by weight, preferably 80 to 95% by weight, more preferably 85 to 95% by weight relative to the total weight of the powdery cosmetic composition.

(Spherical filler)

The pulverulent phase comprises at least one spherical filler in an amount of 10wt% or more based on the total weight of the composition.

The composition disclosed herein may comprise the spherical filler in an amount ranging from 10% to 60% by weight, for example, ranging from 15% to 45% by weight, further, for example, ranging from 15% to 30% by weight and, even further, for example, ranging from 15% to 25% by weight, relative to the total weight of the composition.

The spherical filler may be organic or inorganic.

As the inorganic spherical filler, mention may be made of silica microspheres, for example, of open porosity, such as hollow silica microspheres, including the products "Silica Beads SP 700/HA(R)" and "Silica Beads SB 700(R)" from the company Maprecos, and "Sunspheres H-33(R)" and "Sunspheres H-51(R)" from the company Asahi Glass.

It is preferable that the spherical filler is chosen from organic spherical fillers.

In some embodiments, the organic spherical fillers are not film-forming, i.e., they do not form a continuous film when deposited onto keratin layers such as the skin.

The organic spherical filler may be chosen, for example, from: (meth)acrylic or (meth)acrylate powders, for example, polymethylmethacrylate powders; polyacrylonitrile powders; polyurethane powders; polyamide powders; organopolysiloxane powders; and the like, as well as a mixture thereof.

According to one embodiment, the composition may comprise at least one spherical filler of polymethylmethacrylate.

The polymethylmethacrylate powder may be in the form of hollow or

solid white spherical particles generally with a number-average size of micrometer order, for example, ranging from 3 to 15 microns and, further, for example, ranging from 3 to 10 microns. As used herein, the expression "number-average size" means the size given by the statistical particle size distribution to half of the population, referred to as D50.

It is also possible to characterize the polymethylmethacrylate particles by their density, which can vary, for example, as a function of the size of the spherical cavity of the particles.

In accordance with the embodiments disclosed herein, this density is assessed according to the following protocol, referred to as the packed density:  $m=40$  g of powder is poured into a measuring cylinder; the measuring cylinder is then placed on a Stav 2003 machine from Stampf Volumeter; the measuring cylinder is then subjected to 1500 packing motions; the final volume  $V_f$  of packed powder is then measured directly on the measuring cylinder. The packed density is determined by the ratio  $m/V_f$ , in this instance  $40/V_f$  ( $V_f$  being expressed in  $\text{cm}^3$  and  $m$  in g).

For example, the density of the polymethylmethacrylate powder that may be used in the embodiments disclosed herein may range, for example, from 0.3 to 1.5, further, for example, from 0.5 to 1.5 and, even further, for example, from 1 to 1.5.

As non-limiting illustrations of the polymethylmethacrylate powder that is suitable for use in the composition disclosed herein, mention may be made, for example, of the polymethylmethacrylate particles sold by the company Matsumoto Yushi Co. under the name "Micropearl M100", by the company LCW under the name "Covabead LH 85" and those sold by the company Nihon Junyaku under the name "Jurymer MB1".

The polymethylmethacrylate powder may be present in an amount ranging from 1% to 20% by weight, for example, ranging from 2% to 15% by weight and further, for example, ranging from 3% to 10% by weight, relative to the total weight of the composition.

According to one embodiment, the composition may comprise at least one spherical filler of polyacrylonitrile.

The polyacrylonitrile powder may be chosen from acrylonitrile homopolymer powders and acrylonitrile copolymer powders, and, for example, expanded hollow particles of acrylonitrile homopolymer or copolymer. For example, the powders may be made of any expanded acrylonitrile homopolymer or copolymer that is non-toxic and a non-irritant to the skin.

For example, the mass per unit volume of the particles is chosen in the range from  $15 \text{ kg/m}^3$  to  $200 \text{ kg/m}^3$ , for example, from  $40 \text{ kg/m}^3$

to 120 kg/m<sup>3</sup> and even further, for example, from 60 kg/m<sup>3</sup> to 80 kg/m<sup>3</sup>. To obtain this low mass per unit volume, expanded polymer or copolymer particles, for example, based on acrylonitrile and on an acrylic or styrene monomer and/or on vinylidene chloride, may be used.

It is possible to use, for example, a copolymer comprising: from 0% to 60% of units derived from vinylidene chloride, from 20% to 90% of units derived from acrylonitrile and from 0% to 50% of units derived from an acrylic or styrene monomer, wherein the sum of the percentages (by weight) is equal to 100. The acrylic monomer may, for example, be a methyl or ethyl acrylate or methacrylate. The styrene monomer may, for example, be  $\alpha$ -methylstyrene or styrene.

In one embodiment, the powders used in the composition disclosed herein are chosen from hollow particles of an expanded copolymer of vinylidene chloride and of acrylonitrile or of vinylidene chloride and of acrylonitrile and of methacrylate. These powders may be dry or hydrated.

The powders may be obtained, for example, according to the processes disclosed in Patent and Patent Application Nos. EP 56219, EP 348372, EP 486080, EP 320473, EP 112807 and U.S. Pat. No. 3,615,972.

The internal cavity of the powder particles in principle comprises at least one gas, which may be chosen from air, nitrogen, and hydrocarbons, such as isobutane and isopentane.

In some embodiments, the powder particles disclosed herein have a particle size ranging from 1  $\mu\text{m}$  to 80  $\mu\text{m}$ , for example, ranging from 10  $\mu\text{m}$  to 50  $\mu\text{m}$  and from 10  $\mu\text{m}$  to 30  $\mu\text{m}$ .

The powder particles may be chosen, for example, from expanded terpolymer micro-spheres of vinylidene chloride, of acrylonitrile and of methacrylate, sold under the brand name Expancel by the company Expancel under the references 551 DE 50 (particle size of 40  $\mu\text{m}$ ), 551 DE 20 (particle size of 30  $\mu\text{m}$  and mass per unit volume of 65 kg/m<sup>3</sup>), 551 DE 12 (particle size of 12  $\mu\text{m}$ ), 551 DE 80 (particle size of 80  $\mu\text{m}$ ) and 461 DE 50 (particle size of 50  $\mu\text{m}$ ). It is also possible to use microspheres formed from the same expanded terpolymer having a particle size of 8  $\mu\text{m}$  and a mass per unit volume of 70 kg/m<sup>3</sup>, referred to hereinbelow as EL 23, or having a particle size of 34  $\mu\text{m}$  and a mass per unit volume of 20 kg/m<sup>3</sup>, referred to hereinbelow as EL 43.

The acrylonitrile powder may be present in the composition disclosed herein in an amount ranging from 0.02% to 2% by weight, for example, ranging from 0.1% to 1.5% by weight, and, further, for example, ranging from 0.1% to 1.2% by weight, relative to the total weight of the composition.

According to one embodiment, the composition may comprise at least one spherical filler of polyurethane.

The polyurethane powder may be a powder of a copolymer of hexamethylene diisocyanate and trimethylol hexyl lactone. Such a polyurethane powder is sold, for example, under the names "Plastic Powder D-400" and "Plastic Powder D-800" by the company Toshiki. Other polyurethane powders that may be used include the product sold under the name "Plastic Powder CS-400" by the company Toshiki.

The polyurethane powder may be present in the composition disclosed herein in an amount ranging from 1% to 20% by weight, for example, ranging from 2% to 15% by weight and, further, for example, ranging from 3% to 10% by weight, relative to the total weight of the composition.

According to one embodiment, the composition may comprise at least one spherical filler of polyamide.

Polyamide powders useful in the invention may be those listed under the CTFA name of "Nylon 12" or "Nylon 6". A mixture of particles and, for example, a mixture of Nylon-6 and Nylon-12 may be used.

The polyamide powder particles used in the invention include those sold under the names "Orgasol" by the company Atochem. The process for obtaining these particles is, for example, the process described in document FR-A-2 619 385 or in document EP-A-303 530. These polyamide powder particles are moreover known according to their various physicochemical properties under the name "polyamide 12" or "polyamide 6".

Particles useful in the present invention may also include those sold under the name SP500 by the company TORAY.

The polyamide powder may be present in the composition disclosed herein in an amount ranging from 1% to 20% by weight, for example, ranging from 2% to 15% by weight and, further, for example, ranging from 3% to 10% by weight, relative to the total weight of the composition.

According to a preferred embodiment, the composition may comprise at least one spherical filler of organopolysiloxane.

The organopolysiloxane may be elastomeric or non-elastomeric. It is preferable to use elastomeric organopolysiloxane powder or organopolysiloxane elastomer powder.

The elastomeric organopolysiloxane may, for example, be crosslinked and may be obtained via a crosslinking addition reaction of diorganopolysiloxane comprising at least one hydrogen linked to silicon and of



diorganopolysiloxane comprising at least one ethylenically unsaturated group linked to silicon, preferably, in the presence, for example, of a platinum catalyst; or  
via a dehydrogenation crosslinking condensation reaction between a diorganopolysiloxane comprising at least one hydroxyl end group and a diorganopolysiloxane comprising at least one hydrogen linked to silicon, preferably, in the presence of, for example, an organotin compound; or  
via a crosslinking condensation reaction of a diorganopolysiloxane comprising at least one hydroxyl end group and of a hydrolysable organopolysilane; or  
via thermal crosslinking of organopolysiloxane, preferably, in the presence of, for example, an organoperoxide catalyst; or  
via crosslinking of organopolysiloxane by high-energy radiation such as gamma rays, ultraviolet rays or an electron beam.

In one embodiment, the elastomeric organopolysiloxane powder is crosslinked and is obtained via a crosslinking addition reaction of a diorganopolysiloxane (B2) comprising at least two hydrogens, each linked to a silicon, and of a diorganopolysiloxane (A2) comprising at least two ethylenically unsaturated groups linked to silicon, preferably, in the presence of, for example, a platinum catalyst (C2), for instance as described in Patent Application No. EP-A-295886.

For example, the organopolysiloxane may be obtained via a reaction of dimethylpolysiloxane comprising dimethylvinylsiloxy end groups and of methylhydrogenopolysiloxane comprising trimethylsiloxy end groups, in the presence of a platinum catalyst.

Compound (A2) is the base reagent for the formation of elastomeric organopolysiloxane and the crosslinking takes place via an addition reaction of compound (A2) with compound (B2) in the presence of the catalyst (C2).

Compound (A2) may, for example, be a diorganopolysiloxane comprising at least two lower alkenyl groups (for example C2-C4); the lower alkenyl group may be chosen from vinyl, allyl and propenyl groups. These lower alkenyl groups may be located in any position of the organopolysiloxane molecule, but in one embodiment are located at the ends of the organopolysiloxane molecule. The organopolysiloxane (A2) may have a branched-chain, linear-chain, cyclic or network structure; in one embodiment, the linear-chain structure may be used. Compound (A2) may have a viscosity ranging from the liquid state to the gum state. For example, compound (A2) may have a viscosity of at least 100 centistokes at 25°C.

The organopolysiloxanes (A2) may be chosen from methylvinylsiloxanes, methylvinylsiloxane-dimethylsiloxane copolymers, dimethylpolysiloxanes comprising dimethylvinylsiloxy end groups, dimethylsiloxane-methylphenylsiloxane copolymers

comprising dimethylvinylsiloxyl end groups, dimethylsiloxane-diphenylsiloxane-methylvinylsiloxane copolymers comprising dimethylvinylsiloxyl end groups, dimethylsiloxane-methylvinylsiloxane copolymers comprising trimethylsiloxyl end groups, dimethylsiloxane-methylphenylsiloxane-methylvinylsiloxane copolymers comprising trimethylsiloxyl end groups, methyl(3,3,3-trifluoropropyl)polysiloxane comprising dimethylvinylsiloxyl end groups, and dimethylsiloxane-methyl(3,3,3-trifluoropropyl)siloxane copolymers comprising dimethylvinylsiloxyl end groups.

Compound (B2) may, for example, be an organopolysiloxane comprising at least two hydrogens linked to silicon in each molecule and is thus the crosslinking agent for the compound (A2).

In one embodiment, the sum of the number of ethylenic groups per molecule of compound (A2) and the number of hydrogen atoms linked to silicon per molecule of compound (B2) is at least 4.

Compound (B2) may be of any molecular structure. In one embodiment, compound (B2) is of linear-chain or branched-chain structure or cyclic structure.

Compound (B2) may have a viscosity at 25°C ranging from 1 to 50000 centistokes, for example, in order to have good miscibility with compound (A2).

In one embodiment, compound (B2) may be added in an amount such that the molecular ratio between the total amount of hydrogen atoms linked to silicon in compound (B2) and the total amount of all the ethylenically unsaturated groups in compound (A2) is within the range from 1:1 to 20:1.

Compound (B2) may be chosen from methylhydrogenopolysiloxanes comprising trimethylsiloxyl end groups, dimethylsiloxane-methylhydrogenopolysiloxane copolymers comprising trimethylsiloxyl end groups, and cyclic dimethylsiloxane-methylhydrogenopolysiloxane copolymers.

Compound (C2) is the crosslinking reaction catalyst, and may, for example, be chosen from chloroplatinic acid, chloroplatinic acid-olefin complexes, chloroplatinic acid-alkenylsiloxane complexes, chloroplatinic acid-diketone complexes, platinum black, and platinum on a support.

The catalyst (C2) may, for example, be added in an amount ranging from 0.1 to 1000 parts by weight and, further, for example, from 1 to 100 parts by weight, as clean platinum metal, per 1000 parts by weight of the total amount of compounds (A2) and (B2).

Other organic groups may be linked to silicon in the organopolysiloxanes (A2) and (B2) described previously, for example, alkyl groups, such as methyl, ethyl, propyl, butyl or octyl; substituted alkyl groups, such as 2-phenylethyl, 2-phenylpropyl or 3,3,3-tri-fluoropropyl; aryl groups, such as phenyl, tolyl or xylyl; substituted aryl groups, such as phenylethyl; and substituted monovalent hydrocarbon-based groups, such as an epoxy group, a carboxylate ester group or a mercapto group.

In some embodiments, the at least one elastomeric organopolysiloxane powder may, for example, be chosen from non-emulsifying elastomers. As used herein, the term "non-emulsifying" means organopolysiloxane elastomers not comprising a hydrophilic chain, such as polyoxyalkylene or polyglycerolated units.

Spherical elastomeric organopolysiloxanes are, for example, described in Patent Application Nos. JP-A-61-194 009, EP-A-242 219, EP-A-295 886 and EP-A-765 656, the contents of which are incorporated by reference.

Elastomer organopolysiloxane powders that may be used include those sold under the names "Dow Corning 9505 Powder" and "Dow Corning 9506 Powder" by the company Dow Corning; these powders have the INCI name: dimethicone/vinyl dimethicone crosspolymer.

The elastomeric organopolysiloxane powder may, for example, be chosen from elastomeric organopolysiloxane powders coated with silicone resin, for example, with silsesquioxane resin, as described, for example, in U.S. Pat. No. 5,538,793, the content of which is incorporated by way of reference. Such elastomeric powders are sold under the names "KSP-100", "KSP-101", "KSP-102", "KSP-103", "KSP-104" and "KSP-105" by the company Shin-Etsu, and have the INCI name: vinyl dimethicone/methicone silsesquioxane crosspolymer.

Other elastomeric organopolysiloxanes in the form of spherical powders may be powders of hybrid silicone functionalized with fluoroalkyl groups, sold, for example, under the name "KSP-200" by the company Shin-Etsu and powders of hybrid silicones functionalized with phenyl groups, sold, for example, under the name "KSP-300" by the company Shin-Etsu.

In one embodiment, the composition may, for example, comprise at least two powders of elastomeric organopolysiloxane chosen from elastomeric organopolysiloxane powders coated with silicone resin, for example, with silsesquioxane resin, as described previously.

In some embodiments, the composition disclosed herein may comprise at least one elastomeric organopolysiloxane spherical powder chosen from elastomeric organopolysiloxane spherical powders coated with

at least one silicone resin, for example, with silsesquioxane resin, in an amount ranging from 1% to 25% by weight, for example, from 1% to 15% by weight, further, for example, ranging from 2% to 8% by weight and, even further, for example, ranging from 3% to 7% by weight, relative to the total weight of the composition.

The composition disclosed herein may comprise a mixture of at least one elastomeric organopolysiloxane spherical powder chosen from elastomeric organopolysiloxane spherical powders coated with silicone resin, for example, with silsesquioxane resin, and uncoated elastomeric organopolysiloxane spherical powders. In such a mixture, the elastomeric organopolysiloxane spherical powders coated with silicone resin, for example, with silsesquioxane resin, may be present in an amount ranging from 1% to 10% by weight, for example, ranging from 2% to 8% by weight and, further, for example, ranging from 3% to 7% by weight, relative to the total weight of the composition; the uncoated elastomeric organopolysiloxane spherical powders may be present in an amount ranging from 1% to 10% by weight, for example, ranging from 2% to 8% by weight and, further, for example, ranging from 3% to 7% by weight, relative to the total weight of the composition.

The elastomeric organopolysiloxane powder may be present in the composition disclosed herein in an amount ranging from 50% to 100% by weight, for example, ranging from 50% to 90% by weight and, further, for example, ranging from 50% to 80% by weight, relative to the total weight of the spherical fillers.

The composition disclosed herein may comprise the elastomeric organopolysiloxane powder in an amount ranging from 1% to 30% by weight, for example, ranging from 2% to 20% by weight, further, for example, ranging from 3% to 15% by weight and, even further, for example, ranging from 5% to 10% by weight, relative to the total weight of the composition.

(First and Second Fillers)

The composition according to the present invention comprises a relatively large amount of spherical filler(s) as described above. Thus, the composition can exhibit soft texture and can easily be picked up by fingers and the like.

However, the relatively large amount of spherical filler(s) tends to affect the compactability of the composition according to the present invention as well as cosmetic properties such as even adhesion to a keratin substance such as the skin.

According to the present invention, in order to establish both good hardness or compactivity and good cosmetic properties such as good adhesion and spreadability, the powdery cosmetic composition according to the present invention comprises, at least, two fillers

which have been differently surface-treated.

As used herein, the term "filler" means a substantially uncolored compound that is solid at room temperature and atmospheric pressure, and insoluble in the various ingredients of the composition, even when these ingredients are brought to a temperature above room temperature. The filler may or may not be porous.

The two fillers are composed of a first non-spherical filler and a second filler which may be spherical or non-spherical, preferably non-spherical.

The "non-spherical" filler may be of any form other than spherical, for example, platelet-shaped, spherical, and oblong, irrespective of their crystallographic form (for example lamellar, cubic, hexagonal, and orthorhombic). In a preferred embodiment, the non-spherical filler is in a lamellar form. Preferably, the non-spherical filler has a high aspect ratio of 10 or more. The aspect ratio may be 20 or more or 50 or more. The aspect ratio can be determined by the average thickness and the average length according to the formula: aspect ratio = length/thickness.

The first non-spherical filler has an average particle size of less than 6  $\mu\text{m}$ . The second filler may preferably have a larger average particle size. Thus, in one embodiment of the present invention, the average particle size of the first non-spherical filler may be smaller than that of the second filler. In this embodiment, preferably, the first non-spherical filler with a smaller average particle size may have an average particle size of less than 5.5  $\mu\text{m}$ , such as 0.1 to less than 5.5  $\mu\text{m}$ , for example, from 1 to less than 5.5  $\mu\text{m}$ . On the other hand, the second filler with a larger average particle size may have an average particle size of 5.5  $\mu\text{m}$  or more, such as 5.5 to 9  $\mu\text{m}$ , for example, from 5.5 to 8  $\mu\text{m}$ .

The term "average particle size" here means the size given by the statistical particle size distribution to half of the population, referred to as D50. The average particle size can, for example, be measured with Mastersizer 2000 by Malvern Corp.

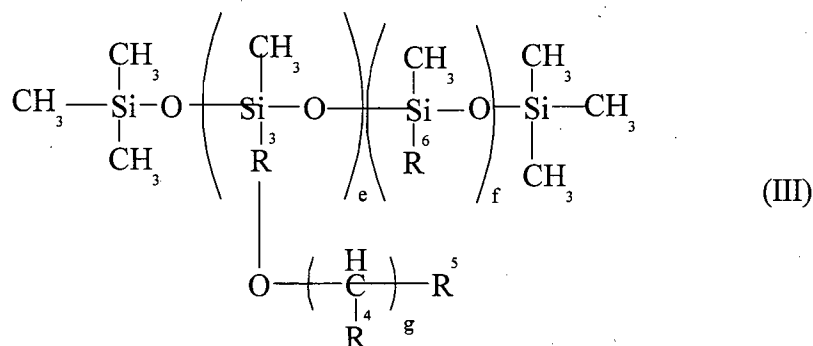
The material of the first and second fillers is not limited, but is preferably selected from the group consisting of talc, mica, silica, kaolin, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, lauroyl lysine, metal soap, bismuth oxychloride, barium sulfate, boron nitride, calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, and hydroxyapatite. As the material, talc, mica, kaolin, sericite are more preferable, and talc and mica are even more preferable. A mixture of these may be used as the material for the first and second fillers. The materials of the two fillers may be the same or different. In a preferred embodiment, it is talc or mica.

According to the present invention, the first non-spherical filler has been surface-treated with a surface treatment agent comprising at least one silicone oil.

The silicone oil may be selected from polydialkylsiloxanes such as polydimethylsiloxane, polyalkylaryldiloxanes such as polymethylphenylsiloxane, polydiarylsiloxanes such as polydiphenylsiloxanes, polyalkylhydrogensiloxanes such as methylhydrogenpolysiloxane, and modified-polysiloxanes.

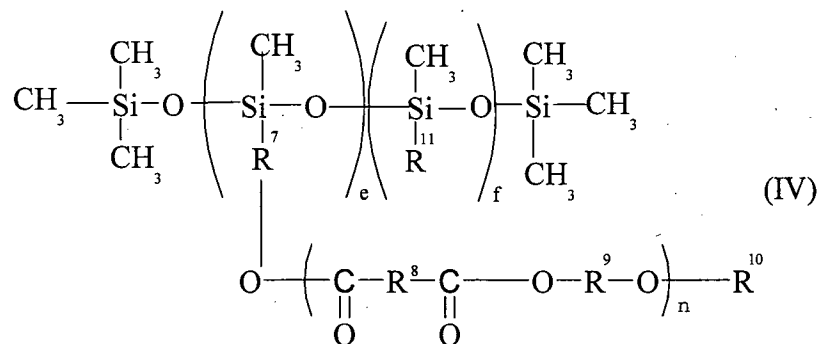
The modified-polysiloxanes may be chosen from the following formulae:

- (a<sup>1</sup>) modified polysiloxanes bearing polyethers, chosen from compounds of formula (III):



wherein

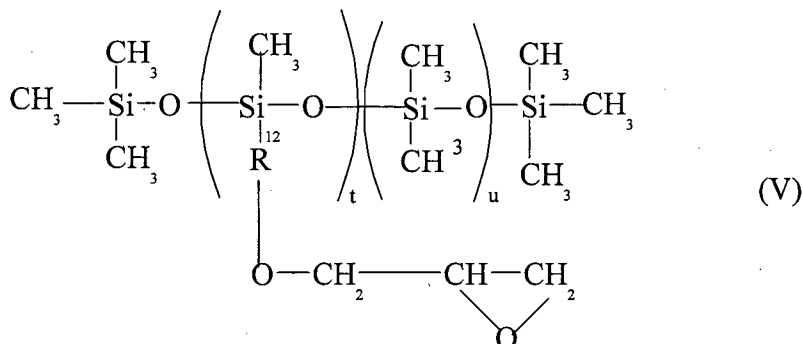
- R<sup>3</sup> comprises -(CH<sub>2</sub>)<sub>h</sub>-;
  - R<sup>4</sup> comprises -(CH<sub>2</sub>)<sub>i</sub>-CH<sub>3</sub>;
  - R<sup>5</sup> is chosen from -OH, -COOH, -CH=CH<sub>2</sub>, -C(CH<sub>3</sub>)=CH<sub>2</sub> and -(CH<sub>2</sub>)<sub>j</sub>-CH<sub>3</sub>;
  - R<sup>6</sup> comprises -(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>;
  - g and h independently range from 1 to 15;
  - j and k independently range from 0 to 15;
  - e ranges from 1 to 50; and
  - f ranges from 1 to 300;
- (a<sup>2</sup>) modified polysiloxanes bearing polyesters, chosen from compounds of formula (IV):



wherein

- R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently chosen from -(CH<sub>2</sub>)<sub>q</sub>-;
- R<sup>10</sup> is chosen from -OH, -COOH, -CH=CH<sub>2</sub>, -C(CH<sub>3</sub>)=CH<sub>2</sub> and -(CH<sub>2</sub>)<sub>r</sub>-CH<sub>3</sub>;

- R<sup>11</sup> comprises -(CH<sub>2</sub>)<sub>s</sub>-CH<sub>3</sub>;
- n and q independently range from 1 to 15;
- r and s independently range from 0 to 15;
- e ranges from 1 to 50; and
- f ranges from 1 to 300;
- (a<sup>3</sup>) modified polysiloxanes bearing epoxy radicals, chosen from compounds of formula (V):



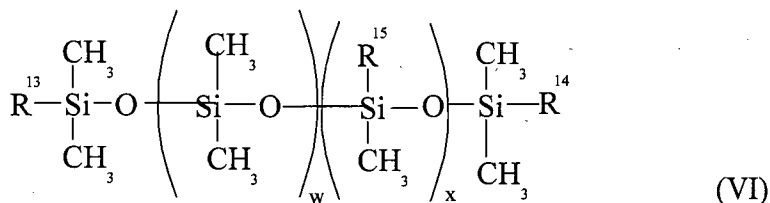
wherein

- R<sup>12</sup> comprises -(CH<sub>2</sub>)<sub>v</sub>-;
- v ranges from 1 to 15;
- t ranges from 1 to 50; and
- u ranges from 1 to 300;

and

- mixtures thereof.

Alternatively, the modified-polysiloxane may be chosen from compounds of formula (VI):



wherein

- R<sup>13</sup> and R<sup>14</sup> are independently chosen from -OH, R<sup>16</sup>OH and R<sup>17</sup>COOH;
- R<sup>15</sup> is chosen from -CH<sub>3</sub> and -C<sub>6</sub>H<sub>5</sub>;
- R<sup>16</sup> and R<sup>17</sup> comprise -(CH<sub>2</sub>)<sub>y</sub>-;
- y ranges from 1 to 15;
- w ranges from 1 to 200; and
- x ranges from 0 to 100.

It is preferable that the silicone oil is a polydialkylsiloxane such as polydimethylsiloxane or a mixture of polydialkylsiloxanes.

The surface treatment agent for the first non-spherical filler may comprise at least one dimethylpolysiloxane.

According to one embodiment of the present invention, the surface treatment of the first non-spherical filler may be chosen from the

following treatments:

PEG-silicone treatments, for instance the AQ surface treatment sold by LCW;

methicone treatments, for instance the SI surface treatment sold by LCW; and

dimethicone treatments, for instance the Covasil 3.05 surface treatment sold by LCW, or the SA surface treatments sold by Miyoshi Kasei, and in particular the product SA-TA-13R sold by MIYOSHI KASEI (INCI Name Talc and dimethicone).

In a preferred embodiment, a dimethicone-treated talc can be used as the first non-spherical filler.

According to the present invention, on the other hand, the second filler has been surface-treated with a surface treatment agent comprising at least one amino acid and/or a derivative thereof.

The amino acid may preferably be selected from the group consisting of proline, hydroxyproline, alanine, glycine, sarcosine, aspartic acid, and glutamic acid.

The amino acids may be L-isomers or a mixture of L-isomers and D-isomers.

It is preferable that the second filler has been coated with:

(a) at least one selected from proline, hydroxyproline and derivatives thereof; and/or

(b) at least one selected from alanine, glycine, sarcosine and derivatives thereof; and/or

(c) at least one selected from aspartic acid, glutamic acid and derivatives thereof.

The derivatives of the amino acids may be selected from salts of the amino acids, and N-acylated amino acids and salts thereof.

It is preferable that two of the components (a) to (c) be used together, and it is more preferable that all of the components (a) to (c) be used together. If two or more of the components (a) to (c) are used, the type of the derivatives and/or salts may be the same or different.

The N-acyl group of the N-acylated amino acid may be a linear or branched, saturated or unsaturated acyl group with C<sub>8</sub>-C<sub>22</sub> carbon atoms, preferably C<sub>12</sub>-C<sub>18</sub> carbon atoms. It is preferable that the N-acyl group is a linear saturated acyl group, such as a palmitoyl group.

The salt of the amino acid or the N-acylated amino acid is not limited but may be in the form of a metal salt with a metal element such as Na, K, Ba, Zn, Ca, Mg, Fe, Zr, Co, Al, Ti and the like; an onium salt such as an ammonium salt; and a salt with an organic



alkanolamine such as monoethanolamine, diethanolamine, triethanolamine, 2-amino-2-methylpropanol, 2-amino-2-methyl-1,3-propanediol, and triisopropanolamine. It is preferable that the salt is a metal salt with Na, K, Ca, Mg or Al.

It is more preferable that the second filler has been coated with a mixture (referred to as "lipo-amino acid composition") of at least one fatty acid, such as a C<sub>12</sub>-C<sub>18</sub> fatty acid, and/or a salt of the fatty acid, and

- (a) at least one selected from proline, hydroxyproline and derivatives thereof; and/or
- (b) at least one selected from alanine, glycine, sarcosine and derivatives thereof; and/or
- (c) at least one selected from aspartic acid, glutamic acid and derivatives thereof.

As the fatty acid, a linear, branched or cyclic fatty acid, preferably C<sub>12</sub>-C<sub>18</sub>, can be used. A plurality of fatty acids may be used. As examples of the fatty acid, mention may be made of lauric acid, myristic acid, isomyristic acid, palmitic acid, isopalmitic acid, stearic acid, isostearic acid, oleic acid, myristoleic acid, elaidic acid, linoleic acid, and linolenic acid. As example of the salt of the fatty acid, mention may be made of a metal salt with a metal element such as Na, K, Ba, Zn, Ca, Mg, Fe, Zr, Co, Al, Ti or the like. Lauric acid, myristic acid, palmitic acid and stearic acid as well as a metal salt thereof with Na, K, Ca, Al or Mg are preferable. Lauric acid, myristic acid and palmitic acid are more preferable. Palmitic acid is most preferable.

In the lipo-amino acid composition, each of the fatty acid (or a salt thereof) and any of the components (a) to (c) may represent 0.5% by weight or more, preferably 5% by weight or more, more preferably 10% by weight or more, relative to the total weight of the lipo-amino acid composition.

It is most preferable that the lipo-amino acid composition comprises all of the components (a) to (c) as well as at least one fatty acid, such as a C<sub>12</sub>-C<sub>18</sub> fatty acid, and/or a salt of the fatty acid.

For example, a mixture of palmitic acid, palmitoyl proline, palmitoyl sarcosinate, and palmitoyl glutamate can be used as the lipo-amino acid composition. A mixture of palmitic acid, palmitoyl proline, sodium palmitoyl sarcosinate, and magnesium palmitoyl glutamate is more preferable.

In the lipo-amino acid composition comprising all of the components (a) to (c), each of the fatty acid (or a salt thereof) and any of the components (a) to (c) may represent 0.5% by weight or more, preferably 5% by weight or more, more preferably 10% by weight or more, relative to the total weight of the lipo-amino acid composition. It is possible that the lipo-amino acid composition

comprises 5-50% by weight of the component (a), 5-50% by weight of the component (b), 5-25% by weight of the component (c) and 5-50% by weight of the fatty acid (or a salt thereof), relative to the total weight of the lipo-amino acid composition.

The lipo-amino acid composition can be prepared by a known method. For example, it is possible to prepare the lipo-amino acid composition in accordance with the methods described in WO 98/09611, WO 99/04757, JP-A-2000-191426 and the like. The above lipo-amino acid composition is also marketed in the name of Sepifeel One sold by Seppic in France.

The surface-treated second filler can be prepared by coating the filler with any of the components (a) to (c), a mixture of two or more of the components (a) to (c), or the lipo-amino acid composition described above.

The coating can be performed by a known method. For example, the second filler can be added into a solution of any of the components (a) to (c), a mixture of two or more of the components (a) to (c), or the lipo-amino acid composition described above; the filler is dispersed in the solution; and the dispersion is filtered, washed and dried. The solvent of the solution may be selected from water, aqueous solvents such as methanol and ethanol, and non-aqueous solvents such as ethyl acetate, depending on the nature of the components (a) to (c) and the like.

The amount of the coating depends on the type of the filler, and can be 0.1 to 30% by weight, preferably 1.0 to 10% by weight, relative to the total weight of the filler.

The filler may preferably be pre-coated with at least one oxide or hydroxide of a metal element such as aluminum, calcium, magnesium, cerium, silicon, zirconium, titanium, zinc, iron, cobalt, manganese, nickel, and tin. Aluminum hydroxide is more preferable. Further, the filler may preferably be pre-coated with a silicone compound, a fatty acid, a metal soap, a fluorine-based compound, a silane-coupling agent, and the like.

The second filler coated with the lipo-amino acid composition comprising at least one fatty acid, such as a C<sub>12</sub>-C<sub>18</sub> fatty acid, and/or a salt of the fatty acid, and the components (a) to (c) is/are available from the market.

For example, mica coated with palmitoyl proline, sodium palmitoyl sarcosinate, magnesium palmitoyl glutamate or palmitic acid has been marketed by Miyoshi Kasei Inc. in Japan.

The first non-spherical filler may be present in the composition in total amounts ranging from 20% to 60% by weight, for example, from 25% to 50% by weight, or from 30% to 40% by weight relative

to the total weight of the composition.

The second filler may be present in the composition in total amounts ranging from 5% to 20% by weight, for example, from 10% to 15% by weight, or from 8% to 12% by weight relative to the total weight of the composition.

The ratio of the amount of the first non-spherical filler to the amount of the second filler may be 1 or more, preferably 2 or more, and more preferably 3 or more.

The ratio of the total amount of the first non-spherical filler and the second filler to the amount of the spherical filler may be 1 or more, preferably 2 or more, and more preferably 3 or more.

(Additional Components)

The composition disclosed herein may comprise at least one pulverulent dyestuff, which may be chosen from pigments and nacles, as well as at least one additional filler.

As used herein, the term "pigments" should be understood as meaning white or colored, mineral or organic particles of any shape, which are insoluble in the physiological medium, and which are intended to color the composition.

As used herein, the term "nacles" should be understood as meaning iridescent particles of any shape, for example, produced in the shell of certain molluscs or alternatively synthesized.

The pigments may be white or colored, and mineral and/or organic. Among the mineral pigments that may be mentioned are titanium dioxide, optionally surface-treated, zirconium oxide or cerium oxide, and also zinc oxide, iron oxide (black, yellow or red) or chromium oxide, manganese violet, ultramarine blue, chromium hydrate and ferric blue, and metal powders, such as aluminum powder or copper powder.

Among the organic pigments that may be mentioned are carbon black, pigments of D & C type, and lakes based on cochineal carmine or on barium, strontium, calcium or aluminum.

The nacreous pigments may be chosen from white nacreous pigments such as mica coated with titanium or with bismuth oxychloride, colored nacreous pigments, such as titanium mica coated with iron oxides, titanium mica coated, for example, with ferric blue or with chromium oxide, titanium mica coated with an organic pigment of the above-mentioned type, and also nacreous pigments based on bismuth oxychloride.

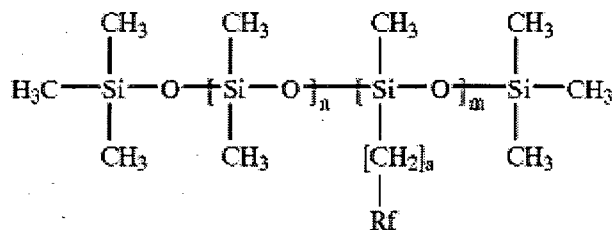
The additional filler(s) can be inorganic or organic,

surface-treated or non-surface treated, and can be of spherical or oblong shape, whatever the crystallographic form (for example, sheet, cubic, hexagonal, orthorhombic, and the like).

Non-limiting mention may be made of talc, mica, silica, kaolin, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, bismuth oxychloride, barium sulfate, boron nitride, calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate and hydroxyapatite, powders formed of polyamide (Nylon®), of poly-β-alanine and of polyethylene, powders formed of polyurethane, powders formed of tetrafluoroethylene polymers (Teflon®), lauryllysine, starch, polymeric hollow microspheres, such as those of poly(vinylidene chloride)/acrylonitrile, for example Expancel® (Nobel Industrie), or of acrylic acid copolymers, silicone resin microbeads (Tospearls® from Toshiba, for example), particles formed of polyorganosiloxane elastomers, precipitated calcium carbonate, magnesium carbonate, basic magnesium carbonate, hollow silica microspheres, glass or ceramic microcapsules, or metal soaps derived from organic carboxylic acids having from 8 to 22 carbon atoms, such as from 12 to 18 carbon atoms, for example zinc stearate, magnesium stearate, lithium stearate, zinc laurate or magnesium myristate.

The composition disclosed herein may, for example, comprise at least one fatty phase, which may comprise at least one oil. This type of fatty phase is also commonly referred to as a binder, and serves, for example, as a dispersing medium for the pulverulent phase.

The oil may be chosen from the oils conventionally used as a binder in compacted powders. For example, the oil may be chosen from: mink oil, turtle oil, soybean oil, grapeseed oil, sesame seed oil, corn oil, rapeseed oil, sunflower oil, cottonseed oil, avocado oil, olive oil, castor oil, jojoba oil, and groundnut oil; hydrocarbon oils, such as liquid paraffin, squalane, and petroleum jelly; fatty esters, such as isopropyl myristate, isopropyl palmitate, butyl stearate, isodecyl stearate, isocetyl stearate, hexyl laurate, isononyl isononanoate, 2-ethylhexyl palmitate, 2-hexyldecyl laurate, 2-octyldecyl palmitate, 2-octyldodecyl myristate, and lactate, 2-diethylhexyl succinate, diisostearyl malate, glyceryl triisostearate, and diglyceryl triisostearate; silicone oils, such as polymethylsiloxanes, polymethylphenylsiloxanes, polysiloxanes modified with fatty acids, with fatty alcohols or with polyoxyalkylenes, fluoro silicones, and perfluoro oils; higher fatty acids, such as myristic acid, palmitic acid, stearic acid, behenic acid, oleic acid, linoleic acid, linolenic acid, and isostearic acid; higher fatty alcohols, such as cetanol, stearyl alcohol, and oleyl alcohol; and poly methylfluoroalkyl dimethylsiloxanes of formula (I):



(I)

wherein:

n is an integer ranging from 5 to 90, for example, from 30 to 80 and, further, for example, from 50 to 80;

m is an integer ranging from 1 to 150, for example, from 1 to 80 and, further, for example, from 1 to 40;

a is an integer ranging from 0 to 5, and

Rf is chosen from perfluoroalkyl radicals comprising from 1 to 8 carbon atoms.

Examples of compounds of formula (I) include those sold under the names X22-819, X22-820, X22-821 and X22-822 by the company Shin-Etsu.

The composition disclosed herein may comprise the oil in an amount ranging from 1% to 20% by weight and, further, for example, from 2% to 15% by weight, relative to the total weight of the composition.

The composition may comprise at least one other common cosmetic ingredient, which may be chosen, for example, from antioxidants, fragrances, preserving agents, neutralizers, surfactants, waxes, sunscreens, vitamins, moisturizers, self-tanning compounds, and antiwrinkle active agents.

Needless to say, a person skilled in the art will take care to select this or these optional additional compound(s), and/or the amount thereof, such that the advantageous properties of the composition disclosed herein are not, or are not substantially, adversely affected by the envisaged addition(s).

These additional or optional component(s) may be present in the powdery cosmetic composition in an amount ranging from 0.1% to 15% by weight, preferably 1% to 10% by weight, more preferably 3% to 5% by weight relative to the total weight of the powdery cosmetic composition.

In one embodiment, the composition disclosed herein is an anhydrous composition. As used herein, the term "anhydrous composition" means a composition comprising no more than 2% by weight of water, for example, no more than 0.5% of water, and, for example, free of water, wherein the water is not added during the preparation of the composition, but corresponds to the residual water provided by the mixed ingredients.

The composition disclosed herein is in the form of a compacted powder such as a powder foundation, a pressed powder and a deodorant powder. As used herein, the term "compacted powder" means a powder pressed using a manual or mechanical press. A person skilled in the art has no difficulty in preparing the compacted powder by using well-known methods, such as a so-called dry process and wet process.

In the dry process, the components of the powdery cosmetic composition are filled into a container such as a pan. After filling, they are pressed by mechanical force provided by an electric motor, a hydraulic ram or a pneumatic cylinder, etc., in order to compact the components to prepare the compacted powder. Supersonic waves may be added, if necessary, to the components as described in JP-A-H05-70325.

In the wet process, on the other hand, the components of the powdery cosmetic composition are dispersed once in a large amount of a solvent to make a slurry. Then, the slurry is filled into a container. After the filling, the slurry is pressed by mechanical force while the solvent is removed simultaneously and/or sequentially in order to solidify the slurry.

The powdery cosmetic composition according to the present invention may be used in a cosmetic process including a step of coating a face with the composition.

#### EXAMPLES

The present invention will be described in more detail by way of examples, which however should not be construed as limiting the scope of the present invention.

#### **Example 1 and Comparative Examples 1 to 4**

The powdery cosmetic compositions according to Example 1 and Comparative Examples 1 to 4 which have the following formulas shown in Table 1 were prepared. The numerals in Table 1 were based on percentage by weight relative to the total weight of the composition.

Table 1

	Example	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4
Silicone-treated talc (first non-spherical filler)*	32.32	-	-	42.32	32.32
Silicone-treated talc**	-	32.32	-	-	-
Silicone-treated talc***	-	-	32.32	-	-
LP-treated mica****	10	10	10	-	-
Mica and C <sub>9-15</sub> fluoroalcohol phosphate 5%	18	18	18	18	28
Polymethylmethacrylate powder (spherical filler)	3	3	3	3	3
Polyamide powder (spherical filler)	3	3	3	3	3
Silicone elastomer (KSP-100) (spherical filler)	2	2	2	2	2
Silicone elastomer (KSP-300) (spherical filler)	4	4	4	4	4
Yellow iron oxide	1.98	1.98	1.98	1.98	1.98
Black iron oxide	0.36	0.36	0.36	0.36	0.36
Red iron oxide	0.65	0.65	0.65	0.65	0.65
Titanium oxide and lauroyl lysine (95/5) (LL 5 TITANIUM DIOXIDE CR 50 FROM DAITO KASEI KOGYO)	14	14	14	14	14
Caprylic/capric triglycerides	1	1	1	1	1
Polydimethylsiloxane	2.3	2.3	2.3	2.3	2.3
Phenyltrimethicone	3	3	3	3	3
Sorbitan sesquioleate (Surfactant)	1	1	1	1	1
Ethylhexyl methoxycinnamate (UV filter)	3	3	3	3	3
Preservative	0.4	0.4	0.4	0.4	0.4

Silicone-treated talc<sup>\*</sup>: Talc and dimethicone (98/2) with average particle diameter of 5.42  $\mu\text{m}$  sold by Miyoshi Kasei under the name SA-TA-13R

Silicone-treated talc<sup>\*\*</sup>: Talc and dimethicone (98/2) with average particle diameter of 8.08  $\mu\text{m}$  sold by Miyoshi Kasei under the name SA-TA-46R

Silicone-treated talc<sup>\*\*\*</sup>: Talc and dimethicone (98/2) with average particle diameter of 8.33  $\mu\text{m}$  sold by Miyoshi Kasei under the name SA-TA-68R

LP-treated mica<sup>\*\*\*\*</sup>: Mica (and) Palmitoyl Proline (and) Sodium Palmitoyl Sarcosinate (and) Magnesium Palmitoyl Glutamate (and) Aluminum Hydroxide (and) Palmitic Acid, sold by Miyoshi Kasei under the name LP-S-100 (second filler)

The average particle size was measured with Mastersizer 2000 by Malvern Corp.

For each of Example 1 and Comparative Examples 1 to 4, the powder components shown in Table 1 were mixed in a Henschel mixer for about 10 minutes. The non-powder components (oil, surfactant, UV filter and preservative) shown in Table 1 were added to the mixture, and mixed together for about 15 minutes. The mixture was pulverized by a Hammer mill. The pulverized powder was filtered with a mesh to form the powdery cosmetic compositions according to Example 1 and Comparative Examples 1 to 4.

[Hardness Evaluation]

13 g of the powdery cosmetic composition of each of Examples 1-3 and Comparative Examples 1 and 2 was compacted to form a sample which was a compacted powder in the cylinder form with a diameter of 80 mm, with a pressure of 10  $\text{kgf/cm}^2$  (first press) and 30  $\text{kgf/cm}^2$  (second press).

The hardness of each sample obtained as above was measured with Asker Hardness Meter A1-type. The results are shown in Table 2.

[Compactability Evaluation]

The samples according to Example 1 and Comparative Examples 1 to 4 were subjected to a drop test in which each sample was dropped at a height of 20 cm onto a ceramic tile. The chipping of each sample was determined, and the loss of powder was calculated. The results are shown in Table 2.



Table 2

	Example 1	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4
Hardness	21	17.8	17.3	20.5	20.9
10 times loss rate (%)	0.1	2.7	4.9	0	0.2
20 times loss rate (%)	3.1	100	100	4.2	8.1

The powdery cosmetic composition of Example 1 showed better hardness and compactability than Comparative Examples 1 and 2. It can be understood that the powdery cosmetic composition of Example 1 has good physical properties although it comprises a relatively large amount of spherical fillers.

[Evenness Evaluation]

The samples according to Example 1 and Comparative Examples 1 to 4 were subjected to an application test in which 100 g of a powder was taken under the conditions of a length of 25 mm at a speed of 5 mm/s by a sponge, and is applied onto skin model plates (Bio Skin T5) under the conditions of a length of 120 mm at a speed of 5mm/s, by using a Tribo Master TL-201.

The surface of each of the skin model plates was observed at the points of 1 cm and 5 cm away from the start of the application. The results are shown in Table 3.

Table 3

	Example 1	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4
Roughness 1 cm ( $\mu\text{m}$ )	6.1	7.9	8.7	6.1	6.7
Roughness 5 cm ( $\mu\text{m}$ )	5.9	5.7	6.0	5.2	6.6
Difference	0.2	2.2	2.7	0.9	0.1

Example 1 shows a smaller difference in Ra (1 cm) and Ra (5 cm) than Comparative Examples 1 and 2. This means that the powdery cosmetic composition can be more evenly applied on the skin compared to those of Comparative Examples 1 and 2.

[Sensory Evaluation]

The samples according to Example 1 and Comparative Examples 3 and 4 were subjected to sensory evaluation with regard to some properties by 11 testers under the following criteria.

Score	Criteria
1	Very good and very satisfied
2	Good and satisfied
3	Fair
4	Poor and dissatisfied
5	Very poor and highly dissatisfied

The average of the scores for each sample was sorted in accordance with the following standard. The results are shown in Table 4.

ooo: 5.0 to 4.0

oo: less than 4.0 to 3.0

o: less than 3.0 to 2.0

▲: less than 2.0 to 1.0

Table 4

	Example 1	Comp. Ex. 3	Comp. Ex. 4
Soft touch	oo	o	o
Spreadability	oo	o	o
Adhesion to skin	oo	o	o
No powdery finish	ooo	oo	oo
Natural finish	oo	o	o
No dry feel	ooo	oo	oo

As shown in Table 4, the powdery cosmetic composition of Example 1 showed better sensory properties than those of Comparative Examples 3 and 4.

## CLAIMS

1. A powdery cosmetic composition in the form of a compacted powder comprising:  
at least one spherical filler in an amount of 10wt% or more based on the total weight of the composition; and  
a first non-spherical filler with an average particle size of less than 6  $\mu\text{m}$  and being surface treated with a surface treatment agent comprising at least one silicone oil, and  
a second filler being surface-treated with a surface treatment agent comprising at least one amino acid and/or a derivative thereof.
2. The powdery cosmetic composition according to Claim 1, wherein the second filler is a non-spherical filler.
3. The powdery cosmetic composition according to Claim 1 or 2, wherein the ratio of the amount of the first non-spherical filler to the amount of the second filler is 1 or more, preferably 2 or more, and more preferably 3 or more.
4. The powdery cosmetic composition according to any one of Claims 1 to 3, wherein the ratio of the total amount of the first non-spherical filler and the second filler to the amount of the spherical filler is 1 or more, preferably 2 or more, and more preferably 3 or more.
5. The powdery cosmetic composition according to any one of Claims 1 to 4, wherein the amino acid is selected from the group consisting of proline, hydroxyproline, alanine, glycine, sarcosine, aspartic acid, and glutamic acid.
6. The powdery cosmetic composition according to any one of Claims 1 to 5, wherein the first non-spherical filler and the second filler are independently selected from the group consisting of talc, mica, silica, kaolin, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, lauroyl lysine, metal soap, bismuth oxychloride, barium sulfate, boron nitride, calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, and hydroxyapatite.
7. The powdery cosmetic composition according to any one of Claims 1 to 6, wherein the first non-spherical filler and the second filler are talc and/or mica.
8. The powdery cosmetic composition according to any one of Claims 1 to 7, wherein the first non-spherical filler is a dimethicone-treated talc.
9. The powdery cosmetic composition according to any one of Claims 1 to 8, wherein the second filler is a filler coated with a

- mixture of at least one fatty acid, such as a C<sub>12</sub>-C<sub>18</sub> fatty acid, and/or a salt of the fatty acid, and
- (a) at least one selected from proline, hydroxyproline and derivatives thereof; and/or
  - (b) at least one selected from alanine, glycine, sarcosine and derivatives thereof; and/or
  - (c) at least one selected from aspartic acid, glutamic acid and derivatives thereof.
10. The powdery cosmetic composition according to any one of Claims 1 to 9, wherein the second filler is a mica coated with a mixture of palmitic acid, palmitoyl proline, sodium palmitoyl sarcosinate, and magnesium palmitoyl glutamate.
  11. The powdery cosmetic composition according to any one of Claims 1 to 10, wherein the spherical filler comprises at least one organopolysiloxane elastomer powder.
  12. The powdery cosmetic composition according to Claim 11, wherein 50wt% or more of the spherical filler is the organopolysiloxane elastomer powder.
  13. The powdery cosmetic composition according to Claim 11 or 12, wherein the organopolysiloxane elastomer powder is chosen from those obtained from:
    - a crosslinking addition reaction of diorganopolysiloxane comprising at least one hydrogen linked to silicon and of diorganopolysiloxane comprising at least one ethylenically unsaturated group linked to silicon;
    - a dehydrogenation crosslinking condensation reaction between a diorganopolysiloxane comprising at least one hydroxyl end group and a diorganopolysiloxane comprising at least one hydrogen linked to silicon;
    - a crosslinking condensation reaction of a diorganopolysiloxane comprising at least one hydroxyl end group and of a hydrolysable organopolysilane;
    - thermal crosslinking of organopolysiloxane; and
    - crosslinking of organopolysiloxane by high-energy radiation.
  14. The powdery cosmetic composition according to any one of Claims 11 to 13, wherein the organopolysiloxane elastomer powder is obtained via a crosslinking addition reaction of a diorganopolysiloxane comprising at least two hydrogens each linked to silicon, and a diorganopolysiloxane comprising at least two ethylenically unsaturated groups linked to silicon.
  15. The powdery cosmetic composition according to any one of Claims 11 to 14, wherein the organopolysiloxane elastomer powder is obtained by reaction of a dimethylpolysiloxane comprising dimethylvinylsiloxy end groups and of methylhydrogenopolysiloxane comprising trimethylsiloxy end

groups, in the presence of a platinum catalyst.

16. The powdery cosmetic composition according to any one of Claims 11 to 15, wherein the organopolysiloxane elastomer powder comprises an elastomeric organopolysiloxane powder which has been coated with at least one silicone resin.
17. The powdery cosmetic composition according to Claim 16, wherein the silicone resin is silsesquioxane resin.
18. The powdery cosmetic composition according to any one of Claims 1 to 17, wherein it is anhydrous.
19. A cosmetic process including a step of coating a face with a composition according to any one of Claims 1 to 18.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/JP2010/072305

A. CLASSIFICATION OF SUBJECT MATTER  
 INV. A61K8/02 A61K8/04 A61K8/11 A61K8/25 A61K8/26  
 A61K8/44 A61K8/891 A61Q1/02 A61Q1/12  
 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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/276776 A1 (LIECHTY ANNE [FR] ET AL) 15 December 2005 (2005-12-15) paragraph [0070]; example 4 -----	1-19
Y	US 2005/186235 A1 (MARTIN GUENAELE [FR] ET AL) 25 August 2005 (2005-08-25) example 2 -----	1-19
Y	US 2004/014841 A1 (TANAKA KOJO [JP] ET AL) 22 January 2004 (2004-01-22) examples -----	1-19
Y	US 2006/024375 A1 (HASEGAWA YUKIO [JP] ET AL) 2 February 2006 (2006-02-02) paragraph [0005]; claims -----	1-19
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Further documents are listed in the continuation of Box C.  See patent family annex.

\* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search  27 July 2011	Date of mailing of the international search report  03/08/2011
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Miller, Bernhard
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/JP2010/072305

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 837 011 A (MACCHIO RALPH A [US] ET AL) 6 June 1989 (1989-06-06) claims; examples -----	1-19
A	US 2006/034788 A1 (HORINO MASAOKIRA [JP] ET AL) 16 February 2006 (2006-02-16) claims; examples -----	1-19

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/JP2010/072305

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005276776	A1	15-12-2005	NONE
US 2005186235	A1	25-08-2005	NONE
US 2004014841	A1	22-01-2004	NONE
US 2006024375	A1	02-02-2006	NONE
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