



(43) International Publication Date
27 December 2013 (27.12.2013)

(10) International Publication Number
WO 2013/190079 A1

(51) International Patent Classification:

A61Q 5/06 (2006.01) *A61K 8/25* (2006.01)
A61K 8/81 (2006.01) *A61K 8/26* (2006.01)
A61K 8/86 (2006.01) *A61K 8/02* (2006.01)
A61K 8/88 (2006.01)

(21) International Application Number:

PCT/EP2013/062963

(22) International Filing Date:

21 June 2013 (21.06.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1255819 21 June 2012 (21.06.2012) FR
61/694,309 29 August 2012 (29.08.2012) US

(71) Applicant: **L'OREAL** [FR/FR]; 14, rue Royale, F-75008 Paris (FR).

(72) Inventor: **FAVREAU, Valérie**; 33, rue de l'Isle-Adam, F-95540 MERY-SUR-OISE (FR).

(74) Agent: **LERAY, Noëlle**; L'OREAL, D.I.P.I., 25-29 Quai Aulagnier, F-92665 ASNIERES-SUR-SEINE Cedex (FR).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(54) Title: COSMETIC COMPOSITION COMPRISING INSOLUBLE SOLID PARTICLES, A NON-LIQUID FATTY SUBSTANCE AND A SURFACTANT

(57) Abstract: The present invention relates to a cosmetic composition comprising at least one non-liquid fatty substance, at least one surfactant and water-insoluble solid particles, the surfactant(s)/water-insoluble solid particles weight ratio being greater than or equal to 1, the total weight content of surfactant(s) and of water-insoluble solid particles being less than or equal to 3% relative to the total weight of the composition.



WO 2013/190079 A1

**COSMETIC COMPOSITION COMPRISING INSOLUBLE SOLID PARTICLES, A
NON-LIQUID FATTY SUBSTANCE AND A SURFACTANT**

The present invention relates to a cosmetic composition comprising insoluble solid particles, at least one non-liquid fatty substance and at least one surfactant, and also to the use of such a composition for hair treatment, especially for treating keratin fibres and in particular for holding/shaping the hair.

Styling products with a waxy effect are predominantly in the form of more or less viscous pastes which are applied to the hair by hand. It is generally sought to obtain repositionable hairstyles with or without an aesthetic effect such as a matting or sheen effect.

Now, hairstyling waxes are often tacky and greasy.

Document EP 2 394 631 describes a matting styling composition comprising waxes, surfactants and fillers, the composition not leaving any visible residues after drying. This type of composition leads, however, to a residual tacky effect on the hair, and it is not easy to remove with water. In addition, the fixing level is relatively poor.

There is therefore a real need to have a cosmetic composition that has good styling and cosmetic properties, and that makes it possible to overcome the drawbacks mentioned above.

The Applicant has discovered that by combining insoluble solid particles, a non-liquid fatty substance and a surfactant in a particular weight ratio, it is possible to obtain styling waxes that have improved working qualities and improved styling performance.

One subject of the present invention is thus a cosmetic composition containing at least one non-liquid fatty substance, at least one surfactant and water-insoluble solid particles other than fatty substances, the surfactant(s)/insoluble solid particles weight ratio being greater than or equal to 1, the total weight content of surfactant(s) and of insoluble solid particles being less than or equal to 3% relative to the total weight of the composition.

The cosmetic composition is preferably a composition for styling and/or conditioning keratin fibres, in particular for styling keratin fibres, in particular human keratin fibres such as the hair.

The invention also relates to a cosmetic process for treating keratin fibres, in particular for holding and/or shaping keratin fibres, using the cosmetic composition as defined above.

A subject of the invention is also the use of a composition as defined previously for hair treatment, especially for treating keratin fibres and in particular for holding/shaping the hair.

The composition obtained makes it possible to obtain a good level of hairstyle fixing and the hair is sparingly tacky and has a smooth feel, free of residues. The composition is easy to rinse out with water.

Other subjects, characteristics, aspects and advantages of the invention will
5 emerge even more clearly on reading the description and the examples that follow.

In that which follows, the expression "at least one" is equivalent to the expression "one or more".

The composition according to the invention comprises water-insoluble solid particles.

10 For the purposes of the present invention, the term "water-insoluble compound" refers to a compound whose solubility in water at 25°C and at atmospheric pressure is less than 0.1% and better still less than 0.001%.

Advantageously, the particle(s) have a number-average primary size ranging from 0.001 to 1000 µm, preferably from 0.01 to 700 µm and more preferentially from
15 0.5 to 200 µm.

For the purposes of the present invention, the term "primary particle size" means the maximum dimension that it is possible to measure between two diametrically opposed points of an individual particle.

The size of the particles may be determined by transmission electron microscopy
20 or by measuring the specific surface area by the BET method or using a laser particle sizer.

Preferably, the particles of the invention are not coloured pigments.

The particles used in the cosmetic composition may have various shapes, for example sphere-shaped, glitter flakes, needles or platelets and preferably they are
25 substantially spherical.

The particle(s) may be filled, hollow or porous.

When the particles are hollow, they comprise at least one continuous envelope (a surface layer) and at least one cavity. The envelope of the particles is preferably flexible to lend itself to mechanical deformation.

30 For the purposes of the present invention, the term "porous particles" means particles having a structure comprising pores that are variable in size and number. The porosity associated with the size of the particles may be characterized quantitatively by measuring the specific surface area via the BET method.

Preferably, the porous particles have a specific surface area of greater than or
35 equal to 1 m²/g, preferably greater than or equal to 2 m²/g and even more preferentially greater than or equal to 4 m²/g.

The specific surface area is determined according to the BET (Brunauer-Emmett-Teller) method as described in the "Journal of the American Chemical Society", vol. 60, page 309, February 1938, and corresponds to international standard ISO 5794/1 (appendix D). The specific surface area determined by the BET method corresponds to the total specific surface area, including the micropores, of the organic particles under consideration.

The composition comprises particles of one or more polymeric organic compounds and/or particles of one or more mineral compounds.

The particles of one or more polymeric organic compounds may consist of crosslinked or non-crosslinked polymers.

These polymers are preferably in the vitreous state, i.e. they have a glass transition temperature that is significantly higher than room temperature or the working temperature (for example human body temperature).

When the particles of one or more organic compounds are hollow, they comprise at least one continuous envelope (a surface layer) and at least one cavity. The envelope of the particles is preferably flexible to lend itself to mechanical deformation. It generally comprises at least one polymer, a homopolymer or copolymer, formed from ethylenically unsaturated monomers.

The monomers used may in particular be acrylic or methacrylic acid esters, such as methyl acrylate and methyl methacrylate, vinylidene chloride, acrylonitrile or styrene and derivatives thereof.

The particles of one or more organic compounds used in the cosmetic composition according to the invention may be chosen from polyamide powders, acrylic polymer powders, especially crosslinked sodium polyacrylate powder or polymethyl methacrylate powder, acrylic copolymer powders, especially powders of polymethyl methacrylate/ethylene glycol dimethacrylate, of polyallyl methacrylate/ethylene glycol dimethacrylate, of an ethylene glycol dimethacrylate/lauryl methacrylate copolymer, of polyacrylate/alkylacrylate, polystyrene powders, polyethylene powders, especially polyethylene/acrylic acid powders, and silicone resin microbeads.

As non-limiting illustrations, organic particles according to the invention that may be mentioned more particularly include:

- Polyamide (Nylon®) powders, for example those sold under the names Orgasol® 4000 and Orgasol® 2002 UD NAT COS 204 by the company Atochem,
- acrylic polymer powders, especially of crosslinked sodium polyacrylate, for instance those sold under the name ASAP 2000 by the company Chemoal or Hysorb

M7055 by the company BASF, polymethyl methacrylate powders, for instance those sold under the name Covabead® LH85 or Covabead® PMMA by the company Sensient or those sold under the name Micropearl® MHB, Micropearl® M 100 or Micropearl® M 310 sold by the company Matsumoto,

- 5 - acrylic copolymer powders, especially of polymethyl methacrylate/ethylene glycol dimethacrylate, for instance those sold under the name Dow Corning 5640 Microsponge® Skin Oil Adsorber by the company Dow Corning, or those sold under the name Ganzpearl® GMP-0800 by the company AICA Kogyo, of polyallyl methacrylate/ethylene glycol dimethacrylate, for instance those sold under the name
- 10 Polypore® L200 or Polypore® E200 sold by the company Amcol, of ethylene glycol dimethacrylate/lauryl methacrylate copolymer, for instance those sold under the name Polytrap® 6603 by the company Dow Corning, or of polyacrylate/ethylhexyl acrylate, for instance those sold under the name Techpolymer® ACX 806C by the company Sekisui,
- 15 - polystyrene powders, such as those sold under the name Polysphere 3000 SP by the company Presperese,
- polystyrene/divinylbenzene powders, for instance those sold under the name Techpolymer® SBX8 by the company Sekisui,
- styrene/acrylate copolymer powders, for instance those sold under the name
- 20 Sunospheres Powder by the company Röhm & Haas,
- polyethylene powders, especially of polyethylene/acrylic acid sold under the name Flobeads® by the company Sumitomo, or polyethylene beads sold under the name Micropoly 220 L by the company Micro Powders,
- silicone resin microbeads, such as those sold under the name Tospearl® by the
- 25 company Toshiba Silicone, in particular Tospearl® 240A and Tospearl® 120A,
- expanded terpolymer microspheres of vinylidene chloride, acrylonitrile and methyl methacrylate, sold under the brand name Expancel by the company Nobel Casco and in particular under the references 551 DE 12, 551 DE 20, 551 DE 50, 461 DE 50, 642 WE 50 and 551 DE 80.

30 Preferably, the organic particles used in the composition in accordance with the invention are chosen from polyamide powders, crosslinked sodium polyacrylate powders, polyethylene powders and polymethyl methacrylate powders.

The organic particle(s) may optionally be surface-treated with a hydrophobic treatment agent.

35 Thus, the organic particles may be made hydrophobic by coating or chemical grafting with products such as:

- silicones, for instance methicones or dimethicones,

- amino acids or N-acylamino acids or salts thereof,
- metal soaps such as aluminium dimyristate or the aluminium salt of hydrogenated tallow glutamate,
- fluoro derivatives, for instance perfluoroalkyl phosphates, perfluoroalkyl silanes, polyhexafluoropropylene oxides or polyorganosiloxanes comprising perfluoroalkyl perfluoropolyether groups,
- lecithin or isopropyl triisostearyl titanate,
- fatty acids such as stearic acid.

The term "alkyl" mentioned in the compounds mentioned above may especially denote a linear, branched or cyclic alkyl group comprising from 1 to 30 carbon atoms and especially from 5 to 16 carbon atoms.

The N-acylamino acids may comprise an acyl group comprising from 8 to 22 carbon atoms, for instance a 2-ethylhexanoyl, caproyl, lauroyl, myristoyl, palmitoyl, stearoyl or cocoyl group.

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

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

By way of example, mention may be made of the polymethyl methacrylate microspheres coated with isopropyl triisostearyl titanate of size 2-15 μm sold by Kobo under the reference BPA-515.

The particles of one or more mineral compounds which can be used in the cosmetic composition according to the invention may be chosen from metal particles, oxides, mineral salts, carbides, nitrides, sulfides and hydroxides.

The term "metal particles" means particles formed by metals chosen from alkaline-earth metals, transition metals, rare-earth metals and alloys of these metals.

Preferably, the metals used are in particular boron, aluminium, copper, cadmium, selenium, silver, gold, indium, iron, platinum, nickel, molybdenum, silicon, titanium, tungsten, antimony, palladium, zinc and tin, and alloys of these metals. Among these metals, gold, silver, platinum, cadmium and selenium, and alloys of these metals, are most particularly preferred.

The particles of one or more mineral compounds may also be oxides. Mention may be made of oxides of the elements in columns 1 to 14 of the Periodic Table of the Elements. In particular, mention may be made especially of titanium oxide, zinc oxide, cerium oxide, zirconium oxide, aluminium oxide and bismuth oxychloride. Among these compounds, zinc oxide is most particularly preferred.

The particles of one or more mineral compounds may be mineral salts. Mention may be made especially of barium sulfate, calcium carbonate, calcium sulfate, calcium phosphate and magnesium hydrogen carbonate. Among these compounds, calcium carbonate is preferred.

- 5 The particles of one or more mineral compounds may be carbides, nitrides, borides, sulfides and hydroxides.

Among the particles of one or more mineral compounds belonging to the species described above, mention may also be made of clays, silicates, alumina, silica, kaolin and hydroxyapatite.

- 10 In particular, the silicas that can be used may be natural and untreated. Mention may thus be made of the silicas sold under the names Sillitin N85, Sillitin N87, Sillitin N82, Sillitin V85 and Sillitin V88 by the company Hoffmann Mineral, or Sunsil 130 by the company Sunjin Chemical, MSS-500-3 H by the company Kobo, Sunsphere H 51 by the company AGC Si-Tech, and the hollow particles of ellipsoidal amorphous silica
15 sold by Kobo under the reference Silica Shells.

They may be fumed silicas.

- The fumed silicas can be obtained by high-temperature hydrolysis of a volatile silicon compound in an oxyhydrogen flame, producing a finely divided silica. This process makes it possible especially to obtain hydrophilic silicas which contain a large
20 number of silanol groups at their surface. It is possible to chemically modify the surface of said silica via a chemical reaction which brings about a reduction in the number of silanol groups. It is possible especially to substitute silanol groups with hydrophobic groups; a hydrophobic silica is then obtained.

The hydrophobic groups can be:

- 25 (a) trimethylsiloxy groups, which are obtained especially by treating fumed silica in the presence of hexamethyldisilazane. Silicas thus treated are known as "silica silylate" according to the CTFA (6th edition, 1995) ;

- 30 (b) dimethylsilyloxy or polydimethylsiloxane groups, which are obtained especially by treating fumed silica in the presence of polydimethylsiloxane or dimethyldichlorosilane. Silicas thus treated are known as "silica dimethyl silylate" according to the CTFA (6th edition, 1995).

In particular, among the hydrophobic silicas, mention may be made of silica aerogels.

- 35 Aerogels are ultralight porous materials which were first produced by Kristler in 1932.

They are generally synthesized by a sol-gel process in a liquid medium and then dried by extraction with a supercritical fluid. The supercritical fluid most commonly used

is supercritical CO₂. This type of drying makes it possible to avoid shrinkage of the pores and of the material.

Other types of drying also make it possible to obtain porous materials starting from gel, namely (i) drying by freeze drying, which consists in solidifying the gel at low temperature and in then subliming the solvent, and (ii) drying by evaporation. The materials thus obtained are referred to respectively as cryogels and xerogels. The sol-gel process and the various drying operations are described in detail in Brinker C.J. and Scherer G.W., Sol-Gel Science, New York, Academic Press, 1990.

The expression "hydrophobic silica" is understood to mean any silica, the surface of which is treated with silylating agents, for example halogenated silanes such as alkylchlorosilanes, siloxanes, in particular dimethylsiloxanes such as hexamethyldisiloxane, or silazanes, so as to functionalize the OH groups with Si-R_n silyl groups, for example trimethylsilyl groups.

Preferably, the hydrophobic aerogel particles that may be used in the present invention advantageously have a specific surface area per unit of mass (SM) ranging from 500 to 1500 m²/g, preferably from 600 to 1200 m²/g and better still from 600 to 800 m²/g.

Preferably, the hydrophobic aerogel particles that may be used in the present invention advantageously have an oil absorption capacity, measured at the wet point, ranging from 5 to 18 ml/g of particles, preferably from 6 to 15 ml/g and better still from 8 to 12 ml/g.

Preferably, the hydrophobic aerogel particles that may be used in the present invention advantageously have a size, expressed as the mean diameter (D[0.5]), of less than 1500 µm, preferably ranging from 1 to 30 µm, preferably from 5 to 25 µm, better still from 5 to 20 µm and even better still from 5 to 15 µm.

The hydrophobic aerogel particles used in the present invention may advantageously have a tapped density ρ ranging from 0.04 g/cm³ to 0.10 g/cm³ and preferably from 0.05 g/cm³ to 0.08 g/cm³.

Preferably, the hydrophobic aerogel particles used in the present invention have a specific surface area per unit of volume SV ranging from 5 to 60 m²/cm³, preferably from 10 to 50 m²/cm³ and better still from 15 to 40 m²/cm³.

According to one preferred embodiment, the hydrophobic aerogel particles according to the invention have a specific surface area per unit of mass (SM) ranging from 500 to 1500 m²/g, preferably from 600 to 1200 m²/g and better still from 600 to 800 m²/g, a size expressed as the mean diameter (D[0.5]) ranging from 1 to 30 µm and/or an oil absorption capacity measured at the wet point ranging from 5 to 18 ml/g of particles, preferably from 6 to 15 ml/g and better still from 8 to 12 ml/g.

According to another advantageous embodiment, the hydrophobic aerogel particles used in the present invention have a specific surface area per unit of mass (SM) ranging from 600 to 800 m²/g and a size, expressed as the volume mean diameter (D[0.5]), ranging from 5 to 20 µm and better still from 5 to 15 µm.

The specific surface area per unit of mass can be determined by the nitrogen absorption method, known as the BET (Brunauer-Emmet-Teller) method, described in The Journal of the American Chemical Society, Vol. 60, page 309, February 1938, which corresponds to international standard ISO 5794/1 (appendix D). The BET specific surface area corresponds to the total specific surface area of the particles under consideration.

The absorption capacity measured at the wet point, denoted Wp, corresponds to the amount of oil which needs to be added to 100 g of particles in order to obtain a homogeneous paste.

It is measured according to the "wet point" method or the method for determining the oil uptake of a powder according to the principle described in standard NF T 30-022. It corresponds to the amount of oil adsorbed onto the available surface of the powder and/or absorbed by the powder by measuring the wet point, described below:

An amount $m = 2$ g of powder is placed on a glass plate and the oil (isononyl isononanoate) is then added dropwise. After addition of 4 to 5 drops of oil to the powder, mixing is performed using a spatula, and addition of oil is continued until conglomerates of oil and powder have formed. From this point, the oil is added at the rate of one drop at a time and the mixture is subsequently triturated with the spatula. The addition of oil is stopped when a firm and smooth paste is obtained. This paste must be able to be spread over the glass plate without cracks or the formation of lumps. The volume V_s (expressed in ml) of oil used is then noted.

The oil uptake corresponds to the ratio V_s/m .

The sizes of the aerogel particles according to the invention can be measured by static light scattering using a commercial particle size analyser such as the MasterSizer 2000 machine from Malvern. The data are processed on the basis of the Mie scattering theory. This theory, which is exact for isotropic particles, makes it possible to determine, in the case of non-spherical particles, an "effective" particle diameter. This theory is described in particular in the publication by Van de Hulst, H.C., "Light Scattering by Small Particles", Chapters 9 and 10, Wiley, New York, 1957.

In the context of the present invention, this density can be assessed according to the following protocol, known as tapped density protocol:

40 g of powder are poured into a graduated measuring cylinder and then the measuring cylinder is placed on a Stav 2003 device from Stampf Volumeter. The measuring cylinder is subsequently subjected to a series of 2500 tapping actions (this operation is repeated until the difference in volume between two consecutive tests is less than 2%) and then the final volume V_f of tapped powder is measured directly on the measuring cylinder.

The tapped density is determined by the ratio: mass (m)/ V_f , in this instance $40/V_f$ (V_f being expressed in cm^3 and m in g).

The specific surface area per unit of volume is given by the relationship:

$$SV = SM \cdot \rho$$

where ρ is the tapped density expressed in g/cm^3 and SM is the specific surface area per unit of mass expressed in m^2/g , as defined above.

The hydrophobic silica aerogel particles used according to the present invention are preferably silylated silica (INCI name: silica silylate) aerogel particles.

The preparation of hydrophobic silica aerogel particles modified at the surface by silylation is further described in document US 7 470 725.

Use will in particular be made of hydrophobic silica aerogel particles surface-modified with trimethylsilyl groups.

As hydrophobic silica aerogels that may be used in the invention, an example that may be mentioned is the aerogel sold under the name VM-2260 (INCI name: Silica silylate), by the company Dow Corning, the particles of which have a mean size of about 1000 microns and a specific surface area per unit of mass ranging from 600 to 800 m^2/g .

Mention may also be made of the aerogels sold by Cabot under the references Aerogel TLD 201, Aerogel OGD 201 and Aerogel TLD 203, Enova Aerogel MT 1100 and Enova Aerogel MT 1200.

Use will be made more particularly of the aerogel sold under the name VM-2270 (INCI name: Silica silylate), by the company Dow Corning, the particles of which have a mean size ranging from 5 to 15 microns and a specific surface area per unit of mass ranging from 600 to 800 m^2/g .

The mineral particles according to the invention may also be clay particles.

Clays are products that are already well known per se, which are described, for example, in the publication *Minéralogie des argiles* [Mineralogy of Clays], S. Caillère, S. Hénin, M. Rautureau, 2nd Edition 1982, Masson, the teaching of which is included herein by way of reference.

Clays are silicates containing a cation that may be chosen from calcium, magnesium, aluminium, sodium, potassium and lithium cations, and mixtures thereof.

Examples of such products that may be mentioned include clays of the smectite family such as montmorillonites, hectorites, bentonites, beidellites and saponites, and
5 also of the family of vermiculites, stevensite and chlorites.

The clays may be of natural or synthetic origin. Preferably, clays that are cosmetically compatible and acceptable with keratin fibres such as the hair are used.

The clay may be chosen from montmorillonite, bentonite, hectorite, attapulgite and sepiolite, and mixtures thereof. Preferably, the clay is a bentonite or a hectorite.

10 The clays may be chosen from organophilic clays.

The organophilic clays are clays modified with a chemical compound chosen from quaternary amines, tertiary amines, amine acetates, imidazolines, amine soaps, fatty sulfates, alkyl aryl sulfonates and amine oxides, and mixtures thereof.

Preferably, the organophilic clays according to the invention are clays modified
15 with a chemical compound chosen from quaternary amines.

Organophilic clays that may be mentioned include quaternium-18 bentonites such as those sold under the names Bentone 3, Bentone 38 and Bentone 38V by Elementis, Tixogel VP by United Catalyst, and Claytone 34, Claytone 40 and Claytone XL by Southern Clay; stearalkonium bentonites such as those sold under the names Bentone
20 27V by Elementis, Tixogel LG by United Catalyst, and Claytone AF and Claytone APA by Southern Clay and quaternium-18/benzalkonium bentonites such as those sold under the names Claytone HT and Claytone PS by Southern Clay.

The organophilic clay is particularly chosen from modified hectorites such as the hectorite modified by C₁₀-C₁₂ fatty acid ammonium chloride, especially
25 distearyldimethylammonium chloride and stearylbenzyltrimethylammonium chloride.

Preferably, the particles of one or more mineral compounds are chosen from calcium carbonate, silica and, in particular, silica aerogels.

Preferably, the composition according to the invention may comprise from 0.01%
30 to 1% by weight, preferably from 0.1% to 0.7% and even more preferentially from 0.2% to 0.5% by weight of water-insoluble solid particles, relative to the total weight of the said composition.

The composition according to the invention also comprises at least one non-liquid
35 fatty substance.

For the purposes of the invention, the term "non-liquid fatty substance" means a fatty substance that is not liquid at 25°C and at atmospheric pressure.

The term "non-liquid" preferably means a solid compound or a compound that has a viscosity of greater than 2 Pa.s at a temperature of 25°C and at a shear rate of
5 1 s⁻¹.

More particularly, the non-liquid fatty substances are chosen from fatty alcohols, esters of fatty acids and/or of fatty alcohols, waxes of animal, plant, mineral or synthetic origin, silicone resins or gums, and fatty ethers, which are not liquid and are preferably solid.

10 The non-liquid fatty alcohols that are suitable for use in the invention are more particularly chosen from saturated or unsaturated, preferably saturated, linear or branched, preferably linear, alcohols comprising from 8 to 30 carbon atoms. Examples include cetyl alcohol, stearyl alcohol and behenyl alcohol, and mixtures thereof (for example cetylstearyl alcohol).

15 As regards the non-liquid esters of fatty acids and/or of fatty alcohols, mention may be made especially of solid esters derived from C8-C26 fatty acids and from C8-C26 fatty alcohols.

Among these esters, mention may be made of octyldodecyl behenate; isocetyl behenate; stearyl octanoate; octyl octanoate; cetyl octanoate; decyl oleate; myristyl
20 stearate; octyl palmitate; octyl pelargonate; octyl stearate; alkyl myristates such as cetyl, myristyl or stearyl myristate; hexyl stearate.

Preference is given, among all the abovementioned additional esters, to the use of myristyl palmitate, cetyl palmitate, stearyl palmitate or alkyl myristates, such as cetyl myristate, stearyl myristate or myristyl myristate.

25 The wax(es) that may be used in a composition according to the invention may be hydrocarbon-based waxes, esterified waxes, fluoro waxes and/or silicone waxes.

The wax(es) that may be used in the composition according to the invention may be chosen especially from waxes of mineral origin, for instance paraffin wax, ozokerite, ceresin or microcrystalline waxes, for instance microcrystalline waxes whose melting
30 point is greater than 85°C, such as the products HI-MIC® 1070, 1080, 1090 and 3080 sold by the company Nippon Seiro, waxes of plant origin, for instance carnauba wax, candelilla wax such as the product sold under the reference SP 75 G by the company Strahl & Pitsch, esparto grass wax, olive wax, rice wax such as the product sold under the reference NC 1720 by the company Cera Rica Noda, the sunflower seed wax sold
35 by the company Koster Keunen under the reference sunflower wax, hydrogenated jojoba wax or absolute waxes of flowers such as the essential wax of blackcurrant blossom, waxes of animal origin, for instance beeswaxes or modified beeswaxes

(cerabellina); other waxes or waxy starting materials that may be used according to the invention are especially marine waxes, polyethylene waxes or waxes of polyolefins in general such as α -olefin oligomers such as the polymers Performa V® 825, 103 and 260 sold by the company New Phase Technologies, ethylene-propylene copolymers
5 such as Performalene® EP 700, and Fischer-Tropsch waxes.

Mention may also be made of silicone waxes, such as alkyl or alkoxy dimethicones having from 16 to 45 carbon atoms, or fluorinated waxes.

According to a specific embodiment, the wax used in a composition in accordance with the invention exhibits a melting point of greater than 35°C, better still
10 of greater than 40°C, indeed even of greater than 45°C or also of greater than 55°C.

Preferably, the wax(es) are chosen from waxes of animal origin such as beeswaxes or modified beeswaxes (cerabellina).

The silicone resins or gums may be chosen from polydialkylsiloxanes, in particular polydimethylsiloxanes (PDMSs), and organomodified polysiloxanes
15 comprising at least one functional group chosen from poly(oxyalkylene) groups, amino groups and alkoxy groups.

The silicone gums that may be used in accordance with the invention are in particular polydialkylsiloxanes and preferably polydimethylsiloxanes with high number-average molecular weights of between 200 000 and 1 000 000, used alone or as a
20 mixture in a solvent. This solvent may be chosen from volatile silicones, polydimethylsiloxane (PDMS) oils, polyphenylmethylsiloxane (PPMS) oils, isoparaffins, polyisobutylenes, methylene chloride, pentane, dodecane and tridecane, or mixtures thereof.

Products which can be used more particularly in accordance with the invention
25 are mixtures such as:

- the mixtures formed from a polydimethylsiloxane hydroxylated at the chain end, or dimethiconol (CTFA), and from a cyclic polydimethylsiloxane, also known as cyclomethicone (CTFA), such as the product Q2 1401 sold by the company Dow Corning;
- 30 - the mixtures of a polydimethylsiloxane gum and of a cyclic silicone, such as the product SF 1214 Silicone Fluid from General Electric; this product is a gum SF 30 corresponding to a dimethicone, having a number-average molecular weight of 500 000, dissolved in the oil SF 1202 Silicone Fluid corresponding to decamethylcyclopentasiloxane;
- 35 - mixtures of two PDMSs with different viscosities, and more particularly of a PDMS gum and a PDMS oil, such as the product SF 1236 from the company General Electric. The product SF 1236 is a mixture of a gum SE 30 defined above with a

viscosity of 20 m²/s and of an oil SF 96 with a viscosity of 5×10⁶ m²/s. This product preferably comprises 15% of gum SE 30 and 85% of an oil SF 96.

The organopolysiloxane resins that may be used in accordance with the invention are crosslinked siloxane systems containing the following units:

5 R₂SiO₂/2, R₃SiO₁/2, RSiO₃/2 and SiO₄/2

in which R represents an alkyl having from 1 to 16 carbon atoms. Among these products, the ones that are particularly preferred are those in which R denotes a C₁-C₄ lower alkyl group, more particularly methyl.

Among these resins, mention may be made of the product sold under the name
10 Dow Corning 593 or those sold under the names Silicone Fluid SS 4230 and SS 4267 by the company General Electric, which are silicones of dimethyl/trimethylsiloxane structure.

Mention may also be made of resins of the trimethylsiloxysilicate type, sold in particular under the names X22-4914, X21-5034 and X21-5037 by Shin-Etsu.

15 The non-liquid fatty ethers are chosen from dialkyl ethers and in particular dicetyl ether and distearyl ether, alone or as a mixture.

Preferably, the non-liquid fatty substance is chosen from mineral, animal or plant waxes.

Preferably, the non-liquid fatty substance is chosen from waxes of animal origin
20 such as beeswaxes, or modified beeswaxes (cerabellina).

The content of non-liquid fatty substance preferentially ranges from 0.01% to 10%, preferably from 1% to 9%, better still from 2.5% to 8% and even better still from 5% to 8% by weight relative to the total weight of the composition.

25 According to one preferred embodiment, the composition comprises at least one non-liquid fatty substance, at least one surfactant and water-insoluble solid particles chosen from particles of one or more polymeric organic compounds and/or silica particles, the surfactant(s)/water-insoluble solid particles weight ratio being greater than or equal to 1, the total weight content of surfactant(s) and of water-insoluble particles
30 being less than or equal to 3% relative to the total weight of the composition.,

The cosmetic composition according to the invention also comprises one or more surfactants that may be chosen from anionic, cationic, nonionic, amphoteric and zwitterionic surfactants, and mixtures thereof.

35 The nonionic surfactants that can be used in the compositions of the present invention are compounds that are well known per se (see in particular in this respect "Handbook of Surfactants" by M.R. Porter, published by Blackie & Son (Glasgow and

London), 1991, pp. 116-178). They are especially chosen from polyethoxylated, polypropoxylated or polyglycerolated fatty alcohols, polyethoxylated, polypropoxylated or polyglycerolated α -diols, or polyethoxylated, polypropoxylated or polyglycerolated (C₁₋₂₀)alkylphenols, the fatty chain comprising, for example, from 10 to 20 carbon atoms and preferably from 16 to 18 carbon atoms, the number of ethylene oxide or propylene oxide groups possibly ranging especially from 1 to 150 and the number of glycerol groups possibly ranging especially from 1 to 30.

Mention may also be made of condensates of ethylene oxide and of propylene oxide with fatty alcohols; polyethoxylated fatty amides preferably having from 1 to 100 ethylene oxide units, polyglycerolated fatty amides comprising on average from 1 to 5, and in particular from 1.5 to 4 glycerol groups, ethoxylated fatty acid esters of sorbitan having from 1 to 50 ethylene oxide units, fatty acid esters of sucrose, fatty acid esters of polyethylene glycol, alkyl polyglycosides, polyethoxylated plant oils preferably containing from 1 to 100 ethylene oxide units, N-(C₆₋₂₄ alkyl)glucamine derivatives or amine oxides, such as (C₁₀₋₁₄ alkyl)amine oxides or N-(C₁₀₋₁₄ acyl)aminopropylmorpholine oxides.

The alkyl polyglucosides may be selected, for example, from decyl glucoside ((C₉/C₁₁ alkyl) (1,4) polyglucoside), such as the product sold under the name Mydol 10[®] by the company Kao Chemicals or the product sold under the name Plantacare 2000 UP[®] by the company Henkel and the product sold under the name Oramix NS 10[®] by the company SEPPIC; caprylyl/capryl glucoside, such as the product sold under the name Plantacare KE 3711[®] by the company Cognis or Oramix CG 110[®] by the company SEPPIC; lauryl glucoside, such as the product sold under the name Plantacare 1200 UP[®] by the company Henkel or Plantaren 1200 N[®] by the company Henkel; coco glucoside, such as the product sold under the name Plantacare 818 UP[®] by the company Henkel; caprylyl glucoside, such as the product sold under the name Plantacare 810 UP[®] by the company Cognis; and mixtures thereof.

The term "anionic surfactant" is understood to mean a surfactant comprising, as ionic or ionizable groups, only anionic groups. These anionic groups are preferably chosen from CO₂H, CO₂⁻, SO₃H, SO₃⁻, OSO₃H, OSO₃⁻, -H₂PO₃, -HPO₃⁻, -PO₃²⁻, -H₂PO₂, =HPO₂, -HPO₂⁻, =PO₂⁻, =POH and =PO⁻ groups.

Mention may be made, among the anionic surfactants capable of being used in the composition according to the invention, of alkyl sulfates, alkyl ether sulfates, alkylamido ether sulfates, alkylaryl polyether sulfates, monoglyceride sulfates, alkylsulfonates, alkylamidesulfonates, alkylarylsulfonates, α -olefinsulfonates, paraffin sulfonates, alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkylamide

sulfosuccinates, alkyl sulfoacetates, acyl sarcosinates, acyl glutamates, alkyl ethercarboxylates, alkyl sulfosuccinamates, acyl isethionates and N-acyl taurates; monoalkyl esters of polyglycoside-polycarboxylic acids, acyl lactylates, salts of D-galactosideuronic acids, salts of alkyl ether carboxylic acids, salts of alkylaryl ether carboxylic acids, salts of alkylamido ether carboxylic acids; and the corresponding non-salified forms of all these compounds; the alkyl and acyl groups of all these compounds comprising from 6 to 24 carbon atoms and the aryl group denoting a phenyl group.

These compounds may be oxyethylenated and then preferably comprise from 1 to 50 ethylene oxide units and better still from 1 to 10 ethylene oxide units.

The salts of C6-C24 alkyl monoesters of polyglycoside-polycarboxylic acids may be chosen from C6-C24 alkyl polyglycoside-citrates, C6-C24 alkyl polyglycoside-tartrates and C6-C24 alkyl polyglycoside-sulfosuccinates.

The acyl lactylates preferably have an acyl group comprising from 8 to 20 carbon atoms.

When the anionic surfactant is in the salt form, it may be chosen from the alkali metal salts, such as the sodium salt or potassium salt, the ammonium salt, the amine salts and in particular the amino alcohol salts, or the alkaline-earth metal salts, such as the magnesium salt.

Mention may be made, as examples of amino alcohol salts, of monoethanolamine, diethanolamine and triethanolamine salts, monoisopropanolamine, diisopropanolamine or triisopropanolamine salts, 2-amino-2-methyl-1-propanol salts, 2-amino-2-methyl-1,3-propanediol salts and tris(hydroxymethyl)aminomethane salts.

Use is preferably made of alkali metal or alkaline-earth metal salts, in particular sodium or magnesium salts.

The preferred anionic surfactants are chosen from (C6-24)alkyl sulfates, (C6-24)alkyl ether sulfates, acyl glutamates and (C6-C24)alkyl ether carboxylates, in particular in the form of alkali metal, ammonium, amino alcohol or alkaline-earth metal salts, or a mixture of these compounds.

In particular, use is preferably made of (C12-20)alkyl sulfates, (C12-20)alkyl ether sulfates comprising from 2 to 20 ethylene oxide units, acyl glutamates or (C12-C20)alkyl ether carboxylates, especially in the form of alkali metal, ammonium, amino alcohol and alkaline-earth metal salts, or a mixture of these compounds.

The amphoteric or zwitterionic surfactants capable of being used in the present invention can in particular be derivatives of optionally quaternized secondary or tertiary aliphatic amines comprising at least one anionic group, such as, for example, a carboxylate, sulfonate, sulfate, phosphate or phosphonate group, and in which the aliphatic group or at least one of the aliphatic groups is a linear or branched chain

comprising from 8 to 22 carbon atoms.

Mention may be made in particular of (C₈-C₂₀)alkyl betaines, sulfobetaines, (C₈-C₂₀)alkylamido(C₁-C₆)alkyl betaines, such as cocoamidopropyl betaine, or (C₈-C₂₀)alkylamido(C₁-C₆)alkyl sulfobetaines.

- 5 Among the optionally quaternized secondary or tertiary aliphatic amine derivatives that may be used, mention may also be made of the products of respective structures (A1) and (A2) below:



in which:

- 10 Ra represents a C₁₀-C₃₀ alkyl or alkenyl group derived from an acid Ra-COOH preferably present in hydrolysed coconut oil, a heptyl group, a nonyl group or an undecyl group,

Rb represents a β-hydroxyethyl group, and

Rc represents a carboxymethyl group;

- 15 Ra'-CONHCH₂CH₂-N(B)(B') (A2)

in which:

B represents -CH₂CH₂OX',

X' represents the group -CH₂-COOH, CH₂-COOZ', -CH₂CH₂-COOH, -CH₂CH₂-COOZ', or a hydrogen atom,

- 20 B' represents -(CH₂)_z-Y', with z = 1 or 2,

Y' represents -COOH, -COOZ', the group -CH₂-CHOH-SO₃H or -CH₂-CHOH-SO₃Z',

- Z' represents an ion resulting from an alkali metal or alkaline-earth metal, such as sodium, potassium or magnesium; an ammonium ion; or an ion resulting from an organic amine and in particular from an amino alcohol, such as monoethanolamine, diethanolamine and triethanolamine, monoisopropanolamine, diisopropanolamine or triisopropanolamine, 2-amino-2-methyl-1-propanol, 2-amino-2-methyl-1,3-propanediol and tris(hydroxymethyl)aminomethane,
- 25

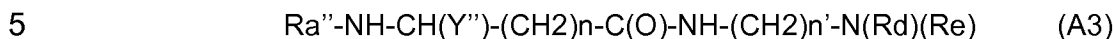
- Ra' represents a C₁₀-C₃₀ alkyl or alkenyl group of an acid Ra'COOH preferably present in hydrolysed coconut oil or hydrolysed linseed oil, an alkyl group, in particular a C₁₇ alkyl group, and its iso form, or an unsaturated C₁₇ group.
- 30

- The compounds corresponding to formula (A2) are preferred. These compounds are also classified in the CTFA dictionary, 5th edition, 1993, under the names disodium cocoamphodiacetate, disodium lauroamphodiacetate, disodium caprylamphodiacetate, disodium capryloamphodiacetate, disodium cocoamphodipropionate, disodium lauroamphodipropionate, disodium caprylamphodipropionate, disodium capryloamphodipropionate, lauroamphodipropionic acid and cocoamphodipropionic
- 35

acid.

By way of example, mention may be made of the cocoamphodiacetate sold by the company Rhodia under the trade name Miranol[®] C2M Concentrate.

Use may also be made of the compounds of formula (A3):



in which formula:

- Y'' represents the group -C(O)OH, -C(O)OZ'', -CH₂-CH(OH)-SO₃H or the group -CH₂-CH(OH)-SO₃-Z'';
- Rd and Re, independently of each other, represent a C₁-C₄ alkyl or hydroxyalkyl radical;
- Z'' represents a cationic counterion derived from an alkali metal or alkaline-earth metal, such as sodium, an ammonium ion or an ion derived from an organic amine;
- Ra'' represents a C₁₀-C₃₀ alkyl or alkenyl group of an acid Ra''-C(O)OH preferably present in coconut oil or in hydrolysed linseed oil.
- n and n' denote, independently of each other, an integer ranging from 1 to 3.

Among the compounds of formula (A3), mention may be made of the compound classified in the CTFA dictionary under the name sodium diethylaminopropyl cocoaspartamide and sold by the company Chimex under the name Chimexane HB.

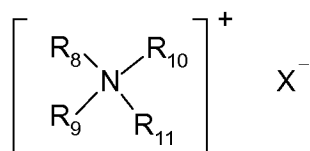
Preferably, the amphoteric or zwitterionic surfactants are chosen from (C₈-C₂₀)alkyl betaines, (C₈-C₂₀)alkylamido(C₁-C₆)alkyl betaines and (C₈-C₂₀)alkylamphodiacetates, and also the sodium salt of diethylaminopropyl laurylamino succinamate, and mixtures thereof.

Preferably, the amphoteric or zwitterionic surfactants are chosen, alone or as a mixture, from cocoylamidopropyl betaine, cocoyl betaine and cocoamphodiacetate.

The cationic surfactant(s) which can be used in the composition according to the invention comprise, for example, salts of optionally polyoxyalkylenated primary, secondary or tertiary fatty amines, quaternary ammonium salts, and mixtures thereof.

Examples of quaternary ammonium salts that may in particular be mentioned include:

- those corresponding to the following general formula (I):



(I)

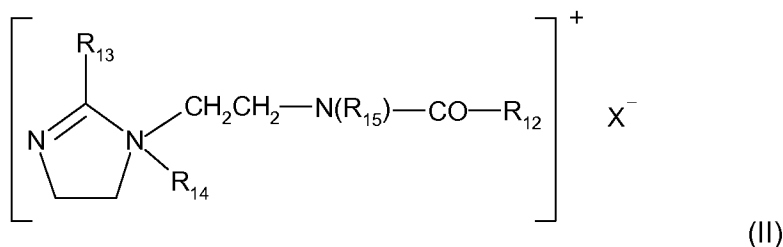
in which the radicals R8 to R11, which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 30 carbon atoms or an aromatic radical such as aryl or alkylaryl, at least one of the radicals R8 to R11
 5 comprising from 8 to 30 carbon atoms and preferably from 12 to 24 carbon atoms. The aliphatic radicals may comprise heteroatoms especially such as oxygen, nitrogen, sulfur and halogens.

The aliphatic radicals are chosen, for example, from C1-C30 alkyl, C1-C30 alkoxy, polyoxy(C2-C6)alkylene, C1-C30 alkylamide, (C12-C22)alkylamido(C2-C6)alkyl
 10 and C1-C30 hydroxyalkyl radicals, and X⁻ is an anion chosen from the group of halides, phosphates, acetates, lactates, (C1-C4)alkyl sulfates, and (C1-C4)alkyl- or (C1-C4)alkylarylsulfonates.

Among the quaternary ammonium salts of formula (I), preference is firstly given to tetraalkylammonium chlorides, for instance dialkyldimethylammonium or
 15 alkyltrimethylammonium chlorides in which the alkyl radical comprises approximately from 12 to 22 carbon atoms, in particular behenyltrimethylammonium, distearyldimethylammonium, cetyltrimethylammonium, dicetyldimethylammonium and benzyltrimethylammonium chlorides, or else, secondly, to
 20 palmitylamidopropyltrimethylammonium chloride or stearamidopropyltrimethyl(myristyl acetate)ammonium chloride, which is sold under the name Ceraphyl® 70 by the company Van Dyk.

- quaternary ammonium salts of imidazoline, for instance those of formula (II)
 below:

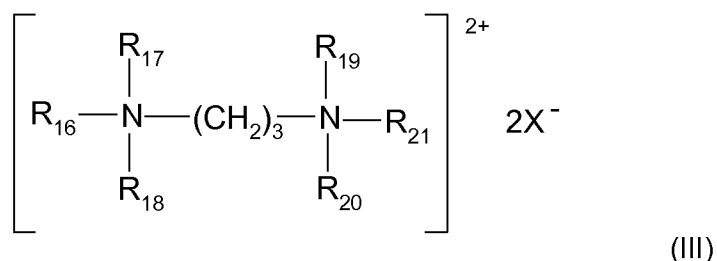
25



in which R12 represents an alkyl or alkenyl radical comprising from 8 to 30 carbon atoms, for example fatty acid derivatives of tallow, R13 represents a hydrogen
 30 atom, a C1-C4 alkyl radical or an alkyl or alkenyl radical comprising from 8 to 30 carbon atoms, R14 represents a C1-C4 alkyl radical, R15 represents a hydrogen atom or a C1-C4 alkyl radical, X⁻ is an anion chosen from the group of halides, phosphates,

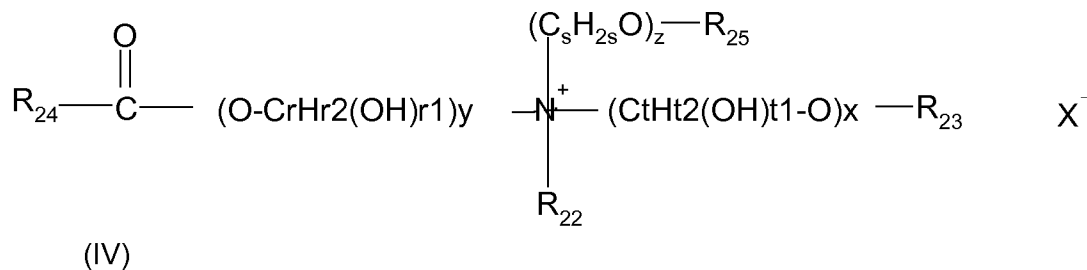
acetates, lactates, (C1-C4)alkyl sulfates and (C1-C4)alkyl- or (C1-C4)alkylaryl-sulfonates. Preferably, R12 and R13 denote a mixture of alkenyl or alkyl radicals comprising from 12 to 21 carbon atoms, for example fatty acid derivatives of tallow, R14 denotes a methyl radical and R15 denotes a hydrogen atom. Such a product is sold, for example, under the name Varisoft W 575 PG N by the company Evonik Goldschmidt;

- diquaternary or triquaternary ammonium salts, in particular of formula (III) below:



in which R16 denotes an alkyl radical comprising about 16 to 30 carbon atoms, optionally hydroxylated and/or interrupted with one or more oxygen atoms; R17 is chosen from hydrogen, an alkyl radical comprising from 1 to 4 carbon atoms or a group $-(\text{CH}_2)_3-\text{N}^+(\text{R}_{16a})(\text{R}_{17a})(\text{R}_{18a})$; R16a, R17a, R18a, R18, R19, R20 and R21, which may be identical or different, are chosen from hydrogen and an alkyl radical comprising from 1 to 4 carbon atoms, and X⁻ is an anion chosen from the group of halides, acetates, phosphates, nitrates, (C1-C4)alkyl sulfates and (C1-C4)alkyl- or (C1-C4)alkylaryl-sulfonates, in particular methyl sulfate and ethyl sulfate. Such compounds are, for example, Finquat CT-P, sold by the company Innospec Active Chemicals (Quaternium 89), and Condicare CT sold by the company Innospec Active Chemicals (Quaternium 75);

- quaternary ammonium salts containing one or more ester functions, such as those of formula (IV) below:



in which:

- 5 R22 is chosen from C1-C6 alkyl radicals and C1-C6 hydroxyalkyl or dihydroxyalkyl radicals;

R23 is chosen from:



- linear or branched, saturated or unsaturated C1-C22 hydrocarbon-based radicals R27,
- a hydrogen atom,

R25 is chosen from:



- saturated or unsaturated, linear or branched C1-C6 hydrocarbon-based radicals R29,
- a hydrogen atom,

R24, R26 and R28, which are identical or different, are chosen from linear or branched, saturated or unsaturated C7-C21 hydrocarbon-based radicals,

r, s and t, which may be identical or different, are integers ranging from 2 to 6,

- 20 r1 and t1, which may be identical or different, are equal to 0 or 1,

r2+r1=2r and t1+t2=2t,

y is an integer ranging from 1 to 10,

x and z, which may be identical or different, are integers ranging from 0 to 10,

X⁻ is a simple or complex, organic or mineral anion,

- 25 with the proviso that the sum x + y + z is from 1 to 15, that when x is 0, then R23 denotes R27 and that when z is 0, then R25 denotes R29.

The alkyl radicals R22 may be linear or branched, and more particularly linear.

R22 preferably denotes a methyl, ethyl, hydroxyethyl or dihydroxypropyl radical, and more particularly a methyl or ethyl radical.

Advantageously, the sum $x + y + z$ has a value from 1 to 10.

When R23 is a hydrocarbon-based radical R27, it may be long and may contain
5 from 12 to 22 carbon atoms, or may be short and may contain from 1 to 3 carbon atoms.

When R25 is a hydrocarbon-based radical R29, it preferably contains 1 to 3 carbon atoms.

Advantageously, R24, R26 and R28, which may be identical or different, are
10 chosen from linear or branched, saturated or unsaturated C11-C21 hydrocarbon-based radicals, and more particularly from linear or branched, saturated or unsaturated C11-C21 alkyl and alkenyl radicals.

Preferably, x and z , which may be identical or different, are equal to 0 or 1.

Advantageously, y is equal to 1.

15 Preferably, r , s and t , which may be identical or different, equal to 2 or 3, and even more particularly are equal to 2.

The anion X^- is preferably a halide, preferably chloride, bromide or iodide, a (C1-C4)alkyl sulfate or a (C1-C4)alkyl- or (C1-C4)alkylaryl-sulfonate. However, it is possible
20 to use methanesulfonate, phosphate, nitrate, tosylate, an anion derived from an organic acid, such as acetate or lactate, or any other anion that is compatible with the ammonium containing an ester function.

The anion X^- is even more particularly chloride, methyl sulfate or ethyl sulfate.

Use is made more particularly, in the composition according to the invention, of
25 the ammonium salts of formula (IV) in which:

- R22 denotes a methyl or ethyl radical,

- x and y are equal to 1;

- z is equal to 0 or 1;

- r , s and t are equal to 2;

30 - R₂₃ is chosen from:

- the radical
$$R_{26}-\overset{\overset{O}{\parallel}}{C}-$$

- methyl, ethyl or C₁₄-C₂₂ hydrocarbon-based radicals;

- a hydrogen atom.

- R₂₅ is chosen from:



- a hydrogen atom;

- R24, R26 and R28, which may be identical or different, are selected from linear or branched, saturated or unsaturated C13-C17 hydrocarbon-based radicals, and preferably from linear or branched, saturated or unsaturated C13-C17 alkyl and alkenyl radicals.

Advantageously, the hydrocarbon-based radicals are linear.

Among the compounds of formula, examples that may be mentioned include salts, especially the chloride or methyl sulfate of diacyloxyethylmethylammonium, diacyloxyethylhydroxyethylmethylammonium, monoacyloxyethyldihydroxyethylmethylammonium, triacyloxyethylmethylammonium or monoacyloxyethylhydroxyethylmethylammonium, and mixtures thereof. The acyl radicals preferably contain 14 to 18 carbon atoms and are obtained more particularly from a plant oil such as palm oil or sunflower oil. When the compound contains several acyl radicals, these radicals may be identical or different.

Mention may be made more particularly of distearoylethylhydroxyethylmethylammonium methosulfate, dipalmitoylethylhydroxyethylammonium methosulfate or distearoylethylhydroxyethylammonium methosulfate.

These products are obtained, for example, by direct esterification of triethanolamine, triisopropanolamine, an alkyldiethanolamine or an alkyldiisopropanolamine, which are optionally oxyalkylenated, with fatty acids or with fatty acid mixtures of vegetable or animal origin, or by transesterification of the methyl esters thereof. This esterification is followed by a quaternization by means of an alkylating agent such as an alkyl halide, preferably a methyl or ethyl halide, a dialkyl sulfate, preferably methyl or ethyl sulfate, methyl methanesulfonate, methyl paratoluenesulfonate, glycol chlorohydrin or glycerol chlorohydrin.

The composition according to the invention may contain, for example, a mixture of quaternary ammonium monoester, diester and triester salts with a weight majority of diester salts.

It is also possible to use the ammonium salts containing at least one ester function that are described in patents US-A-4 874 554 and US-A-4 137 180.

Use may be made of behenoylhydroxypropyltrimethylammonium chloride, sold by Kao under the name Quartamin BTC 131.

Preferably, the ammonium salts containing at least one ester function contain two ester functions.

5 Among the cationic surfactants that may be present in the composition according to the invention, it is more particularly preferred to choose cetyltrimethylammonium, behenyltrimethylammonium or dipalmitoylethylhydroxyethylmethylammonium salts, and mixtures thereof, and more particularly behenyltrimethylammonium chloride, sold for example by the company Clariant under the trade name Genamin KDMP or Genamin
10 BTLF or by the company Evonik Goldschmidt under the name Varisoft BT 85, cetyltrimethylammonium chloride sold, for example, under the trade name Dehyquart A OR by the company Cognis or Quartamin 60 W25 by the company Kao or alternatively Genamin CTAC 25 by the company Clariant, dipalmitoylethylhydroxyethylmethylammonium methosulfate, such as the commercial
15 product Dehyquart F 30 sold by the company Cognis, and mixtures thereof.

Preferably, the cationic surfactants are chosen from the compounds of formula (I) or (IV).

20 The surfactant(s) of the composition of the invention are preferably chosen from anionic and nonionic surfactants. Even more preferentially, the surfactants are chosen from anionic surfactants.

25 The surfactant(s) are present in a content preferably ranging from 0.01% to 2% by weight and more preferably in a content ranging from 0.1% to 1.5% by weight relative to the total weight of the composition.

30 The total weight content of surfactant(s) and of insoluble solid particles, namely the sum of the weight content of surfactant(s) and of the weight content of insoluble solid particles, is less than or equal to 3% by weight relative to the total weight of the composition.

Preferably, it may range from 0.5% to 3%, better still from 1% to 3%, even better still from 1% to 2.5% and more preferentially from 1.5% to 2.5% by weight relative to the total weight of the composition.

35 The surfactant(s)/insoluble particles weight ratio is greater than or equal to 1. Preferably, it may range from 1 to 20, better still from 1 to 10 and even better still from 1.5 to 5.

The composition according to the invention may also comprise one or more thickeners, which may be chosen from natural or synthetic, associative or non-associative polymeric thickeners and non-polymeric thickeners.

Examples of polymeric thickeners that may be mentioned include cellulose
5 thickeners, for example hydroxyethyl cellulose, hydroxypropyl cellulose and carboxymethyl cellulose, guar gum and its derivatives, for example hydroxypropyl guar, sold by the company Rhodia under the reference Jaguar HP 105, gums of microbial origin, such as xanthan gum and scleroglucan gum, carrageenan, for example the carrageenan powder sold by the company Cargill under the reference Satiagum UTC
10 30, synthetic polymeric thickeners, resulting from radical polymerization reactions or polycondensation reactions such as crosslinked homopolymers of acrylic acid or of acrylamidopropanesulfonic acid, for example Carbomer, or nonionic, anionic or amphoteric associative polymers, such as the polymers sold under the names Pemulen TR1 or TR2 by the company Goodrich, Salcare SC90 by the company Allied Colloids,
15 Aculyn 22, 28, 33, 44 or 46 by the company Röhm & Haas and Elfacos T210 and T212 by the company Akzo or else sodium polyacrylate such as the product sold by the company Sensient under the commercial reference Covacryl MV 60.

The thickener(s), which are preferably polymeric, may be present in a content ranging from 0.1% to 20% by weight, preferably in a content ranging from 0 to 10% by
20 weight and more preferably from 0.2% to 5% by weight relative to the total weight of the composition.

Preferably, the composition comprises water, preferably in a content of greater than or equal to 5% by weight, relative to the total weight of the composition. The water content preferentially ranges from 5% to 98%, preferably from 30% to 95%, better still
25 from 50% to 90% and even better still from 70% to 90% by weight relative to the total weight of the composition.

The composition may also comprise one or more water-soluble liquid organic solvents preferably chosen from monoalcohols such as ethanol or isopropanol; polyols
30 such as propylene glycol, butylene glycol or glycerol; polyol ethers; and mixtures thereof.

The composition according to the invention may comprise a propellant. For example, mention may be made of liquefied gases such as dimethyl ether, 1,1-difluoroethane, or C₃₋₅ alkanes, for instance propane, isopropane, n-butane, isobutane
35 or pentane, or compressed gases such as air, nitrogen or carbon dioxide, and mixtures thereof.

Mention may be made preferentially of C₃₋₅ alkanes and in particular propane, n-butane and isobutane, and mixtures thereof.

When it comprises propellant(s), the composition comprises one or more propellant(s) in an amount ranging from 1% to 60% by weight, better still from 2% to 50% by weight and more preferably still from 4% to 40% by weight relative to the total weight of the composition.

The composition for holding and/or shaping the hair according to the invention may also contain one or more additives other than the compounds of the invention, chosen from fixing polymers, non-silicone conditioning agents and in particular cationic polymers, vitamins and provitamins including panthenol, sunscreens, nacreous agents and opacifiers, dyes, sequestrants, plasticizers, solubilizers, acidifying agents, basifying agents, antioxidants, antifoams, moisturizers, emollients, hydroxy acids, penetrants, fragrances, preserving agents and fillers and solid particles other than aerogels, for instance coloured or colourless mineral and organic pigments.

These additives may be present in the composition according to the invention in an amount ranging from 0 to 20% by weight, relative to the total weight of the composition.

Needless to say, a person skilled in the art will take care to select the optional additional compounds and/or the amount thereof such that the advantageous properties of the compositions used according to the invention are not, or are not substantially, adversely affected by the envisaged addition.

The composition according to the invention may be, *inter alia*, in the form of liquids that are thickened to a greater or lesser degree, gels, serums, creams, pastes, sprays or mousses.

In particular, the composition of the invention may be applied using an aerosol device.

Preferably, the composition according to the invention is in the form of gels, creams or pastes.

The cosmetic composition according to the invention may advantageously be used for the cosmetic treatment of the hair. In particular, the composition may be used for styling the hair, for example for shaping and/or holding the hairstyle.

The present invention also relates to a cosmetic treatment process for the hair, for example a process for shaping and/or holding the hairstyle, which consists in applying to the hair an effective amount of a composition according to the invention as described above and then in carrying out optional rinsing after an optional leave-in time.

Preferably, the composition according to the invention is not rinsed off.

The process of the invention may be performed at room temperature (25°C) or using heat at a temperature ranging from 40°C to 250°C using any heating device: hood, hairdryer, tongs.

- 5 The invention is illustrated in more detail in the following examples, which are provided by way of illustration and without limitation of the invention.

EXAMPLES

10

Styling creams were prepared from the ingredients indicated, as a weight percentage of product in unmodified form, in the table below:

Chemical name	Ex. 1 (invention)	Ex. 2 (invention)	Ex. 3 (invention)	Comparative
Beeswax ⁽¹⁾	7.5	5	7.5	7.5
Polymethyl methacrylate ⁽²⁾	0.5	-	-	0.5
Trimethylated silica ⁽³⁾	-	0.5	0.5	-
Carrageenan ⁽⁴⁾	4	4	4	4
Sodium cetearyl sulfate ⁽⁵⁾	1.2	1.2	1.2	-
2-Phenoxyethanol	0.7	0.7	0.7	0.7
Isothiazoline	0.1	0.1	0.1	0.1
Water	qs for 100	qs for 100	qs for 100	qs for 100

⁽¹⁾ Cerabeil LOR sold by the company Baerlocher

⁽²⁾ Micropearl M 310 sold by the company Matsumoto Yushi-Seiyaku

⁽³⁾ VM-2270 Aerogel Fine Particles sold by the company Dow Corning

⁽⁴⁾ Satiagum UTC 30 sold by the company Cargill

⁽⁵⁾ Lanette E Granules sold by the company Cognis

15

- 20 The creams of Examples 1 to 3 according to the invention and the comparative cream were applied to dry hair.

The cream of Example 1 has a less pasty texture than the comparative cream, with a less greasy feel on the hands. The cream of Example 1 is easier to remove with water than the comparative cream.

25

It is also observed that there is less powdering (residues after removal) on the hair on which the cream of Example 1 was applied than on the hair on which the comparative cream was applied.

CLAIMS

1. Cosmetic composition comprising at least one non-liquid fatty substance, at least one surfactant and water-insoluble solid particles, the surfactant(s)/water-insoluble
5 solid particles weight ratio being greater than or equal to 1, the total weight content of surfactant(s) and of water-insoluble particles being less than or equal to 3% relative to the total weight of the composition.
2. Composition according to Claim 1, in which the water-insoluble solid particles are
10 chosen from particles of one or more polymeric organic compounds and/or particles of one or more mineral compounds.
3. Composition according to either of the preceding claims, in which the water-insoluble
15 solid particles are chosen from polyamide powders, crosslinked sodium polyacrylate powders, polyethylene powders and polymethyl methacrylate powders, preferably from polymethyl methacrylate powders.
4. Composition according to either of Claims 1 and 2, in which the water-insoluble solid
20 particles are chosen from metal particles, oxides, mineral salts, carbides, nitrides, sulfides and hydroxides, especially from clays, silicates, alumina, silica, kaolin and hydroxyapatite, preferably from silica particles and especially from hydrophobic silica aerogel particles.
5. Composition according to the preceding claim, in which the hydrophobic silica
25 aerogel particles have a specific surface area per unit of mass (SM) ranging from 500 to 1500 m²/g, preferably from 600 to 1200 m²/g and better still from 600 to 800 m²/g.
6. Composition according to either of Claims 4 and 5, in which the hydrophobic silica
30 aerogel particles have an oil-absorbing capacity measured at the wet point ranging from 5 to 18 ml/g of particles, preferably from 6 to 15 ml/g and better still from 8 to 12 ml/g.
7. Composition according to either of Claims 4 to 6, in which the hydrophobic silica
35 aerogel particles have a size, expressed as the mean diameter (D[0.5]), ranging from 1 to 30 µm, preferably from 5 to 25 µm, still better from 5 to 20 µm and even still better from 5 to 15 µm.

8. Composition according to either of Claims 4 to 7, in which the hydrophobic silica aerogel particles are hydrophobic silica particles surface-modified with trimethylsilyl groups.

- 5 9. Composition according to any one of Claims 4 to 8, characterized in that the hydrophobic silica aerogel particles have a specific surface area per unit of volume SV ranging from 5 to 60 m²/cm³, preferably from 10 to 50 m²/cm³ and better still from 15 to 40 m²/cm³.
- 10 10. Composition according to any one of the preceding claims, in which the water-insoluble solid particles are present in the composition in concentrations ranging from 0.01% to 1% by weight, preferably from 0.1% to 0.7% and more preferentially from 0.2% to 0.5% by weight relative to the total weight of the composition.
- 15 11. Composition according to any one of the preceding claims, in which the non-liquid fatty substance(s) are chosen from fatty alcohols, esters of fatty acids and/or of fatty alcohols, waxes of animal, plant, mineral or synthetic origin, silicone resins or gums, and fatty ethers, which are not liquid and are preferably solid.
- 20 12. Composition according to any one of the preceding claims, in which the non-liquid fatty substance(s) are chosen from waxes, preferably from waxes of animal origin such as beeswaxes or modified beeswaxes.
- 25 13. Composition according to any one of the preceding claims, in which the non-liquid fatty substance(s) are present in the composition in concentrations ranging from 0.01% to 10%, preferably from 1% to 9%, better still from 2.5% to 8% and even better still from 5% to 8% by weight relative to the total weight of the composition.
- 30 14. Composition according to any one of the preceding claims, in which the surfactant(s) are chosen from anionic, cationic, nonionic, amphoteric and zwitterionic surfactants, and mixtures thereof, preferably from anionic or nonionic surfactants.
- 35 15. Composition according to any one of the preceding claims, in which the surfactant(s) are present in the composition in concentrations ranging from 0.01% to 2% by weight and preferably from 0.1% to 1.5% by weight relative to the total weight of the composition.

16. Composition according to any one of the preceding claims, in which the surfactant(s)/insoluble solid particles weight ratio ranges from 1 to 20, better still from 1 to 10 and even better still from 1.5 to 5.

5 17. Composition according to any one of the preceding claims, in which the total weight content of surfactant(s) and of insoluble solid particles ranges from 0.5% to 3%, better still from 1% to 3%, even better still from 1% to 2.5% and more preferentially from 1.5% to 2.5% by weight relative to the total weight of the composition.

10 18. Composition according to any one of the preceding claims, which comprises at least one thickener, which may be chosen from natural or synthetic, associative or non-associative polymeric thickeners and non-polymeric thickeners.

15 19. Composition according to any one of the preceding claims, which comprises water, preferably in a content ranging from 5% to 98%, preferably from 30% to 95%, better still from 50% to 90% and even better still from 70% to 90% relative to the total weight of the composition.

20 20. Cosmetic process for treating keratin fibres, in particular human keratin fibres such as the hair, characterized in that it comprises the step of applying to the said fibres an effective amount of a composition as defined according to any one of Claims 1 to 19.

21. Use of a composition according to any one of Claims 1 to 19, for hair treatment, especially for treating keratin fibres and in particular for holding/shaping the hair.

25

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/062963

A. CLASSIFICATION OF SUBJECT MATTER INV. A61Q5/06 A61K8/81 A61K8/86 A61K8/88 A61K8/25 A61K8/26 A61K8/02 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) A61Q A61K 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 practicable, search terms used) EPO-Internal, CHEM ABS Data, WPI Data																																																					
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>EP 1 203 573 A2 (GOLDWELL GMBH [DE] KPSS KAO GMBH [DE]) 8 May 2002 (2002-05-08)</td> <td>1,2,4,</td> </tr> <tr> <td>Y</td> <td>page 2, paragraph 3-8; examples</td> <td>10-21</td> </tr> <tr> <td></td> <td>-----</td> <td>1-21</td> </tr> <tr> <td>X</td> <td>EP 2 394 631 A1 (KPSS KAO GMBH [DE]) 14 December 2011 (2011-12-14)</td> <td>1,2,4,</td> </tr> <tr> <td></td> <td>cited in the application</td> <td>10-21</td> </tr> <tr> <td>Y</td> <td>page 2, paragraph 6-7</td> <td>1-21</td> </tr> <tr> <td></td> <td>examples</td> <td></td> </tr> <tr> <td></td> <td>-----</td> <td></td> </tr> <tr> <td>Y</td> <td>FR 2 964 318 A1 (OREAL [FR]) 9 March 2012 (2012-03-09)</td> <td>1-21</td> </tr> <tr> <td></td> <td>page 1, line 25 - page 2, line 2</td> <td></td> </tr> <tr> <td></td> <td>page 3, line 18 - page 4, line 18</td> <td></td> </tr> <tr> <td></td> <td>page 4, line 24 - line 30</td> <td></td> </tr> <tr> <td></td> <td>page 43, line 24 - line 31</td> <td></td> </tr> <tr> <td></td> <td>examples</td> <td></td> </tr> <tr> <td></td> <td>-----</td> <td></td> </tr> <tr> <td></td> <td>-/--</td> <td></td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	EP 1 203 573 A2 (GOLDWELL GMBH [DE] KPSS KAO GMBH [DE]) 8 May 2002 (2002-05-08)	1,2,4,	Y	page 2, paragraph 3-8; examples	10-21		-----	1-21	X	EP 2 394 631 A1 (KPSS KAO GMBH [DE]) 14 December 2011 (2011-12-14)	1,2,4,		cited in the application	10-21	Y	page 2, paragraph 6-7	1-21		examples			-----		Y	FR 2 964 318 A1 (OREAL [FR]) 9 March 2012 (2012-03-09)	1-21		page 1, line 25 - page 2, line 2			page 3, line 18 - page 4, line 18			page 4, line 24 - line 30			page 43, line 24 - line 31			examples			-----			-/--	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																																																			
X	EP 1 203 573 A2 (GOLDWELL GMBH [DE] KPSS KAO GMBH [DE]) 8 May 2002 (2002-05-08)	1,2,4,																																																			
Y	page 2, paragraph 3-8; examples	10-21																																																			
	-----	1-21																																																			
X	EP 2 394 631 A1 (KPSS KAO GMBH [DE]) 14 December 2011 (2011-12-14)	1,2,4,																																																			
	cited in the application	10-21																																																			
Y	page 2, paragraph 6-7	1-21																																																			
	examples																																																				

Y	FR 2 964 318 A1 (OREAL [FR]) 9 March 2012 (2012-03-09)	1-21																																																			
	page 1, line 25 - page 2, line 2																																																				
	page 3, line 18 - page 4, line 18																																																				
	page 4, line 24 - line 30																																																				
	page 43, line 24 - line 31																																																				
	examples																																																				

	-/--																																																				
☒ 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 "E" earlier application or patent 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 "&" document member of the same patent family																																																					
Date of the actual completion of the international search 11 November 2013		Date of mailing of the international search report 20/11/2013																																																			
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 Ruckebusch, Virginie																																																			

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/062963

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 152 272 A (YOUNG KENNETH [GB]) 1 May 1979 (1979-05-01) column 1, line 46 - line 56 column 8, line 19 - line 22; example 11 -----	1-21
Y	EP 1 552 808 A1 (OREAL [FR]) 13 July 2005 (2005-07-13) pages 2-3, paragraph 12-14 pages 8-9, paragraphs 71-77,93 example 4 -----	1-21
Y	US 2006/030501 A1 (NIEBAUER MICHAEL F [US]) 9 February 2006 (2006-02-09) page 1, paragraph 8 - page 2, paragraph 14 page 4, paragraph 48 - page 5, paragraph 65 examples -----	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/062963

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1203573	A2	08-05-2002	AT 285747 T 15-01-2005
		DE 10054215 A1	06-06-2002
		EP 1203573 A2	08-05-2002
EP 2394631	A1	14-12-2011	NONE
FR 2964318	A1	09-03-2012	NONE
US 4152272	A	01-05-1979	AU 520108 B2 14-01-1982
		AU 3013877 A	03-05-1979
		CA 1111616 A1	03-11-1981
		DE 2747726 A1	03-05-1978
		FR 2369340 A1	26-05-1978
		GB 1587122 A	01-04-1981
		GR 62860 A1	06-07-1979
		IT 1143767 B	22-10-1986
		JP S5394042 A	17-08-1978
		US 4152272 A	01-05-1979
EP 1552808	A1	13-07-2005	NONE
US 2006030501	A1	09-02-2006	EP 1773280 A1 18-04-2007
		JP 2008508323 A	21-03-2008
		US 2006030501 A1	09-02-2006
		WO 2006017827 A1	16-02-2006