(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 December 2013 (19.12.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/186720 A2

(51) International Patent Classification:
A61Q 5/02 (2006.01) *A61K 8/02* (2006.01)
A61K 8/85 (2006.01) *A61K 8/72* (2006.01)
A61Q 19/10 (2006.01)

(21) International Application Number:
PCT/IB2013/054811

(22) International Filing Date:
12 June 2013 (12.06.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1255502 12 June 2012 (12.06.2012) FR
61/667,066 2 July 2012 (02.07.2012) US

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

(72) Inventors: **GAVILLON, Roxane**; 51 rue Camelinat, F-91170 Viry Chatillon (FR). **BERNARD, Anne-Laure**; 1 avenue Coysevox, F-92160 Antony (FR).

(74) Agent: **LE COUPANEC, Pascale**; Cabinet Nony, 3 rue de Penthièvre, F-75008 Paris (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:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

WO 2013/186720 A2

(54) Title: RINSE-OFF COMPOSITION COMPRISING A PRESSURE-SENSITIVE ADHESIVE COMPOUND IN THE FORM OF BEADS

(57) Abstract: The invention relates to a rinse-off foaming cleansing cosmetic composition comprising, in a physiologically acceptable medium: -a surfactant system in an active material content of greater than or equal to 3% by weight relative to the total weight of the composition, -at least one suspension agent, -at least one cosmetic additive in the form of particles, fibres or mixtures thereof, -at least one pressure-sensitive adhesive compound in the form of beads. The invention also relates to a process for cleansing keratin materials, which consists in applying the said composition to the said keratin materials, in working it into a foam and then in rinsing off the said composition.

"Rinse-off composition comprising a pressure-sensitive adhesive compound in the form of beads"

The present invention relates to a rinse-off foaming cosmetic composition containing at least one cosmetic additive in the form of particles, fibres or mixtures thereof and an adhesive compound of "pressure-sensitive adhesive" or PSA type in the form of beads, for depositing the said at least one cosmetic additive onto keratin materials.

The deposition of cosmetic additives onto keratin materials under leave-on conditions is known. However, such a deposit may be sought via cleansing products. Thus, consumers may be in search of additional perceptible effects such as radiance of the complexion, bleaching, matting or moisturizing of the skin, or alternatively sensory properties such as softness. Certain fillers, as a result of their physicochemical properties (refractory index, colour, oil absorption, etc.), are effectively used along these lines under leave-on conditions. Now, the deposition of fillers or active agents onto keratin materials is very poor after a cleansing product has been used and rinsed off.

To date, a few technical solutions have been proposed, which may be summarized as follows:

- the use of cationic compounds such as cationic polymers, surfactants and particles, which leads to a compatibility problem in anionic formulations, or
- the use of an emulsified oil as a particle-deposition agent, this type of oil often having as adverse effect an anti-foaming nature.

Consequently, there is a need for foaming cleansing compositions that are free of the abovementioned drawbacks.

The inventors have demonstrated that the combination, in a foaming cleansing composition, of a cosmetic additive in the form of particles, fibres or mixtures thereof with a pressure-sensitive adhesive compound makes it possible to deposit onto keratin materials the said at least one cosmetic additive, without deteriorating the foaming capacities of the composition.

One subject of the present invention is thus a rinse-off foaming cleansing cosmetic composition comprising, in a physiologically acceptable medium:

- a surfactant system in an active material content of greater than or equal to 3% by weight relative to the total weight of the composition,

- at least one suspension agent,
- at least one cosmetic additive in the form of particles, fibres or mixtures thereof, and
- at least one pressure-sensitive adhesive compound in the form of beads.

Contrary to all expectation, the inventors have found that the use of this cosmetic composition makes it possible to deposit at least one cosmetic additive in the form of particles, fibres or mixtures thereof onto keratin materials, whereas the composition is deposited, spread on the keratin materials and worked into a foam in order to use its cleansing properties, and is then rinsed off with water.

According to another of its aspects, a subject of the invention is also a process for cleansing keratin materials, which consists in applying to the said keratin materials a composition according to the invention, in working the said composition into a foam and then in rinsing off the said composition, especially with water.

A subject of the present invention is also the cosmetic use of the composition as defined above, for removing makeup and/or cleansing the skin, the hair and/or mucous membranes, or for skincare.

For the purposes of the present invention, the term "physiologically acceptable medium" means a medium that is suitable for the topical administration of a composition.

A physiologically acceptable medium is preferably a cosmetically or dermatologically acceptable medium, that is to say a medium which is devoid of unpleasant odour or appearance and which is entirely compatible with the topical administration route.

Such a medium is in particular considered as physiologically acceptable when it does not cause the user any unacceptable stinging, tautness or redness.

The compositions of the invention are rinse-off compositions (rinsing with water or with a tonic) and they may be used in the field of the makeup removal and cleansing of facial or bodily skin, the hair, including the scalp, and mucous membranes such as the lips. They may also constitute care products, for instance rinse-off masks (in the usual manner in which these products are used).

COSMETIC ADDITIVES

For the purposes of the present invention, a "cosmetic additive" is a compound intended to impart a cosmetic property that may be chosen, for example, from: supplying colour, texture modification, antisun protection, improvement of the remanence, skin moisturization, etc.

As above mentioned, the cosmetic additive(s) present in the composition according to the invention is(are) in the form of particles, fibres or mixtures thereof.

Cosmetic additive particles are filled or hollow solid particles and are preferably insoluble in the composition according to the invention; the composition of course may include several different types of filled or hollow solid cosmetic additive particles

Said particles are generally insoluble in water. For the purposes of the present invention “insoluble in water” means a compound for which the solubility in water at 25°C and atmospheric pressure is less than 0.1 %, preferably less than 0.001 % by weight.

“Hollow particles” means according to the invention particles that have at least one cavity; this expression namely includes porous particles.

“Filled particles” means according to the invention particles that do not have a structure that is hollow.

Cosmetic additive particles used in the composition according to the present invention may have different shapes for instance a shape of spheres, flakes, needles or wafers; they are preferably substantially spherical.

Among the cosmetic additives in the form of particles that may be included in the composition according to the present invention, mention may be made of:

- organic pigments. 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 aluminium.
- mineral pigments such as:
    - titanium oxide, zinc oxide, coloured iron oxide,
    - alumina,
    - nacres,
    - carbonates,

- ceramic particles, for instance boron nitride,
- diamond/graphite,
- magnesia,
- glass, for instance borosilicate and phosphosilicate,
- silica, for instance amorphous, colloidal, precipitated or fumed silica, in natural form or in the form of silica gels,
- clay, for instance montmorillonite,
- zirconium and barium sulfate,
- silicates, for instance talc, illite, kaolin, zeolite, sepiolite, laponite, hectorite or bentonite,
- mica, or
- Lionite PC particles sold by the company Lion Corporation based on silica, ZnO, Al_2O_3 and TiO_2, composites of the above cited materials, in particular TiO_2 and silica composites,

- polymer particles, for instance particles of polymethyl methacrylate (PMMA), of polytetrafluoroethylene (PTFE), of polyamide, of polyacrylate, of polystyrene or copolymers thereof,
- wax particles, for instance carnauba wax,
- mineral and/or organic sunscreen particles, for instance TiO_2,
- perlite particles,
- silica aerogel particles, and
- mixtures thereof.

All the particles mentioned above may be sought for different purposes, such as to impart colour, different types of tints, softness or mattness, to modify the texture of the skin or to provide the skin with protection, especially antisun protection.

According to a particular embodiment of the present invention, the particles have a number-average primary size of less than 1 mm, preferably less than 100 μm and more preferentially less than 30 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. Needless to say, when it is a question of a

population of particles of different sizes, the size indicated corresponds to the number-average size of the population.

According to the present invention, the expression “number-average primary size” means the average primary size of the considered particles according to the total number of particles.

In the description that follows, the term "size" means the "number-average primary size".

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

Among the cosmetic additives in the form of fibres that may be included in the composition according to the present invention, examples that may be mentioned include polyamide or Nylon fibres, polyaramid, viscose, cotton, polyacrylic, poly(vinyl acetate) or PVA, or composite fibres.

The composition may simultaneously comprise particles and fibres as cosmetic additives. In this case, the content considered of the said at least one cosmetic additive is that of the particles and fibres, taken in their entirety.

The said at least one cosmetic additive may be included in the composition according to the present invention in an active material content of between 0.1% and 10% by weight and in particular between 0.1% and 5% by weight relative to the total weight of the composition, for example between 0.5 to 5 %, or between 1 and 4 %.

PRESSURE-SENSITIVE ADHESIVE COMPOUNDS

Pressure-sensitive adhesives (PSAs) are viscous, elastic substances which have satisfactory adhesion, cohesion, drawability and elasticity properties. The performance qualities of a pressure-sensitive adhesive are generally evaluated by means of three properties: its immediate tackiness at room temperature (often referred to as the "tack"), its drawability and its shear stress. Properties such as the product's shear stress or the cohesion may be measured by means of standard tests that are detailed in the scientific literature (Ref.: A. Zosel, J. Adhesion, 1994, 44, pp. 1-6).

Pressure-sensitive adhesives are usually formed from chemical fragments that are responsible for the elastomeric behaviour and the immediate tack at room temperature.

Thus, by controlling the amounts of these fragments, the various desired properties may be obtained.

The pressure-sensitive adhesives in accordance with the invention are compounds that give the support coated therewith immediate tack power at room temperature, which allows its instantaneous adhesion to a substrate under the effect of a gentle and brief pressure of a finger or a hand.

The pressure-sensitive adhesives used in accordance with the present invention are preferably defined according to the Dahlquist criterion, i.e. as a function of their storage modulus G' (as described in the book "Handbook of Pressure Sensitive Adhesive Technology, Second Edition, D. Satas, ed., Van Nostrand Reinhold, New York, NY, 1989, pages 171-176", which is incorporated herein by reference).

For the purposes of the present invention, the storage modulus G' represents the stiffness and the elasticity of a material. In other words, this modulus expresses the capacity of a material to store mechanical energy, when the said material is subjected to a stress, and its capacity to restitute this mechanical energy in the form of an elastic deformation. This storage modulus G' is preferably measured using a dynamic mechanical analyser.

Thus, in the context of the Dahlquist criterion, the pressure-sensitive adhesives according to the present invention preferentially have a storage modulus value G' of less than 3×10^5 Pascals measured at a speed of 10 radians per second at a temperature ranging from 20°C to 22°C.

The pressure-sensitive adhesives according to the invention are compounds that give the support coated therewith immediate tack power at room temperature, which allows its instantaneous adhesion to a substrate under the effect of a gentle and brief pressure. Even more particularly, the pressure-sensitive adhesives according to the invention are compounds that have immediate tack power at room temperature and that adhere to a surface by simple contact without the need for more than the pressure of a finger or a hand. Moreover, given their chemical properties, pressure-sensitive adhesives have particular properties such as a low glass transition temperature (Tg), a low surface energy (σ), high flexibility and substantial bonding capacity.

Preferably, the pressure-sensitive adhesive compounds according to the invention do neither include oils, in particular hydrocarbon-based oils, plant oils or silicone

oils nor latex that are essentially aqueous dispersions of polymer particles having the property of being devoid of becoming adhesives in response to a mechanical pressure. In other words, the pressure-sensitive adhesive compounds are neither oils and in particular hydrocarbon-based oils, plant oils or silicone oils, nor latex.

The pressure-sensitive adhesive compounds used in the present invention are compounds that comprise one or more adhesive organic polymers. In other words, such compounds are made from one or more adhesive organic polymers.

In particular, the pressure-sensitive adhesive compounds used in the present invention may be chosen from (i) adhesive organic polymers and (ii) particles comprising at least a first solid phase covered on at least part of its surface with one or more adhesive organic polymers.

According to one embodiment, the pressure-sensitive adhesive compounds according to the present invention are adhesive organic polymers.

Preferably, the adhesive organic polymer(s) are non-silicone polymers.

The adhesive nature of an organic polymer is generally associated with its glass transition temperature. A necessary but insufficient condition for a polymer to be adhesive is that it must have a glass transition temperature (Tg) that is significantly below room temperature, i.e. below a temperature equal to 25°C.

The adhesive organic polymers used in the present invention preferably have a glass transition temperature (Tg) of less than or equal to 25°C, in particular less than or equal to 10°C and preferably less than or equal to 0°C.

The glass transition temperature (Tg) of the adhesive organic polymers according to the present invention may be measured by differential calorimetric analysis (Differential Scanning Calorimetry, DSC) under the following conditions:

To measure the glass transition temperature, a film about 150 mm thick of test polymer is prepared by depositing an aqueous solution or dispersion of the polymer in a circular Teflon die 40 mm in diameter and leaving the deposit to dry. The film is dried in an oven at a temperature of about 23°C under a relative humidity of 45%, until the weight no longer changes. About 5 to 15 mg of the film are taken up and placed in a crucible, which is then introduced into the analyser. The thermal analyser is a DSC-2920 model from the company TA Instruments. The initial and final temperatures of the temperature

sweep are chosen so as to surround the desired glass transition temperature. The temperature sweep is performed at a rate of 10°C/minute.

This analysis is performed according to ASTM standard D 3418-97 apart from the above changes.

The adhesive organic polymers used in the present invention preferably have a self-adhesiveness such that the tensile force (F_{max} in newtons (N)) necessary to separate two surfaces coated with the said polymer is greater than 1 N, preferably greater than 3 N and in particular greater than 5 N.

The tensile force F_{max} may be measured under the following conditions: Two discs each with an area of 38 mm^2, made of a solid, rigid, inert and non-absorbent material, preferably glass, are coated with a layer of the adhesive compound to be tested. The polymer is deposited in an amount of 500 $\mu g/mm^2$ from a solution in a suitable solvent. After evaporation of the said solvent for 24 hours at 22°C under a relative humidity of 50%, the two coated surfaces of the disks are superposed and the disks are pressed together for 20 seconds at a pressure of 3 newtons using a Lloyd LR5K model extensometer.

The bonded disks are then pulled so as to separate them from each other at a speed of 20 mm/minute, and the tensile force is recorded continuously. The maximum tensile force, recorded at the time of separation of the two surfaces, known as the F_{max}, characterizes the self-adhesiveness of the polymer. The greater this force, the greater the self-adhesiveness of the polymer.

The adhesive polymers that may be used for the present invention may also be characterized by their adhesiveness on an inert material, such as glass. This adhesiveness may be expressed in the form of the energy (Es) supplied by the same extensometer (Lloyd LR5K model) to separate two surfaces of 38 mm^2 each coated with the said adhesive organic polymers, under the above conditions (500 mg/mm^2, drying for 24 hours at 22°C, 50% RH) of an adhesive polymer, of a polished glass surface, after compression of these two surfaces for 30 seconds with a force of 3 newtons. As previously, the tensile speed is 20 mm/minute.

This energy Es, corresponding to the sum of work supplied up to the point of detachment, may be calculated according to the following formula:

$$\int_{Xs1+0,05}^{Xs2} F(x)dx$$

in which:

F(x) is the force necessary to produce a displacement (x),

Xs1 is the displacement (expressed in mm) produced by the maximum tensile force, and

Xs2 is the displacement (expressed in mm) produced by the tensile force that enables total separation of the two surfaces.

For the adhesive polymers used in the present invention, the separation energy Es is preferably not more than 300 μJ and preferably not more than 250 μJ.

Thus, in order for the organic polymers according to the invention to be adhesive, it is necessary for the polymer deposit to have adhesiveness and/or self-adhesiveness characteristics as described above.

The adhesive organic polymers may be crosslinked or non-crosslinked. To find concrete examples of adhesive polymers, reference may be made to the following patent applications describing adhesive polymers: WO98/38969, FR 2 833 960 (Self-adhesive cationic or amphoteric polyurethanes) and FR 2 833 959 (Self-adhesive cationic or amphoteric radical polymers).

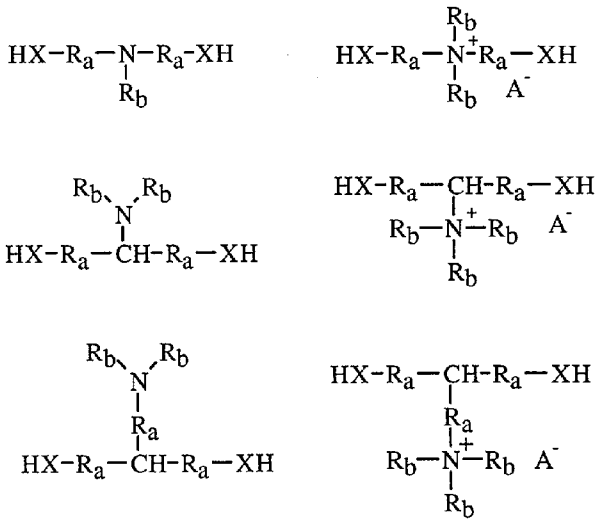
In particular, the adhesive organic polymers according to the invention may be chosen from adhesive polyesters bearing one or more sulfonic functions, cationic or amphoteric polyurethanes comprising one or more self-adhesive tertiary or quaternary amine functions and self-adhesive cationic or amphoteric radical polymers.

Preferably, the adhesive organic polymers according to the invention may be chosen from adhesive polyesters bearing one or more sulfonic functions, in particular from adhesive branched polyesters bearing one or more sulfonic functions.

More preferentially, the adhesive organic polymer according to the present invention corresponds to the branched sulfonic polyester sold by the company Eastman AQ1350 under the name AQ 1350. Such a branched sulfonic polyester is adhesive and is defined by a glass transition temperature (Tg) of 0°C and a maximum tensile force F_{max} equal to 23 newtons.

The adhesive organic polymers according to the invention may be cationic polyurethanes that comprise (a) units derived from one or more tertiary or quaternary amines comprising two reactive functions with labile hydrogen, (b) units derived from one or more nonionic polymers comprising two reactive functions with labile hydrogen, and (c) units derived from one or more diisocyanates.

The tertiary or quaternary amines forming the cationic units (a) are preferably chosen from compounds corresponding to one of the following formulae:



in which:

each Ra independently represents a linear or branched C_{1-6} alkylene, C_{3-6} cycloalkylene or arylene group, all possibly being substituted with one or more halogen atoms and comprising one or more heteroatoms chosen from O, N, P and S,

each Rb independently represents a C_1-C_6 alkyl, C_{3-6} cycloalkyl or aryl group, all possibly being substituted with one or more halogen atoms and comprising one or more heteroatoms chosen from O, N, P and S,

each X independently represents an oxygen or sulfur atom or a group NH or NRc in which Rc represents a C_1-C_6 alkyl group, and A^- represents a physiologically acceptable counterion.

As examples of tertiary amines that are particularly preferred for obtaining the self-adhesive cationic or amphoteric polyurethanes of the present invention, mention may be made of N-methyldiethanolamine and N-tert-butyldiethanolamine. These amines are

preferably neutralized with mineral or organic acids such as hydrochloric acid or citric acid.

The self-adhesive polyurethanes of the present invention may also comprise anionic units (d) derived, for example, from carboxylic or sulfonic acids comprising two functions bearing labile hydrogen, such as dimethylolpropionic acid.

The self-adhesive polyurethanes of the present invention may also comprise nonionic monomer units (e) derived from nonionic monomer compounds comprising two functions bearing labile hydrogen, such as butanediol or neopentyl glycol.

In one embodiment of the present invention, the self-adhesive polyurethanes of the present invention are cationic self-adhesive polyurethanes not containing any units (d) and (e) and which are formed essentially from (a) units derived from one or more tertiary or quaternary amines comprising two reactive functions bearing labile hydrogen, (b) units derived from one or more nonionic polymers comprising two reactive functions bearing labile hydrogen, and (c) units derived from one or more diisocyanates.

The cationic polyurethanes have particularly advantageous self-adhesiveness properties when the polymer(s) forming the units (b) of the self-adhesive polyurethanes of the present invention have a glass transition temperature (Tg), determined by differential calorimetric analysis, of less than 0°C, preferably less than -5°C and better still less than -10°C.

Examples of nonionic polymers capable of forming the units (b) that may be indicated include polyethers, polyesters, polysiloxanes, copolymers of ethylene and butylene, polycarbonates and fluoro polymers with a glass transition temperature of less than 0°C.

Polyethers are most particularly preferred, and among these poly(tetramethylene oxide).

These polymers preferably have a weight-average molar mass of between 400 and 10 000 and more particularly between 500 and 5000.

The number of cationic charges borne by the self-adhesive polyurethanes of the present invention depends directly on the mole ratio or weight ratio of the units (a) to the units (b). Needless to say, the units (c) are used in a virtually equimolar amount relative to the sum of the units (a) and (b).

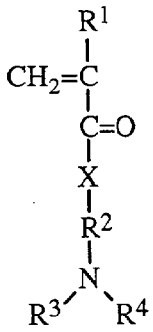
The mole ratio of the units (a) to the units (b) of the polyurethanes of the present invention is preferably between 0.01 and 50, more particularly between 0.1 and 6, better still between 0.2 and 5 and ideally between 0.3 and 5.

The diisocyanates forming the units (c) include aliphatic, alicyclic or aromatic diisocyanates.

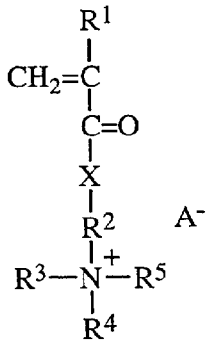
Preferred diisocyanates are chosen from tetramethylxylylene diisocyanate, methylenediphenyl diisocyanate, methylenecyclohexane diisocyanate, isophorone diisocyanate, toluene diisocyanate, naphthalene diisocyanate, butane diisocyanate and hexyl diisocyanate. Needless to say, these diisocyanates may be used alone or in the form of a mixture of two or more diisocyanates.

The adhesive organic polymers according to the invention may be self-adhesive cationic or amphoteric radical polymers. In particular, the self-adhesive cationic or amphoteric radical polymers comprise one or more derivatives of monomers chosen from those of formulae (Ia), (Ib), (Ic), (Id) and (Ie):

(Ia)



(Ib)



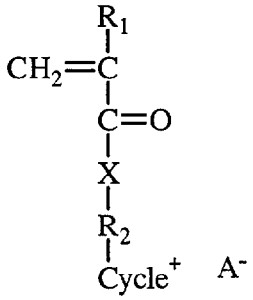
in which:

R_1 represents a hydrogen atom or a methyl group,

R_2 represents a linear, branched, cycloaliphatic or aromatic divalent C_{1-30} hydrocarbon-based group, which may contain one or more heteroatoms chosen from O, N and P,

R_3, R_4 and R_5 each independently represent a linear, branched, cycloaliphatic or aromatic C_{1-30} hydrocarbon-based group, which may contain one or more heteroatoms chosen from O, N and P,

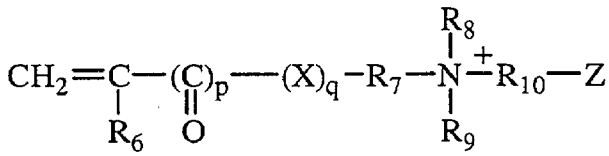
X represents an oxygen atom or an NH group, A^- represents the counterion of the quaternary amine, preferably chosen from halide, sulfate, phosphate and carboxylate ions such as acetate,

(Ic) 

in which:

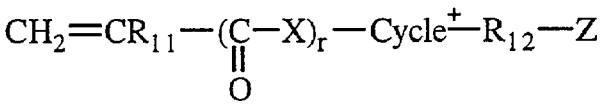
X, R_1 and R_2 have the meaning indicated with regard to formulae (Ia) and (Ib), and

Cycle+ represents a cycloaliphatic or aromatic fused monocyclic or bicyclic system, comprising a tertiary or quaternary amine function, and which may contain one or more additional heteroatoms chosen from O, N and P;

(Id) 

in which R_6 represents a hydrogen atom or a linear or branched C_{1-4} alkyl group, R_8 and R_9 each independently represent a hydrogen atom or a linear or branched C_{1-4} alkyl group, optionally bearing a group COO-, SO_3- or PO_3H-, R_7 and R_{10} each independently represent a divalent hydrocarbon-based group, in particular a group -(CH_2)n with n being between 1 and 4 inclusive, and optionally interrupted with an oxygen atom,

X is an oxygen atom or an NH group, p and q are equal to 0 or 1, Z represents a group COO-, SO_3- or PO_3H-, in which R_7 may form with R_8, R_9 or X, when the latter represents an NH group, an aromatic or non-aromatic 5-, 6- or 7-membered heterocycle;

(Ie) 

in which:

R_{11} represents a hydrogen atom or a methyl group,

R_{12} represents a divalent C_{1-4} hydrocarbon-based group,

X represents an oxygen atom or an NH group,

r is 0 or 1,

Cycle+ represents a cycloaliphatic or aromatic fused monocyclic or bicyclic system, comprising a tertiary or quaternary amine function, and which may contain one or more additional heteroatoms chosen from O, N and P, and Z represents a group COO-, SO_3- or PO_3H-.

As examples of cationic ethylenic monomers defined by the formulae (Ia) to (Ie) above, mention may be made of dimethylaminoethyl (meth)acrylate, diethylaminoethyl (meth)acrylate, dimethylaminopropyl (meth)acrylate, dimethylaminoethyl(meth)acrylamide, dimethylaminopropyl(meth)acrylamide, N-morpholinoethyl (meth)acrylate, trimethylammonioethyl (meth)acrylate chloride, trimethylammoniopropyl (meth)acrylate chloride, trimethylammonioethyl(meth)acrylamide chloride, trimethylammoniopropyl(meth)acrylamide chloride and dimethylbenzylammonioethyl (meth)acrylate chloride.

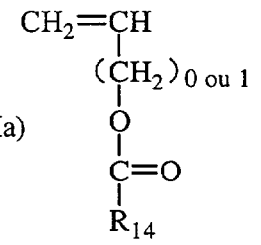
As examples of amphoteric monomers of formula (Id) or (Ie) that are particularly preferred, mention may be made of 1-vinyl-2-(3-sulfopropyl)imidazolium hydroxide, 1-vinyl-3-(3-sulfopropyl)imidazolium hydroxide, 1-vinyl-3-(4-sulfobutyl)imidazolium hydroxide, 1-vinyl-2-methyl-3-(4-sulfobutyl)imidazolium hydroxide, 2-vinyl-l-(3sulfopropyl)pyridinium hydroxide, 2-methyl-5-vinyl-l-(3-sulfopropyl)pyridinium hydroxide, 4-vinyl-l-(3-sulfopropyl)pyridinium hydroxide, dimethyl-(2-methacryloxyethyl)-3-sulfopropyl)ammonium hydroxide, diethyl-(2-methacryloxyethoxy)-2-ethyl-(3-sulfopropyl)ammonium hydroxide, 4-vinyl-4-(sulfobutyl)pyridinium, N-(3-sulfopropyl)-N-methacrylamidopropyl-N,N-dimethylammonium hydroxide, N,N-dimethyl-N-(3-(methacrylamido)propyl)-3-(sulfopropyl)ammonium hydroxide, N,N-dimethyl-N-(3-methacrylamidopropyl)-N-(3-carboxypropyl) ammonium hydroxide and N,N-dimethyl-N-(2-methacryloxyethyl-N-(3-carboxypropyl)ammonium hydroxide.

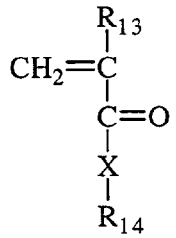
The self-adhesive cationic or amphoteric polymers of the present invention preferably comprise, besides the units derived from cationic and/or amphoteric monomers, units derived from nonionic ethylenic monomers.

The self-adhesive cationic or amphoteric polymers of the present invention are particularly advantageous when they comprise nonionic monomers chosen from those that

form, when they are homopolymerized, polymers with a glass transition temperature of less than 0°C.

These nonionic comonomers are known in the art and may be described by formula (IIa) or (IIb):

(IIa) 

(IIb) 

in which R_{13} represents a hydrogen atom or a methyl group, X represents an oxygen atom or an NH group, and R_{14} represents a linear, branched, cycloaliphatic or aromatic C_{2-30} hydrocarbon-based group, which may contain one or more atoms chosen from O, S and P.

Among the nonionic comonomers giving homopolymers with a Tg of less than 0°C, the ones that are particularly preferred are ethyl, n-butyl, n-hexyl, 2-ethylhexyl, n-nonyl, lauryl, n-octadecyl, isooctyl, isodecyl, hydroxyethyl, hydroxypropyl or methoxyethyl acrylate, and n-hexyl, 2-ethylhexyl, isodecyl or methoxyethyl methacrylate, C1-30 alkoxy-PEG (with 5 to 30 ethylene oxide units), vinyl propionate, and vinyl neoalkanoates such as vinyl neononanoate and vinyl neododecanoate.

The self-adhesive radical polymers of the present invention may also contain a small amount of highly hydrophobic nonionic monomers such as vinyl monomers bearing a silicone side chain, chlorotrifluoroethylene, tetrafluoroethylene, and vinyl, allylic or (meth)acrylic monomers with a perhalogenated and in particular perfluoro hydrocarbon-based side chain, such as perfluorohexyl (meth)acrylate or perfluorooctyl (meth)acrylate.

When the self-adhesive cationic or amphoteric polymers of the present invention are formed both from cationic or amphoteric monomers and from nonionic monomers giving homopolymers with a glass transition temperature Tg of less than 0°C, the units derived from cationic or amphoteric ethylenic monomers represent from 1% to 50% by weight of the polymer and preferably from 1% to 20% by weight of the polymer, and the units derived from nonionic ethylenic monomers giving homopolymers with a

glass transition temperature Tg of less than 0°C represent from 50% to 99% by weight of the polymer and preferably from 80% to 99% by weight of the polymer.

The self-adhesive polymers of the present invention may comprise - in addition to the units derived from cationic or amphoteric monomers and the units derived from nonionic monomers giving homopolymers with a glass transition temperature Tg of less than 0°C - a certain proportion of anionic ethylenic comonomers.

These comonomers are ethylenic monomers bearing at least one carboxylic acid, sulfonic acid or phosphonic acid function.

They are chosen, for example, from acrylic acid, methacrylic acid, itaconic acid, crotonic acid, fumaric acid, maleic acid, vinylbenzoic acid, vinylbenzenesulfonic acid, acrylamidopropanesulfonic acid and vinylphosphonic acid or from the mineral or organic base-addition salts of these acids.

The introduction of these anionic comonomers makes it possible to adjust the equilibrium of the charges, to modify the hydrophilic nature and thus the solubility of the polymers obtained, or to modulate the compatibility of the polymers with certain cosmetic supports or substrates.

According to another embodiment, the pressure-sensitive adhesive compounds are particles comprising at least a first solid phase covered on at least part of its surface with one or more adhesive organic polymers.

Thus, the pressure-sensitive adhesive compounds according to the invention are in the form of particles totally or partly covered with one or more adhesive organic polymers.

In particular, the pressure-sensitive adhesive compounds are particles with a number-average primary size ranging from 1 to 1000 μm, preferably ranging from 5 to 35 μm and more preferentially ranging from 10 to 25 μm.

In this embodiment, the pressure-sensitive adhesive compounds are particles that are coated on at least part of their surface with one or more adhesive organic polymers and which may have a spherical or non-spherical geometrical shape.

Advantageously, the pressure-sensitive adhesive compounds according to the invention are particles with a non-spherical geometrical shape, which enables them to be readily adapted to the skin, especially to the deformations of the skin, and to minimize the risks of discomfort for the user.

In particular, the pressure-sensitive adhesive compounds according to the invention may be particles in a shape having one or more flat and/or curved faces, preferably at least one flat face and more particularly two flat faces.

By way of example, the pressure-sensitive adhesive compounds according to the invention are particles in the form of a tetrahedron, a cube, a platelet, a fibre or a concave or convex lens.

Preferably, the pressure-sensitive adhesive compounds according to the invention are particles having a flat shape, in particular in the form of a platelet, fibre or lens optionally having a concave face and a convex face or two concave faces or two convex faces.

In this embodiment, the pressure-sensitive adhesive compounds are particles whose surface is partially or totally covered with one or more adhesive organic polymers.

In the case where the pressure-sensitive adhesive compounds are spheres, then their upper hemisphere may alone be covered with an adhesive organic polymer, whereas the lower hemisphere is not covered with the adhesive organic polymer.

In the case where the pressure-sensitive adhesive compounds are platelets, then one of the faces of these platelets may alone be covered with an adhesive organic polymer. Such platelets may be made by preforming platelets which are spread out on a surface. A composition comprising one or more adhesive organic polymers is then sprayed on in order to cover all or part of the surface of the platelets. Thereafter, the assembly is covered with a thickening composition. The surface is then scraped in order for the particles to be in the thickened composition.

Preferably, all or virtually all of the surface of the particles is covered with an adhesive organic polymer.

In a first variant, the pressure-sensitive adhesive compounds according to the invention may be particles comprising at least a first non-coalescent solid phase covered on at least part of their surface with one or more adhesive organic polymers.

For the purposes of the present invention, the term "non-coalescent solid phase or non-coalescent particle" means particles which, after deposition onto the skin and evaporation of the solvent in which these particles are dispersed, remain in an individualized form without forming, with the adjacent particles, a continuous or discontinuous film. In other words, when the pressure-sensitive adhesive compounds are

particles consisting of a non-coalescent solid phase, these compounds conserve their geometrical shape, despite their aptitude to adhere to the skin. The pressure-sensitive adhesive compounds are then considered as being non-film-forming particles.

The non-coalescent solid phase of the particles may be of organic or mineral nature. As examples of mineral materials that may be used for the non-coalescent solid phase, mention may be made of metals and metal alloys, metal oxides, carbides or nitrides, ceramic materials and mineral glasses.

When the non-coalescent solid phase is an organic phase, it is generally an organic polymer. In order to be non-coalescent, this polymer must be in the vitreous state, i.e. it must have a glass transition temperature that is significantly higher than room temperature or the working temperature (for example human body temperature), and/or must be crosslinked. In particular, the organic polymer constituting the non-coalescent solid phase of the particles has a glass transition temperature significantly greater than 25°C.

The glass transition temperature of the organic polymers that may be used for the solid phase is preferably greater than 40°C, preferably greater than 60°C and in particular between 80°C and 200°C.

Among these polymers, mention may be made in a non-exhaustive manner of polystyrene, poly(vinyl acetate), poly(α-methylstyrene), poly(acrylamide), poly(acrylonitrile), poly(vinyl chloride), copolymers based on styrene and C_{1-4} alkyl (meth)acrylates, copolymers based on styrene and acrylamide, copolymers based on styrene and acrylonitrile, copolymers based on styrene and vinyl acetate, copolymers based on acrylamide and C_{1-4} alkyl (meth)acrylates, copolymers based on acrylonitrile and C_{1-4} alkyl (meth)acrylate, copolymers based on acrylonitrile and acrylamide, terpolymers based on styrene, acrylonitrile and acrylamide, poly(methyl methacrylate), poly(ethyl methacrylate), styrene/butadiene, styrene/acrylic acid, styrene/vinylpyrrolidone and butadiene/acrylonitrile copolymers.

The non-coalescent solid phase of the particles of the present invention bears, on part or all of its surface, a deposit of adhesive organic polymer.

The adhesive compound may be immobilized on the surface of the non-coalescent solid phase via covalent chemical bonds (grafting), in particular by means of

hydroxyl, amine or acid functions, or via weak physicochemical interactions such as hydrophobic interaction, hydrogen bonding and van der Waals forces (adsorption).

The adhesive organic polymer totally or partly covering the surface of the non-coalescent solid part of the particles is as described above.

Preferably, the pressure-sensitive adhesive compounds according to the invention are particles comprising a non-coalescent solid phase at least partly covered with an adhesive branched polyester bearing one or more sulfonic functions.

More preferentially, the pressure-sensitive adhesive compounds are particles comprising a non-coalescent solid phase totally covered with a branched sulfonic polyester sold by the company Eastman under the brand name AQ1350.

Even more preferentially, the pressure-sensitive adhesive compounds are non-coalescent solid platelets covered with a branched sulfonic polyester sold by the company Eastman under the brand name AQ1350.

In particular, the pressure-sensitive adhesive compounds are adhesive micro-objects, which are in particular non-coalescent at room temperature, such as those sold by the company API under the name Gel Talc 100 or 600.

In a second variant, the pressure-sensitive adhesive compounds according to the invention are particles consisting solely of one or more adhesive organic polymers as described above.

In this case, given that the adhesive organic polymers have a glass transition temperature (Tg) below room temperature and preferably below 10°C, the pressure-sensitive adhesive compounds in particle form, after deposition onto the skin and evaporation of the solvent in which these compounds are dispersed, will have a tendency to form a continuous film that adheres to the skin with the other adjacent adhesive compounds present on the skin.

In this case, the pressure-sensitive adhesive compounds are considered as being film-forming particles.

In accordance with this second variant, the solid phase is formed by one or more adhesive organic polymers. In other words, the pressure-sensitive adhesive compounds are particles comprising at least a first solid phase formed by one or more adhesive organic polymers covered on at least part of their surface with one or more adhesive organic polymers.

According to another embodiment, the pressure-sensitive adhesive compounds constitute a coating comprising one or more adhesive organic polymers, the said coating being arranged on a support which may be a flexible or inflexible object, for instance a foil or a fabric.

Thus, the pressure-sensitive adhesive compounds according to the invention are in the form of a coating which may be transferred by rubbing or by contact with the skin.

Preferably, the pressure-sensitive adhesive compounds according to the invention are chosen from adhesive branched polyesters bearing one or more sulfonic functions and particles, especially platelets, comprising a non-coalescent solid phase at least partly covered with an adhesive branched polyester bearing one or more sulfonic functions.

According to yet another embodiment, the pressure-sensitive adhesive compounds are microspheres formed from acrylic monomers in combination with a binder compound, the said binder compound comprising a first binder and a second binder, the said first and second binders having respective glass transition temperatures whose difference is at least 20°C and in particular at least 60°C.

This embodiment is more particularly described in document WO 03/035 789.

Among the acrylic monomers that may be used for the preparation of microspheres, mention may be made of (i) alkyl acrylates such as butyl acrylate, ethyl acrylate, methyl acrylate and 2-ethylhexyl acrylate, (ii) alkyl methacrylates such as methyl methacrylate and butyl methacrylate, (iii) polar comonomers such as acrylic acid, methacrylic acid, hydroxyethyl acrylate, hydroxypropyl acrylate, N,N,N-octylacrylamide, acrylonitrile, acrylamide, 1-vinyl-2-pyrrolidone, sodium vinyl sulfonate, (iv) vinyl esters such as vinyl acetate, vinyl propionate, vinyl neodecanoate, vinyl stearate and vinyl pivalate, (v) crosslinking monomers such as butanediol diacrylate and hexanediol diacrylate, and (vi) combinations thereof.

As an acrylic monomer that may more particularly be used in the context of this embodiment, mention may be made in particular of 2-ethylhexyl acrylate.

The binders that may be used in the context of this embodiment should be compatible with the microspheres and should not affect the removability of the pressure-adhesive compounds.

Among the binders that are suitable for use in this embodiment, mention may be made in particular of emulsion-polymerizable acrylic polymers or vinyl-acrylic polymers which are themselves pressure-sensitive adhesives, ethylene-vinyl acetate emulsions, polyurethane dispersions and natural latex.

Advantageously, one of the binders has a glass transition temperature of less than -20°C and the other binder has a glass transition temperature of greater than +40°C, these two binders being mixed together in a ratio of between 1:10 and 10:1 by weight of solids.

As binders that are preferred in the context of this embodiment, mention may be made of Carbotec 26222 sold by BF Goodrich, Nacrylic 78-6405 sold by National Starch and Chemical or Rhoplex N580 by the company Röhm & Haas, and Acronal NV146 CR, Acronal NV 189CR, Acronal NV 162CR, Acronal NN 171CR and Acronal NA 182CR by the company BASF.

A pressure-sensitive adhesive compound according to this embodiment that may especially be mentioned is the product sold under the name Multilock by the company National Starch. This product comprises 30% active material.

The products sold under the names Roderm 560 and 580 by the company Dow Chemical (acrylic copolymers) are also noted.

The pressure-sensitive adhesive compound in the form of beads in accordance with the present invention may be included in the composition in an active material content of between 0.1% and 20% by weight, in particular between 0.1% and 10% by weight, preferably between 0.1% and 5% by weight and more particularly between 0.1% and 2% by weight relative to the total weight of the composition.

SUSPENSION AGENT

The role of the suspension agents is to gel or thicken the compositions and to avoid sedimentation of the particles present in the cleansing product according to the present invention.

The suspension agents may be of natural origin. They may then be chosen from xanthan, carrageenan, guar and starch.

The suspension agents may be of synthetic origin. They may then be chosen from the following products: Aculyn 38 (CTFA name: Acrylates/Vinyl Neodecanoate

Crosspolymer) sold by Röhm & Haas, Aqua SF1 (slightly crosslinked acrylic polymer) sold by Lubrizol, or, more generally, the products of the Carbopol® family sold by Lubrizol.

The suspension agent may be included in the composition according to the present invention in an active material content of between 0.1% and 10% by weight and in particular between 0.1% and 2.5% by weight relative to the total weight of the composition, for example between 0,5 and 8 %, namely between 1.5 and 8 %.

FOAMING SURFACTANT

The foaming composition according to the invention contains a surfactant system that gives the composition its foaming nature. The said surfactant system may consist of one or more surfactants.

Foaming surfactants are detergents and differ from emulsifiers in the value of their HLB (Hydrophilic-Lipophilic Balance), the HLB being the ratio of the hydrophilic part to the lipophilic part in the molecule. The term "HLB" is well known to a person skilled in the art and is described, for example, in "The HLB system. A time-saving guide to Emulsifier Selection" (published by ICI Americas Inc., 1984). For emulsifiers, the HLB generally ranges from 3 to 8 for the preparation of W/O emulsions and from 8 to 18 for the preparation of O/W emulsions, whereas foaming surfactants generally have an HLB of greater than 20.

The composition according to the present invention comprises a surfactant system in an active material content of greater than 3% by weight, preferably greater than 5% by weight and more preferably greater than 10% by weight relative to the total weight of the composition.

The surfactants are preferably selected from anionic, amphoteric (or zwitterionic), nonionic and/or cationic foaming surfactants, and mixtures thereof.

Anionic surfactants

The anionic surfactants that may be present in the composition according to the invention may be chosen especially from anionic derivatives of proteins of plant origin or of silk proteins, phosphates and alkyl phosphates, carboxylates, sulfosuccinates, amino acid derivatives, alkyl sulfates, alkyl ether sulfates, sulfonates, isethionates, taurates, alkyl

sulfoacetates, polypeptides, anionic alkyl polyglucoside derivatives, soaps (fatty acid salts) and mixtures thereof.

a) Anionic derivatives of proteins of plant origin are protein hydrolysates containing a hydrophobic group, it being possible for said hydrophobic group to be naturally present in the protein or to be added by reaction of the protein and/or of the protein hydrolysate with a hydrophobic compound. The proteins are of plant origin or are derived from silk, and the hydrophobic group may in particular be a fatty chain, for example an alkyl chain comprising from 10 to 22 carbon atoms. As anionic derivatives of proteins of plant origin, mention may more particularly be made of apple, wheat, soybean or oat protein hydrolysates comprising an alkyl chain having from 10 to 22 carbon atoms, and salts thereof. The alkyl chain may especially be a lauryl chain and the salt may be a sodium, potassium and/or ammonium salt.

Thus, as protein hydrolysates comprising a hydrophobic group, mention may be made, for example, of salts of protein hydrolysates where the protein is a silk protein modified by lauric acid, such as the product sold under the name Kawa Silk by Kawaken; salts of protein hydrolysates where the protein is a wheat protein modified by lauric acid, such as the potassium salt sold under the name Aminofoam W OR by Croda (CTFA name: potassium lauroyl wheat amino acids) and the sodium salt sold under the name Proteol LW 30 by SEPPIC (CTFA name: sodium lauroyl wheat amino acids); salts of protein hydrolysates where the protein is an oat protein comprising an alkyl chain having from 10 to 22 carbon atoms and more especially salts of protein hydrolysates where the protein is an oat protein modified by lauric acid, such as the sodium salt sold under the name Proteol OAT (30% aqueous solution) by SEPPIC (CTFA name: sodium lauroyl oat amino acids); or salts of apple protein hydrolysates comprising an alkyl chain having from 10 to 22 carbon atoms, such as the sodium salt sold under the name Proteol APL (30% aqueous glycol solution) by SEPPIC (CTFA name: sodium cocoyl apple amino acids). Mention may also be made of the mixture of lauroyl amino acids (aspartic acid, glutamic acid, glycine, alanine) neutralized with sodium N-methylglycinate sold under the name Proteol SAV 50 S by SEPPIC (CTFA name: sodium cocoyl amino acids).

b) Examples of phosphates and alkyl phosphates that may be mentioned include monoalkyl phosphates and dialkyl phosphates, such as the lauryl monophosphate sold under the name MAP 20® by the company Kao Chemicals, the potassium salt of

dodecylphosphoric acid, mixture of monoester and diester (predominantly diester) sold under the name Crafol AP-31® by the company Cognis, the mixture of octylphosphoric acid monoester and diester sold under the name Crafol AP-20® by the company Cognis, the mixture of ethoxylated (7 mol of EO) phosphoric acid monoester and diester of 2-butyloctanol, sold under the name Isofol 12 7 EO-Phosphate Ester® by the company Condea, the potassium or triethanolamine salt of mono(C_{12}-C_{13})alkyl phosphate sold under the references Arlatone MAP 230K-40® and Arlatone MAP 230T-60® by the company Uniqema, the potassium lauryl phosphate sold under the name Dermalcare MAP XC-99/09® by the company Rhodia Chimie, and the potassium cetyl phosphate sold under the name Arlatone MAP 160K by the company Uniqema.

c) As carboxylates, mention may be made of:

- amido ether carboxylates (AEC), such as sodium lauryl amido ether carboxylate (3 EO), sold under the name Akypo Foam 30® by Kao Chemicals;
- polyoxyethylenated carboxylic acid salts, such as oxyethylenated (6 EO) sodium lauryl ether carboxylate (65/25/10 $C_{12-14-16}$), sold under the name Akypo Soft 45 NV® by Kao Chemicals, polyoxyethylenated and carboxymethylated fatty acids originating from olive oil, sold under the name Olivem 400® by Biologia E Tecnologia, or oxyethylenated (6 EO) sodium tridecyl ether carboxylate, sold under the name Nikkol ECTD-6NEX® by Nikkol;
- salts of fatty acids (soaps) having a C6 to C22 alkyl chain which are neutralized with an organic or mineral base, such as potassium hydroxide, sodium hydroxide, triethanolamine, N-methylglucamine, lysine and arginine.

d) Amino acid derivatives that may especially be mentioned include alkali metal salts of amino acids, such as:

- sarcosinates, for instance the sodium lauroyl sarcosinate sold under the name Sarkosyl NL 97® by the company Ciba or sold under the name Oramix L30® by the company SEPPIC, sodium myristoyl sarcosinate sold under the name Nikkol Sarcosinate MN® by the company Nikkol, and sodium palmitoyl sarcosinate sold under the name Nikkol Sarcosinate PN® by the company Nikkol,
- alaninates, for instance sodium N-lauroyl N-methyl amidopropionate sold under the name Sodium Nikkol Alaninate LN30® by the company Nikkol, or sold under

the name Alanone ALE® by the company Kawaken, and triethanolamine N-lauroyl N-methyl alanine sold under the name Alanone Alta® by the company Kawaken,

- glutamates, for instance triethanolamine monococoyl glutamate sold under the name Acylglutamate CT-12® by the company Ajinomoto, or triethanolamine lauroyl glutamate sold under the name Acylglutamate LT-12® by the company Ajinomoto,
- aspartates, for instance the mixture of triethanolamine N-lauroyl aspartate and of triethanolamine N-myristoyl aspartate, sold under the name Asparack® by the company Mitsubishi,
- glycine derivatives (glycinates), for instance the sodium N-cocoyl glycinate sold under the names Amilite GCS-12® and Amilite GCK 12 by the company Ajinomoto,
- citrates, such as the oxyethylenated (9 mol) citric monoester of cocoyl alcohols sold under the name Witconol EC 1129 by the company Goldschmidt,
- galacturonates, such as the sodium dodecyl-D-galactoside uronate sold by the company Soliance.

e) Examples of sulfosuccinates that may be mentioned include the oxyethylenated (3 EO) lauryl alcohol monosulfosuccinate (70/30 C_{12}/C_{14}) sold under the names Setacin 103 Special® and Rewopol SB-FA 30 K 4® by the company Witco, the disodium salt of a hemisulfosuccinate of C_{12}-C_{14} alcohols, sold under the name Setacin F Special Paste® by the company Zschimmer Schwarz, the oxyethylenated (2 EO) disodium oleamidosulfosuccinate sold under the name Standapol SH 135® by the company Cognis, the oxyethylenated (5 EO) laurylamide monosulfosuccinate sold under the name Lebon A-5000® by the company Sanyo, the oxyethylenated (10 EO) disodium salt of lauryl citrate monosulfosuccinate sold under the name Rewopol SB CS 50® by the company Witco, and the ricinoleic monoethanolamide monosulfosuccinate sold under the name Rewoderm S 1333® by the company Witco. Polydimethylsiloxane sulfosuccinates may also be used, such as disodium PEG-12 dimethicone sulfosuccinate sold under the name Mackanate-DC30 by the company MacIntyre.

f) Mention may be made, as alkyl sulfates, for example, of triethanolamine lauryl sulfate (CTFA name: TEA lauryl sulfate), such as the product sold by Huntsman under the name Empicol TL40 FL or the product sold by Cognis under the name Texapon T42, which products are at 40% in aqueous solution. Mention may also be made of

ammonium lauryl sulfate (CTFA name: ammonium lauryl sulfate), such as the product sold by Huntsman under the name Empicol AL 30FL, which is at 30% in aqueous solution.

g) Mention may be made, as alkyl ether sulfates, for example, of sodium lauryl ether sulfate (CTFA name: sodium laureth sulfate), such as that sold under the names Texapon N40 and Texapon AOS 225 UP by Cognis, or ammonium lauryl ether sulfate (CTFA name: ammonium laureth sulfate), such as that sold under the name Standapol EA-2 by Cognis.

h) Mention may be made, as sulfonates, for example, of α-olefinsulfonates, such as the sodium α-olefinsulfonate (C14-C16), sold under the name Bio-Terge AS-40® by Stepan, sold under the names Witconate AOS Protégé® and Sulframine AOS PH 12® by Witco or sold under the name Bio-Terge AS-40 CG® by Stepan, secondary sodium olefinsulfonate, sold under the name Hostapur SAS 30® by Clariant; or linear alkylarylsulfonates, such as sodium xylenesulfonate, sold under the names Manrosol SXS30®, Manrosol SXS40® and Manrosol SXS93® by Manro.

i) Mention may be made, as isethionates, of acylisethionates, such as sodium cocoylisethionate, such as the product sold under the name Jordapon CI P® by the company Jordan.

j) Mention may be made, as taurates, of the sodium salt of palm kernel oil methyltaurate, sold under the name Hostapon CT Paté® by Clariant; N-acyl-N-methyltaurates, such as sodium N-cocoyl-N-methyltaurate, sold under the name Hostapon LT-SF® by Clariant or sold under the name Nikkol CMT-30-T® by Nikkol, or sodium palmitoyl methyltaurate, sold under the name Nikkol PMT® by Nikkol.

k) The anionic derivatives of alkyl polyglucosides can in particular be citrates, tartrates, sulfosuccinates, carbonates and glycerol ethers obtained from alkyl polyglucosides. Mention may be made, for example, of the sodium salt of cocoylpolyglucoside (1,4) tartaric ester, sold under the name Eucarol AGE-ET® by Cesalpinia, the disodium salt of cocoylpolyglucoside (1,4) sulfosuccinic ester, sold under the name Essai 512 MP® by SEPPIC, or the sodium salt of cocoylpolyglucoside (1,4) citric ester, sold under the name Eucarol AGE-EC® by Cesalpinia.

l) The soaps are obtained from a fatty acid which is partially or completely saponified (neutralized) with a basic agent. These are alkali metal or alkaline-earth metal soaps or soaps of organic bases. Use may be made, as fatty acids, of saturated, linear or

branched fatty acids comprising from 8 to 30 carbon atoms and preferably comprising from 8 to 22 carbon atoms. This fatty acid can be chosen in particular from palmitic acid, stearic acid, myristic acid, lauric acid and mixtures thereof.

Use may be made, as basic agents, for example, of alkali metal hydroxides (sodium hydroxide or potassium hydroxide), alkaline-earth metal hydroxides (for example magnesium hydroxide), ammonium hydroxide or organic bases, such as triethanolamine, N-methylglucamine, lysine and arginine.

The soaps can in particular be fatty acid alkali metal salts, the basic agent being an alkali metal hydroxide and preferably potassium hydroxide (KOH).

The amount of basic agent must be sufficient for the fatty acid to be at least partially neutralized.

Preferably, the anionic surfactant is chosen from alkyl sulfates, alkyl ether sulfates such as sodium lauryl ether sulfate, isethionates, amino acid derivatives, in particular glycine derivatives (glycinates), for instance sodium N-cocoyl glycinate, and mixtures thereof.

Amphoteric and zwitterionic foaming surfactants

The amphoteric and zwitterionic surfactants can be chosen, for example, from betaines, N-alkylamidobetaines and derivatives thereof, sultaines, alkyl polyaminocarboxylates, alkylamphoacetates, and mixtures thereof.

Mention may in particular be made, as betaines, of alkyl betaines, such as, for example, coco betaine, such as the product sold under the name Dehyton AB-30® by Cognis, lauryl betaine, such as the product sold under the name Genagen KB® by Clariant, oxyethylenated (10 EO) lauryl betaine, such as the product sold under the name Lauryl Ether (10 EO) Betaine® by Shin Nihon Rica, or oxyethylenated (10 EO) stearyl betaine, such as the product sold under the name Stearyl Ether (10 EO) Betaine® by Shin Nihon Rica.

Mention may be made, among N-alkylamidobetaines and derivatives thereof, for example, of cocamidopropyl betaine, sold under the name Lebon 2000 HG® by Sanyo or sold under the name Empigen BB® by Albright & Wilson, or lauramidopropyl betaine, sold under the name Rewoteric AMB12P® by Witco.

Mention may be made, as sultaines, of hydroxysultaines, such as cocamidopropyl hydroxysultaine, for instance the product sold under the name Rewoteric AM CAS by Goldschmidt-Degussa or the product sold under the name Crosultaine C-50® by Croda.

Mention may be made, as alkyl polyaminocarboxylates (APACs), of sodium cocoylpolyaminocarboxylate, sold under the names Ampholak 7 CX/C® and Ampholak 7 CX® by Akzo Nobel, sodium stearylpolyamidocarboxylate, sold under the name Ampholak 7 TX/C by Akzo Nobel, or sodium carboxymethyloleylpolypropylamine, sold under the name Ampholak XO7/C® by Akzo Nobel.

Mention may be made, as alkylamphoacetates, for example, of N-disodium N-cocoyl-N-carboxymethoxyethyl-N-(carboxymethyl)ethylenediamine (CTFA name: disodium cocoamphodiacetate), such as the product sold under the name Miranol C2M Concentré NP® by Rhodia, N-sodium N-cocoyl-N-hydroxyethyl-N-(carboxymethyl)ethylenediamine (CTFA name: sodium cocamphoacetate) or sodium cocoamphohydroxypropylsulfonate, sold under the name Miranol CSE by Rhodia.

Preferably, the amphoteric or zwitterionic surfactant is chosen from betaines, and especially alkylbetaines, and alkylamphoacetates such as sodium cocoamphoacetate, and mixtures thereof.

Nonionic foaming surfactant

The nonionic foaming surfactants that may be present in the composition of the invention may be chosen especially from alkyl polyglucosides (APG), oxyalkylenated glycerol esters and oxyalkylenated sugar esters, and mixtures thereof. They are preferably APGs.

Use is preferably made, as alkyl polyglucosides, of those comprising an alkyl group comprising from 6 to 30 carbon atoms and preferably from 8 to 16 carbon atoms and containing a glucoside group preferably comprising from 1.2 to 3 glucoside units. The alkylpolyglucosides may be chosen, for example, from decylglucoside (alkyl-C9/C11-polyglucoside (1.4)), for instance 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 Cognis; caprylyl/capryl glucoside, for instance the product sold under the name Plantacare KE 3711® by the company Cognis; laurylglucoside, for instance the product

sold under the name Plantacare 1200 UP® by the company Cognis; cocoglucoside, for instance the product sold under the name Plantacare 818 UP® by the company Cognis; caprylylglucoside, for instance the product sold under the name Plantacare 810 UP® by the company Cognis; and mixtures thereof.

The oxyalkylenated glycerol esters are in particular the polyoxyethylenated derivatives of esters of glycerol and of a fatty acid and of their hydrogenated derivatives. These oxyalkylenated glycerol esters can be chosen, for example, from esters of glycerol and of fatty acids which are hydrogenated and oxyethylenated, such as PEG-200 hydrogenated glyceryl palmate, sold under the name Rewoderm LI-S 80 by Goldschmidt; oxyethylenated glycerol cocoates, such as PEG-7 glyceryl cocoate, sold under the name Tegosoft GC by Goldschmidt, and PEG-30 glyceryl cocoate, sold under the name Rewoderm LI-63 by Goldschmidt; and mixtures thereof.

The oxyalkylenated sugar esters are in particular polyethylene glycol ethers of fatty acid and sugar esters. These oxyalkylenated sugar esters can be chosen, for example, from oxyethylenated glucose esters, such as PEG-120 methyl glucose dioleate, sold under the name Glucamate DOE 120 by Amerchol.

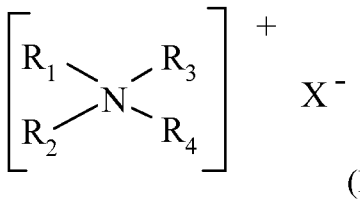
According to a preferred embodiment of the invention, the nonionic surfactant is an alkyl polyglucoside which may be chosen especially from decylglucoside, caprylyl/capryl glucoside, laurylglucoside, cocoylglucoside and caprylylglucoside, and mixtures thereof.

Cationic foaming surfactant

According to one embodiment, the composition according to the invention may comprise at least one cationic surfactant, in particular in the case where it comprises an amphoteric foaming surfactant. The cationic surfactants that may be used according to the present invention are especially optionally polyoxyalkylenated primary, secondary or tertiary fatty amine salts, quaternary ammonium salts, imidazoline derivatives and amine oxides of cationic nature, and mixtures thereof.

Examples of quaternary ammonium salts include:

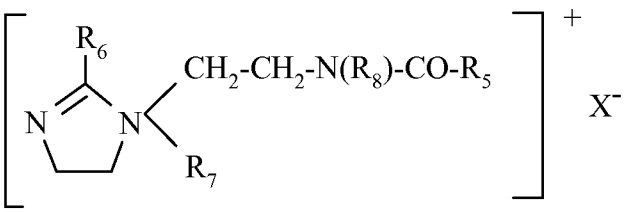
- those that have the general formula (IV) below:



(IV)

in which the radicals R1 to R4, 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. The aliphatic radicals may contain heteroatoms such as, in particular, oxygen, nitrogen, sulfur and halogens. The aliphatic radicals are for example selected from alkyl, alkoxy, polyoxyalkylene(C2-C6), alkylamide, (C12-C22)alkylamido(C2-C6)alkyl, (C12-C22)alkylacetate and hydroxyalkyl radicals containing approximately from 1 to 30 carbon atoms; X is an anion selected from the group consisting of halides, phosphates, acetates, lactates, (C2-C6)alkyl sulfates, and alkyl- or alkylaryl-sulfonates. Preferably R1 and R2 denote a C1-C4 alkyl or a C1-C4 hydroxyalkyl.

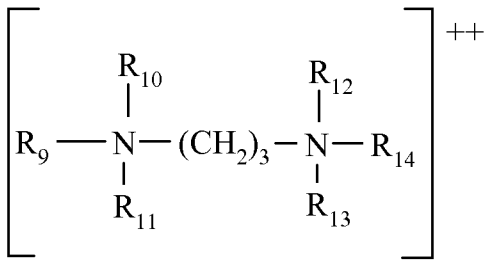
- quaternary ammonium salts of imidazolinium, for instance the salt of formula (V) below:



(V)

in which R5 represents an alkenyl or alkyl radical containing from 8 to 30 carbon atoms, for example coconut fatty acid derivatives, R6 represents a hydrogen atom, a C1-C4 alkyl radical or an alkenyl or alkyl radical containing from 8 to 30 carbon atoms, R7 represents a C1-C4 alkyl radical, R8 represents a hydrogen atom or a C1-C4 alkyl radical, X- is an anion chosen from the group of halides, phosphates, acetates, lactates, alkyl sulfates and alkyl or alkylaryl sulfonates. R5 and R6 preferably denote a mixture of alkenyl or alkyl radicals comprising from 12 to 21 carbon atoms, such as, for example, fatty acid derivatives of tallow, R7 denotes methyl and R8 denotes hydrogen.

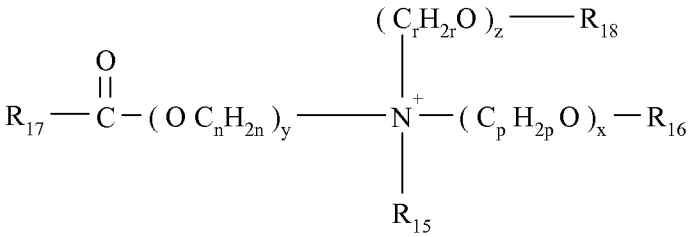
- the diquaternary ammonium salts of formula (VI):



(VI)

in which R9 denotes an aliphatic radical containing approximately from 16 to 30 carbon atoms, R10, R11, R12, R13 and R14, which are identical or different, are selected from hydrogen or an alkyl radical containing from 1 to 4 carbon atoms, and X is an anion selected from the group consisting of halides, acetates, phosphates, nitrates and methyl sulfates.

- quaternary ammonium salts comprising at least one ester function, for example those of formula (VII) below:

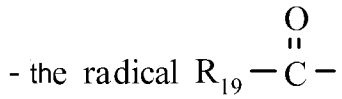


(VII)

wherein:

- R15 is selected from C_1-C_6 alkyl radicals and C_1-C_6 hydroxyalkyl or dihydroxyalkyl radicals;

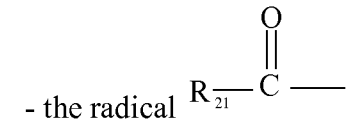
- R16 is selected from:

- the radical 

- linear or branched, saturated or unsaturated C_1-C_{22} hydrocarbon-based radicals R20,

- a hydrogen atom,

- R18 is chosen from:

- the radical 

- linear or branched, saturated or unsaturated C_1-C_6 hydrocarbon-based radicals R22,

- a hydrogen atom,

- R17, R19 and R21, which are identical or different, are selected from linear or branched, saturated or unsaturated C_7-C_{21} hydrocarbon-based radicals;

- n, p and r, which may be identical or different, are integers ranging from 2 to 6;

- 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;

with the proviso that the sum x + y + z is from 1 to 15, that when x is 0, then R16 denotes R20 and that when z is 0, then R18 denotes R22.

The alkyl radicals R15 may be linear or branched, and more particularly linear.

Preferably R15 denotes a methyl, ethyl, hydroxyethyl or dihydroxypropyl radical, and more particularly a methyl or ethyl radical.

Advantageously, the sum x + y + z is from 1 to 10.

When R16 is a hydrocarbon-based radical R20, it may be long and may have 12 to 22 carbon atoms, or may be short and may have from 1 to 3 carbon atoms.

When R18 is a hydrocarbon-based radical R22, it has preferably 1 to 3 carbon atoms.

Advantageously, R17, R19 and R21, which may be identical or different, are chosen from linear or branched, saturated or unsaturated C_{11}-C_{21} hydrocarbon-based radicals, and more particularly from linear or branched, saturated or unsaturated C_{11}-C_{21} alkyl and alkenyl radicals.

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

y is advantageously equal to 1.

n, p and r, which may be identical or different, are preferably 2 or 3 and even more particularly are equal to 2.

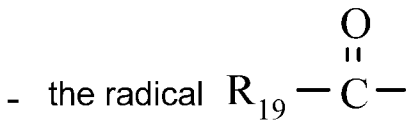
The anion is preferably a halide (chloride, bromide or iodide) or an alkyl sulfate, more particularly methyl sulfate. However, it is possible to use methanesulfonate, phosphate, nitrate, tosylate, an anion derived from an organic acid, such as acetate or

lactate, or any other anion that is compatible with the ammonium containing an ester function.

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

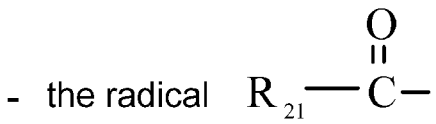
The ammonium salts more particularly used are those of formula (VII) in which:

- R15 denotes a methyl or ethyl radical;
- x and y are equal to 1;
- z is equal to 0 or 1;
- n, p and r are equal to 2;
- R16 is chosen from:



- methyl, ethyl or C_{14}-C_{22} hydrocarbon-based radicals,
- a hydrogen atom.

- R18 is chosen from:



- a hydrogen atom.

R17, R19 and R21, which may be identical or different, are chosen from linear or branched, saturated or unsaturated C_{13}-C_{17} hydrocarbon-based radicals, and preferably from linear or branched, saturated or unsaturated C_{13}-C_{17} alkyl and alkenyl radicals.

The hydrocarbon-based radicals are advantageously linear.

Among the quaternary ammonium salts of formula (IV), preference is given, on the one hand, to tetraalkylammonium chlorides, for instance dialkyldimethylammonium or alkyltrimethylammonium chlorides in which the alkyl radical contains approximately 12 to 22 carbon atoms, more particularly behenyltrimethylammonium chloride, distearyldimethylammonium chloride, cetyltrimethylammonium chloride and benzyldimethylstearylammonium chloride, or else, on the other hand, to

palmitylamidopropyltrimethylammonium chloride or the stearamidopropyldimethyl(myristyl acetate)ammonium chloride sold under the name "Ceraphyl 70" by Van Dyk.

Examples of compounds of formula (V) that may be mentioned include the diacyloxyethyldimethylammonium, diacyloxyethylhydroxyethylmethylammonium, monoacyloxyethyldihydroxyethylmethylammonium, triacyloxyethylmethylammonium and monoacyloxyethylhydroxyethyldimethylammonium salts (chloride or methyl sulfate in particular), 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.

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 plant or animal origin, or by transesterification of the methyl esters thereof. This esterification is followed by a quaternization using an alkylating agent such as an alkyl halide (preferably a methyl or ethyl halide), a dialkyl sulfate (preferably dimethyl or diethyl sulfate), methyl methanesulfonate, methyl para-toluenesulfonate, glycol chlorohydrin or glycerol chlorohydrin.

Such compounds are sold, for example, under the names Dehyquart by the company Cognis, Stepanquat by the company Stepan, Noxamium by the company CECA or Rewoquat WE 18 and Rewoquat W75 by the company Degussa.

Use may also be made of 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.

Quaternary diammonium salts of formula (VI) that are suitable for the invention comprise, in particular, propanetallowdiammonium dichloride.

ADDITIVES

The composition according to the invention may contain various water-soluble or liposoluble additives, chosen from those conventionally used in skincare or makeup-removing products, insofar as these additives and the amounts thereof do not harm the desired qualities for the composition according to the invention.

The cleansing composition in accordance with the present invention may thus comprise the following additives: cosurfactants; oil; preserving agents; sequestrants (EDTA and salts thereof); antioxidants; fragrances; dyestuffs; encapsulated or non-encapsulated pigments or soluble dyes; hydrophilic or lipophilic, anionic, nonionic, cationic or amphoteric, thickening or dispersing polymers.

The amounts of these various adjuvants are those conventionally used in the field under consideration, for example from 0.01% to 20% of active material of the total weight of the composition. These adjuvants and the amounts thereof should be such that they do not modify the property desired for the composition of the invention.

The composition may also comprise a polymeric quaternary ammonium salt (other than the preceding surfactants).

These compounds are conditioning agents, i.e. they increase the amount of foam and produce a comfortable sensation of softness on the skin (moisturization maintenance).

The polymeric quaternary ammonium salts are cationic or amphoteric polymers containing at least one quaternized nitrogen atom. Polymeric quaternary ammonium salts that may especially be mentioned include the Polyquaternium products (CTFA name), which afford softness and creaminess to the foaming cream. These polymers may preferably be chosen from the following polymers:

- Polyquaternium 5, such as the product Merquat 5 sold by the company Nalco;
- Polyquaternium 6, such as the product Salcare SC 30 sold by the company Ciba, and the product Merquat 100 sold by the company Nalco;
- Polyquaternium 7, such as the products Merquat S, Merquat 2200 and Merquat 550 sold by the company Nalco, and the product Salcare SC 10 sold by the company Ciba;
- Polyquaternium 10, such as the product Polymer JR400 sold by the company Amerchol;
- Polyquaternium 11, such as the products Gafquat 755, Gafquat 755N and Gafquat 734 sold by the company ISP;

- Polyquaternium 15, such as the product Rohagit KF 720 F sold by the company Röhm;
- Polyquaternium 16, such as the products Luviquat FC905, Luviquat FC370, Luviquat HM552 and Luviquat FC550 sold by the company BASF;
- Polyquaternium 22, such as the product Merquat 280 sold by the company Nalco;
- Polyquaternium 28, such as the product Styleze CC10 sold by the company ISP;
- Polyquaternium 39, such as the products Merquat Plus 3330 and Merquat 3330PR sold by the company Nalco;
- Polyquaternium 44, such as the product Luviquat Care sold by the company BASF;
- Polyquaternium 46, such as the product Luviquat Hold sold by the company BASF;
- Polyquaternium 47, such as the product Merquat 2001 sold by the company Nalco.

Preferably, the quaternary ammonium salts are chosen from Polyquaternium-7, Polyquaternium-10, Polyquaternium-39 and Polyquaternium-47, and mixtures thereof.

The polymeric quaternary ammonium salts may be in an (active material) amount ranging, for example, from 0.01% to 5% by weight and better still from 0.05% to 1% by weight relative to the total weight of the composition.

As an example of a particular conditioning agent, mention may be made of Polyquaternium-39, sold especially by the company Nalco under the names Merquat Plus 3330 and Merquat 3330PR.

The composition of the present invention may also include some active agents that are not in the form of particules or fibres, as additives.

Among the active agents that may be included in the composition according to the present invention, mention may be made of vitamins, for instance vitamins A, B3, PP, B5, E, K1 and/or C and derivatives of these vitamins and especially esters thereof; keratolytic or pro-desquamating agents, for example hydroxy acids, keto acids, retinoids and esters thereof, retinal, retinoic acid and derivatives thereof; plant extracts such as

extracts of butcher's-broom and/or common horse chestnut; xanthine bases such as caffeine; free-radical scavengers; organic or mineral sunscreens; moisturizers such as polyols; ceramides; DHEA and derivatives thereof; coenzyme Q10; biologically-acting bleaching and depigmenting agents such as kojic acid, extracts of skullcap, of mulberry, of licorice and/or of camomile; para-aminophenol derivatives, arbutin and derivatives thereof, bacterial anti-adhesion active agents such as salicylic acid and capryloylsalicylic acid, and mixtures thereof.

For a use in the cosmetic treatment of greasy or combination skin, the composition according to the invention may contain in particular at least one anti-seborrhoeic active agent chosen from vitamins B3 and B5; zinc salts, and in particular zinc oxide and zinc gluconate; salicylic acid and derivatives thereof such as 5-n-octanoylsalicylic acid; triclosan; capryloylglycine, an extract of clove; Octopirox; hexamidine; azelaic acid and derivatives thereof.

According to a particular embodiment, the active agents in accordance with the invention may be conveyed in cage molecules of the type such as cyclodextrins, niosomes or liposomes.

In the event of incompatibility or to stabilize them, the active agents mentioned above may be incorporated into spherules, especially ionic or nonionic vesicles and/or nanoparticles (nanocapsules and/or nanospheres).

COMPOSITION

The composition according to the present invention may especially be in the form of an aqueous composition that is thickened by means of the suspension agent described above.

The composition according to the invention comprises an aqueous medium or aqueous phase, i.e. a medium comprising an amount of water of at least 50% by weight, preferably ranging from 50% to 95% by weight and better still from 60% to 90% by weight relative to the total weight of the composition.

The aqueous phase of the compositions according to the invention may contain, besides water, one or more solvents chosen from monoalcohols comprising from 1 to 6 carbon atoms, and polyols, and mixtures thereof. A monoalcohol that may especially be

mentioned is ethanol. Examples of polyols that may especially be mentioned include glycerol; glycols such as butylene glycol, isoprene glycol or propylene glycol, polyethylene glycols such as PEG-8; sorbitol; sugars such as glucose, fructose, maltose, lactose and sucrose; and mixtures thereof.

When they are present, the amount of monoalcohols and of polyols in the composition of the invention may range, for example, from 0.01% to 30% by weight, preferably from 2% to 25% by weight and better still from 4% to 20% by weight relative to the total weight of the composition.

Throughout the description, including the claims, the expression "comprising a" should be understood as being synonymous with "comprising at least one", unless otherwise specified.

The expressions "between ... and ..." and "ranging from ... to ..." should be understood as meaning limits included, unless otherwise specified.

The examples that follow illustrate the present invention without limiting the scope thereof.

Example 1: Cleansing composition

The amounts are indicated as weight percentages.

Phase	Component	A Composition comparative	B Composition of the invention
A	Water	10	10
	glycerol	5	5
	Multilock from National Starch[(1)]		2
A1	Aculyn 38 [(2)]	6.87	6.87
B	Amilite GCS 12 [(3)]	21.7	21.7
	Cocoylbetaine [(4)]	21.7	21.7
	Salicylic acid	0.2	0.2
	Phenoxyethanol	0.5	0.5
	Chlorphenesin	0.25	0.25
	Sodium benzoate	0.5	0.5
C	PEG 14000	0.5	0.5
D	Sodium hydroxide 10% dilution	qs pH = 6.4	qs pH = 6.4
E	Polyquaternium-39 [(5)]	2	2
F	Sodium chloride	0.6	0.6
	Water	2.4	2.4
G	Water	25.03	23.78
H	Polyquaternium 6 [(6)]	0.75	
I	TiO_2 [(7)]	2	2
	TOTAL	100	100

The values "AM" below indicate the amount of active material contained in the commercial product under consideration.

(1) 30% AM

(2) Aculyn 38 Polymer from Röhm & Haas (Dow Chemical), 29% AM

(3) Amilite GCS-12K from Ajinomoto, 30% AM

(4) Empigen BB / FL from Huntsman, 30% AM

(5) Merquat 3330PR from Nalco, 9.25% AM

(6) Merquat 100 from Nalco, 40% AM

(7) Hombitan FF Pharma from Sachtleben

Procedure

1- A is heated to 80°C with stirring using a Rayneri blender.

2- A1 is poured slowly into A.

3- Phase B is prepared and is then placed on a water bath, at 85°C.

4- Phase B is poured in a single portion into phase A.

5- C is sprinkled in, with continued stirring using a Rayneri blender.

6- The mixture is left for 10 minutes.

7- It is brought to the correct pH with D.

8- It is cooled in a bath of cold water, to 25°C.

9- E is added while cold, with stirring using a Rayneri blender.

10- The mixture is left for 5 minutes.

11- F is added.

12- G is added.

13- H is added.

14- I is added.

Composition B contains Polyquaternium-6 or PQ6, the chemical name of which is polydimethyldiallylammonium chloride. It is a polymer with a molecular weight of 150 000 g/mol, a conditioning agent frequently encountered in foaming bases and known to be a very good deposition agent especially by virtue of its high charge density of 6.2 meq./g.

Composition A contains Multilock at 2% AM.

Example 2: Comparison of the foaming performance

Protocol

The two formulations are tested under the following conditions:

The experimenter takes 1 g of product in his wet hands. He applies it by shearing ten times, estimates the mixing with water, the coverage of the film and the start of foaming on a scale from 1 to 10. He then adds 2 ml of water and works it around ten times in his hand to generate the foam. He then notes the volume of foam, the size of the bubbles and the density of the foam. He repeats once and then notes the ease of rinsing.

Results

Three people evaluated, one after the other, each of the two products.

	A	B
Mixing with water	8	8
Coverage	10	10
Start of foaming	8	8
Foam volume	8	10
Bubble size	3	3
Foam density	7	8
Rinsing	9	9

Product B, containing the beads of pressure-sensitive adhesive compound at 2% by weight (Multilock), has a tendency to amplify the foam volume and density without variation over time.

Example 3: X-Ray fluorescence quantification of the deposit

Protocol

The measurements are taken using a PW 4030 X-ray spectrophotometer from PANalytical – (ED-XRF, energy dispersive X-ray fluorescence spectrometry), settings: voltage 15 kV, intensity 580 µA - no filter

This method conventionally used for illustrating the presence of impurities in products was adapted to quantify the deposits of mineral particles and especially TiO_2

particles on the skin. The method consists in measuring the scattered intensity of an X-ray source on a skin stripping sample produced after application/rinsing of the foam. The results of the scattered intensity, proportional to the amount of TiO_2 deposited, as a number of counts per second (cps), are given here.

To ensure recovery of all the particles left on the skin, five successive strips are taken after cleansing the forearm, by applying them one by one for 30 seconds under the pressure of a weight of 180 g. The sum of all of the intensities measured on each of them is determined. The test is repeated twice to determine a mean.

In this example, the amount of Polyquaternium-6 introduced into the composition corresponds to an amount usually present in a cleansing product.

Results

Example	Nature of the adhesion agent	Scattered intensity (cps)
A	Polyquaternium-6 (0.75%)	15 ± 8
B	Multilock (2%)	23 ± 15

It is manifest from this test that the amount of TiO_2 particles deposited via the composition according to the present invention is greater than the amount of TiO_2 particles deposited via the comparative composition.

CLAIMS

1. Rinse-off foaming cleansing cosmetic composition comprising, in a physiologically acceptable medium:

- a surfactant system in an active material content of greater than or equal to 3% by weight relative to the total weight of the composition,
- at least one suspension agent,
- at least one cosmetic additive in the form of particles, fibres or mixtures thereof,
- at least one pressure-sensitive adhesive compound in the form of beads.

2. Cosmetic composition according to claim 1, in which the surfactant system comprises at least one foaming surfactant chosen from anionic, amphoteric (or zwitterionic), nonionic and/or cationic foaming surfactants and mixtures thereof, the said anionic surfactant being in particular chosen from anionic derivatives of proteins of plant origin or of silk proteins, phosphates and alkyl phosphates, carboxylates, sulfosuccinates, amino acid derivatives, alkyl sulfates, alkyl ether sulfates, sulfonates, isethionates, taurates, alkyl sulfoacetates, polypeptides, anionic alkyl polyglucoside derivatives, soaps (fatty acid salts) and mixtures thereof, more particularly from alkyl sulfates, alkyl ether sulfates, isethionates, amino acid derivatives, and mixtures thereof, the said amphoteric or zwitterionic surfactant being in particular chosen from betaines, N-alkylamidobetaines and derivatives thereof, sultaines, alkyl polyaminocarboxylates, alkylamphoacetates and mixtures thereof, more particularly from betaines, alkylamphoacetates and mixtures thereof, the said nonionic surfactant being in particular chosen from alkyl polyglucosides (APG), oxyalkylenated glycerol esters, oxyalkylenated sugar esters and mixtures thereof, more particularly from APGs, and the said cationic surfactant being in particular chosen from optionally polyoxyalkylenated primary, secondary or tertiary fatty amine salts; quaternary ammonium salts, imidazoline derivatives, amine oxides of cationic nature, and mixtures thereof.

3. Cosmetic composition according to claim 1 or 2, in which the suspension agent is chosen from a suspension agent of natural origin such as xanthan, carrageenan, guar and starch or a suspension agent of synthetic origin, the suspension agent possibly being included in the said composition in an active material content of between 0.1% and

10% by weight and in particular between 0.1% and 2.5% by weight relative to the total weight of the composition.

4. Cosmetic composition according to any one of the preceding claims, in which the cosmetic additive(s) are chosen from the following particles:

- organic pigments, in particular carbon black, pigments of D&C type and lakes based on cochineal carmine or on barium, strontium, calcium or aluminium,
- mineral pigments such as:
  - titanium oxide, zinc oxide, coloured iron oxide,
  - alumina,
  - nacres,
  - carbonates,
  - ceramic particles, for instance boron nitride,
  - diamond/graphite,
  - magnesia,
  - glass, for instance borosilicate and phosphosilicate,
  - silica, for instance amorphous, colloidal, precipitated or fumed silica, in natural form or in the form of silica gels,
  - clay, for instance montmorillonite,
  - zirconium and barium sulfate,
  - silicates, for instance talc, illite, kaolin, zeolite, sepiolite, laponite, hectorite or bentonite,
  - mica, or
  - Lionite PC particles sold by the company Lion Corporation based on silica, ZnO, Al_2O_3 and TiO_2, composites of the above cited materials, in particular TiO_2 and silica composites,
- polymer particles, for instance particles of polymethyl methacrylate (PMMA), of polytetrafluoroethylene (PTFE), of polyamide, of polyacrylate, of polystyrene or copolymers thereof,
- wax particles, for instance carnauba wax,
- mineral and/or organic sunscreen particles, for instance TiO_2,
- perlite particles,
- silica aerogel particles, and

- mixtures thereof;

and/or the following fibres: polyamide or Nylon fibres, polyaramid, viscose, cotton, polyacrylic, poly(vinyl acetate) or PVA, or composite fibres.

5. Composition according to any one of the preceding claims, in which the said at least one cosmetic additive is included in the composition in an active material content of between 0.1% and 10% by weight and in particular between 0.1% and 5% by weight relative to the total weight of the composition.

6. Composition according to any one of the preceding claims, in which the said pressure-sensitive adhesive compound in the form of beads has a storage modulus value G' of less than 3×10^5 Pascals measured at a speed of 10 radians per second at a temperature ranging from 20°C to 22°C.

7. Composition according to any one of the preceding claims, in which the at least one pressure-sensitive adhesive compound in the form of beads is chosen from (i) adhesive organic polymers and (ii) particles comprising at least a first solid phase covered on at least part of its surface with one or more adhesive organic polymers.

8. Composition according to the preceding claim, in which the adhesive organic polymer(s) are non-silicone polymers.

9. Composition according to the claim 7 or 8, in which the adhesive organic polymer(s) have a glass transition temperature (Tg) of less than or equal to 25°C, in particular less than or equal to 10°C and preferably less than or equal to 0°C.

10. Composition according to any one of the claims 7 to 9, in which the adhesive organic polymer(s) are chosen from adhesive polyesters bearing one or more sulfonic functions, cationic or amphoteric polyurethanes comprising one or more self-adhesive tertiary or quaternary amine functions and self-adhesive cationic or amphoteric radical polymers, preferably from adhesive branched polyesters bearing one or more sulfonic functions.

11. Composition according to Claim 7, in which the particles comprising at least a first solid phase covered on at least part of its surface with one or more adhesive organic polymers having a number-average primary size ranging from 1 to 1000 μm, preferably ranging from 5 to 35 μm and more preferentially ranging from 10 to 25 μm.

12. Composition according to Claim 7 or 11, in which the particles comprising at least a first solid phase covered on at least part of its surface with one or more adhesive

organic polymers comprising at least a first non-coalescent solid phase covered on at least part of its surface with one or more adhesive organic polymers.

13. Composition according to the preceding claim, in which the first non-coalescent solid phase is formed by a mineral material chosen from metals and metal alloys, metal oxides, carbides or nitrides, ceramic materials and mineral glasses.

14. Composition according to Claim 12, in which the first non-coalescent solid phase is formed by an organic polymer with a glass transition temperature of greater than 40°C, preferably greater than 60°C and in particular between 80°C and 200°C.

15. Composition according to any one of the preceding claims, in which the pressure-sensitive adhesive compound in the form of beads consists of microspheres formed from acrylic monomers in combination with a binder compound, the said binder compound comprising a first binder and a second binder, the said first and second binders having respective glass transition temperatures whose difference is at least 20°C and in particular at least 60°C.

16. Composition according to the preceding claim, in which the acrylic monomers are chosen from (i) alkyl acrylates such as butyl acrylate, ethyl acrylate, methyl acrylate and 2-ethylhexyl acrylate, (ii) alkyl methacrylates such as methyl methacrylate and butyl methacrylate, (iii) polar comonomers such as acrylic acid, methacrylic acid, hydroxyethyl acrylate, hydroxypropyl acrylate, N,N,N-octylacrylamide, acrylonitrile, acrylamide, 1-vinyl-2-pyrrolidone, sodium vinyl sulfonate, (iv) vinyl esters such as vinyl acetate, vinyl propionate, vinyl neodecanoate, vinyl stearate and vinyl pivalate, (v) crosslinking monomers such as butanediol diacrylate and hexanediol diacrylate, and (vi) combinations thereof.

17. Composition according to any one of the preceding claims, in which the at least one pressure-sensitive adhesive compound in the form of beads is included in the composition in an active material content of between 0.1% and 20% by weight, in particular between 0.1% and 10% by weight, preferably between 0.1% and 5% by weight and more particularly between 0.1% and 2% by weight relative to the total weight of the composition.

18. Process for cleansing keratin materials, which consists in applying to the said keratin materials a composition according to any one of the preceding claims, in working the said composition into a foam and then in rinsing off the said composition.