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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 August 2011 (25.08.2011)

PCT

(10) International Publication Number
WO 2011/101239 A2

(51) International Patent Classification:
A61K 8/25 (2006.01) *A61Q 5/02* (2006.01)
A61K 8/26 (2006.01) *A61Q 15/00* (2006.01)
A61K 8/37 (2006.01) *A61Q 19/00* (2006.01)
A61K 8/73 (2006.01) *A61K 31/21* (2006.01)
A61K 8/92 (2006.01) *A61P 17/00* (2006.01)
A61Q 1/12 (2006.01)

(21) International Application Number:
PCT/EP2011/051398

(22) International Filing Date:
1 February 2011 (01.02.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1051204 19 February 2010 (19.02.2010) FR
61/308,531 26 February 2010 (26.02.2010) US

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(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, 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, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, 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 2011/101239 A2

(54) **Title**: COSMETIC OR DERMATOLOGICAL USES OF A POWDER COMPRISING A FILLER, AN ESSENTIAL OIL AND A HYDROXYLATED ESTER OF POLYOL AND OF C_4 TO C_{16} CARBOXYLIC ACID(S)

(57) **Abstract**: The present invention thus relates to a method for the cosmetic treatment of body odours, in particular axillary odours, which consists in applying, to the skin and in particular the armpits, a composition in the powder form comprising, in a physiologically acceptable medium: a) at least one filler, b) an essential oil or a mixture of essential oils, and c) at least one hydroxylated ester resulting from the esterif ication of polyol and of C_4 to C_{16} carboxylic acid (s). The present invention also relates to a method for the cosmetic treatment of skin imperfections of greasy skin comprising the shiny and/or glistening appearance of the skin and/or the dilation of the pores of the skin and/or a thick skin texture and/or comedones which consists in applying, to the skin region to be treated, a composition as defined above. The present invention thus relates to the use of a composition as defined above as medicament for preventively and/or curatively treating acne and/or hyperseborrhoea. The present invention relates to the use of a composition as defined above as antidandruff agent, in particular in the cosmetic treatment of dandruff conditions related to the excessive proliferation of yeasts of the Malassezia genus on the scalp. The invention also relates to a cosmetic treatment method intended to remove and/or reduce dandruff, in particular that brought about by yeasts of the Malassezia genus, comprising the application, to the scalp, as antidandruff cosmetic agent, of the said composition.

COSMETIC OR DERMATOLOGICAL USES OF A POWDER COMPRISING A FILLER, AN ESSENTIAL OIL AND A HYDROXYLATED ESTER OF POLYOL AND OF C_4 TO C_{16} CARBOXYLIC ACID(S)

The present invention thus relates to a method for the cosmetic treatment of body odours, in particular axillary odours, which consists in applying, to the skin and in particular the armpits, a composition in the powder form comprising, in a physiologically acceptable medium:

a) at least one filler,

b) an essential oil or a mixture of essential oils, and

c) at least one hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s).

The present invention also relates to a method for the cosmetic treatment of skin imperfections of greasy skin comprising the shiny and/or glistening appearance of the skin and/or the dilation of the pores of the skin and/or a thick skin texture and/or comedones which consists in applying, to the skin region to be treated, a composition as defined above.

The present invention thus relates to the use of a composition as defined above as medicament for preventively and/or curatively treating acne and/or hyperseborrhoea.

The present invention relates to the use of a composition as defined above as antidandruff agent, in particular in the cosmetic treatment of dandruff conditions related to the excessive proliferation of yeasts of the Malassezia genus on the scalp.

The invention also relates to a cosmetic treatment method intended to remove and/or reduce dandruff, in particular that brought about by yeasts of the Malassezia genus, comprising the application, to the scalp, as antidandruff cosmetic agent, of the said composition.

Hydroxylated esters resulting from the esterification of polyol and of C_4 to C_{16} carboxylic

acid(s) are known for their various antimicrobial activities and in particular their application in cosmetics, for the treatment of body odours, in particular axillary odours, their application in the care and/or cleaning of greasy skin and the preventive and/or curative treatment of acne and/or hyperseborrhoea. Mention may in particular be made, among these esters, of the compounds sold under the name Capmul MCM or Akoline MCM (glyceryl caprylate/caprate) from Abitec, or Dermosoft GMCY (glycerol caprylate) from Straetmans, Capmul 708 G (glyceryl caprylate comprising 75% of monoesters) from Abitec and also Capmul 907P (propylene glycol heptanoate) from Abitec or also Capmul 908P (propylene glycol caprylate) from Abitec.

The commonest deodorant compositions on the cosmetics market are provided in the roll-on form, the stick form or in the form pressurized in a device of the aerosol type with propellant or vaporizer (spray). However, each of these types of presentation forms exhibit disadvantages and discomforts for the user. Roll-ons exhibit the inconvenience of producing a wet feeling and of having a long drying time. Aerosols and sprays have the disadvantage of producing a sternutatory effect on the consumer. For their part, sticks result in a tendency to leave marks or to leave a greasy deposited layer which is not always pleasant.

The commonest compositions for the care of greasy skin and the treatment of acne and/or hyperseborrhoea on the cosmetics or dermatology market are generally provided in the form of gels or of an emulsion of oil-in-water type with a low oil content. They can produce a sticky effect on the skin which is unpleasant in this context.

For these various treatments, presentation in the powder form makes it possible to avoid all these disadvantages. However, the hydroxylated esters resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s) may be incorporated with

difficulty in powders due to the pasty form and, furthermore, their antimicrobial effectiveness is not entirely satisfactory.

The need remains to produce cosmetic or dermatological compositions in the powder form based on a hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s) having a better antimicrobial effectiveness and in which the said ester can be more easily incorporated.

The Applicant Company has discovered, surprisingly, that this objective can be achieved by using an essential oil or an essential oil mixture in a powder based on a hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s).

This discovery forms the basis of the present invention.

The term "physiologically acceptable medium" is understood here to mean a medium compatible with keratinous substances and in particular the skin, lips, scalp, eyelashes, eyes and/or hair.

The Applicant Company has discovered in particular that the compositions in accordance with the invention exhibit a good bactericidal effectiveness with regard to the microorganisms involved in the formation of unpleasant axillary odours, predominantly *Corynebacterium xerosis*, and can thus be used as deodorant product.

The present invention thus relates to a method for the cosmetic treatment of body odours, in particular axillary odours, which consists in applying, to the skin and in particular the armpits, a composition in the powder form comprising, in a physiologically acceptable medium:

a) at least one filler,

b) an essential oil or a mixture of essential oils, and

c) at least one hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s).

The Applicant Company has also discovered that the compositions in accordance with the invention exhibit a good effectiveness in the treatment of skin imperfections of greasy skin comprising the shiny and/or glistening appearance of the skin and/or the dilation of the pores of the skin and/or a thick skin texture and/or comedones.

The present invention thus relates to a method for the cosmetic treatment of skin imperfections of greasy skin comprising the shiny and/or glistening appearance of the skin and/or the dilation of the pores of the skin and/or a thick skin texture and/or comedones which consists in applying, to the skin region to be treated, a composition as defined above.

The Applicant Company has also discovered that the compositions in accordance with the invention exhibit a good effectiveness in the treatment of hyperseborrhoea and also a good bactericidal activity with regard to the decrease in microorganisms involved in the development of acne, in particular *Propionibacterium acnes* and *Propionibacterium granulosum*.

The present invention also relates to the use of a composition as defined above as medicament for preventively and/or curatively treating acne and/or hyperseborrhoea.

The Applicant Company has also discovered that the compositions in accordance with the invention exhibit a good effectiveness in treating dandruff related to the presence of a characteristic yeast known as *Malassezia furfur*, a yeast formerly known as *Pityrosporum ovale* (and *P. orbiculare* ???).

The present invention thus relates to the use of a composition as defined above as antidandruff cosmetic hair agent on the scalp.

ESSENTIAL OILS

According to the definition given in International Standard ISO 9235 and adopted by the European

Pharmacopoeia Commission, an essential oil is an odorous product generally of complex composition which is obtained from a botanically defined plant starting material, either by steam distillation or by dry distillation or by an appropriate mechanical process devoid of heating (cold expression). The essential oil is generally separated from the aqueous phase by a physical process not resulting in a significant change in the composition.

Methods of obtaining essential oils

The choice of the technique depends mainly on the starting material: its original state and its characteristics, its nature proper. The "essential oil/plant starting material" yield can be highly variable depending on the plants: 15 ppm to more than 20%. This choice conditions the characteristics of the essential oil, in particular viscosity, colour, solubility, volatility, enrichment or depletion in some constituents.

Steam distillation

Steam distillation corresponds to the vaporization, in the presence of steam, of a substance which is not very miscible with water. The starting material is brought together with water brought to boiling point or with steam in a still. The steam entrains the essential oil vapour, which is condensed in the condenser in order to be recovered as liquid phase in a Florentine flask (or essence jar), where the essential oil is separated from the water by settling. The term "aromatic water" or "hydrolat" or "distilled floral water" is used to describe the aqueous distillate which remains after the steam distillation, once the essential oil has been separated.

Dry distillation

The essential oil is obtained by distillation of the wood, bark or roots, without addition of water or steam, in a closed chamber designed in order for the liquid to be recovered in its bottom part. Cade oil is the most well known example of this method of production.

Cold expression

This method of production is applied only to citrus fruit (*Citrus* spp.) by mechanical processes at ambient temperature. The principle of the method is as follows: the peel is shredded and the contents of the secretory cavities which have been ruptured are recovered by a physical process. The conventional process consists in exerting an abrasive action over the entire surface of the fruit under a stream of water. After removing the solid waste, the essential oil is separated from the aqueous phase by centrifuging. The majority of industrial plants in fact allow the simultaneous or sequential recovery of the fruit juices and of the essential oil.

Physicochemical features

Essential oils are generally volatile and liquid at ambient temperature, which differentiates them from “fixed oils”. They are more or less coloured and their density is generally lower than that of water. They have a high refractive index and the majority deviate polarized light. They are soluble in fats and in standard organic solvents, can be steam distilled and exhibit a very low solubility in water.

They are composed of molecules comprising a carbon-based backbone, the number of carbon atoms generally being between 5 and 22.

The main chemical categories of compounds present

in essential oils are:
- terpene and sesquiterpene carbon-based compounds, such as, for example:
turpentine essential oil: α-pinene, camphene,
juniper essential oil: α-pinene, camphene, cadinene
lemon essential oil: limonene;
- alcohols, such as, for example:
coriander essential oil: linalool
rosewood essential oil: linalool
rose essential oil: geraniol;
- mixtures of esters and of alcohols, such as, for example:
lavender essential oil: linalool and linalyl acetate
mint essential oil: menthol and menthyl acetate;
- aldehydes, such as, for example:
cinnamon essential oil: cinnamaldehyde
citronella essential oil: citral and citronellal
Eucalyptus citriodora essential oil: citronellal;
- ketones, such as, for example:
caraway essential oil: carvone
sage essential oil: thujone
thuja essential oil: thujone;
- phenols:
thyme essential oil: thymol
savory essential oil: carvacrol
oregano essential oil: thymol and carvacrol
clove essential oil: eugenol;
- ethers, such as, for example:
aniseed essential oil or star anise essential oil: anethole
fennel essential oil: anethole
Eucalyptus globulus essential oil: eucalyptol
cajuput essential oil: eucalyptol
niaouli essential oil: eucalyptol;
- peroxides, such as, for example:
Chenopodium essential oil: ascaridol
garlic essential oil: allicin.

The great majority of essential oils are composed of a complex mixture of compounds belonging to these

different chemical families.

Plant starting materials

The plant starting materials used to produce the essential oils are generally plants or plant parts which are in various states of dryness (dry, withered or fresh form).

Mention may be made, among the essential oils that can be used according to the invention, of those obtained from plants belonging to the following botanical families:

Abietaceae or Pinaceae: conifers
Amaryllidaceae
Anacardiaceae
Anonaceae: ylang ylang
Apiaceae (for example umbellifers): dill, angelica, coriander, sea fennel, carrot, parsley
Araceae
Aristolochiaceae
Asteraceae: *Achillea*, *Artemisia*, camomile, *Helichrysum*
Betulaceae
Brassicaceae
Burseraceae: frankincense
Caryophyllaceae
Canellaceae
Caesalpiniaceae: *Copaifera* (copaiba)
Chenopodiaceae
Cistaceae: *Cistus*
Cyperaceae
Dipterocarpaceae
Ericaceae: *gaultheria* (wintergreen)
Euphorbiaceae
Fabaceae
Geraniaceae: geranium
Guttiferae
Hamamelidaceae
Hernandiaceae
Hypericaceae: St. John’s wort

Iridaceae
Juglandaceae
Lamiaceae: thyme, oregano, *Monarda*, savory, basil, marjorams, mints, patchouli, lavenders, sages, catnip, rosemary, hyssop, balm
Lauraceae: *Ravensara*, bay, rosewood, cinnamon, *Litsea*
Liliaceae: garlic
Magnoliaceae: magnolia
Malvaceae
Meliaceae
Monimiaceae
Moraceae: hemp, hop
Myricaceae
Myristicaceae: nutmeg
Myrtaceae: eucalyptus, tea tree, *Melaleuca quinquenervia*, cajuput, *Backhousia*, clove, myrtle
Oleaceae
Piperaceae: pepper
Pittosporaceae
Poaceae: citronella grass, lemon grass, vetiver
Polygonaceae
Ranunculaceae
Rosaceae: roses
Rubiaceae
Rutaceae: the whole citrus family
Salicaceae
Santalaceae: sandalwood
Saxifragaceae
Schisandraceae
Styracaceae: benzoin
Thymelaeaceae: agarwood
Tiliaceae
Valerianaceae: valerian, nard
Verbenacea: lantana, verbena
Violaceae
Zingiberaceae: galangal, turmeric, cardamom, ginger
Zygophyllaceae

Use will more preferably be made, among the essential oils which can be used according to the

invention, of:

tropical basil

cajuput

cinnamon

lemon catnip

citronella

clove

coriander

Eucalyptus radiata

Eucalyptus citriodora

Eucalyptus globulus

geranium

geranium bourbon

laserwort

bay laurel

lemon grass

green mandarin

marjoram Spanish

balm

niaouli

Spanish oregano

Greek oregano

cineol rosemary

rose

winter savory

tea tree (*Melaleuca alternifolia*)

thyme linalool

thymol thyme (*Thymus vulgaris*)

thymol thyme (*Thymus zygis*)

verbena

vetiver

The essential oil or oils used according to the invention will be present in concentrations preferably ranging from 0.001% to 10% by weight, with respect to the total weight of the composition, and more preferably from 0.01% to 5% by weight and more preferably still from 0.05% to 1% by weight, with respect to the total weight of the composition comprising them.

PARTICULATE PHASE

The composition according to the invention comprises a particulate phase comprising at least one filler.

The term "filler" should be understood as meaning colourless or white and inorganic or synthetic particles of any shape which are insoluble in the medium of the composition, whatever the temperature at which the composition is manufactured.

The filler or fillers are present in concentrations preferably ranging from 50 to 99% by weight and more preferably from 75 to 99% by weight and more preferably still from 80 to 99% by weight, with respect to the total weight of the composition.

Preferably, the composition according to the invention comprises a mixture of spherical particles and of lamellar particles.

The term "spherical particles" is understood to mean, in the present patent application, particles having the shape or substantially the shape of a sphere which are insoluble in the medium of the composition according to the invention, even at the melting point of the medium (approximately 100°C).

In addition, the term "lamellar particles" is understood here to mean particles of parallelepipedal shape (rectangular or square surface), discoidal shape (circular surface) or ellipsoidal shape (oval surface) characterized by three dimensions: a length, a width and a height, which particles are insoluble in the medium of the composition according to the invention, even at the melting point of the medium (approximately 100°C).

Spherical particles

The spherical particles used according to the invention have the shape or substantially the shape of

a sphere and can be hollow or solid. Advantageously, the particles of the invention have a particle size (number-average diameter) ranging from 0.1 µm to 250 µm, better still from 1 µm to 150 µm and better still from 10 µm to 100 µm.

The spherical particles can be organic or inorganic microspheres. Mention may be made, as spherical particles which can be used in the composition of the invention, for example, of silica powder; polyamide particles and in particular particles of Nylon 12, such as that sold under the name Orgasol by Atochem; polyethylene powders; microspheres based on acrylic copolymers, such as those made of ethylene glycol dimethacrylate/lauryl methacrylate copolymer sold by Dow Corning under the Polytrap name; expanded powders, such as hollow microspheres and in particular the polyvinylidene chloride/acrylonitrile microspheres sold under the name Expancel by Kemanord Plast or under the name Micropearl F 80 ED by Matsumoto; powders formed of natural organic materials, such as natural maize, wheat or rice starches, which may or may not be crosslinked, or powders formed of starch crosslinked by octenylsuccinic anhydride, sold under the name Dry-Flo by National Starch; silicone resin microbeads, especially silsesquioxane powders, in particular described in Patent EP 293 795, such as those sold under the name Tospearl by Toshiba Silicone; and their mixtures.

The choice will preferably be made of a natural maize, wheat or rice starch and more particularly of a maize starch (INCI name: Zea Mays Starch).

These spherical particles can be present in amounts preferably ranging from 20 to 100% by weight, more preferably from 20 to 50% by weight and more particularly from 25 to 35% by weight, with respect to the total weight of the mixture of spherical particles and of lamellar particles.

Lamellar particles

As indicated above, the lamellar particles are particles of parallelepipedal shape (rectangular or square surface), discoidal shape (circular surface) or ellipsoidal shape (oval surface) characterized by three dimensions: a length, a width and a height. When the shape is circular, the length and the width are identical and correspond to the diameter of a disc, while the height corresponds to the thickness of the disc. When the surface is oval, the length and the width correspond respectively to the major axis and to the minor axis of an ellipse and the height corresponds to the thickness of the elliptical disc formed by the platelet. When a parallelepiped is involved, the length and the width can be of identical or different dimensions: when they are of the same dimension, the shape of the surface of the parallelepiped is square; in the contrary case, the shape is rectangular. With regard to the height, it corresponds to the thickness of the parallelepiped.

The length of the lamellar particles used according to the invention preferably ranges from 0.01 to 100 µm, better still from 0.1 to 50 µm and even better still from 1 to 50 µm. The width of these platelets preferably ranges from 0.01 to 100 µm, better still from 0.1 to 50 µm and even better still from 1 to 10 µm. The height (thickness) of these platelets preferably ranges from 0.1 nm to 1 µm (0.1 to 1000 nm), better still from 1 nm to 600 nm and even better still from 1 nm to 500 nm.

Lamellar silicates as lamellar particles which can be used in the composition of the invention.

Mention may be made, as lamellar silicates, of clays, talcs, micas, pearlescent agents, perlites and their mixtures.

Clays are mixed silicates of natural or synthetic origin including several (two or more) types of cations chosen from alkali metals (for example Na, Li or K),

alkaline earth metals (for example Be, Mg or Ca), transition metals and aluminium.

Mention may be made, as clays which can be used in the invention, for example, of sodium magnesium silicate (CTFA name), clays of the kaolin family, such as kaolin or kaolinite, dickite or nacrite; clays of the family of halloysite, donbassite, antigorite, berthierine or pyrophyllite; montmorillonites; beidellite; vermiculites; stevensite; hectorites; saponites; chlorites; sepiolite or smectite, and also these clays chemically modified, for example by acrylic acids, polysaccharides (for example carboxymethylcellulose) or organic cations, and their mixtures.

Talcs are hydrated magnesium silicates generally comprising aluminium silicate. The crystalline structure of talc consists of repeated layers of a sandwich of brucite between silica layers.

Micas are aluminium silicates optionally comprising iron and/or alkali metals. They have the property of being able to split up into thin layers (approximately 1 µm). They generally have a dimension ranging from 5 to 150 µm, preferably from 10 to 100 µm and better still from 10 to 60 µm, for the greatest dimension (length), and height (thickness) of 0.1 to 0.5 µm. Mention may be made, as micas, of phlogopite, muscovite, fluorophlogopite, vermiculite and their mixtures. Mention may also be made of micaceous clays, such as illite.

The term “pearlescent agents” should be understood as meaning iridescent particles, in particular produced by certain shellfish in their shells or else synthesized, which are used to modify the texture of the composition and the mattness/sheen effect. Pearlescent agents are generally micas surface-treated in order to obtain this iridescent effect. Mention may be made, among the pearlescent agents which can be used in the invention, for example, of micas covered with titanium oxide, with iron oxide, with natural pigment

and/or with bismuth oxychloride, such as coloured or colourless mica/titanium oxide (or titanium oxide-coated mica), and their mixtures.

Mention may also be made, among lamellar silicates, of perlites and preferably expanded perlites.

The perlites which can be used according to the invention are generally aluminosilicates of volcanic origin and have the composition:

70.0-75.0% by weight of silica SiO_2

12.0-15.0% by weight of aluminium oxide Al_2O_3

3.0-5.0% of sodium oxide Na_2O

3.0-5.0% of potassium oxide K_2O

0.5-2% of iron oxide Fe_2O_3

0.2-0.7% of magnesium oxide MgO

0.5-1.5% of calcium oxide CaO

0.05-0.15% of titanium oxide TiO_2

The perlite is milled, dried and then graded in a first stage. The product obtained, referred to as perlite ore, is grey in colour and has a size of the order of 100 µm.

The perlite ore is subsequently expanded (1000°C/2 seconds) to give more or less white particles. When the temperature reaches 850-900°C, the water trapped in the structure of the material is vaporized and brings about the expansion of the material with respect to its original volume. The expanded perlite particles in accordance with the invention can be obtained by the expansion process described in Patent US 5 002 698.

Preferably, the perlite particles used will be milled; they are in this case referred to as Expanded Milled Perlite (EMP). They preferably have a particle size defined by a median diameter D_{50} ranging from 0.5 to 50 µm and preferably from 0.5 to 40 µm.

Preferably, the perlite particles used exhibit a loose bulk density at 25°C ranging from 10 to 400 kg/m^3 (Standard DIN 53468) and preferably from 10 to 300 kg/m^3.

Preferably, the expanded perlite particles

according to the invention have a water absorption capacity, measured at the wet point, ranging from 200 to 1500% and preferably from 250 to 800%.

The wet point corresponds to the amount of water which it is necessary to add to 1 g of particles in order to obtain a homogeneous paste. This method is derived directly from that of the oil uptake applied to solvents. The measurements are carried out in the same way via the wet point and the flow point, which respectively have the following definitions:

wet point: weight, expressed in grams per 100 g of product, corresponding to the achievement of a homogeneous paste during the addition of a solvent to a powder;

flow point: weight, expressed in grams per 100 g of product, starting from which the amount of solvent is greater than the capacity of the powder to retain it. This is reflected by the achievement of a more or less homogeneous mixture which flows over the glass plate.

The wet point and the flow point are measured according to the following protocol:

According to a particularly preferred embodiment of the present invention, the lamellar particles will be chosen from an expanded perlite, sodium magnesium silicate, kaolin, kaolinite, a montmorillonite, a hectorite, a talc, a mica, a pearlescent agent and their mixtures.

More particularly, the lamellar particles will be chosen from expanded perlite, kaolin, a talc or their mixtures.

Advantageously, use is more particularly made, in the composition of the invention, as lamellar particles, of kaolin, such as the product sold under the name Coslin C-100 by Engelhard; talc, such as those sold under the names Rose Talc and Talc SG-2000 by Nippon Talc; mica, such as those sold under the names Mica M RP and Silk Mica by Merck; titanium oxide-coated micas, such as the mica/titanium oxide/brown iron oxide

(CTFA: Mica/Iron oxides/Titanium dioxide) sold under the name Cloisonné rouge flambe 440 X by Engelhard; a modified hectorite, such as, for example, a bentone; or expanded perlite (INCI name: Expanded Milled Perlite), such as sold under the name Optimat 1430 OR by World Minerals.

These lamellar particles can be present in amounts preferably ranging from 40 to 100% by weight, more preferably from 50 to 91% by weight and better still from 60% to 80% by weight, with respect to the total weight of the mixture of spherical particles and of lamellar particles.

Pigments

In addition to the fillers, the particulate phase of the composition according to the invention can comprise pigments.

The term "pigments" should be understood as meaning inorganic or organic particles which are insoluble in the liquid organic phase and which are intended to colour and/or opacify the composition.

The pigments can be inorganic or organic pigments. Use may be made, as pigments, of metal oxides, such as iron oxides (in particular those which are yellow, red, brown or black in colour), titanium dioxides, cerium oxide, zirconium oxide or chromium oxide; manganese violet, ultramarine blue, Prussian blue, ferric blue and their mixtures.

Use is preferably made of pigments formed of iron oxides or of titanium dioxide.

The pigments can be treated with a hydrophobic agent in order to render them compatible with the organic phase of the composition. The hydrophobic treatment agent can be chosen from silicones, such as methicones, dimethicones or perfluoroalkylsilanes; fatty acids, such as stearic acid; metal soaps, such as aluminium dimyristate or the aluminium salt of hydrogenated tallow glutamate; perfluoroalkyl

phosphates, perfluoroalkylsilanes, perfluoroalkylsilazanes, poly(hexafluoropropylene oxide)s, polyorganosiloxanes comprising perfluoroalkyl perfluoropolyether groups, amino acids; N-acylated amino acids or their salts; lecithin, isopropyl triisostearyl titanate, and their mixtures.

The N-acylated amino acids can comprise an acyl group having from 8 to 22 carbon atoms, such as, for example, a 2-ethylhexanoyl, caproyl, lauroyl, myristoyl, palmitoyl, stearoyl or cocoyl group. The salts of these compounds can be aluminium, magnesium, calcium, zirconium, zinc, sodium or potassium salts. The amino acid can, for example, be lysine, glutamic acid or alanine.

The term "alkyl" mentioned in the abovementioned compounds denotes in particular an alkyl group having from 1 to 30 carbon atoms, preferably having from 5 to 16 carbon atoms.

Hydrophobic treated pigments are described in particular in Application EP-A-1 086 683.

Dyes

In addition to the fillers and the pigments, the particulate phase of the invention can comprise dyes.

The composition according to the invention can also comprise water- or fat-soluble dyes.

The term "fat-soluble dyes" should be understood as meaning compounds, generally organic compounds, which are soluble in fatty substances, such as oils.

The fat-soluble dyes are, for example, Sudan red, D&C Red No. 17, D&C Green No. 6, β-carotene, soybean oil, Sudan brown, D&C Yellow No. 11, D&C Violet No. 2, D&C Orange No. 5, quinoline yellow, annatto or bromo acids.

HYDROXYLATED ESTERS RESULTING FROM THE ESTERIFICATION OF POLYOL AND OF C_4 TO C_{16} CARBOXYLIC ACID(S)

The esters more particularly considered according

to the present invention are hydroxylated esters resulting from the esterification of polyol and of C_4 to C_{16}, more particularly C_6 to C_{12}, in particularly C_7 to C_{10} and more particularly C_8 to C_9 carboxylic acid(s).

The esters used according to the invention are in a hydroxylated form, that is to say carry at least one hydroxyl functional group, preferably 2, indeed even 3 or more, the hydroxylated functional groups being present on the alcohol residue of the ester.

Advantageously, the esters are C_{10} to C_{20} esters and have at least one fatty chain.

Generally, they derive from the esterification of at least one hydroxyl functional group of a polyol by a C_4 to C_{16} carboxylic acid.

According to a specific embodiment, the esters suitable for the present invention can derive from the esterification of a polyol by various carboxylic acids, with the proviso, of course, that the ester thus obtained has at least one and preferably two free hydroxyl functional groups. It can be a hydroxylated monoester, a hydroxylated diester or one of their mixtures.

Polyols

The term "polyol" is understood to mean, within the meaning of the invention, any organic molecule comprising, in its chemical structure, at least two hydroxyl (OH) groups.

The polyol can in particular be a saturated or unsaturated and linear, branched or cyclic hydrocarbon compound carrying at least two and in particular at least three OH functional groups.

The polyol can in particular be a hydrocarbon compound comprising at least 2 carbon atoms and preferably less than 15 carbon atoms and carrying at least two hydroxyl groups, preferably from 2 to 10 hydroxyl groups.

It is preferably a hydrocarbon compound having

from 2 to 12 carbon atoms and more preferably still from 2 to 8 carbon atoms.

The polyol can be a compound having from 2 to 8 carbon atoms and from 2 to 6 hydroxyl functional groups, such as, for example, ethylene glycol, glycerol, 1,2,3-trihydroxyhexane, butanediol, 1,2-propanediol, erythritol, arabitol, adonitol, dulcitol, pentanediols, in particular 1,2-pentanediol, sorbitol or their mixtures.

Glycerol derivatives are, for example, butyl diglycol, polyglyceryl-3 diisostearate and castor oil. The polyol can be chosen from glycerol polymers and copolymers, such as, for example, hexaglycerol and diglycerol.

Glycol examples are, for example, ethylene glycol, propylene glycol, hexylene glycol, isoprene glycol, butylene glycol and pentylene glycol and those defined above.

The polyol can also be chosen from sugars, such as glucose, fructose, xylose, trehalose, sucrose, maltose, lactose and their mixtures.

Use may also be made of a mixture of polyols.

The polyol used according to the invention can more particularly be chosen from glycerol, glycols and their derivatives.

The particularly preferred polyols are chosen from glycerol, 1,2-propylene glycol or a mixture of two or more of these polyols.

Carboxylic acid

The carboxylic acid can be saturated or unsaturated and linear or branched.

It is advantageously a linear monocarboxylic acid.

Mention may in particular be made, by way of illustration of examples of monocarboxylic acid suitable for the invention, of butanoic acid, pentanoic acid, hexanoic acid, heptanoic acid, octanoic acid, nonanoic acid, decanoic acid, undecanoic acid,

dodecanoic acid, tridecanoic acid, tetradecanoic acid, heptadecanoic acid, hexadecanoic acid or pentadecanoic acid.

Mention may more particularly be made, by way of representation of the branched acids, of isobutanoic acid, isopentanoic acid, pivalic acid, isohexanoic acid, isoheptanoic acid, isooctanoic acid, dimethyloctanoic acid, isononanoic acid, isodecanoic acid, isoundecanoic acid, isododecanoic acid, isotridecanoic acid, isotetradecanoic acid, isopentadecanoic acid, isohexadecanoic acid, 2-ethyl-hexanoic acid, 2-butyloctanoic acid or 2-hexyldecanoic acid.

Hydroxy acids are also suitable for the present invention, such as 2-hydroxybutanoic acid, 2-hydro-pentanoic acid, 2-hydroxyhexanoic acid, 2-hydroxy-heptanoic acid, 2-hydroxyoctanoic acid, 2-hydroxy-nonanoic acid, 2-hydroxydecanoic acid, 2-hydroxy-undecanoic acid, 2-hydroxydodecanoic acid, 2-hydroxy-tridecanoic acid, 2-hydroxytetradecanoic acid and 2-hydroxyhexadecanoic acid.

It is more particularly a nonhydroxylated C_7 to C_{10} acid and more particularly heptanoic acid, caprylic acid and capric acid.

The esters chosen from mono- and/or diglyceryl caprylate, mono- and/or diglyceryl heptanoate, mono- and/or diglyceryl caprylate, propylene glycol caprylate, propylene glycol heptanoate and their mixtures are very particularly suitable for the invention.

It is more particularly monoglyceryl caprylate and its mixtures.

Mention will in particular be made of the compounds sold under the name Apmul MCM or Akoline MCM (glyceryl caprylate/caprate) from Abitec, or Dermosoft GMCY (glycerol caprylate) from Straetmans, Capmul 708 G (glyceryl caprylate comprising 75% of monoesters) from Abitec and also Capmul 907P (propylene glycol heptanoate) from Abitec or also Capmul 908P (propylene

glycol caprylate) from Abitec.

The ester or esters can be present in these compositions at a content preferably varying from 0.1 to 5% by weight, more preferably from 0.5 to 3% by weight and more particularly from 1 to 2% by weight of the total weight of the composition.

ADDITIVES

DEODORANT APPLICATION

The compositions of the invention used for the treatment of body odours can additionally comprise at least one agent for the treatment of perspiration.

The term "agent for the treatment of perspiration" is understood to mean any substance which, by itself alone, has the effect of reducing the feeling of moisture on the skin related to human sweat or of masking human sweat.

The antiperspirant salts or complexes in accordance with the invention are generally chosen from aluminium and/or zirconium salts or complexes. They are preferably chosen from aluminium hydrohalides; aluminium zirconium hydrohalides, or complexes of zirconium hydroxychloride and of aluminium hydroxychloride, with or without an amino acid, such as those described in Patent US-3 792 068.

Mention may in particular be made, among the aluminium salts, of aluminium chlorohydrate in the activated or nonactivated form, aluminium chlorohydrex, the aluminium chlorohydrex polyethylene glycol complex, the aluminium chlorohydrex propylene glycol complex, aluminium dichlorohydrate, the aluminium dichlorohydrex polyethylene glycol complex, the aluminium dichlorohydrex propylene glycol complex, aluminium sesquichlorohydrate, the aluminium sesquichlorohydrex polyethylene glycol complex, the aluminium sesquichlorohydrex propylene glycol complex or aluminium sulphate buffered with sodium aluminium

lactate.

Mention may in particular be made, among aluminium zirconium salts, of aluminium zirconium octachlorohydrate, aluminium zirconium pentachlorohydrate, aluminium zirconium tetrachlorohydrate or aluminium zirconium trichlorohydrate.

The complexes of zirconium hydroxychloride and of aluminium hydroxychloride with an amino acid are generally known under the name ZAG (when the amino acid is glycine). Mention may be made, among these products, of the aluminium zirconium octachlorohydrex glycine, aluminium zirconium pentachlorohydrex glycine, aluminium zirconium tetrachlorohydrex glycine and aluminium zirconium trichlorohydrex glycine complexes.

The antiperspirant active principles can be present in the composition according to the invention in a proportion of approximately 0.5 to 25% by weight, with respect to the total weight of the composition.

The compositions according to the invention can also comprise, in addition, one or more additional deodorant active principles.

The term "deodorant active principle" is used to describe any substance capable of masking, absorbing, improving and/or reducing the unpleasant odour resulting from the decomposition of human sweat by bacteria.

The deodorant active principles can be bacteriostatic agents or bactericidal agents acting on the microorganisms of axillary odours, such as 2,4,4'-trichloro-2'-hydroxydiphenyl ether (®Triclosan), 2,4-dichloro-2'-hydroxydiphenyl ether, 3',4',5'-trichlorosalicylanilide, 1-(3',4'-dichlorophenyl)-3-(4'-chlorophenyl)urea (®Triclocarban) or 3,7,11-trimethyldodeca-2,5,10-trienol (®Farnesol); quaternary ammonium salts, such as cetyltrimethylammonium salts or, cetylpyridinium salts, DPTA (1,3-diaminopropanetetraacetic acid), 1,2 decanediol (Symclariol from Symrise), biguanide derivatives, such as polyhexamethylene biguanide salts or chlorhexidine and its salts; or

4-phenyl-4,4-dimethyl-2-butanol (Symdeo MPP from Symrise).

Mention may also be made, among the additional deodorant active principles, of:

- zinc salts, such as zinc salicylate, zinc gluconate, zinc pidolate; zinc sulphate, zinc chloride, zinc lactate, zinc phenolsulphonate or zinc ricinoleate;
- sodium bicarbonate;
- salicylic acid and its derivatives, such as 5-(n-octanoyl)salicylic acid;
- silver zeolites or silver-free zeolites;
- alum.

The deodorant active principles can preferably be present in the compositions according to the invention in concentrations by weight ranging from 0.01 to 5% by weight, with respect to the total weight of the composition.

TREATMENT OF GREASY SKIN/ACNE

The compositions according to the invention used for the treatment of imperfections of greasy skin or for the treatment of hyperseborrhoea and/or acne can comprise, in addition, an additional ingredient and/or active principle for caring for the skin, in particular for caring for greasy skin.

It is possible in particular to combine the additional active principles and ingredients described in Patent Applications WO2004/105736 and DE10324567, incorporated here by way of reference, including depigmenting agents, preservatives, antimicrobial agents, antiperspirant agents, metal-chelating agents, UV screening agents, hydrolyzed proteins, antioxidants, vitamins, anti-inflammatory agents, anti-irritants, moisturizing agents, plant extracts, cosmetic adjuvants and their mixtures.

Mention may in particular be made, as depigmenting agents, of vitamin C and its derivatives, in particular vit CG, CP and 3-O-ethyl vitamin C, α- and β-arbutin,

lucinol and its derivatives, kojic acid, resorcinol and its derivatives, tranexamic acid and its derivatives, gentisic acid, the homogentisate, methyl gentisate or the homogentisate, dioic acid, calcium D-pantetheine sulphonate, lipoic acid, ellagic acid, vitamin B_3, linoleic acid and its derivatives, ceramides and their homologues, or derivatives of plants, such as camomile, bearberry, the family of the aloes (aloe vera, aloe ferox or aloe barbadensis), mulberry or skullcap, without this list being exhaustive.

Mention may in particular be made, as humectants or moisturizing agents, of glycerol and its derivatives, urea and its derivatives, in particular Hydrovance sold by National Starch, lactic acids, hyaluronic acid, AHAs, BHAs, sodium pidolate, xylitol, serine, sodium lactate, ectoin and its derivatives, chitosan and its derivatives, collagen, plankton or an *Imperata cylindra* extract sold under the name Moist 24 by Sederma.

Use may also be made of additional ingredients and/or active principles for caring for greasy skin, in particular with a tendency towards acne, and/or skin suffering from acne and/or hyperseborrhoeic skin, abrasive fillers or exfoliants, desquamating agents, antimicrobial agents other than the esters of the invention, soothing agents, anti-inflammatory agents, sebum-regulating agents, antioxidants, healing agents, astringents and their mixtures.

More particularly, the choice will be made to incorporate, in the composition according to the invention, at least one additional ingredient and/or active principle for caring for the skin chosen from depigmenting agents, metal-chelating agents, hydrolyzed proteins, vitamins, plant extracts, abrasive fillers or exfoliants, desquamating agents, antimicrobial agents other than the esters of the invention, soothing agents, anti-inflammatory agents, sebum-regulating agents, antioxidants, healing agents, astringents and their mixtures.

Abrasive fillers or exfoliants

Mention may be made, as exfoliants which can be used in rinse-out compositions according to the invention, for example, of exfoliating or scrubbing particles of mineral, vegetable or organic origin. Thus, use may be made, for example, of polyethylene beads or powder, nylon powder, polyvinyl chloride powder, pumice, ground materials derived from apricot kernels or walnut shells, sawdust, glass beads, alumina and their mixtures.

Mention may also be made of Exfogreen® from Solabia (bamboo extract), extracts of strawberry achenes (Greentech), peach kernel powder or apricot kernel powder and, finally, mention may be made, in the field of plant powders having an abrasive effect, of cranberry seed powder.

Mention may be made, as preferred abrasive fillers or exfoliants according to the invention, of peach kernel powder, apricot kernel powder, cranberry seed powder, extracts of strawberry achenes or bamboo extracts.

Sebum-regulating or antiseborrhoeic agents

The term "sebum-regulating or antiseborrhoeic agents" is understood to mean in particular agents capable of regulating the activity of the sebaceous glands.

Mention may in particular be made of:

- retinoic acid, benzoyl peroxide, sulphur, vitamin B6 (or pyridoxine), selenium chloride or sea fennel;
- mixtures of cinnamon extract, of tea and of octanoylglycine, such as Sepicontrol A5 TEA from Seppic;
- the mixture of capryloyl glycine, of sarcosine and of *Cinnamomum zeylanicum* extract sold in particular by Seppic under the trade name Sepicontrol® A5;

- other zinc salts in addition to zinc salicylate, such as zinc pyrrolidonecarboxylate (or zinc pidolate), zinc lactate, zinc aspartate, zinc carboxylate or zinc cysteate;
- other copper salts in addition to copper pidolate, such as copper sulphate or copper pyrrolidonecarboxylate;
- extracts of plants of the species *Arnica montana*, *Cinchona succirubra*, *Eugenia caryophyllata*, *Humulus lupulus*, *Hypericum perforatum*, *Mentha piperita*, *Rosmarinus officinalis*, *Salvia oficinalis* and *Thymus vulgaris*, all sold, for example, by Maruzen;
- meadowsweet (*Spiraea ulmaria*) extracts, such as that sold under the name Sebonormine® by Silab;
- *Laminaria saccharina* algal extracts, such as that sold under the name Phlorogine® by Biotechmarine;
- mixtures of extracts of roots of great burnet (*Sanguisorba officinalis*/*Poterium officinale*), of rhizomes of ginger (*Zingiber officinalis*) and of bark of cinnamon (*Cinnamomum cassia*), such as that sold under the name Sebustop® by Solabia;
- linseed extracts, such as that sold under the name Linumine® by Lucas Meyer;
- Phellodendron extracts, such as those sold under the name Phellodendron extract BG by Maruzen or Oubaku liquid B by Ichimaru Pharcos;
- mixtures of argan oil, of *Serenoa serrulata* (saw palmetto) extract and of sesame seed extract, such as that sold under the name Regu SEB® by Pentapharm;
- mixtures of extracts of willowherb, of *Terminalia chebula*, of nasturtium and of bioavailable zinc (microalgae), such as that sold under the name Seborilys® by Greentech;
- *Pygeum africanum* extracts, such as that sold under the name *Pygeum africanum* sterolic lipid extract by Euromed;
- *Serenoa serrulata* extracts, such as those sold under the names Viapure Sabal by Actives International or those sold by Euromed;

- mixtures of extracts of plantain, of *Berberis aquifolium* and of sodium salicylate, such as that sold under the name Seboclear® by Rahn;
- clove extract, such as that sold under the name Clove Extract Powder by Maruzen;
- argan oil, such as that sold under the name Lipofructyl® by Laboratoires Sérobiologiques;
- milk protein filtrates, such as that sold under the name Normaseb® by Sederma;
- *Laminaria* algal extracts, such as that sold under the name Laminarghane® by Biotechmarine;
- sugar cane extracts, such as that sold under the name Policasonol® by Sabinsa;
- *Laminaria digitata* algal oligosaccharides, such as that sold under the name Phycosaccharide AC by Codif;
- sulphonated shale oil, such as that sold under the name Ichtyol Pale by Ichthyol;
- meadowsweet (*Spiraea ulmaria*) extracts, such as that sold under the name Cytobiol Ulmaire by Libiol;
- sebacic acid, sold in particular in the form of a sodium polyacrylate gel under the name Sebosoft by Sederma;
- glucomannans extracted from konjac corm and modified with alkylsulphonate chains, such as that sold under the name Biopol Beta by Arch Chemical;
- *Sophora angustifolia* extracts, such as those sold under the name Sophora powder or Sophora extract by Bioland;
- extracts of *Cinchona succirubra* bark, such as that sold under the name Red Bark HS by Alban Muller;
- *Quillaja saponaria* extracts, such as that sold under the name Panama Wood HS by Alban Muller;
- glycine grafted to an undecylenic chain, such as that sold under the name Lipacide UG OR by Seppic;
- the mixture of oleanolic acid and nordihydroguaiaretic acid, such as that sold in the form of a gel under the name AC.Net by Sederma;
- the tri(C_{12}-C_{13})alkyl citrate sold under the name Cosmacol® ECI by Sasol; the tri(C_{14}-C_{15})alkyl citrate

sold under the name Cosmacol® ECL by Sasol;
- 10-hydroxydecanoic acid and in particular mixtures of 10-hydroxydecanoic acid, of sebacic acid and of 1,10-decanediol, such as that sold under the name Acnacidol® BG by Vincience;
- specific PPAR-γ activators, such as those described in Application WO 2005/053632;
- extracts of plants of the genus *Silybum*;
- sapogenins or plant extracts comprising them, in particular diosgenin-rich Dioscorea extracts; and
- *Eugenia caryophyllata* extracts comprising eugenol and eugenyl glucoside,
and their mixtures.

Mention will be made, as preferred sebum-regulating agents which can be used according to the invention, of:
- sea fennel;
- mixtures of extract of cinnamon, of tea and of octanoylglycine, such as Sepicontrol A5 TEA from Seppic;
- the mixture of capryloyl glycine, of sarcosine and of *Cinnamomum zeylanicum* extract sold in particular by Seppic under the trade name Sepicontrol A5®;
- other zinc salts in addition to zinc salicylate, such as zinc pyrrolidonecarboxylate (or zinc pidolate), zinc lactate, zinc aspartate, zinc carboxylate or zinc cysteate;
- other copper salts in addition to copper pidolate, such as copper sulphate or copper pyrrolidone-carboxylate;
- meadowsweet (*Spiraea ulmaria*) extracts, such as that sold under the name Sebonormine® by Silab;
- L*aminaria saccharina* algal extracts, such as that sold under the name Phlorogine by Biotechmarine;
- mixtures of extracts of roots of great burnet (*Sanguisorba officinalis*/*Poterium officinale*), of rhizomes of ginger (*Zingiber officinalis*) and of bark of cinnamon (*Cinnamomum cassia*), such as that sold under the name Sebustop® by Solabia;

- sapogenins or plant extracts comprising them, in particular diosgenin-rich Dioscorea extracts,
and their mixtures.

Additional antimicrobial agents

The term "antimicrobial agents" is understood to mean agents having effects on the specific flora of greasy skin, such as, for example, *Propionibacterium acnes*.

These effects can either be bactericidal or ones which combat bacterial adhesion (prevent and/or reduce the adhesion of the microorganisms) or ones which act on the biofilm of the bacteria in order to prevent them from multiplying.

Mention may in particular be made of the active principles and preservatives having an antimicrobial activity mentioned in application DE10324567, incorporated in the present invention by way of reference.

Mention may also be made of: a hop cone extract (HOP CO2-TO extract from Flavex), a St. John's Wort extract (St. John's Wort CO2-TO extract from Flavex), asiatic acid, extracts of roots of *Scutellaria baicalensis*, as in BMB - CF from Naturogin, piroctone olamine, citrollic acid, sperillic acid, ethylhexylglycerin (Sensiva from Schülke), calcium sodium phosphosilicate, such as Bioactive Glass Powder from Schott, Actysse Premier BG from Schott, silicon oxides from Ciba, Metashines (silver derivatives), extracts of bearberry, such as Gatuline Equalizing from Gattefossé, 10-hydroxy-2-decanoic acid, such as Acnacidol P from Vincience, sodium ursolate, azelaic acid, diiodomethyl p-tolyl sulphone or Amical Flowable from Angus, malachite from Maprecos, Zincare from Elementis GmbH, Arlatone Dioic from Unichema; ellagic acid; 2,4,4'-trichloro-2'-hydroxydiphenyl ether (or triclosan), 1-(3',4'-dichlorophenyl)-3-(4'-chlorophenyl)urea (or triclocarban), 3,4,4'-

trichlorocarbanilide, 3',4',5'-trichlorosalicylanilide, phenoxyethanol, phenoxypropanol, phenoxyisopropanol, hexamidine isethionate, metronidazole and its salts, miconazole and its salts, itraconazole, terconazole, econazole, ketoconazole, saperconazole, fluconazole, clotrimazole, butoconazole, oxiconazole, sulphaconazole, sulconazole, terbinafine, ciclopirox, ciclopirox olamine, undecylenic acid and its salts, benzoyl peroxide, 3-hydroxybenzoic acid, 4-hydroxybenzoic acid, phytic acid, N-acetyl-L-cysteine, lipoic acid, azelaic acid and its salts, arachidonic acid, resorcinol, octopirox or piroctone olamine, octoxyglycerin or octoglycerin, octanoylglycine (Lipacid C8G® from Seppic), caprylyl glycol, dichlorophenyl imidazole dioxolane and its derivatives described in Patent Application WO9318743, zinc derivatives and in particular zinc pidolate (Zincidone® from Solabia), copper derivatives, salicylic acid and salicylic acid derivatives, iodopropynyl butylcarbamate, 3,7,11-trimethyldodeca-2,5,10-trienol or farnesol, phytosphingosines; Sepicontrol® from Seppic, an argania tree extract, such as Argapure LS9710®, Sebosoft® from Sederma, quaternary ammonium salts, such as cetyltrimethylammonium salts or cetylpyridinium salts, ethanol, and the like, and their mixtures.

Mention may in particular be made, as agents which prevent and/or reduce the adhesion of microorganisms, of: phytanetriol and its derivatives, such as described in Patent Application EP 1 529 523, vegetable oils, such as wheat germ oil, calendula oil, castor oil, olive oil, avocado oil, sweet almond oil, groundnut oil, jojoba oil, sesame oil, apricot kernel oil, sunflower oil or macadamia oil, which are described in Patent EP 1 133 979, or also other fatty substances, such as disodium cocoamphodiacetate, oxyethylenated (7 EO) glyceryl cocoate, the Poloxamers, hexadecenyl succinate 18 EO, octoxyglyceryl palmitate, octoxy-glyceryl behenate, dioctyl adipate, PPG-15 stearyl

ether or the tartrate of branched C_{12}-C_{13} dialcohols which are described in Patent EP 1 129 694.

Mention may be made, in particular with regard to the propagation of *P. acnes*, of pentylene glycol, nylon-6,6 (fibres formed of polyamide-6,6), rice bran oil, Celvol 540 PV alcohol (polyvinyl alcohol 72962), Akorex L from Karlshamns or fructose derivatives.

Mention may also be made of some surfactants having an antimicrobial effect, such as sodium cocoamphoacetate or disodium cocoamphodiacetate, such as Miranol C2M Conc. NP, betaines, such as the cocoyl betaine Genagen KB from Clariant, sodium lauryl ether sulphate, such as Emal 270 D from Kao, decyl glucoside, such as Plantacare 2000 UP, malates of branched C_{12}-C_{13} dialcohols, such as Cosmacol EMI, propylene glycol monoesters, such as propylene glycol monolaurate, monocaprylate or monocaprate, sodium lauroyl oat amino acid, such as Proteol OAT, lauryl dimethyl betaine, such as Empigen BB/LS, and polyquaternary ammoniums, such as Quaternium-24 or Bardac 2050 from Lonza and those described in the L'Oréal patent FR 0 108 283.

Use will be made in the compositions of the invention, as preferred antimicrobial agents, of an agent chosen from caprylyl glycol, zinc derivatives, including zinc pidolate (Zincidone® from Solabia), copper derivatives, octoglycerin or octoxyglycerin, 10-hydroxy-2-decanoic acid and their mixtures.

Desquamating agents

The term "desquamating agent" is understood to mean any compound capable of having an effect:

- either directly on desquamation by promoting exfoliation, such as β-hydroxy acids, in particular salicylic acid and its derivatives (including 5-(n-octanoyl)salicylic acid; α-hydroxy acids, such as glycolic acid, citric acid, lactic acid, tartaric acid, malic acid or mandelic acid; urea; gentisic acid and its derivatives; oligofucoses; cinnamic acid; *Saphora*

japonica extract; resveratrol and certain jasmonic acid derivatives;

- or on the enzymes involved in desquamation or decomposition of the corneodesmosomes, such as glycosidases, stratum corneum chymotryptic enzyme (SCCE) or indeed even other proteases (trypsin, chymotrypsin-like). Mention may be made of aminosulphonic compounds, in particular N-(2-hydroxyethyl)piperazine-N'-2-ethanesulphonic acid (HEPES); 2-oxothiazolidine-4-carboxylic acid (procysteine) derivatives; derivatives of α-amino acids of glycine type (such as described in EP-0 852 949, and also sodium methyl glycine diacetate, sold by BASF under the trade name Trilon M); honey; or sugar derivatives, such as O-octanoyl-6-D-maltose and N-acetylglucosamine.

Mention may be made, as other desquamating agents which can be used in the composition according to the invention, of oligofructoses, EDTA and its derivatives, *Laminaria extracts*, O-linoleyl-6-D-glucose, 3-hydroxy-2-pentylcyclopentaneacetic acid, glyceryl trilactate, O-octanyl-6'-D-maltose, S-(carboxymethyl)cysteine, silicon-comprising salicylate derivatives, as in Patent EP 0 796 861, oligofucases, as in Patent EP 0 218 200, salts of 5-acylsalicylic acid, active principles having effects on transglutaminase, as in Patent EP 0 899 330, jasmonic acid and derivatives, as in Patent Applications EP 1 333 022 and EP 1 333 021, Exfolactive® from Silab (extract of *Opuntia ficus-indica* flower) or Soypon O® from Kawaken Fine Chemicals (sodium cocoyl sarcosinate).

Mention may be made, as preferred desquamating agents, of β-hydroxy acids, such as 5-(n-octanoyl)salicylic acid; urea; glycolic acid, citric acid, lactic acid, tartric acid, malic acid or mandelic acid; N-(2-hydroxyethyl)piperazine-N'-2-ethanesulphonic acid (HEPES); *Saphora japonica* extract; honey; N-acetylglucosamine; sodium methyl glycine diacetate; and

their mixtures.

Use will more preferably still be made, in the compositions of the invention, of a desquamting agent chosen from 5-(n-octanoyl)salicylic acid; urea; N-(2-hydroxyethyl)piperazine-N'-2-ethanesulphonic acid (HEPES); *Saphora japonica* extract; honey; N-acetyl-glucosamine; sodium methyl glycine diacetate; and their mixtures.

Soothing agents or anti-irritants

Mention may in particular be made of the soothing agents or anti-irritants mentioned in Applications WO2004/105736 and DE10324567, incorporated in the present invention by way of reference.

Mention may be made, as specific soothing agents which can be used in the composition according to the invention, of: procyanidol oligomers, vitamins E, C, B5 or B3, dextran sulphate, caffeine and its derivatives, pentacyclic triterpenes and the plant extracts comprising them, β-glycyrrhetinic acids and its salts or derivatives (stearyl glycyrrhetate, 3-stearoyloxy-glycyrrhetic acid or glycyrrhetinic acid monoglucuronide) and the plants comprising them (e.g.: *Glycyrrhiza glabra*), oleanolic acid and its salts, ursolic acid and its salts, boswellic acid and its salts, betulinic acid and its salts, a *Paeonia suffruticosa* and/or *lactiflora* extract, phyco-saccharides from Codif, a *Laminaria saccharina* extract, *Centella asiatica* extracts, canola oil, bisabolol, the phosphoric diester of vitamin E and C, such as Sepivital EPC® from Seppic, camomile extracts, allantoin, omega-3 unsaturated oils, such as musk rose oil, blackcurrant oil, Echium oil or fish oil, calophyllum oil, plankton extracts, capryloyl glycine, Seppicalm VG® (*Nymphaea alba* and sodium palmitoyl-proline) from Seppic, a *Pygeum* extract, a *Boswellia serrata* extract, a *Centipeda cunninghamii* extract, a *Helianthus annuus* extract, in particular Helioxine from

Silab, a *Linum usitatissimum* extract, such as Sensiline from Silab, tocotrienols, *Cola nitida* extracts, piperonal, a clove extract, an *Epilobium angustifolium* extract, aloe vera, a *Bacopa monnieri* extract, phytosterols, cornflower water, rose water, dextran as in Modulene® from Vincience, a mint extract, in particular an extract of mint leaves, such as Calmiskin® from Silab, anise derivatives, filamentous bacteria, such as *Vitreoscilla filiformis*, such as described in Patent EP 761 204, a rose extract, such as Herbasol Rose Extract, Stimutex AS from Pentapharm, salts of alkaline earth metals, in particular strontium, niacinamide, and their mixtures.

Use will be made, as preferred soothing agents, of an agent chosen from a rose extract, a clove extract, dextran, as in Modulene® from Vincience, a mint extract, such as Calmiskin® from Silab, a mixture of a *Nymphaea alba* extract and sodium palmitoylproline, such as Seppicalm VG® from Seppic, anise derivatives, a *Paeonia suffruticosa* and/or *lactiflora* extract, and their mixtures.

Anti-inflammatory agents

Mention may in particular be made of the anti-inflammatory agents mentioned in Applications WO2004/105736 and DE10324567, incorporated in the present invention by way of reference.

Mention may be made, as specific anti-inflammatory agents which can be used according to the invention, of cortisone, hydrocortisone, indomethacin, betamethasone, azelaic acid, acetaminophen, diclofenac, clobetasol propionate and their mixtures.

Mention will be made, as preferred anti-inflammatory agent, of azelaic acid.

Antioxidants

This expression is intended to define agents

having an antioxidant activity (which prevent the oxidation of squalene and the formation of comedones).

Mention may in particular be made of tocopherol and its esters, in particular tocopherol acetate, BHT and BHA.

Mention may also be made of polyphenols, tannic acid, epigallocatechins and the natural extracts comprising them, anthocyans, rosemary extracts, olive leaf extracts, green tea, resveratrol and its derivatives, Pycnogenol, ergothioneine, N-acetylcysteine, biotin, chelating agents, idebenone, plant extracts, such as Pronalen Bioprotect ™ from Provital, antiradicals, such as vitamin E, coenzyme Q^{10}, bioflavonoids, SOD, phytantriol, lignans, melatonin, pidolates or glutathione.

Healing agents

Mention may in particular be made, as examples of healing agents, of:
allantoin, urea, wheat germ oil, some amino acids, such as hydroxyproline, arginine or serine, and also Madonna lily extracts (e.g.: Phytélène Lys 37EG 16295 from Indena), a yeast extract, such as the healing substance LS 7225B from LS (Cognis), tamanu oil, *Saccharomyces cerevisiae* extract or Biodynes TRF from Arch Chemical, oat extract, chitosan and derivatives, carrot extracts, *Artemia* extract or GP4G from Vincience, sodium acexamate, lavandin extracts, honey or propolis extracts, ximeninic acid and its salts, such as acido ximeninico from Indena, *Rosa rugosa* oil, Souci Ami Liposolible from Alban Muller, horsetail extracts, Herbasol lemon from Cosmetochem, *Helichrysum italicum* extracts, β-glucan and derivatives, shea butter and its purified fractions, modified exopolysaccharides and alkylsulphonated polyaminosaccharides.

Use will be made, as preferred healing agents according to the invention, of tamanu oil, sodium acexamate, honey extracts, horsetail extracts,

Helichrysum italicum extracts, and their mixtures.

Astringents

The term "astringents" is understood to mean, according to the invention, agents which make it possible to combat dilation of the sebaceous follicles.

Mention may be made, as astringents which can be used in the composition according to the invention, of Laricyl LS8865® from Cognis, Phytofirm LS9120® from Cognis, Tanlex VE/VB® from Ichimaru Pharcos, laponite, aluminium salts such as described above, *Centella* extracts (e.g., Plantactiv Centella from Cognis), Varisoft 432 CG® from Degussa, horse chestnut extracts, mallow extracts from Hammamelis, Almondermin LS 3380® from Cognis, burdock extracts, Extrapone 9 special® from Symrise, skullcap extracts, meadowsweet extracts (e.g., Cytobiol Ulmaire from Libiol), Herb Extract B1348® from Bell Flavors & Fragrances, acacia, elm, white willow, cinnamon, birch or meadowsweet extracts, Panama sapogenins, zinc phenolsulphonate from Interchemical, gentian, cucumber or walnut extracts, or the Epilami mixture from Alban Muller.

Use will be made, as preferred astringents according to the invention, of skullcap extracts, meadowsweet extracts, gentian extracts, burdock extracts and their mixtures.

According to a specific form of the invention, other agents intended to beautify the appearance and/or the texture of the skin can also be added to these ingredients and/or active principles for caring for greasy skin. In particular, active principles used to prevent and/or treat signs of skin ageing can be added to the compositions of the invention.

The additional active agent(s) and/or ingredient(s) used in the composition according to the invention can represent from 0.0001 to 20% by weight, preferably from 0.01 to 10% by weight and better still from 0.01 to 5% by weight, with respect to the total

weight of the composition.

ANTIDANDRUFF TREATMENT

The compositions according to the invention used for the treatment of imperfections of greasy skin or for the treatment of hyperseborrhoea and/or acne can comprise one or more additional antidandruff agents chosen, for example, from:

- benzethonium chloride, benzalkonium chloride, chlorhexidine, chloramine-T, chloramine-B, 1,3-dibromo-5,5-dimethylhydantoin, 1,3-dichloro-5,5-dimethylhydantoin, 3-bromo-1-chloro-5,5-dimethylhydantoin or N-chlorosuccinimide;
- 1-hydroxy-2-pyridone derivatives, such as, for example, 1-hydroxy-4-methyl-2-pyridone, 1-hydroxy-6-methyl-2-pyridone and 1-hydroxy-4,6-dimethyl-2-pyridone;
- trihalocarbamides;
- triclosan;
- azole-comprising compounds, such as climbazole, ketoconazole, clotrimazole, econazole, isoconazole and miconazole b;
- antifungal polymers, such as amphotericin B or nystatin;
- selenium sulphides;
- sulphur in its various forms, cadmium sulphide, allantoin, coal or wood tars and their derivatives, in particular oil of cade, undecylenic acid, fumaric acid, or allylamines, such as terbinafine;
- or a mixture of these antidandruff agents.

They may also be used in the form of their addition salts with physiologically acceptable acids, in particular in the form of salts of sulphuric, nitric, thiocyanic, hydrochloric, hydrobromic, hydriodic, phosphoric, acetic, benzoic, glycolic, aceturic, succinic, nicotinic, tartaric, maleic, palmitic, methanesulphonic, propanoic, 2-oxopropanoic, propanedioic, 2-hydroxy-1,4-butanedioic, 3-phenyl-2-

propenoic, α-hydroxybenzeneacetic, ethanesulphonic, 2-hydroxyethanesulphonic, 4-methylbenzenesulphonic, 4-amino-2-hydroxybenzoic, 2-phenoxybenzoic, 2-acetyloxybenzoic, picric, lactic, citric, malic and oxalic acids and of amino acids.

The antidandruff agents mentioned above can also, if appropriate, be used in the form of their addition salts with physiologically acceptable organic or inorganic bases. Examples of organic bases are in particular alkanolamines with low molecular weights, such as ethanolamine, diethanolamine, N-ethylethanolamine, triethanolamine, diethylaminoethanol or 2-amino-2-methylpropanedione; nonvolatile bases, such as ethylenediamine, hexamethylenediamine, cyclohexylamine, benzylamine or N-methylpiperazine; quaternary ammonium hydroxides, for example trimethylbenzylammonium hydroxide; or guanidine and its derivatives, and particularly its alkylated derivatives. Examples of inorganic bases are in particular the salts of alkali metals, such as sodium or potassium; ammonium salts; the salts of alkaline earth metals, such as magnesium or calcium; or the salts of cationic di-, tri- or tetravalent metals, such as zinc, aluminium and zirconium. Alkanolamines, ethylenediamine and inorganic bases, such as the salts of alkali metals, are preferred.

The composition according to the invention can additionally comprise one or more seborrhoea-regulating agents, such as succinylchitosan and poly-β-alanine, and their mixtures.

The composition according to the invention can comprise one or more soothing agents, such as azulene and glycyrrhetinic acid, and their mixtures.

PACKAGINGS AND DEVICES

According to a specific form of the invention, the compositions in accordance can be packaged in and dispensed from a device of "saltcellar" type provided

with a container comprising the composition and surmounted by a dispensing opening, in particular a dispensing grid comprising a plurality of holes; this opening being able to be attached by a fastening ring which is connected to the container by any appropriate means, such as screwing, snapping or crimping, and generally comprising a cap which will reversibly close the said dispensing opening by any appropriate means, such as screwing or snapping.

The said dispensing opening can be covered with an intermediate protective cover.

The device and its various components will preferably be formed from polymer of the polyolefin type, such as polyethylene or polypropylene. The wall of the container can be flexible or rigid.

Another subject-matter of the invention consists of such a packaging and dispensing device comprising a composition according to the invention as defined above.

According to another specific form of the invention, the compositions in accordance can be packaged in the form of single-dose bags.

According to another specific form of the invention, the composition of the invention can be packaged in an applicator comprising a reservoir containing the said composition, a cap intended to close the reservoir and an applicator holder which supports a deformable component for application of the product, made of foam or of elastomer of low hardness, the deformable component carrying bumps at the surface and having a high shape memory. In this applicator, the reservoir is bounded by a capillary end piece in the form of a thimble having a far end equipped with a seat pierced by at least one capillary orifice against which the deformable component is applied and deformed in the position of closure of the reservoir by the cap. Such a device is described in particular in Patent EP 0 612 488.

According to another specific form of the

invention, the composition of the invention can be packaged in a device as described in Application EP 1 086 904. It is a packaging device comprising a container having an interior space in which the composition of the invention in the powder form is present, a housing for receiving the application component and a permeable wall position between the said housing and the interior space containing the composition, the application component and the housing being arranged so that the application component exhibits, when it is in the said housing, at least one surface portion situated without substantial axial compression, with regard to an opening in the permeable wall, the said interior space being variable in volume. In this device, compression means are provided in order to selectively change the said interior volume from a first volume, greater than the volume of the composition, to a second volume, lower than the first, this reduction of volume being accompanied by an excess pressure, which is capable of promoting the transfer of composition through the said permeable wall to the application component.

The following examples will make possible a better understanding of the invention, without, however, exhibiting a limiting nature. The amounts shown are in % by weight.

EXAMPLES

Example 1: Formulation for caring for greasy skin

Ingredients	Amounts
Lemon grass bio essential oil	0.066
Zea mays starch	30
Kaolinite	30
Glyceryl caprylate (Dermosoft GMCY, Straetmans)	1.5
Talc (particle size: 4.5 microns) (Imperial 400, Luzenac)	q.s. for 100 g

Example 2: Deodorant formulation

Ingredients	Amounts
N-Octanoylglycine	1
Perlite (25 microns) (Optimat 1430 OR, World Minerals)	6.5
Thyme essential oil	0.055
Waxy maize starch	30
Glyceryl caprylate	1.5
Fragrance	30
Kaolinite	30
Talc (particle size: 4.5 microns) (Imperial 400, Luzenac)	q.s. for 100 g

CLAIMS

1. Method for the cosmetic treatment of body odours, in particular axillary odours, which consists in applying, to the skin and in particular the armpits, a composition in the powder form comprising, in a physiologically acceptable medium:

a) at least one filler,

b) an essential oil or a mixture of essential oils, and

c) at least one hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s).

2. Method according to Claim 1, comprising a mixture of spherical particles and of lamellar particles.

3. Method according to Claim 2, where the spherical organic or inorganic particles are chosen from silica powder; polyamide particles; polyethylene powders; microspheres based on acrylic copolymer; spherical expanded polymer powders; powders formed of natural organic materials, such as natural maize, wheat or rice and bamboo starches, which may or may not be crosslinked; powders formed of starch crosslinked by octenylsuccinic anhydride; silicone resin microbeads; and their mixtures.

4. Method according to Claim 3, where the spherical particles are constituted of a natural maize, wheat or rice starch and more particularly of a maize starch.

5. Method according to Claim 3 or 4, where the spherical particles can be present in amounts ranging from 20 to 100% by weight, preferably from 20 to 50% by weight and more preferably from 25 to 35% by weight, with respect to the total weight of the mixture of spherical particles and of lamellar particles.

6. Method according to any one of Claims 3 to 5, where the lamellar particles are lamellar silicates.

7. Method according to Claim 6, where the lamellar silicates are chosen from clays, talcs, micas, pearlescent agents, perlites and their mixtures.

8. Method according to Claim 7, where the lamellar

particles are chosen from an expanded perlite, kaolin, a talc or their mixtures.

9. Method according to any one of Claims 3 to 8, where the lamellar particles are present in amounts ranging from 40 to 100% by weight, preferably from 50 to 91% by weight and more preferably from 60 to 80% by weight, with respect to the total weight of the mixture of spherical particles and of lamellar particles.

10. Method according to any one of Claims 1 to 9, where the hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s) is chosen from mono- and/or diglyceryl caprylate, mono- and/or diglyceryl heptanoate, mono- and/or diglyceryl caprylate, propylene glycol caprylate, propylene glycol heptanoate and their mixtures.

11. Method according to Claim 10, where the hydroxylated ester resulting from the esterification of polyol and of C_4 to C_{16} carboxylic acid(s) is chosen from monoglyceryl caprylates.

12. Method for the cosmetic treatment of skin imperfections of greasy skin comprising the shiny and/or glistening appearance of the skin and/or the dilation of the pores of the skin and/or a thick skin texture and/or comedones which consists in applying, to the skin region to be treated, a composition as defined in any one of the preceding claims.

13. Composition as defined in any one of the preceding claims as medicament for preventively and/or curatively treating acne and/or hyperseborrhoea.

14. Use of a composition as defined in any one of the preceding claims as antidandruff agent, in particular in the cosmetic treatment of dandruff conditions related to the excessive proliferation of yeasts of the Malassezia genus on the scalp.

15. Cosmetic treatment method intended to remove and/or reduce dandruff, in particular that caused by yeasts of the Malassezia genus, comprising the application, to the scalp, as antidandruff cosmetic

agent, of a composition as defined in any one of the preceding claims.