

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 July 2010 (15.07.2010)

(10) International Publication Number
WO 2010/078985 A2

PCT

(51) International Patent Classification:

A61K 8/34 (2006.01) *A61K 8/35* (2006.01)
A61K 8/37 (2006.01) *A61K 8/46* (2006.01)
A61K 8/58 (2006.01) *A61Q 17/04* (2006.01)
A61K 8/40 (2006.01) *A61Q 19/02* (2006.01)

(21) International Application Number:

PCT/EP2009/064908

(22) International Filing Date:

10 November 2009 (10.11.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0858710 17 December 2008 (17.12.2008) FR
61/140,997 29 December 2008 (29.12.2008) 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, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, 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))

(54) Title: COSMETIC METHOD FOR CONTROLLING BROWNING OF THE SKIN INDUCED BY UV RADIATION; COMPOSITIONS

(57) Abstract: The present invention relates to a cosmetic method for controlling browning of the skin induced by UV radiation, in particular browning of dark skin, consisting in applying, to the surface of the skin, at least one composition comprising, in a cosmetically acceptable carrier: a) at least one depigmenting agent and b) at least one system for screening out both UVA radiation and UVB radiation; c) and optionally at least one keratolytic agent; said composition having a critical wavelength λ_c of greater than 370 nm. The present invention also relates to a composition comprising, in a cosmetically acceptable carrier: a) at least one depigmenting agent and b) at least one system for screening out both UVA radiation and UVB radiation; c) and optionally at least one keratolytic agent; said composition having a critical wavelength λ_c of greater than 370 nm.



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**COSMETIC METHOD FOR CONTROLLING BROWNING OF THE SKIN
INDUCED BY UV RADIATION; COMPOSITIONS**

The present invention relates to a cosmetic method
5 for controlling the browning of the skin induced by UV
radiation, in particular the browning of dark skin,
consisting in applying, to the surface of the skin, at
least one composition comprising, in a cosmetically
acceptable carrier:

- 10 a) at least one depigmenting agent and
- b) at least one system for screening out both UVA
radiation and UVB radiation;
- c) and optionally at least one desquamating agent;
- d) said composition having a critical wavelength
15 λ_c of greater than 370 nm.

The present invention also relates to a
composition comprising, in a cosmetically acceptable
carrier:

- a) at least one depigmenting agent and
- 20 b) at least one system for screening out both UVA
radiation and UVB radiation;
- c) and optionally at least one desquamating agent;
- d) said composition having a critical wavelength
 λ_c of greater than 370 nm.

25 Many cosmetic compositions intended to limit the
darkening of the skin induced by solar radiation, and
more particularly UV radiation, have been proposed to
date. These products are known to the consumer under
the term depigmenting products, or bleaching or even
30 whitening products. These products in general contain
molecules that are active on skin pigmentation, such as
hydroquinone and derivatives thereof, kojic acid and
derivatives thereof or resorcinol and derivatives
thereof.

35 It is also known, in international applications
WO 04/105736, WO 07/077258, WO 07/077259, WO 07/077260
and US 2008069784, and in applications EP1847247,
FR2900046 and FR2900 047, to combine UV screening
agents, and in particular combinations of UVA and UVB

screening agents, with a depigmenting agent. However, one of the major drawbacks of these compositions is that they do not make it possible to entirely satisfactorily control the change and the preservation over time of the skin pigmentation under UV exposure, and more particularly the pigmentation of dark skin under UV exposure, in such a way as to not increase the pigmentary melanin load nor the melanin already present in the skin.

Thus, there still remains the need to produce compositions based on a depigmenting agent and on UV screening agents for obtaining a more effective control of browning of the skin under UV exposure, and in particular of browning of dark skin, compared with the conventional compositions known from the prior art.

Now, following substantial research carried out in the field of artificial colouring of the skin, the applicant has now discovered, surprisingly, that, by applying, to the surface of the skin, a composition comprising, in a cosmetically acceptable carrier:

- a) at least one depigmenting agent and
- b) at least one system for screening out both UVA radiation with wavelengths between 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm;
- c) and optionally at least one desquamating agent; said composition having a critical wavelength λ_c of greater than 370 nm, better control and better preservation of the skin pigmentation under UV exposure, in particular for dark skin, was obtained.

The present invention relates to a cosmetic method for controlling browning of the skin induced by UV radiation, in particular browning of dark skin, consisting in applying, to the surface of the skin, at least one composition comprising, in a cosmetically acceptable carrier:

- a) at least one depigmenting agent and
- b) at least one system for screening out both UVA

radiation with wavelengths between 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm;

- 5 c) and optionally at least one desquamating agent;
said composition having a critical wavelength λ_c of greater than 370 nm.

The present invention also relates to a composition comprising, in a cosmetically acceptable carrier:

- 10 a) at least one depigmenting agent and
b) at least one system for screening out both UVA radiation with wavelengths between 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm;
15 c) and optionally at least one desquamating agent;
said composition having a critical wavelength λ_c of greater than 370 nm.

For the purpose of the present invention, the term "cosmetically acceptable medium" is intended to mean a
20 carrier compatible with the skin, the nails, the lips, the eyelashes and the eyebrows, which has a pleasant colour, odour and feel and which does not generate unacceptable discomfort (tingling, tautness, redness) that may dissuade the consumer from using this
25 composition comprising such a carrier.

In the rest of the present description, the expression "system for screening out both UVA radiation and UVB radiation" is intended to mean an agent for screening out UVA radiation with wavelengths between
30 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm, constituted of either a mixture of several organic compounds and/or inorganic compounds for screening out said UV radiation, for example a mixture comprising a UVA screening agent and a UVB
35 screening agent, or else an organic compound for screening out both UVA radiation and UVB radiation.

Other characteristics, aspects and advantages of the present invention will emerge upon reading the detailed description which follows.

DEPIGMENTING AGENTS

As depigmenting agents that can be used in accordance with the present invention, mention may in particular be made of vitamin C and derivatives thereof, and in particular vitamin CG, vitamin CP and 3-O ethyl vitamin C; arbutin and derivatives thereof, such as those described in applications EP895779 and EP524109, for instance alpha- and beta-arbutin; hydroquinone; aminophenol derivatives such as those described in applications WO 99/10318 and WO 99/32077, and in particular N-cholesteryloxycarbonyl-para-aminophenol and N-ethyloxycarbonyl-para-aminophenol; iminophenol derivatives such as those described in application WO 99/22707; L-2-oxothiazolidine-4-carboxylic acid or procysteine and also salts or esters thereof; ferulic acid; lucinol and derivatives thereof; kojic acid; resorcinol and esters thereof; tranexamic acid and esters thereof; gentisic acid, homogentisate, or methyl gentisate or homogentisate; dioic acid; calcium D-pantethein sulphonate; lipoic acid; ellagic acid; vitamin B3; linoleic acid and derivatives thereof; ceramides and homologues thereof; derivatives of plants, for instance camomile, bearberry, the aloe family (*vera*, *ferox*, *bardensis*), mulberry or skullcap; a kiwi fruit (*Actinidia chinensis*) juice sold by Gattefosse; an extract of *Paeonia suffructicosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B®, an extract of brown sugar (*Saccharum officinarum*), such as the extract of molasses sold by the company Taiyo Kagaku under the name Molasses Liquid, without this list being exhaustive. Mention may also be made of biphenyl compounds such as magnolol, honokiol, magnolignan, etc.

The amount of depigmenting agent in the compositions of the invention preferably ranges from 0.0001% to 20% by weight, relative to the total weight of the composition, more preferably from 0.001% to 15% by weight, even more preferably from 0.001% to 8%, in

particular from 0.01% to 5% by weight, more particularly from 0.01% to 4%, more particularly from 0.01% to 3%, even more particularly from 0.01% to 2%, and more particularly from 0.01% to 1% by weight.

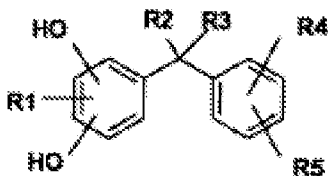
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HYDROXYLATED DIPHENYLMETHANE DERIVATIVES

According to one particularly preferred embodiment of the invention, a hydroxylated diphenylmethane derivative will be chosen as depigmenting agent.

10 The hydroxylated diphenylmethane derivatives that can be used in the compositions of the invention are preferably chosen from those described in application WO 2004/105736. These compositions have formula (I) below:

15



in which:

R₁ is chosen from a hydrogen atom, a methyl group, a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 4 carbon atoms, an -OH group and a halogen,

R₂ is chosen from a hydrogen atom, a methyl group, and a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms,

25 R₃ is chosen from a methyl group or a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms,

R₄ and R₅ are, independently of one another, chosen from a hydrogen atom, a methyl group, a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms, an -OH group or a halogen.

30 The -OH, R₁, R₄ and R₅ groups may be in the ortho-, meta- or para-position with respect to the bond formed with the carbon linking the two aromatic nuclei to one another.

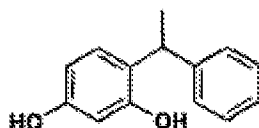
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Also included in the compounds of the invention having substituted phenyl groups and for which R_2 and R_3 are distinct are the S-configuration enantiomer forms, the R-configuration enantiomers or the racemic mixture thereof.

According to one preferred embodiment of the invention, use is made of a compound of formula (I) in which:

- R_1 , R_2 , R_4 and R_5 denote a hydrogen atom;
- R_3 is a methyl group;
- the -OH groups are in the ortho- and para-position with respect to the bond formed with the carbon linking the two aromatic nuclei to one another.

This compound corresponds to formula (II) below:



known as 4-(1-phenylethyl)-1,3-benzenediol or 4-(1-phenylethyl)-1,3-dihydroxybenzene or otherwise known as phenylethyl resorcinol or phenylethylbenzenediol or styryl resorcinol. This compound has a CAS number 85-27-8. Such a compound is sold under the name Symwhite 377® or Bio 377 by the company Symrise.

PHOTOPROTECTIVE AGENTS

The compositions in accordance with the invention comprise a system for screening out both UVA radiation with wavelengths between 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm.

The compositions in accordance with the invention should have a critical wavelength λ_c of less than 370 nm.

The critical wavelength is defined in particular in the publication by B. Diffey: B.L. Diffey - A method for broad spectrum classification sunscreens Intern. Journ. Sci. 16 47-52 [1994]. This publication describes

an in vitro spectrophotometric method for classifying photoprotective products. It characterizes the uniformity or the broadening of the spectrum in UVA radiation on the basis of an index called critical length λ_c . The critical wavelength is the value at which the integral of the screening composition absorbance spectrum reaches 90% of the integral under the curve. It is defined in the following way:

$$\lambda_c, \text{ such that } \int_{290}^{\lambda_c} \log[mPF(\lambda)] d\lambda = 0.9 \cdot \int_{290}^{400} \log[mPF(\lambda)] d\lambda$$

This value characterizes the broadening of the spectrum in the UVA portion independently and irrespective of the level of protection of the composition. It can be readily calculated by means of a conventional spectrophotometer which makes it possible to plot the absorbance curve for the composition of the invention.

The photoprotective agent(s) present in the screening system in accordance with the invention is (are) chosen from hydrophilic and/or hydrophobic, organic and/or inorganic UV screening agents that are active in the UVA and/or UVB range.

The organic UV screening agents are in particular chosen from cinnamic derivatives; anthranilates; salicylic derivatives, dibenzoylmethane derivatives, camphor derivatives; benzophenone derivatives; β,β -diphenylacrylate derivatives; triazine derivatives; benzotriazole derivatives; benzalmalonate derivatives, in particular those mentioned in patent US 5 624 663; benzimidazole derivatives; imidazolines; bisbenzoazolyl derivatives as described in patents EP669323 and US 2 463 264; p-aminobenzoic acid (PABA) derivatives; methylenebis(hydroxyphenylbenzotriazole) derivatives as described in applications US 5 237 071, US 5 166 355, GB2303549, DE 197 26 184 and EP893119; benzoxazole derivatives as described in patent applications

EP0832642, EP1027883, EP1300137 and DE 101 62 844; screening polymers and screening silicones such as those described in particular in application WO 93/04665; dimers derived from α -alkylstyrene, such as those described in patent application DE 198 55 649; 4,4-diarylbutadienes as described in applications EP0967200, DE 197 46 654, DE 197 55 649, EP-A-1008586, EP1133980 and EP133981; merocyanin derivatives such as those described in applications WO 04/006878, WO 05/058269 and WO 06/032741, and mixtures thereof.

UVA SCREENING AGENTS

1) Hydrophobic UVA screening agents

Dibenzoylmethane derivatives:

Butyl methoxydibenzoylmethane sold in particular under the trade name Parsol 1789 by DSM Nutritional Products, Inc.;

Isopropyl dibenzoylmethane;

Aminobenzophenones:

n-Hexyl 2-(4-diethylamino-2-hydroxybenzoyl)benzoate sold in particular under the trade name Uvinul A+ by BASF;

Anthranilic derivatives:

Menthyl anthranilate sold in particular under the trade name Neo Heliopan MA by Symrise;

4,4-Diarylbutadiene derivatives:

1,1-Dicarboxy(2,2'-dimethylpropyl)-4,4-diphenylbutadiene;

Merocyanin derivatives:

Octyl-5-N,N-diethylamino-2-phenylsulphonyl-2,4-pentadienoate.

The preferred hydrophobic UVA screening agents are butyl methoxydibenzoylmethane and n-hexyl 2-(4-diethylamino-2-hydroxybenzoyl)benzoate.

2) Water-soluble UVA screening agents

- terephthalylidenedicamphorsulphonic acid manufactured under the name Mexoryl SX by Chimex;

- 5 - bisbenzoazolyl derivatives as described in patents EP 669 323 and US 2 463 264, and more particularly the compound disodium phenyl dibenzimidazole tetrasulphonate sold under the trade name Neo Heliopan AP by Haarmann and Reimer.

10 The preferred water-soluble UVA screening agent is terephthalylidenedicamphorsulphonic acid.

UVB SCREENING AGENTS

15 **1) Hydrophobic UVB screening agents**

Paraaminobenzoates:

Ethyl PABA;

Ethyl dihydroxypropyl PABA;

Ethylhexyl dimethyl PABA (Escalol 507 from ISP);

20

Salicylic derivatives:

Homosalate sold in particular under the name Eusolex HMS by Rona/EM Industries;

Ethylhexyl salicylate sold in particular under the name

25 Neo Heliopan OS by Symrise;

Dipropylene glycol salicylate sold in particular under the name Dipsal by Scher;

TEA salicylate sold under the name Neo Heliopan TS by Symrise;

30

Cinnamates

Ethylhexyl methoxycinnamate sold in particular under the trade name Parsol MCX by DSM Nutritional Products, Inc.;

35 Isopropyl methoxycinnamate;

Isoamyl methoxycinnamate sold in particular under the trade name Neo Heliopan E 1000 by Symrise;

Diisopropyl methylcinnamate;

Cinnoxate;

Glyceryl ethylhexanoate dimethoxycinnamate;

β,β' -Diphenylacrylate derivatives:

- Octocrylene, sold in particular under the trade name
5 Uvinul N539 by BASF;
Etocrylene, sold in particular under the trade name
Uvinul N35 by BASF;

Benzylidenecamphor derivatives:

- 10 3-Benzylidenecamphor manufactured under the name
Mexoryl SD by Chimex;
Methylbenzylidenecamphor sold in particular under the
name Eusolex 6300 by Merck;
Polyacrylamidomethylbenzylidenecamphor manufactured
15 under the name Mexoryl SW by Chimex;

Triazine derivatives:

- Ethylhexyl triazone sold in particular under the trade
name Uvinul T150 by BASF;
20 Diethylhexyl butamido triazone sold in particular under
the trade name Uvasorb HEB by Sigma 3V;
2,4,6-tris(dineopentyl 4'-aminobenzalmalonate)-s-
triazine;
2,4,6-tris(diisobutyl 4'-aminobenzalmalonate)-s-
25 triazine;
2,4-bis(dineopentyl 4'-aminobenzalmalonate)-6-(n-butyl
4'-aminobenzoate)-s-triazine;
2,4-bis(n-butyl 4'-aminobenzoate)-6-(aminopropyl-
trisiloxane)-s-triazine;
30 the symmetrical triazine screening agents described in
patent US 6 225 467, application WO 2004/085412 (see
compounds 6 and 9) or the document "Symmetrical
Triazine Derivatives" IP.COM Journal, IP.COM INC West
Henrietta, NY, US (20 September 2004), especially
35 2,4,6-tris(biphenyl)-1,3,5-triazines (in particular
2,4,6-tris(biphenyl-4-yl-1,3,5-triazine) and 2,4,6-
tris(terphenyl)-1,3,5-triazine, the latter two
screening agents being described in Beiersdorf
applications WO 06/035000, WO 06/034982, WO 06/034991,

WO 06/035007, WO 2006/034992 and WO 2006/034985).

Imidazoline derivatives:

Ethylhexyl dimethoxybenzylidene dioxoimidazoline
5 propionate;

Benzalmalonate derivatives:

Polyorganosiloxanes comprising a benzalmalonate
function, such as Polysilicone-15 sold in particular
10 under the trade name Parsol SLX by DSM Nutritional
Products, Inc.;

Dineopentyl 4'-methoxybenzalmalonate.

The preferred hydrophobic UVB screening agents are
chosen from:

15 Ethylhexyl salicylate
Octocrylene
Ethylhexyl triazone
and mixtures thereof.

20 **Water-soluble UVB screening agents capable of absorbing
UV radiation from 280 to 320 nm**

p-Aminobenzoic acid (PABA) derivatives

PABA,

Glyceryl PABA, and

25 PEG-25 PABA sold under the name Uvinul P25 by BASF,
Phenylbenzimidazolesulphonic acid sold in particular
under the trade name Eusolex 232 by Merck,
Ferulic acid,
Salicylic acid,

30 DEA methoxycinnamate,

Benzylidenecamphorsulphonic acid manufactured under the
name Mexoryl SL by Chimex,

Camphor benzalkonium methosulphate manufactured under
the name Mexoryl SO by Chimex.

35 The preferred water-soluble UVB screening agent is
phenylbenzimidazolesulphonic acid.

UVA AND UVB SCREENING AGENTS

1) Hydrophobic UVA and UVB screening agentsBenzophenone derivatives:

- Benzophenone-1 sold in particular under the trade name Uvinul 400 by BASF;
- 5 Benzophenone-2 sold in particular under the trade name Uvinul D50 by BASF;
- Benzophenone-3 or oxybenzone sold in particular under the trade name Uvinul M40 by BASF;
- Benzophenone-5;
- 10 Benzophenone-6 sold in particular under the trade name Helisorb 11 by Norquay;
- Benzophenone-8 sold in particular under the trade name Spectra-Sorb UV-24 by American Cyanamid;
- Benzophenone-10;
- 15 Benzophenone-11;
- Benzophenone-12;

Phenylbenzotriazole derivatives:

- Drometrizole trisiloxane sold in particular under the
- 20 name Silatrizole by Rhodia Chimie or manufactured under the name Meroxyl XL by the company Chimex;
- Methylenebis(benzotriazolyl)tetramethylbutylphenol, sold in solid form, in particular under the trade name Mixxim BB/100 by Fairmount Chemical or in micronized
- 25 form in an aqueous dispersion, in particular under the trade name Tinosorb M by Ciba Specialty Chemicals;

bis-Resorcinyll triazine derivatives:

- bis(Ethylhexyloxyphenol)methoxyphenyltriazine sold in
- 30 particular under the trade name Tinosorb S by Ciba Geigy;

Benzoxazole derivatives:

- 2,4-bis[5-1(dimethylpropyl)benzoxazol-2-yl(4-phenyl)imino]-6-(2-ethylhexyl)imino-1,3,5-triazine sold
- 35 in particular under the name Uvasorb K2A by Sigma 3V.

The preferred hydrophobic UVA and UVB screening agents are chosen from:

Drometrizole trisiloxane

Methylenebis(benzotriazolyl)tetramethylbutylphenol

- 5 Bis(Ethylhexyloxyphenol)methoxyphenyltriazine
and mixtures thereof, and even more preferably
drometrizole trisiloxane.

2) Water-soluble UVA and UVB screening agents

- 10 Benzophenone derivatives comprising at least one
sulphonic radical, for instance:

Benzophenone-4 sold under the trade name Uvinul MS40 by
BASF,

Benzophenone-5, and

- 15 Benzophenone-9.

According to one particularly preferred embodiment
of the invention, use will be made of a screening
system constituted of:

- a) at least, as UVA screening agent: butyl
20 methoxydibenzoylmethane, and preferably combined with
terephthalylidenedicamphorsulphonic acid, and
b) at least, as UVB screening agent, octocrylene, and
preferably combined with ethylhexyl salicylate.

- More preferably, this screening system will also
25 comprise a hydrophobic UVA and UVB screening agent
chosen from drometrizole trisiloxane,
bis(ethylhexyloxyphenol)methoxyphenyltriazine,
methylenebis(benzotriazolyl)tetramethylbutylphenol in
micronised form, or mixtures thereof.

- 30 According to one particularly preferred embodiment
of the invention, use will be made of a screening
system constituted of:

- a) at least, as UVA screening agent: n-hexyl 2-(4-
diethylamino-2-hydroxybenzoyl)benzoate, and
35 b) at least one hydrophobic UVA and UVB screening
agent chosen from drometrizole trisiloxane,
bis(ethylhexyloxyphenol)methoxyphenyltriazine,
methylenebis(benzotriazolyl)tetramethylbutylphenol in
micronised form, or mixtures thereof.

According to another particularly preferred embodiment of the invention, use will be made of a screening system constituted of at least one organic UV screening agent and at least one inorganic UV screening agent.

INORGANIC SCREENING AGENTS:

The inorganic UV screening agents used in accordance with the present invention are coated or uncoated metal oxide pigments, for instance pigments of titanium oxide (amorphous or crystallised in rutile and/or anatase form), of iron oxide, of zinc oxide, of zirconium oxide or of cerium oxide. Preferably, the inorganic UV screening agents of the invention are particles of metal oxide having a mean elementary particle size of less than or equal to 0.5 μm , more preferably between 0.05 and 0.5 μm , and even more preferably between 0.010 and 0.1 μm , and even more particularly between 0.015 and 0.050 μm .

The pigments may be coated or uncoated.

The coated pigments are pigments that have undergone one or more surface treatments of chemical, electronic, mechanochemical and/or mechanical nature with compounds as described, for example, in Cosmetics & Toiletries, February 1990, Vol. 105, pp. 53-64, such as amino acids, beeswax, fatty acids, fatty alcohols, anionic surfactants, lecithins, sodium, potassium, zinc, iron or aluminium salts of fatty acids, metal alkoxides (of titanium or of aluminium), polyethylene, silicones, proteins (collagen, elastin), alkanolamines, silicon oxides, metal oxides or sodium hexametaphosphate.

As is known, silicones are organosilicon polymers or oligomers of linear or cyclic, branched or crosslinked structure, of variable molecular weight, obtained by polymerisation and/or polycondensation of suitably functionalised silanes, and are constituted essentially of a repetition of main units in which the silicon atoms are linked together via oxygen atoms

(siloxane bond), optionally substituted hydrocarbon-based radicals being directly attached via a carbon atom to said silicon atoms.

The term "silicones" also encompasses the silanes
5 required for their preparation, in particular alkyl silanes.

The silicones used for coating the pigments that are suitable for the present invention are preferably chosen from the group containing alkyl silanes,
10 polydialkylsiloxanes and polyalkylhydrogenosiloxanes. Even more preferentially, the silicones are chosen from the group containing octyltrimethylsilane, polydimethylsiloxanes and polymethylhydrogenosiloxanes.

Needless to say, before being treated with
15 silicones, the metal oxide pigments may have been treated with other surface agents, in particular with cerium oxide, alumina, silica, aluminium compounds or silicon compounds, or mixtures thereof.

The coated pigments are more particularly titanium
20 oxides that have been coated:

- with silica, such as the product Sunveil from the company Ikeda,
- with silica and iron oxide, such as the product Sunveil F from the company Ikeda,
- 25 - with silica and alumina, such as the products Microtitanium Dioxide MT 500 SA and Microtitanium Dioxide MT 100 SA from the company Tayca, Tioveil from the company Tioxide and Mirasun TiW 60 from the company Rhodia,
- 30 - with alumina, such as the products Tipaque TTO-55 (B) and Tipaque TTO-55 (A) from the company Ishihara and UVT 14/4 from the company Kemira,
- with alumina and aluminium stearate, such as the product Microtitanium Dioxide MT 100 T, MT 100 TX,
35 MT 100 Z and MT-01 from the company Tayca, the products Solaveil CT-10 W and Solaveil CT 100 from the company Uniqema, and the product Eusolex T-AVO from the company Merck,
- with silica, alumina and alginic acid, such as the

- product MT-100 AQ from the company Tayca,
- with alumina and aluminium laurate, such as the
product Microtitanium Dioxide MT 100 S from the company
Tayca,
- 5 - with iron oxide and iron stearate, such as the
product Microtitanium Dioxide MT 100 F from the company
Tayca,
- with zinc oxide and zinc stearate, such as the
product BR351 from the company Tayca,
- 10 - with silica and alumina and treated with a silicone,
such as the products Microtitanium Dioxide MT 600 SAS,
Microtitanium Dioxide MT 500 SAS or Microtitanium
Dioxide MT 100 SAS from the company Tayca,
- with silica, alumina and aluminium stearate and
15 treated with a silicone, such as the product STT-30-DS
from the company Titan Kogyo,
- with silica and treated with a silicone, such as the
product UV-Titan X 195 from the company Kemira,
- with alumina and treated with a silicone, such as the
20 products Tipaque TTO-55 (S) from the company Ishihara
or UV Titan M 262 from the company Kemira,
- with triethanolamine, such as the product STT-65-S
from the company Titan Kogyo,
- with stearic acid, such as the product Tipaque TTO-55
25 (C) from the company Ishihara,
- with sodium hexametaphosphate, such as the product
Microtitanium Dioxide MT 150 W from the company Tayca.

Other titanium oxide pigments treated with a
silicone are preferably TiO_2 treated with
30 octyltrimethylsilane and for which the mean size of the
elementary particles is between 0.025 and 0.04 μm , such
as the product sold under the trade name T 805 by the
company Degussa Silices, TiO_2 treated with a
polydimethylsiloxane and for which the mean size of the
35 elementary particles is 21 nm, such as the product sold
under the trade name 70250 Cardre UF TiO_2Si_3 by the
company Cardre, anatase/rutile TiO_2 treated with a
polydimethylhydrogenosiloxane and for which the mean
size of the elementary particles is 25 nm, such as the

product sold under the trade name Microtitanium Dioxide USP Grade Hydrophobic by the company Color Techniques.

The uncoated titanium oxide pigments are sold, for example, by the company Tayca under the trade names
5 Microtitanium Dioxide MT 500 B or Microtitanium Dioxide MT 600 B, by the company Degussa under the name P 25, by the company Wackher under the name Transparent titanium oxide PW, by the company Miyoshi Kasei under the name UFTR, by the company Tomen under the name ITS
10 and by the company Tioxide under the name Tioveil AQ.

The uncoated zinc oxide pigments are, for example:
- those sold under the name Z-Cote by the company Sunsmart.

The coated zinc oxide pigments are, for example:
15 - those sold under the name Zinc Oxide CS-5 by the company Toshiba (ZnO coated with polymethylhydrogenosiloxane);
- those sold under the name Daitopersion ZN-30 and Daitopersion Zn-50 by the company Daito (dispersions in
20 cyclopolydimethylsiloxane/oxyethylenated polydimethylsiloxane, containing 30% or 50% of nanozinc oxides coated with silica and polymethylhydrogenosiloxane);
- those sold under the name NFD Ultrafine ZnO by the company Daikin (ZnO coated with perfluoroalkyl
25 phosphate and perfluoroalkylethyl-based copolymer as a dispersion in cyclopentasiloxane);
- those sold under the name SPD-Z1 by the company Shin-Etsu (ZnO coated with silicone-grafted acrylic polymer, dispersed in cyclodimethylsiloxane);
30 - those sold under the name Escalol Z100 by the company ISP (alumina-treated ZnO dispersed in an ethylhexyl methoxycinnamate/PVP-hexadecene/methicone copolymer mixture);
- those sold under the name Fuji ZnO-SMS-10 by the
35 company Fuji Pigment (ZnO coated with silica and polymethylsilsesquioxane).

The uncoated cerium oxide pigments are sold, for example, under the name Colloidal Cerium Oxide by the company Rhône Poulenc.

Mention may also be made of mixtures of metal oxides, especially of titanium dioxide and of cerium dioxide, including the silica-coated equal-weight mixture of titanium dioxide and of cerium dioxide, sold
5 by the company Ikeda under the name Sunveil A, and also the alumina-, silica- and silicone-coated mixture of titanium dioxide and of zinc dioxide, such as the product M 261 sold by the company Kemira, or the alumina-, silica- and glycerol-coated mixture of
10 titanium dioxide and of zinc oxide, such as the product M 211 sold by the company Kemira.

The photoprotective agents are generally present in the compositions of the invention in proportions ranging from 0.01% to 20% by weight, relative to the
15 total weight of the composition, and preferably ranging from 0.1% to 10% by weight, relative to the total weight of the composition.

According to one particularly preferred embodiment of the invention, the compositions of the invention
20 will be applied to dark skin.

The term "dark skin" is intended to mean skin of individuals having a high phototype, i.e. skin of individuals having a phototype III to VI, defined according to the Fitzpatrick classification, which is
25 based on the reactivity of the skin to the effects of solar radiation:

- I always burns, never tans
- II always burns, tans little
- III burns moderately, tans gradually
- 30 IV burns slightly, tans very readily
- V burns rarely, tans intensely
- VI never burns, strongly pigmented

DESQUAMATING AGENTS

35 According to one particularly preferred embodiment, the compositions according to the invention will also comprise at least one desquamating agent.

The term "desquamating agent" is intended to mean any compound capable of acting:

- either directly on desquamation by promoting exfoliation, such as β -hydroxy acids (BHAs), in particular salicylic acid and derivatives thereof (including 5-n-octanoyl salicylic acid, also known as capryloyl salicylic acid as the INCI name); α -hydroxy acids (AHAs), such as glycolic acid, citric acid, lactic acid, tartaric acid, malic acid or mandelic acid; 8-hexadecene-1,16-dicarboxylic acid or 9-octadecenedioic acid; urea and derivatives thereof; gentisic acid and derivatives thereof; oligofucoses; cinnamic acid; *Saphora japonica* extract; resveratrol, and certain jasmonic acid derivatives;

- or on the enzymes involved in desquamation or degradation of corneodesmosomes, glycosidases, stratum corneum chymotryptic enzyme (SCCE) or other proteases (trypsin, chymotrypsin-like). Mention may be made of aminosulphonic compounds and in particular 4-(2-hydroxyethyl)piperazine-1-propanesulphonic acid (HEPES); 2-oxothiazolidine-4-carboxylic acid (procysteine) and derivatives thereof; derivatives of alpha-amino acids of glycine type (as described in EP-0 852 949, and also sodium methyl glycine diacetate sold by BASF under the trade name Trilon M); honey; sugar derivatives such as O-octanoyl-6-D-maltose and N-acetylglucosamine.

As other desquamating agents that can be used in the composition according to the invention, mention may be made of:

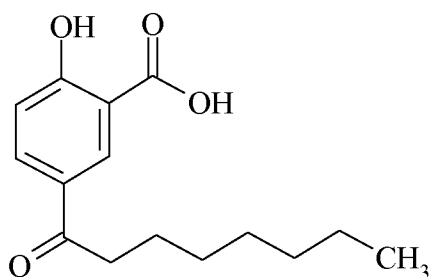
- oligofructoses, EDTA and derivatives thereof, laminaria extracts, o-linoleyl-6D-glucose, (3-hydroxy-2-pentylcyclopentyl) acetic acid, glyceryl trilactate, O-octanyl-6'-D-maltose, S-carboxymethylcysteine, siliceous derivatives of salicylate such as those described in patent EP 0 796 861, oligofucases such as those described in patent EP 0 218 200, 5-acylsalicylic acid salts, active agents with effects on transglutaminase, as in patent EP 0 899 330,

- extract of the flowers of ficus *Opuntia indica*, for instance Exfolactive® from Silab,

- 8-hexadecene-1,16-dicarboxylic acid,
- esters of glucose and of vitamin F, and
- mixtures thereof.

As preferred desquamating agents, mention may be made of beta-hydroxy acids such as 5-n-octanoylsalicylic acid (or capryloylsalicylic acid); urea; glycolic acid, citric acid, lactic acid, tartaric acid, malic acid or mandelic acid; 4-(2-hydroxyethyl)-piperazine-1-propanesulphonic acid (HEPES); *Saphora japonica* extract; honey; N-acetylglucosamine; sodium methyl glycine diacetate, and mixtures thereof.

Even more preferentially, use will be made, in the compositions of the invention, of a desquamating agent chosen from 5-n-octanoylsalicylic acid (or capryloylsalicylic acid) of formula below:



such as the commercial product Mexoryl SAB manufactured by Chimex; urea; 4-(2-hydroxyethyl)piperazine-1-propanesulphonic acid (HEPES); *Saphora japonica* extract; honey; N-acetylglucosamine; sodium methyl glycine diacetate, and mixtures thereof.

The desquamating agent(s) is (are) present in amounts preferably ranging from 0.01% to 2% by weight, relative to the total weight of the composition, and more particularly from 0.05% to 1% by weight, and preferably from 0.05% to 0.5% by weight, relative to the total weight of the composition.

INGREDIENTS THAT PROMOTE THE SOLUBILISATION AND/OR THE STABILISATION OF THE DEPIGMENTING AGENT

According to one preferred embodiment of the invention, the composition of the invention also

comprises at least one ingredient that promotes the solubilisation of said derivative and/or at least one ingredient that promotes the stabilisation of the depigmenting agent.

5 As ingredients that promote the solubilisation of the depigmenting agent and that can be used in the compositions of the invention, mention may in particular be made of:

(i) lipophilic derivatives of amino acids, such as, in particular, those described in patent application
10 EP 1 269 986, incorporated herein by way of reference.

In particular, lipophilic derivatives of amino acids that may be used include those of formula

15
$$R'_1 (CO)N(R'_2)CH(R'_3)(CH_2)_n(CO)OR'_4$$

in which:

n is an integer equal to 0, 1 or 2,

20 R'_1 represents a linear or branched C_5 - C_{21} alkyl or alkenyl radical,

R'_2 represents a hydrogen atom or a C_1 - C_3 alkyl group,

R'_3 represents a radical chosen from the group formed by a hydrogen atom, a methyl group, an ethyl group and a linear or branched C_3 or C_4 alkyl radical,

25 R'_4 represents a linear or branched C_1 - C_{10} alkyl or C_2 - C_{10} alkenyl radical, or a sterol residue.

A preferred lipophilic amino acid derivative is isopropyl N-lauroylsarcosinate, sold in particular by Ajinomoto under the name Eldew SL 205;

30 (ii) fatty alcohols containing from 8 to 26 carbon atoms, such as lauryl alcohol, cetyl alcohol, myristyl alcohol, stearyl alcohol, palmityl alcohol, oleyl alcohol, linoleyl alcohol and 2-octyldodecanol, and mixtures thereof, such as cetearyl alcohol (mixture of
35 cetyl alcohol and of stearyl alcohol). Preferably, the 2-octyldodecanol sold under the name Eutanol G by the company Cognis or under the name Isofol 20 N/F by the company Sasol will be used;

- (iii) ethers such as dicaprylyl ether (CTFA name: Dicaprylyl ether); or isosorbide ethers such as dimethyl isosorbide; in particular, the dimethyl isosorbide sold under the name Arlasolve DMI by the company Uniqema will be used;
- (iv) esters such as C₁₂-C₁₅ fatty alkyl benzoates (Finsolv TN from Finetex); or caprylic alcohol esters; in particular, the dicaprylyl carbonate sold under the name Cetiol CC by the company Cognis will be used;
- (v) isononanoate derivatives, such as ethylhexyl isononanoate, for instance 2-ethylhexyl isononanoate or ethyl-2-hexyl isononanoate or octyl isononanoate, in particular Dragoxat 89 from the company Dragocco or Dermol 89.

INGREDIENTS THAT PROMOTE THE STABILISATION OF THE DEPIGMENTING AGENTS

According to the invention, the expression "ingredient that promotes the stabilisation of the depigmenting agents" is intended to mean in particular an ingredient that makes it possible either (i) to stabilise said depigmenting agent or (ii) to stabilise the cosmetically acceptable medium in which said depigmenting agent is present.

In particular, in case (ii), the ingredient that promotes the stabilisation of said depigmenting agents may in particular be present in a particular galenical form that contributes towards the stabilisation of said depigmenting agent in said cosmetically acceptable medium.

As ingredients for stabilising said depigmenting agents, that can be used in the compositions of the invention, mention may in particular be made of:

- a) block polymers and/or copolymers;
- b) amphiphilic lipids of ionic or nonionic type present in the form of vesicles in dispersion;
- c) constituent polymers of microspheres or of microcapsules;
- d) constituent polymers of microparticles;

- e) polymers and/or surfactants forming microemulsions;
 f) polymers in the form of thin films;
 g) polyolefin emulsifiers with a polar portion, the composition being in the form of a water-in-oil
 5 emulsion;
 h) amphiphilic polymers comprising 2-acrylamido-2-methylpropanesulphonic acid (AMPS) units.

(a) block polymers and/or copolymers

10 It is known practice to encapsulate lipophilic active agents in micelles of block copolymers, for example poly(ethylene oxide-propylene oxide) diblock or triblock copolymers.

Advantageously, a block amphiphilic copolymer
 15 comprising at least one nonionic hydrophilic polymeric block and at least one particular hydrophobic polymeric block will be used in the composition of the invention.

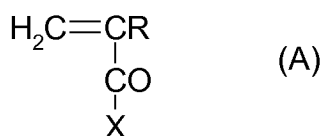
These block amphiphilic copolymers are in particular described in patent application
 20 EP 1 555 984, incorporated herein by way of reference.

The molecular weight of the block copolymer is generally between 1000 and 100 000.

In particular, the weight ratio of the ionic or nonionic hydrophilic polymeric block(s) to the
 25 hydrophobic polymeric block(s) is between 1/100 and 50/1.

The hydrophobic polymeric block is in particular chosen from:

- styrene and derivatives thereof such as
 30 4-butylstyrene,
- alkylene oxides containing more than 4 carbon atoms, and preferably from 4 to 6 carbon atoms,
- hydrophobic vinyl monomers of formula (A) below:



35

in which:

- R is chosen from H and -CH₃,
- X is chosen from alkyl oxides of -OR' type in which R' is a linear or branched, saturated or unsaturated hydrocarbon-based radical containing from 1 to 22 carbon atoms.

Preferably, the hydrophobic polymeric block is obtained from one or more hydrophobic monomers chosen from methyl methacrylate, ethyl methacrylate, n-butyl (meth)acrylate, tert-butyl (meth)acrylate and cyclohexyl acrylate.

In particular, the hydrophobic polymeric block is chosen from polystyrene, poly(tert-butylstyrene), polymethyl methacrylate, polyethyl acrylate, polybutyl methacrylate and poly(C₃-C₆ alkylene oxide)s.

Preferably, the nonionic hydrophilic polymeric block is chosen from polyethylene oxides.

Preferably, the block copolymer is chosen from the following block copolymers:

- polystyrene/polyoxyethylene
- polymethyl methacrylate/polyoxyethylene
- polybutyl methacrylate/polyoxyethylene
- polyoxyethylene/polyoxybutylene/polyoxyethylene.

(b) amphiphilic lipids of ionic or nonionic type:

According to another embodiment of the invention, the depigmenting agent(s) is (are) combined with ionic or nonionic amphiphilic lipids present in the form of vesicles of ionic type (e.g.: liposomes) and/or nonionic type (e.g.: niosomes) as a dispersion in the physiologically acceptable medium of the composition, in particular as an aqueous dispersion.

The presence of these vesicles contributes towards stabilising said depigmenting agents in the physiologically acceptable medium of the composition.

These lipid vesicles may have an aqueous core or an oily core.

Lipid vesicles with an oily core will preferably be used.

According to the invention, the term "vesicle" is

intended to mean any particulate structure comprising, on the one hand, a membrane or "lipid phase" constituted of one or more concentric leaflets, these leaflets comprising one or more bimolecular layers based on ionic or nonionic amphiphilic lipids, and, on the other hand, an aqueous or oily phase encapsulated by this lipid phase. For the purpose of the invention, liposomes and niosomes in particular constitute such vesicles.

10 Niosomes are vesicles prepared from nonionic amphiphilic lipids. Reference may in particular be made to the description of patent FR 8 907 947.

As nonionic amphiphilic lipids, mention may in particular be made of optionally oxyethylenated alkyl- or polyalkyl esters of a polyol, and optionally oxyethylenated polyol ethers, having a melting point of at least 40°C.

Liposomes are vesicles prepared from ionic amphiphilic lipids. These vesicles are particles formed from a membrane constituted of one or more concentric leaflets, these leaflets comprising one or more biomolecular layers of amphiphilic lipids encapsulating an aqueous or oily phase. The aqueous phase may contain water-soluble active substances and the biomolecular layers of amphiphilic lipids may contain lipophilic active substances. These vesicles generally have a mean diameter of between 0.01 and 5 micrometres.

The ionic amphiphilic lipids may be anionic amphiphilic lipids or cationic amphiphilic lipids.

30 As examples of anionic amphiphilic lipids, mention may in particular be made of:

- neutralised anionic lipids, preferably chosen from alkali metal salts of dicetyl phosphate, and of dimyristyl phosphate, in particular the sodium and potassium salts, alkali metal salts of phosphatidic acid, in particular the sodium salt, alkali metal salts of cholesteryl sulphate, in particular the sodium salt, alkali metal salts of cholesteryl phosphate, in particular the sodium salt, and salts of lipoamino

acids such as monosodium and disodium acylglutamates, more particularly the disodium salt of N-stearoyl-L-glutamic acid sold under the name Acylglutamate HS21 by the company Ajinomoto,

- 5 - amphoteric lipids, in particular pure soyabean phosphatidylethanolamine,
- alkylsulphonic derivatives.

As cationic amphiphilic lipids, use may in particular be made of quaternary ammonium salts and
10 fatty amines and salts thereof.

It is advantageously possible to use "double-liposome" compositions for the simultaneous treatment of the surface and deep layers of the skin, comprising a first dispersion of lipid vesicles that are capable
15 of penetrating into the deep layers of the skin and that contain at least one active agent capable of treating these deep layers, and a second dispersion of lipid vesicles that are capable of penetrating into the surface layers of the skin and that contain at least
20 one active agent capable of treating these surface layers. Such a system is described in patent EP 0 661 035.

The depigmenting agents will preferably be present in the second dispersion of lipid vesicles that are
25 capable of penetrating into the surface layers of the skin.

They may be combined with active agents targeting the dermis (e.g.: anti-ageing active agents), present in a first dispersion of lipid vesicles that are
30 capable of penetrating into the deep layers of the skin.

Oleosomes are oily globules provided with a lamellar liquid crystal coating, dispersed in an aqueous phase, with a mean diameter of generally less
35 than 500 nanometres.

As an example of a formulation in oleosomes, reference may be made in particular to patent EP 0 641 557.

(c) constituent polymers of microspheres or of microcapsules

According to one alternative, which is advantageous for active agents that are lipophilic in nature, such as certain depigmenting agents, said active agents may be combined with particles of small sizes.

They may be solid particles constituted of the combination of said hydroxylated diphenylmethane derivative of formula (I) or (II) and of at least one polymer.

This polymer contributes towards stabilising said hydroxylated diphenylmethane derivative of formula (I) or (II) in the physiologically acceptable medium of the composition.

These particles of small size mainly encompass two different systems: "spherical particles" constituted of a polymer matrix in which said depigmenting agent is absorbed and/or adsorbed and/or mixed, and also "microcapsules" having a structure of core-shell type, i.e. a structure constituted of a lipid core that is liquid at ambient temperature, containing the depigmenting agent in solubilised form, said core being encapsulated in a continuous protective shell that is insoluble in the medium.

Microcapsules will preferably be used.

Reference may be made, for example, to the description of patent application EP 1 414 390.

The spherical particles generally have a mean size of between 0.05 and 0.5 μm .

The microcapsules are generally of small size so as to obtain optimum bioavailability of the depigmenting agents.

Preferably, the size of these microcapsules is between 0.01 and 1 μm , and more particularly between 0.030 and 0.5 μm .

It is in particular possible to use polymers in the form of microcapsules, as described in patent application EP-0 274 961, the microcapsules provided

with a lamellar coating, described in patent application EP-0 780 115, the nanocapsules of which the water-insoluble continuous polymer shell is constituted of polyesters, as described in applications
5 EP 1 025 901, FR-2 787 730 and EP-1 034 839, or alternatively the biodegradable microcapsules described in patent application FR-2 659 554, or the non-biodegradable microcapsules described in patent application WO 93/05753.

10 The microcapsules made of biodegradable polymers penetrate the skin and degrade in the epidermis under the action of the enzymes present therein, whereas the microcapsules made of non-biodegradable polymers only penetrate the surface layers of the stratum corneum and
15 are eliminated naturally during skin renewal.

As constituent polymers of microcapsules that can be used in the compositions of the invention in combination with the hydroxylated diphenylmethane derivatives of formula (I) or (II), mention may in particular be made of poly-L- and DL-lactides and polycaprolactones, polyglycolides and copolymers thereof, polymers derived from the polymerisation of an alkyl cyanoacrylate (the alkyl chain containing from 2 to 6 carbon atoms); synthetic or natural water-
20 dispersible anionic polymers; polyesters of the poly(alkylene adipate) type; dendritic polymers; copolymers of vinyl chloride and of vinyl acetate, copolymers of methacrylic acid and of methacrylic acid methyl ester, polyvinyl acetophthalate, cellulose
25 acetophthalate, copolymers of polyvinylpyrrolidone-crosslinked vinyl acetate, polyethylene vinyl acetates, polyacrylonitriles, polyacrylamides, polyethylene glycols, polyamides, polyethylenes, polypropylenes and organopolysiloxanes.

35 Preferably, polycaprolactones will be used.

(d) constituent polymers of microparticles:

According to one particular embodiment of the invention, which is advantageous especially for caring

for greasy skin, the depigmenting agents will be combined with constituent polymers of microparticles.

These polymers contribute towards stabilising said depigmenting agent in the cosmetically acceptable
5 medium of the composition.

The term "microparticles" especially encompasses "porous particles", and in particular "microspheres".

The term "porous particles" denotes particles with a structure comprising pores. This pore structure may
10 at least partly enable the incorporation of one or more active agents into said particles.

Reference may in particular be made to patent application EP 1 637 124.

The structure of the particles may be of matrix
15 type like a sponge. It may also be of vesicular type, i.e. the particle has an inner cavity delimited by a porous wall. The porosity associated with the size of the particles is characterized quantitatively by their specific surface area.

20 Porous particles with a specific surface area, measured according to the BET method, of greater than or equal to $1 \text{ m}^2/\text{g}$ will in particular be used. The BET (Brunauer-Emmet-Teller) method is a method that is well known to those skilled in the art. It is in particular
25 described in "The Journal of the American Chemical Society", Vol. 60, page 309, February 1938, and corresponds to international standard ISO 5794/1 (Appendix D). The specific surface area measured according to the BET method corresponds to the total
30 specific surface area, i.e. it includes the surface formed by the pores.

According to one particular embodiment, the particles of the invention have a specific surface area measured by BET ranging in particular from 2.5 to
35 $100 \text{ m}^2/\text{g}$.

The porous particles that can be used in the compositions of the invention are generally individualised particles. The expression "individualised particles" denotes particles which are

not grouped together in the form of an aggregate or of an agglomerate. These particles in particular have a density of greater than or equal to 0.15 g/cm^3 , and especially ranging from 0.2 to 5 g/cm^3 .

5 These particles preferably have a volume-average diameter of less than or equal to $10 \text{ }\mu\text{m}$. This is because such particles can penetrate into the sebaceous follicle by application of a mechanical force. This mechanical force generally comes from massaging, which, 10 besides the pushing that it exerts, generates a pump effect in the follicle. The particles gradually reach the follicular canal, in which they are capable of absorbing sebum and, where appropriate, releasing the active compound that they bear. The constituent 15 material of the particles is then discarded through the flow of sebum and/or the growth of the hair, thus making it possible to avoid any possible adverse reaction by the body with respect to this material.

 Porous particles, which are in particular 20 spherical, bearing a number-average size that may range from 0.1 to $50 \text{ }\mu\text{m}$, especially from 0.1 to $20 \text{ }\mu\text{m}$, and most particularly from 0.5 to $10 \text{ }\mu\text{m}$, will in particular be used.

 Polyamide particles, in particular made of Nylon 25 6, Nylon 6-6, Nylon 12 or Nylon 6-12, such as those sold by the company Atofina under the generic name Orgasol, may be used as preferred porous particles.

 This encapsulation system that allows follicular targeting is particularly advantageous in compositions 30 for use in the treatment of oily skin.

(e) polymers and/or surfactants forming microemulsions

 According to another embodiment of the invention, said depigmenting agents are combined, in the 35 composition, with particular polymers and/or surfactants, the composition being in the form of a microemulsion.

 These polymers and/or surfactants contribute towards stabilising said hydroxylated diphenylmethane

derivative of formula (I) or (II) in the physiologically acceptable medium of the composition.

Microemulsions are generally oil-in-water emulsions of which the oil globules have a very fine particle size, i.e. a number-average size of less than 0.1 μm .

Reference may in particular be made to the description of patent EP 0 728 460.

The microemulsions may be stabilised with a lamellar liquid crystal coating obtained by combining a hydrophilic surfactant and a lipophilic surfactant.

Advantageously, the particular polymers allowing the preparation of microemulsions may be chosen from:

- hydrophobic-chain anionic polymers, as described in patent EP 116 005; and/or
- water-soluble nonionic polymers, as described in patent EP 1 172 077.

The particular surfactants allowing the preparation of nanoemulsions may in particular be a ternary system of surfactants, including a mixture of nonionic surfactants and an ionic surfactant, as described in patent EP 1 353 629, incorporated herein by way of reference.

In particular, the hydrophobic-chain anionic polymer comprises hydrophobic chains chosen from linear or branched, saturated or unsaturated hydrocarbon-based chains containing from 6 to 30 carbon atoms, cycloaliphatic divalent groups and aromatic divalent groups, and preferably chosen from alkyl, arylalkyl, alkylaryl, alkylene, methylenedicyclohexyl, isophorone and phenylene chains.

The anionic polymer is in particular chosen from acrylic acid or methacrylic acid copolymers, 2-acrylamido-2-methylpropanesulphonic acid copolymers, and mixtures thereof.

Preferably, the anionic polymer is obtained by copolymerisation of a monomer (a) chosen from α,β -ethylenically unsaturated carboxylic acids (monomer a') and 2-acrylamido-2-methylpropanesulphonic acid

(monomer a''), with a non-surfactant ethylenically unsaturated monomer (b) different from (a) and/or an ethylenically unsaturated monomer (c) derived from the reaction of an α,β -monoethylenically unsaturated acrylic monomer or of a monoethylenically unsaturated isocyanate monomer with a monohydric nonionic amphiphilic component or with a primary or secondary fatty amine.

Advantageously, the anionic polymer is an acrylic terpolymer obtained from (a) an α,β -ethylenically unsaturated carboxylic acid, (b) a non-surfactant ethylenically unsaturated monomer different from (a), and (c) a nonionic urethane monomer which is the product of reaction of a monohydric nonionic amphiphilic compound with a monoethylenically unsaturated isocyanate.

For example, the anionic polymer is chosen from acrylic acid/ethyl acrylate/alkyl acrylate terpolymer, acrylates/steareth-20 methacrylate copolymer, (meth)acrylic acid/ethyl acrylate/oxyethylenated (25 EO) behenyl methacrylate terpolymer, acrylic acid/oxyethylenated (20 EO) monocetyl itaconate copolymer, acrylic acid/oxyethylenated (20 EO) monostearyl itaconate copolymer, the copolymer of acrylates/polyoxyethylenated (25 EO) acrylate modified with C_{12} - C_{24} alcohols, methacrylic acid/methyl acrylate/ethoxylated behenyl dimethyl-meta-isopropenyl benzylisocyanate terpolymer, and mixtures thereof.

In particular, the water-soluble nonionic polymer may be chosen from ethylene oxide homopolymers and copolymers; polyvinyl alcohols; vinylpyrrolidone homopolymers and copolymers; vinylcaprolactam homopolymers and copolymers; polyvinyl methyl ether homopolymers and copolymers; neutral acrylic homopolymers and copolymers; C_1 - C_2 -alkyl-celluloses and derivatives thereof; C_1 - C_3 -alkyl-guars or C_1 - C_3 -hydroxyalkyl-guars.

The ternary surfactant system may in particular comprise:

- (a) a mixture of at least two nonionic surfactants comprising at least one ethoxylated fatty ester comprising 8 to 100 (in particular 10 to 80, and better still 40) ethylene oxide units and at least one fatty acid ester of sorbitan; and
- (b) at least one ionic surfactant chosen from alkali metal salts of cetyl phosphate and alkali metal salts of palmitoyl sarcosinate.

The ethoxylated fatty ester is preferably polyethylene glycol 40 EO stearate and the fatty acid ester of sorbitan is preferably sorbitan tristearate.

The ionic surfactant is in particular chosen from potassium cetyl phosphate and sodium palmitoyl sarcosinate, and mixtures thereof.

(f) polymers in the form of thin films

According to another embodiment of the invention, said hydroxylated diphenylmethane derivatives of formula (I) or (II) are combined with at least one water-soluble or water-dispersible polymer in the form of a thin film.

The composition is therefore in the form of a thin film.

This water-soluble or water-dispersible polymer contributes towards stabilising said depigmenting agent in the physiologically acceptable medium of the composition.

In the present application, the term "film" is intended to mean a thin, manipulable solid. The term "thin" is intended to refer to a solid having a maximum thickness of 1000 μm . This film is generally of a suitable size so that it can be readily manipulated by the user. It may be square, rectangular or disc-shaped, or may have any other shape. Each film generally has a thickness of from 10 μm to 1000 μm , preferably from 20 to 500 μm , and better still from 50 to 300 μm . It may have a surface area of from 0.25 to 25 cm^2 , and preferably from 2 to 10 cm^2 .

These thin films generally contain less than 10%

by weight of water, preferably less than 5% by weight, relative to the total weight of the film, and more preferably do not contain water.

Such films are described in patent application
5 EP 1 588 694, incorporated herein by way of reference.

The thin film comprises a water-soluble or water-dispersible polymer that may be chosen from:
(1) polymers of protein type, such as wheat or soyabean proteins; keratin, for example keratin hydrolysates and
10 sulphonic keratins; casein; albumin; collagen; glutelin; glucagon; gluten; zein; gelatins and derivatives thereof; (2) polymers derived from chitin or from chitosan, such as anionic, cationic, amphoteric or nonionic chitin or chitosan polymers;
15 (3) polysaccharide polymers such as, in particular, (i) cellulosic polymers, for instance hydroxyethyl-cellulose, hydroxypropylcellulose, hydroxypropylmethyl-cellulose, methylcellulose, ethylhydroxyethylcellulose, carboxymethylcellulose and quaternised cellulose derivatives; and (ii) starches and derivatives thereof;
20 (4) acrylic polymers or copolymers such as polyacrylates, polymethacrylates and copolymers thereof; (5) vinyl polymers such as polyvinylpyrrolidones, copolymers of methyl vinyl ether and of maleic anhydride, the copolymer of vinyl acetate
25 and of crotonic acid, copolymers of vinylpyrrolidone and of vinyl acetate, copolymers of vinylpyrrolidone and of caprolactam, polyvinyl alcohols; (6) polymers of natural origin, which are optionally modified, such as
30 gum Arabic, guar gum, xanthan derivatives, karaya gum; alginates, carraghenans, ulvanes and other algal colloids; glycoaminoglycans, hyaluronic acid and its derivatives; shellac, sandarac gum, dammar resins, elemi gums, copal resins; deoxyribonucleic acid;
35 mucopolysaccharides, such as hyaluronic acid or chondroitin sulphate; and mixtures of these polymers.

As water-soluble polymers, mention may also be made of caprolactams, pullulan, pectin, mannan and galactomannans, glucomannans and derivatives thereof.

Preferably, the water-soluble polymer may be a cellulosic polymer, in particular hydroxypropyl-cellulose or hydroxypropylmethylcellulose, or else an alginate, in particular sodium alginate.

5 As examples of particular emulsifiers, mention may in particular be made of:

- polyolefin emulsifiers with a polar portion, in a water-in-oil emulsion;
- amphiphilic polymers comprising 2-acrylamido-2-
10 methylpropanesulphonic acid (AMPS) units, in an oil-in-water emulsion.

g) polyolefin emulsifiers with a polar portion

The polyolefins with a polar portion contribute
15 towards stabilising said depigmenting agent in the physiologically acceptable medium of the composition.

The polyolefins with polar portion(s) used in the composition of the invention are generally constituted of a polyolefinic apolar portion and of at least one
20 polar portion. The polyolefinic apolar portion comprises at least 40 carbon atoms, and preferably from 60 to 700 carbon atoms. This apolar portion may be chosen from polyolefins such as oligomers, polymers and/or copolymers of ethylene, propylene, 1-butene,
25 isobutene, 1-pentene, 2-methyl-1-butene, 3-methyl-1-butene, 1-hexene, 1-heptene, 1-octene, 1-decene, 1-undecene, 1-dodecene, 1-tridecene, 1-tetradecene, 1-pentadecene, 1-hexadecene, 1-heptadecene and 1-octadecene. These polyolefins are hydrogenated or
30 non-hydrogenated.

The polar portion of the polyolefins with a polar portion may be anionic, cationic, nonionic, zwitterionic or amphoteric. It is, for example, constituted of polyalkylene (in particular
35 polyoxyethylene) glycols or polyalkyleneimines, or alternatively of carboxylic or dicarboxylic acids, or anhydrides thereof or derivatives thereof such as esters thereof, amides thereof and salts thereof, and mixtures thereof. The polyolefins with a carboxylic

acid polar portion may be derived, for example, from the reaction between a polyolefin and at least one carboxylic acid or anhydride that is optionally totally or partially salified, chosen from the group comprising succinic acid or anhydride, maleic acid, maleic anhydride, fumaric acid, itaconic acid, citraconic acid (or methylmaleic acid), mesaconic acid (or methylfumaric acid) and aconitic acid, and ester or amide derivatives thereof, and mixtures thereof.

10 Preferably, the polar portion of the polyolefin is chosen from the group comprising polyoxyethylene, succinic acid or anhydride, esters or amides of succinic acid or anhydride, alkali metal or alkaline-earth metal or organic salts of succinic acid or anhydride, or partial salts of succinic acid or anhydride monoesters or monoamides.

The polyolefins with a polar portion that are preferred in the compositions of the invention are polyolefins with an optionally modified succinic end group, as described in patent EP 1 172 089, incorporated herein by way of reference.

As polyolefins with a succinic end group, mention may in particular be made of polyisobutylenes with an optionally modified, esterified succinic end group, in particular esterified with diethanolamine, and salts thereof, in particular the diethanolamine salts, such as the products sold under the names Lubrizol® 2724, Lubrizol® 2722 and Lubrizol® 5603 by the company Lubrizol.

30 Another polyolefin with a polar portion that is particularly preferred is an ester of poly(diethanolaminoethyl isobutenyl succinate) and of triethanolamine. This product is sold, for example, under the name Chemcinnate® 2000 by the company Chemron.

35 As a polyolefin with a polar portion, use may also be made of a poly(glyceryl isobutenyl succinate) ester, in particular the product sold under the name Chemcinnate® 1000 AF by the company Chemron.

h) amphiphilic polymers comprising AMPS units

According to another embodiment of the invention, the composition according to the invention is in the form of an oil-in-water emulsion and comprises at least one hydroxylated diphenylmethane derivative of formula (I) or (II) and at least one amphiphilic polymer comprising 2-acrylamido-2-methylpropanesulphonic acid (AMPS) units.

This amphiphilic polymer comprising 2-acrylamido-2-methylpropanesulphonic acid (AMPS) units contributes towards stabilising said hydroxylated diphenylmethane derivative of formula (I) or (II) in the physiologically acceptable medium of the composition.

As an amphiphilic polymer comprising 2-acrylamido-2-methylpropanesulphonic acid (AMPS) units that can be used in the compositions of the invention, mention may be made of those described in patent application EP 1 466 587.

As preferred amphiphilic polymers, mention may be made of copolymers of AMPS and of oxyethylenated C₁₂-C₁₄ alkyl methacrylate, comprising in particular from 7 to 23 oxyethylenated groups.

The ingredients that promote the solubilisation and/or ingredients that promote the stabilisation of said depigmenting agent according to the invention will be present in the composition in a content generally ranging from 0.01% to 30% by weight, relative to the total weight of the composition, preferably from 0.05% to 15% by weight, more preferably from 0.1% to 10% by weight, and more particularly from 0.1% to 5% by weight, relative to the total weight of the composition.

GALENICAL FORMS

The compositions according to the invention as defined above may be in any of the galenical forms conventionally used for topical application, and in particular in the form of aqueous or aqueous-alcoholic solutions, of oil-in-water (O/W) or water-in-oil (W/O)

or multiple (triple: W/O/W or O/W/O) emulsions, of aqueous gels, or of dispersions of a fatty phase in an aqueous phase by means of polymeric microparticles such as microspheres and microcapsules, or of lipid vesicles of ionic and/or nonionic type (liposomes, niosomes, oleosomes), of microemulsions or of thin films.

These compositions are prepared according to the usual methods.

In addition, the compositions used according to the invention may be more or less fluid and may have the appearance of a white or coloured cream, an ointment, a milk, a lotion, a serum, a paste or a foam. They may be optionally applied to the skin in the form of an aerosol. They may also be in solid form, and for example in the form of a stick.

OILY PHASE

When the composition used according to the invention comprises an oily phase, said phase preferably contains at least one oil. It may also contain other fatty substances.

As oils that can be used in the composition of the invention, mention may, for example, be made of:

- hydrocarbon-based oils of animal origin, such as perhydosqualene;
- hydrocarbon-based oils of plant origin, such as liquid triglycerides of fatty acids comprising from 4 to 10 carbon atoms, for instance heptanoic or octanoic acid triglycerides or alternatively, for example, sunflower oil, maize oil, soyabean oil, marrow oil, grapeseed oil, sesame oil, hazelnut oil, apricot oil, macadamia oil, arara oil, castor oil, avocado oil, caprylic/capric acid triglycerides such as those sold by the company Stearineries Dubois or those sold under the names Miglyol 810, 812 and 818 by the company Dynamit Nobel, jojoba oil, shea butter oil;
- synthetic esters and ethers, in particular of fatty acids, for instance oils of formulae R_1COOR_2 and R_1OR_2 in which R_1 represents the residue of a fatty acid

comprising from 8 to 29 carbon atoms, and R₂ represents a branched or unbranched hydrocarbon-based chain containing from 3 to 30 carbon atoms, such as, for example, purcellin oil, isononyl isononanoate, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate; hydroxylated esters such as isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate, triisocetyl citrate, heptanoates, octanoates and decanoates of fatty alcohols; polyol esters, such as propylene glycol dioctanoate, neopentyl glycol diheptanoate and diethylene glycol diisononanoate; and pentaerythritol esters, such as pentaerythrityl tetraistearate;

15 - linear or branched hydrocarbons of mineral or synthetic origin, such as volatile or non-volatile liquid paraffins, and derivatives thereof, petroleum jelly, polydecenes, hydrogenated polyisobutene such as parleam oil;

20 - fatty alcohols containing from 8 to 26 carbon atoms, such as cetyl alcohol, stearyl alcohol and the mixture thereof (cetylstearyl alcohol), octyldodecanol, 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol, oleyl alcohol or linoleyl alcohol;

25 - partially hydrocarbon-based and/or silicone-based fluoro oils, such as those described in document JP-A-2-295912;

- silicone oils, for instance volatile or non-volatile polymethylsiloxanes (PDMSs) containing a linear or cyclic silicone chain, which are liquid or pasty at ambient temperature, in particular cyclopolydimethylsiloxanes (cyclomethicones) such as cyclohexasiloxane; polydimethylsiloxanes comprising alkyl, alkoxy or phenyl groups that are pendant or at the end of the silicone chain, said groups containing from 2 to 24 carbon atoms; phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenyl dimethicones, diphenylmethyldiphenyltrisiloxanes, 2-phenylethyl-

trimethylsiloxysilicates and polymethylphenylsiloxanes;
- and mixtures thereof.

The term "hydrocarbon-based oil" in the list of oils mentioned above is intended to mean any oil comprising predominantly carbon and hydrogen atoms, and optionally ester, ether, fluoro, carboxylic acid and/or alcohol groups.

The other fatty substances that may be present in the oily phase are, for example, fatty acids containing from 8 to 30 carbon atoms, for instance stearic acid, lauric acid, palmitic acid and oleic acid; waxes, for instance lanolin, beeswax, carnauba wax or candelilla wax, paraffin waxes, lignite waxes or microcrystalline waxes, ceresine or ozokerite, synthetic waxes such as polyethylene waxes, Fischer-Tropsch waxes; silicone resins such as trifluoromethyl(C₁-C₄)alkyl dimethicone and trifluoropropyl dimethicone; and silicone elastomers, such as the products sold under the name KSG by the company Shin-Etsu, under the names Trefil, BY29 or EPSX by the company Dow Corning or under the name Gransil by the company Grant Industries.

These fatty substances may be chosen in a varied manner by those skilled in the art in order to prepare a composition having the desired properties, for example of consistency and of texture.

EMULSIONS

According to one particular embodiment of the invention, the composition according to the invention is a water-in-oil (W/O) or oil-in-water (O/W) emulsion. The proportion of the oily phase of the emulsion may range from 5% to 80% by weight, and preferably from 5% to 50% by weight, relative to the total weight of the composition.

The emulsions generally contain at least one emulsifier chosen from amphoteric, anionic, cationic or nonionic emulsifiers, used alone or as a mixture, and optionally a coemulsifier. The emulsifiers are suitably chosen according to the emulsion to be obtained (W/O or

O/W). The emulsifier and the coemulsifier are generally present in the composition in a proportion ranging from 0.3% to 30% by weight, and preferably from 0.5% to 20% by weight, relative to the total weight of the composition.

For the O/W emulsions, mention may, for example, be made, as emulsifiers, of dimethicone copolyols such as the mixture of cyclomethicone and dimethicone copolyol, sold under the name DC 5225 C by the company Dow Corning, and alkyl dimethicone copolyols, such as the lauryl methicone copolyol sold under the name Dow Corning 5200 Formulation Aid by the company Dow Corning and the cetyl dimethicone copolyol sold under the name Abil EM 90R by the company Goldschmidt. As a surfactant for W/O emulsions, use may also be made of a crosslinked elastomeric solid organopolysiloxane comprising at least one oxyalkylenated group, such as those obtained according to the procedure of Examples 3, 4 and 8 of document US-A-5 412 004 and of the examples of document US-A-5 811 487, and in particular the product of Example 3 (synthesis example) of patent US-A-5 412 004, and such as the product sold under the reference KSG 21 by the company Shin Etsu.

For the O/W emulsions, mention may, for example, be made, as emulsifiers, of nonionic emulsifiers such as oxyalkylenated (more particularly polyoxyethylenated) fatty acid esters of glycerol; oxyalkylenated fatty acid esters of sorbitan; oxyalkylenated (oxyethylenated and/or oxypropylenated) fatty acid esters; oxyalkylenated (oxyethylenated and/or oxypropylenated) fatty alcohol ethers; sugar esters such as sucrose stearate; and mixtures thereof such as the mixture of glyceryl stearate and PEG-40 stearate.

35

ADDITIVES

In a known manner, the cosmetic or dermatological composition of the invention may also contain adjuvants that are customary in the cosmetics or dermatological

field, such as hydrophilic or lipophilic gelling agents, preservatives, solvents, fragrances, fillers, bactericides, odour absorbers, dyestuffs, plant extracts, salts, antioxidants, basic agents, acids or
5 nonionic, anionic or cationic surfactants.

The amounts of these various adjuvants are those conventionally used in the field under consideration, and for example from 0.01% to 20% of the total weight of the composition. Depending on their nature, these
10 adjuvants may be introduced into the fatty phase, into the aqueous phase and/or into lipid vesicles.

As hydrophilic or lipophilic gelling agents, mention may in particular be made of carbopols, luvigels, hostacerin AMPS, Simulgel products, Sepigel
15 products, xanthan gum, guar gum, cellulose gum, alginates, and mixtures thereof. Mention may also be made of hectorites.

The compositions according to the invention may be applied directly to the skin or, alternatively, to
20 cosmetic or dermatological supports of the occlusive or non-occlusive type, intended to be applied locally to the skin.

The support may be an "occlusive" support. By way of example, the support is constituted of a
25 thermoplastic material chosen from high-density and low-density polyethylenes, polypropylenes, polyvinyl chlorides, ethylene/vinyl acetate copolymers, polyesters and polyurethanes, or of a complex of such materials. These materials may also be present in
30 stratified form with at least one metal foil such as an aluminium foil.

The support layer may be of any suitable thickness that affords the desired support and protective functions. Preferably, the thickness of the support
35 layer is between approximately 20 μm and approximately 1.5 mm. Advantageously, the support layer is sufficiently flexible so as to be able to follow the profile of the skin perfectly, and so as not to cause the user any sensation of discomfort.

Preferably, however, the support is "non-occlusive". In the latter hypothesis, a support constituted of a paper, a porous or perforated thermoplastic material, a fabric, a nonwoven or a perforated nonwoven is advantageously used.

According to another embodiment of the invention, said compositions according to the invention may be combined with orally administered compositions containing additional cosmetic active agents that have a beneficial effect on the appearance of the skin, such as, for example, additional active agents intended to combat the signs of skin ageing or additional active agents intended to combat oily skin.

The additional ingredient used in the composition of the invention may also be a cosmetic or pharmaceutical ingredient and/or active agent, in particular ingredients and/or active agents that are beneficial to the appearance and/or the texture of the skin.

FILLERS

The compositions of the invention may comprise at least one filler.

The term "fillers" should be understood to mean colourless or white, mineral or synthetic particles of any form, which are insoluble in the medium of the composition irrespective of the temperature at which the composition is produced. These fillers serve in particular to modify the rheology or the texture of the composition.

The fillers may be mineral or organic and of any form, platelet-shaped, spherical or oblong, irrespective of the crystallographic form (for example lamellar, cubic, hexagonal, orthorhombic, etc.). Mention may be made of talc, mica, silica, kaolin, polyamide (Nylon[®]) powder (Orgasol[®] from Atochem), poly- β -alanine powder and polyethylene powder, tetrafluoroethylene polymer (Teflon[®]) powder, lauroyllysine, starch, boron nitride, hollow polymer

microspheres such as polyvinylidene chloride/-acrylonitrile microspheres, for instance Expancel® (Nobel Industrie), acrylic acid copolymer microspheres (Polytrap® from the company Dow Corning) and silicone resin microbeads (for example Tospearls® from Toshiba), elastomeric polyorganosiloxane particles, precipitated calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, hydroxyapatite, hollow silica microspheres (Silica Beads® from Maprecos), glass or ceramic microcapsules, and metal soaps derived from organic carboxylic acids containing from 8 to 22 carbon atoms and preferably from 12 to 18 carbon atoms, for example zinc stearate, magnesium stearate, lithium stearate, zinc laurate or magnesium myristate.

The compositions according to the invention may in particular comprise at least one matting filler, a soft-focus filler, a fluorescer, an abrasive or exfoliant filler, and mixtures thereof.

Matting fillers

For the purposes of the invention, the term "matting filler" denotes a spherical or non-spherical, porous or non-porous particle with a refractive index of less than or equal to 2.2, especially less than or equal to 2 and in particular less than or equal to 1.8, preferably ranging from 1.3 to 1.6. The "matting fillers" according to the invention have a volume size comparable to that of the pearlescent agents used. The preferred size of the fillers is thus less than 15 µm measured with a laser granulometer, for instance the Mastersizer 2000® from Malvern or the BI90+ from Brookhaven Instruments Corporation.

In one preferential embodiment of the invention, the "matting fillers" are spherical.

In another preferential embodiment of the invention, the "matting fillers" are porous. In this case, the specific surface area of the particles, which may be related to the porosity, is greater than 10 m²/g and preferably greater than 50 m²/g.

Mattness test:

The matting nature of the fillers according to the invention is defined by means of a gonireflectometer measurement. To do this, the composition containing 5% fillers is spread onto a contrast card (Prufkarte type 24/5 - 250 cm² sold by the company Erichsen) using a mechanical film spreader (wet thickness of 30 µm). The composition is then dried overnight at a temperature of 37°C, and the reflection is then measured using a gonireflectometer. The result obtained is the ratio R between the specular reflection and the diffuse reflection. The value of R is proportionately smaller the greater the matting effect. The matting fillers according to the invention are those which, at a content of 5% in a cosmetic composition, give a value of R of less than 1 and preferably less than 0.75.

The matting effect of the agent and/or composition containing it may especially be evaluated using a gonireflectometer, by measuring the ratio R between the specular reflection and the scattered reflection. A value of R of less than or equal to 2 generally reflects a matting effect.

The matting filler may especially be chosen from a rice starch or a corn starch, kaolinite, talc, a pumpkin seed extract, cellulose microbeads, plant fibres, synthetic fibres, in particular polyamide fibres, expanded acrylic copolymer microspheres, polyamide powders, silica powders, polytetrafluoroethylene powders, silicone resin powders, acrylic polymer powders, wax powders, polyethylene powders, powders of elastomeric crosslinked organopolysiloxane coated with silicone resin, talc/titanium dioxide/alumina/silica composite powders, amorphous mixed silicate powders, silicate particles and especially mixed silicate particles, and mixtures thereof.

The matting agent may especially be chosen from a rice starch or a corn starch, kaolinite, talc, a

pumpkin seed extract, cellulose microbeads, plant fibres, synthetic fibres, in particular polyamide fibres, expanded acrylic copolymer microspheres, polyamide powders, silica powders, polytetrafluoroethylene powders, silicone resin powders, acrylic polymer powders, wax powders, polyethylene powders, powders of elastomeric crosslinked organopolysiloxane coated with silicone resin, talc/titanium dioxide/-alumina/silica composite powders, amorphous mixed silicate powders, silicate particles and especially mixed silicate particles, and mixtures thereof.

Examples of matting agents that may especially be mentioned include:

- rice or corn starch, in particular an aluminium starch octenyl succinate sold under the name Dry Flo® by the company National Starch;
- kaolinite;
- silicas;
- talc;
- a pumpkin seed extract as sold under the name Curbilene® by the company Indena;
- cellulose microbeads as described in patent application EP 1 562 562;
- fibres, such as silk fibre, cotton fibre, wool fibre, flax fibre, cellulose fibre extracted especially from wood, from vegetables or from algae, polyamide fibre (Nylon®), modified cellulose fibre, poly-p-phenyleneterephthamide fibre, acrylic fibre, polyolefin fibre, glass fibre, silica fibre, aramid fibre, carbon fibre, Teflon® fibre, insoluble collagen fibre, polyester fibre, polyvinyl chloride or polyvinylidene chloride fibre, polyvinyl alcohol fibre, polyacrylonitrile fibre, chitosan fibre, polyurethane fibre, polyethylene phthalate fibre, fibres formed from a mixture of polymers, resorbable synthetic fibres, and mixtures thereof described in patent application EP 1 151 742;

- expanded acrylic copolymer microspheres such as those sold by the company EXPANCEL under the name Expancel 551®;
- fillers with an optical effect as described in patent application FR 2 869 796, in particular:
 - polyamide powders (Nylon®), for instance Nylon 12 particles of the Orgasol type from Arkema, with a mean size of 10 microns and a refractive index of 1.54,
 - silica powders, for instance Silica beads SB150 from Miyoshi with a mean size of 5 microns and a refractive index of 1.45,
 - polytetrafluoroethylene powders, for instance PTFE Ceridust 9205F from Clariant, with a mean size of 8 microns and a refractive index of 1.36,
 - silicone resin powders, for instance the silicone resin Tospearl 145A from GE Silicone with a mean size of 4.5 microns and a refractive index of 1.41,
 - acrylic copolymer powders, especially of polymethyl-(meth)acrylate, for instance the PMMA particles Jurymer MBI from Nihon Junyoki, with a mean size of 8 microns and a refractive index of 1.49, or the Micropearl M100® and F 80 ED® particles from the company Matsumoto Yushi-Seiyaku,
 - wax powders, for instance the paraffin wax particles Microease 114S from Micropowders, with a mean size of 7 microns and a refractive index of 1.54,
 - polyethylene powders, especially comprising at least one ethylene/acrylic acid copolymer, and in particular constituted of ethylene/acrylic acid copolymers, for instance the particles Flobeads EA 209 from Sumitomo (with a mean size of 10 microns and a refractive index of 1.48),
 - elastomeric crosslinked organopolysiloxane powders coated with silicone resin, especially with silsesquioxane resin, as described, for example, in patent US 5 538 793. Such elastomeric powders are sold under the names KSP-100, KSP-101, KSP-102, KSP-103, KSP-104 and KSP-105 by the company Shin-Etsu, and

- talc/titanium dioxide/alumina/silica composite powders such as those sold under the name Coverleaf[®] AR-80 by the company Catalyst & Chemicals,
- mixtures thereof,
- 5 - compounds that absorb and/or adsorb sebum as described in patent application FR 2 869 796. Mention may be made especially of:
 - silica powders, for instance the porous silica microspheres sold under the name Silica Beads SB-700
 - 10 sold by the company Myoshi, the products Sunsphere[®] H51, Sunsphere[®] H33 and Sunsphere[®] H53 sold by the company Asahi Glass; the polydimethylsiloxane-coated amorphous silica microspheres sold under the name SA Sunsphere[®] H-33 and SA Sunsphere[®] H-53 sold by the company Asahi
 - 15 Glass;
 - amorphous mixed silicate powders, especially of aluminium and magnesium, for instance the product sold under the name Neusilin UFL2 by the company Sumitomo;
 - polyamide (Nylon[®]) powders, for instance Orgasol[®] 4000
 - 20 sold by the company Arkema, and
 - acrylic polymer powders, especially of polymethyl methacrylate, for instance Covabead[®] LH85 sold by the company Wackherr; of polymethyl methacrylate/ethylene glycol dimethacrylate, for instance Dow Corning 5640
 - 25 Microsponge[®] Skin Oil Adsorber sold by the company Dow Corning, or Ganzpearl[®] GMP-0820 sold by the company Ganz Chemical; of polyallyl methacrylate/ethylene glycol dimethacrylate, for instance Poly-Pore[®] L200 or Poly-Pore[®] E200 sold by the company Amcol; of ethylene glycol
 - 30 dimethacrylate/lauryl methacrylate copolymer, for instance Polytrap[®] 6603 sold by the company Dow Corning;
 - silicate particles, such as alumina silicate;
 - mixed silicate particles, such as:
 - magnesium aluminium silicate particles, such as
 - 35 saponite or hydrated magnesium aluminium silicate with a sodium sulphate sold under the trade name Sumecton[®] by the company Kunimine;

- the magnesium silicate, hydroxyethylcellulose, black cumin oil, marrow oil and phospholipids complex or Matipure[®] from Lucas Meyer, and
- mixtures thereof.

5 Preferred matting agents that may be used according to the invention include a pumpkin seed extract, a rice or corn starch, kaolinite, silicas, talc, polyamide powders, polyethylene powders, acrylic copolymer powders, expanded acrylic copolymer
10 microspheres, silicone resin microbeads and mixed silicate particles, and mixtures thereof.

Fillers with a soft-focus effect

These fillers may be any material capable of
15 modifying wrinkles by virtue of its intrinsic physical properties and hiding them. These fillers may especially modify wrinkles via a tensioning effect, a covering effect or a soft-focus effect.

Examples of fillers that may be given include the
20 following compounds:

- porous silica microparticles, for instance the Silica Beads[®] SB150 and SB700 from Miyoshi with a mean size of 5 μm ; the series-H Sunspheres[®] from Asahi Glass, for instance Sunspheres H33, H51 with respective sizes of
25 3.5 and 5 μm ;
- hollow hemispherical silicone resin particles such as NLK 500[®], NLK 506[®] and NLK 510[®] from Takemoto Oil and Fat, especially described in EP-A-1 579 849;
- silicone resin powders, for instance the silicone resin Tospearl[®] 145A from GE Silicone, with a mean size
30 of 4.5 μm ;
- acrylic copolymer powders, especially of polymethyl (meth)acrylate, for instance the PMMA particles Jurimer MBI[®] from Nihon Junyoki, with a mean size of 8 μm , the
35 hollow PMMA spheres sold under the name Covabead[®] LH85 by the company Wackherr, and vinylidene/acrylonitrile/methylene methacrylate expanded microspheres sold under the name Expancel[®];
- wax powders, for instance the paraffin wax particles

MicroEase[®] 114S from MicroPowders, with a mean size of 7 µm;

- polyethylene powders, especially comprising at least one ethylene/acrylic acid copolymer for instance the Flobeads[®] EA 209 E from Sumitomo, with a mean size of 10 µm;

- crosslinked elastomeric organopolysiloxane powders coated with silicone resin and especially with silsesquioxane resin, under the names KSP-100[®], KSP-101[®], KSP-102[®], KSP-103[®], KSP-104[®] and KSP-105[®] by the company Shin-Etsu;

- talc/titanium dioxide/alumina/silica composite powders, for instance those sold under the name Coverleaf AR-80[®] by the company Catalyst & Chemical;

- talc, mica, kaolin, lauryl glycine, starch powders crosslinked with octenyl succinate anhydride, boron nitride, polytetrafluoroethylene powders, precipitated calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, barium sulphate, hydroxyapatite, calcium silicate, cerium dioxide and glass or ceramic microcapsules;

- hydrophilic or hydrophobic, synthetic or natural, mineral or organic fibres such as silk fibres, cotton fibres, wool fibres, flax fibres, cellulose fibres extracted especially from wood, vegetables or algae, polyamide (Nylon[®]) fibres, modified cellulose fibres, poly-p-phenyleneterephthamide fibres, acrylic fibres, polyolefin fibres, glass fibres, silica fibres, aramid fibres, carbon fibres, polytetrafluoroethylene (Teflon[®]) fibres, insoluble collagen fibres, polyester fibres, polyvinyl chloride fibres, polyvinylidene chloride fibres, polyvinyl alcohol fibres, polyacrylonitrile fibres, chitosan fibres, polyurethane fibres, polyethylene phthalate fibres, fibres formed from a mixture of polymers, resorbable synthetic fibres, and mixtures thereof described in patent application EP 1 151 742;

- spherical elastomeric crosslinked silicones, for instance Trefil E-505C[®] or E-506C[®] from Dow Corning;

- abrasive fillers, which, via a mechanical effect, smooth out the skin microrelief, such as abrasive silica, for instance Abrasif SP[®] from Semanez or nut or shell powders (for example of apricot or walnut, from
5 Cosmetochem).

The fillers with an effect on the signs of ageing are especially chosen from porous silica microparticles, hollow hemispherical silicone particles, silicone resin powders, acrylic copolymer
10 powders, polyethylene powders, crosslinked elastomeric organopolysiloxane powders coated with silicone resin, talc/titanium dioxide/alumina/silica composite powders, precipitated calcium carbonate, magnesium carbonate, magnesium hydrogen carbonate, barium sulphate,
15 hydroxyapatite, calcium silicate, cerium dioxide, glass or ceramic microcapsules, and silk fibres or cotton fibres, and mixtures thereof.

The filler may be a soft-focus filler.

The term "soft-focus" filler means a filler which
20 in addition gives the complexion transparency and a hazy effect. Preferably, the "soft-focus" fillers have a mean particle size of less than or equal to 15 microns. These particles may be in any form and in particular may be spherical or non-spherical. These
25 fillers are more preferably non-spherical.

The "soft-focus" fillers may be chosen from silica and silicate powders, especially alumina powder, powders of polymethyl methacrylate (PMMA) type, talc, silica/TiO₂ or silica/zinc oxide composites,
30 polyethylene powders, starch powders, polyamide powders, styrene/acrylic copolymer powders and silicone elastomers, and mixtures thereof.

Mention may be made in particular of talc with a number-average size of less than or equal to 3 microns,
35 for example talc with a number-average size of 1.8 microns and especially the product sold under the trade name Talc P3[®] by the company Nippon Talc, Nylon[®] 12 powder, especially the product sold under the name Orgasol 2002 Extra D Nat Cos[®] by the company

Atochem, silica particles 1% to 2% surface-treated with a mineral wax (INCI name: hydrated silica (and) paraffin) such as the products sold by the company Degussa, amorphous silica microspheres, such as the products sold under the name Sunsphere, for example of reference H-53[®] by the company Asahi Glass, and silica microbeads such as those sold under the name SB-700[®] or SB-150[®] by the company Miyoshi, this list not being limiting.

The concentration of these fillers with an effect on the signs of ageing in the compositions according to the invention may be between 0.1% and 40%, or even between 0.1% and 20% by weight, relative to the total weight of the composition.

15

Abrasive fillers or exfoliants

As exfoliants that may be used in rinse-out compositions according to the invention, examples that may be mentioned include exfoliants or scrubbing particles of mineral, plant or organic origin. Thus, polyethylene beads or powder, Nylon powder, polyvinyl chloride powder, pumice powder, ground apricot kernel or walnut husk, sawdust, glass beads and alumina, and mixtures thereof, may be used, for example.

Mention may also be made of Exfogreen[®] from Solabia (bamboo extract), extracts of strawberry akenes (Strawberry Akenes from Greentech), peach kernel powder, apricot kernel powder, and finally, in the field of plant powders with an abrasive effect, mention may be made of cranberry kernel powder.

As abrasive fillers or exfoliants that are preferred according to the invention, mention will be made of peach kernel powder, apricot kernel powder, cranberry kernel powder, strawberry akene extracts and bamboo extracts.

The additional filler(s) used in the compositions according to the invention may represent preferably from 0.01% to 20% by weight and better still from 0.1%

to 15%, and even better still, from 0.5 to 5% by weight relative to the total weight of the composition.

COSMETIC OR DERMATOLOGICAL ACTIVE AGENTS

5 The compositions according to the invention may comprise one or more additional cosmetic or dermatological active agents.

10 The additional active agents may in particular be chosen from moisturisers, agents for improving the barrier function, antioxidants, dermo-decontracting agents, anti-glycation agents, agents for stimulating the synthesis of dermal and/or epidermal macromolecules and/or for preventing their degradation, agents for stimulating fibroblast or keratinocyte proliferation and/or keratinocyte differentiation, agents for promoting the maturation of the horny envelope, NO-synthase inhibitors, peripheral benzodiazepine receptor (PBR) antagonists, agents for increasing the activity of the sebaceous glands, agents for stimulating the energy metabolism of cells, tensioning agents, fat-restructuring agents, slimming agents, agents for promoting the cutaneous capillary circulation, calmatives and/or anti-irritants, sebo-regulators or anti-seborrhoeic agents, astringents, cicatrising agents, anti-inflammatory agents and anti-acne agents.

25 Those skilled in the art will select said active agent(s) as a function of the effect desired on the skin, the lips, the nails, the eyelashes or the eyebrows.

30 Of course, those skilled in the art will take care to select this or these optional additional compound(s), and/or the amount thereof, in such a way that the advantageous properties of the corresponding composition according to the invention are not, or are not substantially, impaired by the envisaged addition.

35 For caring for and/or making up aged skin, they will preferably choose at least one active agent chosen from moisturisers, agents for improving the barrier function, antioxidants, dermo-decontracting agents,

anti-glycation agents, agents for stimulating the synthesis of dermal and/or epidermal macromolecules and/or for preventing their degradation, agents for stimulating fibroblast or keratinocyte proliferation and/or keratinocyte differentiation, agents for promoting the maturation of the horny envelope, NO-synthase inhibitors, peripheral benzodiazepine receptor (PBR) antagonists, agents for increasing the activity of the sebaceous glands, agents for stimulating the energy metabolism of cells, fat-restructuring agents and agents for promoting the cutaneous capillary circulation for the area around the eyes.

For caring for and/or making up greasy skin, those skilled in the art will preferably choose at least one active agent chosen from sebo-regulating agents or anti-seborrhoeic agents, and astringents.

For caring for and/or making up acne-prone skin, they will preferably choose at least one active agent chosen from anti-acne agents, cicatrising agents and anti-inflammatory agents.

For slimming care of the body, they will preferably choose an active agent chosen from slimming active agents and active agents for promoting the cutaneous capillary circulation.

Examples of such compounds are described hereinafter.

1. Moisturisers or humectants

Moisturisers or humectants that may especially be mentioned include glycerol and derivatives thereof, urea and derivatives thereof, especially Hydrovance[®] sold by National Starch, lactic acids, hyaluronic acid, AHAs, BHAs, sodium pidolate, xylitol, serine, sodium lactate, ectoin and derivatives thereof, chitosan and derivatives thereof, collagen, plankton, an extract of *Imperata cylindrica* sold under the name Moist 24[®] by the company Sederma, acrylic acid homopolymers, for instance Lipidure-HM[®] from NOF Corporation, beta-glucan and in particular sodium carboxymethyl beta-glucan from

Mibelle-AG-Biochemistry; a mixture of passionflower oil, apricot oil, corn oil and rice bran oil sold by Nestlé under the name NutraLipids®; a C-glycoside derivative such as those described in patent application WO 02/051828 and in particular C-β-D-xylopyranoside-2-hydroxypropane in the form of a solution containing 30% by weight of active material in a water/propylene glycol mixture (60/40% by weight) such as the product sold by Chimex under the trade name Mexoryl SBB®; an oil of musk rose sold by Nestlé; an extract of the microalga *Prophyridium cruentum* enriched with zinc, sold by Vincience under the name Algualane Zinc®; spheres of collagen and of chondroitin sulphate of marine origin (Atelocollagen) sold by the company Engelhard Lyon under the name Marine Filling Spheres; hyaluronic acid spheres such as those sold by the company Engelhard Lyon.

The moisturiser that will preferably be used is chosen from urea and derivatives thereof, especially Hydrovance® sold by National Starch, hyaluronic acid, AHAs, BHAs, acrylic acid homopolymers, for instance Lipidure-HM® from NOF Corporation, beta-glucan and in particular sodium carboxymethyl beta-glucan from Mibelle-AG-Biochemistry; a mixture of passionflower oil, apricot oil, corn oil and rice bran oil sold by Nestlé under the name NutraLipids®; a C-glycoside derivative such as those described in patent application WO 02/051828 and in particular C-β-D-xylopyranoside-2-hydroxypropane in the form of a solution containing 30% by weight of active material in a water/propylene glycol mixture (60/40% by weight) such as the product sold by Chimex under the trade name Mexoryl SBB®; an oil of musk rose sold by Nestlé; an extract of the microalga *Prophyridium cruentum* enriched with zinc, sold by Vincience under the name Algualane Zinc®; spheres of collagen and of chondroitin sulphate of marine origin (Atelocollagen) sold by the company Engelhard Lyon under the name Marine Filling Spheres; hyaluronic acid spheres such as those sold by the

company Engelhard Lyon. Another moisturiser may be a glycol polymer of structure polyoxybutylene polyoxyethylene polyoxypropylene, for instance Wildbride S 753 L from NOF Corporation, I.

5

2. Agents for improving the barrier function

As agents for improving the barrier function, mention may be made especially of arginine, serine, an extract of *Thermus thermophilus* such as Venuceane[®] from
10 Sederma, an extract of the rhizome of wild yam (*Dioscorea villosa*) such as Actigen Y[®] from Active Organics, plankton extracts, for instance Omega Plankton[®] from Secma, yeast extracts, for instance Relipidium[®] from Coletica, a chestnut extract such as
15 Recoverine[®] from Silab, a cedar bud extract such as Gatuline Zen[®] from Gattefossé, sphingosines, for instance salicyloyl sphingosine sold under the name Phytosphingosine[®] SLC by the company Degussa, a mixture of xylitol, polyxylityl glycoside and xylitan, for
20 instance Aquaxyl[®] from SEPPIC, extracts of Solanacea plants, for instance Lipidessence[®] from Coletica, omega-3 unsaturated oils such as musk rose oils, and mixtures thereof.

Mention may also be made especially of ceramides
25 or derivatives thereof, in particular ceramides of type 2 (for instance N-oleoyldihydrosphingosine), of type 3 (for instance stearoyl-4-hydroxysphinganine, as the INCI name) and of type 5 (for instance N-2-hydroxypalmitoyldihydrosphingosine, having the INCI
30 name: hydroxypalmitoyl sphinganine), sphingoid-based compounds, glycosphingolipids, phospholipids, cholesterol and derivatives thereof, phytosterols, essential fatty acids, diacylglycerol, 4-chromanone and chromone derivatives, petroleum jelly, lanolin, shea
35 butter, cocoa butter and PCA salts.

As preferred agents having a restructuring effect on the barrier function, mention will be made of an extract of *Thermus thermophilus*, an extract of wild yam rhizome (*Dioscorea villosa*), a yeast extract, a

chestnut extract, a cedar bud extract, arginine, serine, ceramides especially of type 3 and 5; and mixtures thereof.

Serine, arginine or a mixture thereof will preferably be used.

3. Antioxidants

Mention may be made especially of tocopherol and esters thereof, in particular tocopheryl acetate; 10 ferulic acid; serine; ellagic acid, phloretin, polyphenols, tannins, tannic acid, epigallocatechins and natural extracts containing them, anthocyanins, rosemary extracts, olive leaf extracts, for instance those from the company Silab, green tea extracts, 15 resveratrol and derivatives thereof, ergothioneine, N-acetylcysteine, an extract of the brown alga *Pelvetia canaliculata*, for instance Pelvetiane[®] from Secma, chlorogenic acid, biotin, chelating agents, such as BHT and BHA, N,N'-bis(3,4,5-trimethoxybenzyl)ethylene- 20 diamine and salts thereof; idebenone, plant extracts, for instance Pronalen Bioprotect[™] from the company Provital; coenzyme Q10, bioflavonoids, SODs, phytanetriol, lignans, melatonin, pidolates, glutathione, caprylyl glycol, Totarol[™] or extract of 25 *Podocarpus totara* containing Totarol (totara-8,11,13-trienol or 2-phenanthrenol, 4b,5,6,7,8,8a,9,10-octahydro-4b,8,8-trimethyl-1-(1-methylethyl)-; a jasmine extract such as the product sold by Silab under the name Helisun[®]; hesperitin laurate such as Flavagrum 30 PEG[®] from the company Engelhard Lyon; an extract of *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B[®]; an extract of lychee such as the extract of lychee pericarp sold by the company Cognis under the 35 name Litchiderm LS 9704[®], an extract of pomegranate fruit (*Punica granatum*), such as the product sold by the company Draco Natural Products.

Other anti-ageing agents that may be mentioned include DHEA and derivatives thereof, boswellic acid,

rosemary extracts, carotenoids (β -carotene, zeaxanthin and lutein), cysteic acid, copper derivatives and jasmonic acid.

Preferred antioxidants that will especially be used include ferulic acid; serine; phloretin, an extract of pomegranate, biotin, chelating agents such as BHT, BHA, N,N'-bis(3,4,5-trimethoxybenzyl)-ethylenediamine and salts thereof, caprylyl glycol, Totarol™, a jasmine extract such as the product sold by Silab under the name Helisun®; hesperitin laurate such as Flavagrum PEG® from the company Engelhard Lyon; an extract of *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B®.

15

4. Dermo-relaxing or dermo-decontracting agents

Examples that may be mentioned include manganese gluconate and other salts, adenosine, alverine citrate and salts thereof, glycine, an extract of *Iris pallida*, a hexapeptide (Argeriline R from Lipotec) or sapogenins, for instance wild yam and the carbonyl amines described in patent application EP 1 484 052. Examples of sapogenins that may be mentioned include those described in patent application WO 02/47650, in particular wild yam, the diosgenin extracted especially from *Dioscorea opposita* or any extract naturally containing or containing after treatment one or more sapogenins (wild yam rhizome, agave leaf, which contains hecogenin and tigogenin, extract of Liliacea plants and more particularly yucca or smilax containing smilagenin and sarsapogenin, or sarsaparilla) or Actigen Y from the company Active Organics, or ginger.

Mention may also be made of DMAE (dimethyl MEA), extracts of sea fennel, of rockrose, of helichrysum, of aniseed, of paracress, and an extract of *Acmella oleracea*, for instance Gatuline® from Gattefossé.

Preferred dermo-relaxing agents that will be mentioned include adenosine, manganese gluconate, wild yam, sea fennel, glycine and alverine.

5. Anti-glycation agents

The term "anti-glycation agent" means a compound that prevents and/or reduces the glycation of skin proteins, in particular dermal proteins such as collagen.

Anti-glycation agents that may especially be mentioned include extracts of plants of the Ericacea family, such as an extract of blueberry (*Vaccinium angustifolium* or *Vaccinium myrtillus*), for example the product sold under the name Blueberry Herbasol Extract PG by the company Cosmetochem, ergothioneine and derivatives thereof, hydroxystilbenes and derivatives thereof, such as resveratrol and 3,3',5,5'-tetrahydroxystilbene (these anti-glycation agents are described in patent applications FR 2 802 425, FR 2 810 548, FR 2 796 278 and FR 2 802 420, respectively), dihydroxystilbenes and derivatives thereof, polypeptides of arginine and of lysine such as the product sold under the name Amadorine[®] by the company Solabia, carbinine hydrochloride (sold by Exsymol under the name Alistin[®]), an extract of *Helianthus annuus*, for instance Antiglyskin[®] from Silab, wine extracts such as the extract of powdered white wine on a maltodextrin support sold under the name Vin blanc déshydraté 2F by the company Givaudan, thioctic acid (or alpha-lipoic acid), a mixture of extract of bearberry and of marine glycogen, for instance Aglycal LS 8777[®] from Laboratoires Sérobiologiques, and an extract of black tea, for instance Kombuchka[®] from Sederma, and mixtures thereof.

Preferred anti-glycation agents that will be mentioned include extracts of blueberry (*Vaccinium myrtillus*) and extracts of black tea.

6. Agents for stimulating the synthesis of dermal and/or epidermal macromolecules and/or for preventing their degradation

Among the active agents for stimulating the dermal macromolecules or for preventing their degradation, mention may be made of those acting:

- either on collagen synthesis, such as extracts of
5 *Centella asiatica*, asiaticosides and derivatives thereof; ascorbic acid or vitamin C and derivatives thereof; synthetic peptides such as iamin, biopeptide CL or palmitoyl oligopeptide sold by the company Sederma; peptides extracted from plants, such as the
10 soybean hydrolysate sold by the company Coletica under the trade name Phytokine®; rice peptides such as Nutriptide® from Silab, methylsilanol mannuronate such as Algisium C® sold by Exsymol; plant hormones such as auxins and lignans; folic acid; and an extract of
15 *Medicago sativa* (alfalfa) such as the product sold by Silab under the name Vitanol®; a peptide extract of hazelnut such as the product sold by the company Solabia under the name Nuteline C®; and arginine;
- or on the inhibition of collagen degradation, in
20 particular agents acting on the inhibition of metalloproteases (MMP) more particularly such as MMP 1, 2, 3 and 9. Mention may be made of: retinoids and derivatives, extracts of *Medicago sativa* such as Vitanol® from Silab, an extract of *Aphanizomenon flos-*
25 *aquae* (Cyanophyceae) sold under the name Lanablue® by Atrium Biotechnologies, oligopeptides and lipopeptides, lipoamino acids, the malt extract sold by the company Coletica under the trade name Collalift®; blueberry or rosemary extracts; lycopene; isoflavones, derivatives
30 thereof or plant extracts containing them, in particular extracts of soybean (sold, for example, by the company Ichimaru Pharcos under the trade name Flavosterone SB®), of red clover, of flax or of kakkon; an extract of lychee such as the extract of lychee
35 pericarp sold by the company Cognis under the name Litchiderm LS 9704®; Dipalmitoyl Hydroxyproline sold by SEPPIC under the name Sepilift DPHP®; *Baccharis genistelloides* or Baccharine sold by Silab, an extract of moringa such as Arganyl LS 9781® from Cognis; the

sage extract described in patent application FR-A-2 812 544 from the Labiatae family (*Salvia officinalis* from the company Flacksmann), an extract of rhododendron, a blueberry extract, and an extract of

5 *Vaccinium myrtillus* such as those described in patent application FR-A-2 814 950;

- or on the synthesis of molecules belonging to the elastin family (elastin and fibrillin), such as: retinol and derivatives, in particular retinyl

10 palmitate; the extract of *Saccharomyces cerevisiae* sold by the company LSN under the trade name Cytovitin®; and the extract of the alga *Macrocystis pyrifera* sold by the company Secma under the trade name Kelpadelie®; a peptide extract of hazelnut such as the product sold by

15 the company Solabia under the trade name Nuteline C®;

- or on inhibition of elastin degradation, such as the peptide extract of seeds of *Pisum sativum* sold by the company LSN under the trade name Parelstyl®; heparinoids; and the N-acylaminoamides described in

20 patent application WO 01/94381, such as {2-[acetyl(3-trifluoromethylphenyl)amino]-3-methyl-butrylamino}acetic acid, also known as N-[N-acetyl, N'-(3-trifluoromethyl)phenylvalyl]glycine, or N-acetyl-N-[3-(trifluoromethyl)phenyl]valylglycine or acetyl

25 trifluoromethylphenylvalylglycine, or an ester thereof with a C₁-C₆ alcohol; an extract of rice peptides such as Colhibin® from Pentapharm, or an extract of *Phyllanthus emblica* such as Emblica® from Rona;

- or on the synthesis of glycosaminoglycans, such as

30 the product of fermentation of milk with *Lactobacillus vulgaris*, sold by the company Brooks under the trade name Biomin Yoghurt®; the extract of the brown alga *Padina pavonica* sold by the company Alban Müller under the trade name HSP3®; the *Saccharomyces cerevisiae*

35 extract available especially from the company Silab under the trade name Firmalift® or from the company LSN under the trade name Cytovitin®; an extract of *Laminaria ochroleuca* such as Laminaine® from Secma; essence of Mamaku from Lucas Meyer, and an extract of Cress

(Odraline[®] from Silab);

- or on the synthesis of fibronectin, such as the extract of the zooplankton Salina sold by the company Seporga under the trade name GP4G[®]; the yeast extract
5 available especially from the company Alban Müller under the trade name Drieline[®]; and the palmitoyl pentapeptide sold by the company Sederma under the trade name Matrixyl[®].

Among the active agents for stimulating epidermal
10 macromolecules, such as fillagrin and keratins, mention may be made especially of the extract of lupin sold by the company Silab under the trade name Structurine[®]; the extract of *Fagus sylvatica* beech buds sold by the company Gattefosse under the trade name Gatuline[®] RC;
15 and the extract of the zooplankton Salina sold by the company Seporga under the trade name GP4G[®]; the copper tripeptide from Procyte; a peptide extract of *Voandzeia subterranea* such as the product sold by the company Laboratoires Sérobiologiques under the trade name
20 Filladyn LS 9397[®]. Mention may be made of sugar derivatives such as xylose, or hydroxypropyltetrahydro-pyrantriol, for instance the product sold under the trade name Mexoryl SBB.

Preferably, an active agent that stimulates the
25 synthesis of dermal and/or epidermal macromolecules and/or that prevents their degradation, chosen from agents for stimulating the synthesis of glycosaminoglycans, agents for inhibiting elastin degradation, agents for stimulating fibronectin
30 synthesis, agents for stimulating the synthesis of epidermal macromolecules, and mixtures thereof, will be used.

Even more preferentially, an active agent that stimulates the synthesis of the glycosaminoglycans,
35 chosen from an extract of the brown alga *Padina pavonica*, an extract of *Saccharomyces cerevisiae*, an extract of *Laminaria ochroleuca*, essence of Mamaku, and an extract of cress, and mixtures thereof, will be used.

As preferred active agents for stimulating the synthesis of dermal and/or epidermal macromolecules and/or for preventing their degradation, mention may be made of:

- 5 synthetic peptides such as iamin, the biopeptide CL or palmitoyl oligopeptide sold by the company Sederma; peptides extracted from plants, such as the soybean hydrolysate sold by the company Coletica under the trade name Phytokine[®]; rice peptides such as
- 10 Nutripeptide[®] from Silab, methylsilanol mannuronate such as Algisium C[®] sold by Exsymol; folic acid; an extract of *Medicago sativa* (alfalfa), such as the product sold by Silab under the name Vitanol[®]; a peptide extract of hazelnut, such as the product sold by the company
- 15 Solabia under the name Nuteline C[®]; arginine; an extract of *Aphanizomenon flos-aquae* (Cyanophyceae) sold under the name Lanablue[®] by Atrium Biotechnologies, the malt extract sold by the company Coletica under the trade name Collalift[®], lycopene; an extract of lychee; an
- 20 extract of moringa such as Arganyl LS 9781[®] from Cognis; an extract of *Vaccinium myrtillus* such as those described in patent application FR-A-2 814 950; retinol and derivatives thereof, in particular retinyl palmitate; the extract of *Saccharomyces cerevisiae* sold
- 25 by the company LSN under the trade name Cytovitin[®]; a peptide extract of hazelnut such as the product sold by the company Solabia under the name Nuteline C[®]; {2-[acetyl(3-trifluoromethylphenyl)amino]-3-methylbutyryl-amino}acetic acid, also known as N-[N-acetyl, N'-(3-
- 30 trifluoromethyl)phenylvalyl]glycine, or N-acetyl-N-[3-(trifluoromethyl)phenyl]valylglycine or acetyl trifluoromethylphenylvalylglycine, or an ester thereof with a C₁-C₆ alcohol; an extract of rice peptides such as Colhibin[®] from Pentapharm, or an extract of
- 35 *Phyllanthus emblica* such as Emblica[®] from Rona; the extract of the brown alga *Padina pavonica* sold by the company Alban Müller under the trade name HSP3[®]; the extract of *Saccharomyces cerevisiae* available especially from the company Silab under the trade name

Firmalift® or from the company LSN under the trade name Cytovitin®; an extract of *Laminaria ochroleuca* such as Laminaine® from Secma; the essence of Mamaku from Lucas Meyer, the extract of lupin sold by the company Silab
5 under the trade name Structurine®; the extract of *Fagus sylvatica* beech buds sold by the company Gattefosse under the trade name Gatuline® RC.

10 **7. Agents for stimulating fibroblast or keratinocyte proliferation and/or keratinocyte differentiation**

The agents for stimulating fibroblast proliferation that may be used in the composition according to the invention may be chosen, for example, from plant proteins or polypeptides, extracted
15 especially from soybean (for example a soybean extract sold by the company LSN under the name Eleseryl SH-VEG 8® or sold by the company Silab under the trade name Raffermine®); an extract of hydrolysed soybean proteins such as Ridulisse® from Silab; and plant hormones such
20 as gibberellins and cytokinins; a peptide extract of hazelnut such as the product sold by the company Solabia under the name Nuteline C®.

Preferably, an agent that promotes keratinocyte proliferation and/or differentiation will be used.

25 The agents for stimulating keratinocyte proliferation that may be used in the composition according to the invention especially comprise adenosine; phloroglucinol, extract of *Hydrangea macrophylla* leaves, for instance Amacha Liquid E® from
30 Ichimaru Pharcos, a yeast extract such as Stimoderm® from CLR; the extract of *Larrea divaricata* such as Capislow® from Sederma, mixtures of extracts of papaya, of olive leaves and of lemon, such as Xyleine® from Vincience, retinol and esters thereof, including
35 retinyl palmitate, phloroglucinol, the nut cake extracts sold by Gattefosse and the extracts of *Solanum tuberosum* such as Dermolectine® sold by Sederma.

Among the agents for stimulating keratinocyte differentiation are, for example, minerals such as

calcium; sea fennel, a peptide extract of lupin, such as the product sold by the company Silab under the trade name Structurine®; sodium beta-sitosteryl sulphate, such as the product sold by the company
5 Seporga under the trade name Phytocohesine®; and a water-soluble extract of corn, such as the product sold by the company Solabia under the trade name Phytovityl®; a peptide extract of *Voandzeia subterranea* such as the product sold by the company Laboratoires
10 Sérobiologiques under the trade name Filladyn LS 9397®; and lignans such as secoisolariciresinol, and retinol and esters thereof, including retinyl palmitate.

As agents for stimulating keratinocyte proliferation and/or differentiation, mention may also
15 be made of oestrogens such as oestradiol and homologues; cytokines.

As preferred active agents for stimulating fibroblast or keratinocyte proliferation and/or keratinocyte differentiation, mention will be made of
20 plant proteins or polypeptides, extracted especially from soybean (for example a soybean extract sold by the company LSN under the name Eleseryl SH-VEG 8® or sold by the company Silab under the trade name Raffermine®); an extract of hydrolysed soybean proteins such as
25 Ridulisse® from Silab; a peptide extract of hazelnut such as the product sold by the company Solabia under the name Nuteline C®; adenosine; phloroglucinol, a yeast extract such as Stimoderm® from CLR; a peptide extract of lupin such as the product sold by the company Silab
30 under the trade name Structurine®; a water-soluble corn extract, such as the product sold by the company Solabia under the trade name Phytovityl®; a peptide extract of *Voandzeia subterranea*, such as the product sold by the company Laboratoires Sérobiologiques under
35 the trade name Filladyn LS 9397®; retinol and esters thereof, including retinyl palmitate.

8. Agents for promoting the maturation of the horny envelope

Agents that participate in the maturation of the horny envelope, which becomes impaired with age and induces a decrease in transglutaminase activity, may be used in the compositions of the invention. Examples that may be mentioned include urea and derivatives thereof and in particular Hydrovance® from National Starch and the other active agents mentioned in L'Oréal patent application FR 2 877 220 (unpublished).

10 9. NO-synthase inhibitors

The agent with an inhibitory action on NO synthase may be chosen from OPCs (procyanidol oligomers); plant extracts of the species *Vitis vinifera* sold especially by the company Euromed under the name "Leucocyanidines de raisins extra", or by the company Indena under the name Leucoselect®, or finally by the company Hansen under the name "Extrait de marc de raisin"; plant extracts of the species *Olea europaea* preferably obtained from olive leaves and sold especially by the company Vinyals in the form of a dry extract, or by the company Biologia & Technologia under the trade name Eurol® BT; and plant extracts of the species *Ginkgo biloba*, preferably a dry aqueous extract of this plant sold by the company Beaufour under the trade name "Ginkgo biloba extrait standard", and mixtures thereof.

10. Peripheral benzodiazepine receptor (PBR) antagonists

Mention may be made, for example, of 1-(2-chlorophenyl)-N-(1-methylpropyl)-3-isoquinoline carboxamide; the compounds described in patent applications WO 03/030 937 and WO 03/068 753, pyridazino[4,5-b]indole-1-acetamide derivatives of general formula (VII) as described in document WO 00/44384.

35

11. Agents for increasing the activity of the sebaceous glands

Mention may be made, for example, of methyl dehydrojasmonate, hecogenin, hedione and O-linoleyl-6D-

glucose, and mixtures thereof.

12. Agents for stimulating the energy metabolism of cells

5 The active agent for stimulating the energy metabolism of cells may be chosen, for example, from biotin, an extract of *Saccharomyces cerevisiae* such as Phosphovital® from Sederma, the mixture of sodium, manganese, zinc and magnesium salts of
10 pyrrolidonecarboxylic acid, for instance Physiogenyl® from Solabia, a mixture of zinc, copper and magnesium gluconate, such as Sepitonic M3® from SEPPIC, and mixtures thereof; a beta-glucan derived from *Saccharomyces cerevisiae*, such as the product sold by
15 the company Mibelle AG Biochemistry.

13. Tensioning agents

 The term "tensioning agent" that may be used according to the invention means compounds liable to
20 have a tensioning effect, i.e. being able to make the skin taut.

 According to the invention, the term "tensioning agent" generally means any compound that is soluble or dispersible in water at a temperature ranging from 25°C
25 to 50°C at a concentration of 7% by weight in water or at the maximum concentration at which a medium of uniform appearance is formed and producing at this concentration of 7% or at this maximum concentration in water a shrinkage of more than 15% in the test
30 described below.

 The maximum concentration at which a medium of uniform appearance forms is determined to within $\pm 10\%$ and preferably to within $\pm 5\%$.

 The expression "medium of uniform appearance"
35 means a medium that does not contain any aggregates that are visible to the naked eye.

 For the determination of said maximum concentration, the tensioning agent is gradually added to the water with deflocculating stirring at a

temperature ranging from 25°C to 50°C, and the mixture is then stirred for one hour. The mixture thus prepared is then examined after 24 hours to see if it is of uniform appearance (absence of aggregates visible to the naked eye).

The tensioning effect may be characterized by an *in vitro* shrinkage test.

A homogeneous mixture of the tensioning agent in water, at a concentration of 7% by weight or at the maximum concentration defined above, is prepared beforehand and as described previously.

30 µl of the homogeneous mixture are placed on a rectangular sample (10 × 40 mm, thus having an initial width L_0 of 10 mm) of elastomer with a modulus of elasticity of 20 MPa and a thickness of 100 µm.

After drying for 3 hours at $22 \pm 3^\circ\text{C}$ and $40 \pm 10\%$ relative humidity RH, the elastomer sample has a shrunken width, noted L_{3h} , due to the tension exerted by the applied tensioning agent.

The tensioning effect (TE) of said agent is then quantified in the following manner:

'TE' = $(L_0 - L_{3h}/L_0) \times 100$ as % with

L_0 = initial width 10 mm and

L_{3h} = width after 3 hours of drying

The tensioning agent may be chosen from:

plant or animal proteins and hydrolysates thereof;

polysaccharides of natural origin;

mixed silicates;

colloidal particles of mineral fillers;

synthetic polymers;

and mixtures thereof.

A person skilled in the art will know how to choose, from the chemical categories listed above, the materials corresponding to the tensioning test as described previously.

Mention may be made especially of:

(a) plant proteins and protein hydrolysates, in particular of corn, rye, wheat, buckwheat, sesame, spelt, pea, bean, lentil, soybean and lupin,

- (b) polysaccharides of natural origin, especially (a) polyholosides, for example (i) in the form of starch derived especially from rice, corn, potato, cassava, pea, wheat, oat, etc. or (ii) in the form of carrageenans, alginates, agars, gellans, cellulose polymers and pectins, advantageously as an aqueous dispersion of gel microparticles, and (b) latices constituted of shellac resin, sandarac gum, dammar resins, elemi gums, copal resins, cellulose derivatives, and mixtures thereof,
- (c) mixed silicates, especially phyllosilicates and in particular Laponites,
- (d) colloidal particles of mineral fillers with a number-average diameter of between 0.1 and 100 nm and preferably between 3 and 30 nm, and chosen, for example, from: silica, silica-alumina composites, cerium oxide, zirconium oxide, alumina, calcium carbonate, barium sulphate, calcium sulphate, zinc oxide and titanium dioxide. As silica-alumina composite colloidal particles that may be used in the compositions according to the invention, examples that may be mentioned include those sold by the company Grace under the names Ludox AM, Ludox AM-X 6021, Ludox HSA and Ludox TMA,
- (e) synthetic polymers, such as polyurethane latices or acrylic-silicone latices, in particular those described in patent application EP-1 038 519, such as a polydimethylsiloxane grafted with propylthio(polymethyl acrylate), propylthio(polymethyl methacrylate) and propylthio(polymethacrylic acid), or alternatively a polydimethylsiloxane grafted with propylthio(polyisobutyl methacrylate) and propylthio(polymethacrylic acid).

Such grafted silicone polymers are especially sold by the company 3M under the trade names VS 80, VS 70 and L021.

The tensioning agent will be present in the composition in an amount that is effective for obtaining the desired biological effect according to

the invention.

By way of example, the tensioning agent may be included in the composition according to the invention in a content ranging from 0.01% to 30% by weight of active material and preferably from 1% to 30% by weight of active material relative to the total weight of the composition.

The term "active material" is intended to exclude the medium in which the tensioning agent may be dissolved or dispersed in its commercial form, for example in the case of dispersions of colloidal particles.

It is also possible, especially in order to complement and/or potentiate the effect of tensioning agents, to use agents that increase the expression of mechanoreceptors, such as agents that increase the expression of integrins.

An example that may be mentioned is an extract of rye seed, such as the product sold by Silab under the name Coheliss®.

14. Fat-restructuring agents

According to the invention, the term "fat-restructuring agents" means agents capable of stimulating lipogenesis and of promoting adipocyte differentiation, thus making it possible to prevent or slow down the wasting of fat contained in the skin-supporting tissues, also known as "wasting of skin fat".

The term "skin fat" means the network of fat cells that forms the volumes on which the facial skin rests and is moulded.

These agents are intended:

- to reduce the loss of skin density and/or the wasting of skin fat, in particular on the cheeks and around the eyes, and/or
- to prevent the collapse and/or hollowing of the facial volumes, the loss of consistency of the skin

and/or its maintenance, in particular on the cheeks and around the eyes, and/or

- to improve the underlying volumes of the skin of the face and/or the neck, in particular on the cheeks, the

5 oval of the face and around the eyes, and/or

- to improve the density, springiness and maintenance of the skin, in particular on the cheeks, the oval of the face and around the eyes, and/or

- to remodel the facial features, in particular the
10 oval of the face.

Examples of fat-restructuring agents that may especially be mentioned include an extract of black tea, such as the extract of fermented black tea sold by Sederma under the name Kombuchka[®], and an extract of
15 *Artemisia abrotanum*, such as the product sold by Silab under the name Pulpactyl[®].

15. Slimming agents

Slimming (lipolytic) agents that may especially be
20 mentioned include caffeine, theophylline and its derivatives, theobromine, sericosine, asiatic acid, acefylline, aminophylline, chloroethyltheophylline, diprofylline, diniprophylline, etamiphylline and its derivatives, etofylline and proxyphylline; extracts of
25 tea, of coffee, of guarana, of maté, of cola (*Cola nitida*) and especially the dry extract of guarana fruit (*Paulina sorbilis*) containing 8% to 10% caffeine; extracts of climbing ivy (*Hedera helix*), of arnica (*Arnica montana* L), of rosemary (*Rosmarinus officinalis* N), of marigold (*Calendula officinalis*), of
30 sage (*Salvia officinalis* L), of ginseng (*Panax ginseng*), of St. John's Wort (*Hypericum perforatum*), of butcher's broom (*Ruscus aculeatus* L), of meadowsweet (*Filipendula ulmaria* L), of orthosiphon (*Orthosiphon stamincus* Benth), of birch (*Betula alba*), of pumpwood
35 and of argan tree, extracts of ginkgo biloba, extracts of horsetail, extracts of escin, extracts of cangzhu, extracts of *Chrysanthellum indicum*, extracts of diosgenin-rich Dioscorea plants or pure diosgenin or

hecogenin and derivatives thereof, extracts of *Ballota*,
extracts of *Guioa*, of *Davallia*, of *Terminalia*, of
Barringtonia, of *Trema* or of *Antirobia*, the extract of
bitter orange pips; an extract of husks of cocoa beans
5 (*Theobroma cacao*) such as the product sold by Solabia
under the name Caobromine®.

16. Agents for promoting the cutaneous capillary circulation

10 The active agent acting on the cutaneous capillary
circulation may be used for preventing dulling of the
complexion and/or to improve the appearance of the area
around the eyes, in particular to reduce the shadows
around the eyes. It may be chosen, for example, from an
15 extract of maritime pine bark, for instance Pycnogenol®
from Biolandes, manganese gluconate (Givobio GMn® from
SEPPIC), an extract of *Ammi visnaga* such as Visnadine
from Indena, extract of lupin (Eclaline® from Silab),
the protein coupling of hydrolysed wheat/palmitic acid
20 with palmitic acid, such as Epaline 100 from
Laboratoires Carilène, the extract of bitter orange
blossom (Remoduline® from Silab), vitamin P and
derivatives thereof, for instance methyl-4 esculetol
sodium monoethanoate sold under the name Permethol® by
25 the company Sephytal, extracts of *Ruscus*, of common
horse chestnut, of ivy, of ginseng and of melilot,
caffeine, nicotinate and derivatives thereof, lysine
and derivatives thereof, for instance Asparlyne® from
Solabia, an extract of black tea such as Kombuchka from
30 Sederma; rutin salts; an extract of the alga *Corallina*
officinalis, such as the product sold by Codif; and
mixtures thereof.

As preferred agents for promoting the cutaneous
capillary circulation, mention will be made of
35 caffeine, an extract of bitter orange blossom, an
extract of black tea, rutin salts and an extract of the
alga *Corallina officinalis*.

17. Calmatives or anti-irritants

The term "calmative" means a compound that can reduce the sensation of stinging, itching or tautness of the skin.

As calmatives that may be used in the composition according to the invention, mention may be made of: procyanidol oligomers, vitamins E, B5 and B3, caffeine and derivatives thereof, pentacyclic triterpenes and plant extracts containing them, β -glycyrrhetic acid and salts or derivatives thereof (stearyl glycyrrhetate, 3-stearoyloxyglycyrrhetic acid or glycyrrhetic acid monoglucuronide) and also plants containing them (e.g.: *Glycyrrhiza glabra*), oleanolic acid and salts thereof, ursolic acid and salts thereof, boswellic acid and salts thereof, betulinic acid and salts thereof, an extract of *Paeonia suffruticosa* and/or *lactiflora*, an extract of *Laminaria saccharina*, extracts of *Centella asiatica*, Canola oil, bisabolol, the phosphoric diester of vitamin E and C, for instance Sepivital EPC[®] from SEPPIC, camomile extracts, allantoin, omega-3 unsaturated oils such as musk rose oil, blackcurrant oil, Ecchium oil, fish oil or beauty-leaf oil, plankton extracts, capryloyl glycine, a mixture of water lily blossom extract and of palmitoylproline, such as the product sold under the name Seppicalm VG[®] by the company SEPPIC, an extract of *Boswellia serrata*, an extract of *Centipeda cunninghami*, such as the product sold under the name Cehami PF[®] by the company TRI-K Industries, an extract of sunflower seeds, in particular Hélioxine[®] from Silab, an extract of *Linum usitatissimum* seeds, for instance Sensiline[®] from Silab, tocotrienols, piperonal, an extract of *Epilobium angustifolium*, such as the product sold under the name Canadian Willowherb Extract by the company Fytokem Products, Aloe vera, phytosterols, cornflower water, rose water, an extract of mint, in particular of mint leaves, for instance Calmiskin[®] from Silab, aniseed derivatives, filamentous bacteria, for instance *Vitreoscilla filiformis* as described in patent EP 761 204 and sold by Chimex under the name Mexoryl

SBG[®], an extract of rose petals, for instance Rose Flower Herbasol[®] extract from the company Cosmetochem, shea butter, a mixture of the waxy fraction of barley seeds obtained by supercritical CO₂, of shea butter and
5 of argan oil, for instance Stimu-tex AS[®] from Pentapharm, alkaline-earth metal salts, especially of strontium, a fermented extract of *Alteromonas* sold under the name Abyssine[®] by the company Atrium Biotechnologies; spring water from the Vichy basin,
10 such as waters originating from the Célestin, Chomel, Grande-Grille, Hôpital, Lucas and Parc sources, and preferably water from the Lucas source; an extract of *Eperua falcata* bark, such as the product sold by the company Cognis under the name Eperuline[®]; an extract of
15 *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B[®]; and mixtures thereof.

As preferred calmatives according to the invention, use will be made of:
20 β -glycyrrhetic acid and salts or derivatives thereof (stearyl glycyrrhetate, 3-stearoyloxyglycyrrhetic acid or glycyrrhetic acid monoglucuronide) and also plants containing them (e.g. *Glycyrrhiza glabra*); ursolic acid and salts thereof; extracts of *Centella asiatica*,
25 Canola oil, bisabolol; camomile extracts, allantoin; a mixture of extract of water lily blossom and of palmitoylproline, such as the product sold under the name Seppicalm VG[®] by the company SEPPIC; *Aloe vera*, rose water, extract of mint, in particular of mint
30 leaves, such as Calmiskin[®] from Silab, filamentous bacteria such as *Vitreoscilla filiformis* as described in patent EP 761 204 and sold by Chimex under the name Mexoryl SBG[®], an extract of rose petals such as Rose Flower Herbasol[®] extract from the company Cosmetochem,
35 shea butter, a fermented extract of *Alteromonas* sold under the name Abyssine[®] by the company Atrium Biotechnologies; spring water from the Vichy basin, such as waters originating from the Célestin, Chomel, Grande-Grille, Hôpital, Lucas and Parc sources, and

preferably water from the Lucas source; an extract of *Eperua falcata* bark, such as the product sold by the company Cognis under the name Eperuline[®]; an extract of *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B[®]; and mixtures thereof.

18. Sebo-regulating or anti-seborrhoeic agents

The term "sebo-regulating or anti-seborrhoeic agents" especially means agents capable of regulating the activity of the sebaceous glands.

Mention may be made especially of:

- retinoic acid, benzoyl peroxide, sulphur, vitamin B6 (or pyridoxine), selenium chloride and sea fennel;
- mixtures of extract of cinnamon, of tea and of octanoylglycine such as Sepicontrol A5 TEA[®] from SEPPIC;
- the mixture of cinnamon, sarcosine and octanoylglycine sold especially by the company SEPPIC under the trade name Sepicontrol A5[®];
- zinc salts such as zinc gluconate, zinc pyrrolidonecarboxylate (or zinc pidolate), zinc lactate, zinc aspartate, zinc carboxylate, zinc salicylate and zinc cysteate;
- copper derivatives and in particular copper pidolate such as Cuivridone[®] from Solabia;
- extracts of plants of the species *Arnica montana*, *Cinchona succirubra*, *Eugenia caryophyllata*, *Humulus lupulus*, *Hypericum perforatum*, *Mentha piperita*, *Rosmarinus officinalis*, *Salvia officinalis* and *Thymus vulgaris*, all sold, for example, by the company Maruzen;
- extracts of meadowsweet (*Spiraea ulmaria*), such as the product sold under the name Sebonormine[®] by the company Silab;
- extracts of the alga *Laminaria saccharina*, such as the product sold under the name Phlorogine[®] by the company Biotechmarine;
- mixtures of extracts of salad burnet root (*Sanguisorba officinalis*/*Poterium officinale*), of

- ginger rhizomes (*Zingiber officinalis*) and of cinnamon bark (*Cinnamomum cassia*), such as the product sold under the name Sebustop[®] by the company Solabia;
- 5 - linseed extracts, such as the product sold under the name Linumine[®] by the company Lucas Meyer;
- Phellodendron extracts, such as those sold under the name Phellodendron extract BG by the company Maruzen or Oubaku liquid B by the company Ichimaru Pharcos;
- 10 - mixtures of argan oil, of *Serenoa serrulata* (saw palmetto) extract and of sesame seed extract, such as the product sold under the name Regu SEB[®] by the company Pentapharm;
- mixtures of extracts of willowherb, of *Terminalia chebula*, of nasturtium and of bioavailable zinc
- 15 (microalgae), such as the product sold under the name Seborilys[®] by the company Green Tech;
- extracts of *Pygeum afrianum*, such as the product sold under the name Pygeum afrianum sterolic lipid extract by the company Euromed;
- 20 - extracts of *Serenoa serrulata*, such as the products sold under the name Viapure Sabal by the company Actives International or those sold by the company Euromed;
- mixtures of extracts of plantain, of *Berberis aquifolium* and of sodium salicylate, such as the
- 25 product sold under the name Seboclear[®] by the company Rahn;
- clove extract, such as the product sold under the name Clove extract powder by the company Maruzen;
- 30 - argan oil, such as the product sold under the name Lipofructyl[®] by Laboratoires Sérobiologiques;
- lactic protein filtrates, such as the product sold under the name Normaseb[®] by the company Sederma;
- extracts of the alga *Laminaria*, such as the product
- 35 sold under the name Laminarghane[®] by the company Biotechmarine;
- oligosaccharides of the alga *Laminaria digitata*, such as the product sold under the name Phycosaccharide AC by the company Codif;

- sugar cane extracts, such as the product sold under the name Policosanol[®] by the company Sabinsa;
- sulphonated shale oil, such as the product sold under the name Ichthyol Pale[®] by the company Ichthyol;
- 5 - European meadowsweet (*Spiraea ulmaria*) extracts, such as the product sold under the name Cytobiol[®] Ulmaire by the company Libiol;
- sebacic acid, especially sold in the form of a sodium polyacrylate gel under the name Sebosoft[®] by the company
- 10 Sederma;
- glucomannans extracted from konjac tuber and modified with alkylsulphonate chains, such as the product sold under the name Biopol Beta by the company Arch Chemical;
- 15 - extracts of *Sophora angustifolia*, such as those sold under the name Sophora powder or Sophora extract by the company Bioland;
- extracts of *Cinchona succirubra* bark, such as the product sold under the name Red Bark HS by the company
- 20 Alban Müller;
- extracts of *Quillaja saponaria*, such as the product sold under the name Panama wood HS by the company Alban Müller;
- glycine grafted onto an undecylenic chain, such as
- 25 the product sold under the name Lipacide UG OR by the company SEPPIC;
- the mixture of oleanolic acid and of nordihydroguaiaretic acid, such as the product sold in the form of a gel under the name AC.Net by the company
- 30 Sederma;
- phthalimidoperoxyhexanoic acid;
- tri(C₁₂-C₁₃)alkyl citrate sold under the name Cosmacol[®] ECI by the company Sasol; tri(C₁₄-C₁₅)alkyl citrate sold under the name Cosmacol[®] ECL by the company Sasol;
- 35 - 10-hydroxydecanoic acid, and especially mixtures of 10-hydroxydecanoic acid, of sebacic acid and of 1,10-decanediol, such as the product sold under the name Acnacidol[®] BG by the company Vincience; and
- mixtures thereof.

Preferred anti-seborrhoeic active agents that may be mentioned include:

- benzoyl peroxide and vitamin B6 (or pyridoxine),
- zinc salts such as zinc gluconate, zinc pyrrolidonecarboxylate (or zinc pidolate), zinc lactate, zinc aspartate, zinc carboxylate, zinc salicylate and zinc cysteate;
- meadowsweet (*Spiraea ulmaria*) extracts, such as the product sold under the name Sebonormine[®] by the company Silab;
- extracts of the alga *Laminaria saccharina*, such as the product sold under the name Phlorogine[®] by the company Biotechmarine;
- mixtures of extracts of salad burnet root (*Sanguisorba officinalis*/*Poterium officinale*), of ginger rhizomes (*Zingiber officinalis*) and of cinnamon bark (*Cinnamomum cassia*), such as the product sold under the name Sebustop[®] by the company Solabia;
- clove extract, such as the product sold under the name Clove extract powder by the company Maruzen;
- lactic protein filtrates, such as the product sold under the name Normaseb[®] by the company Sederma;
- European meadowsweet (*Spiraea ulmaria*) extracts, such as the product sold under the name Cytobiol[®] Ulmaire by the company Libiol;
- sebacic acid, especially sold in the form of a sodium polyacrylate gel under the name Sebosoft[®] by the company Sederma;
- glycine grafted onto an undecylenic chain, such as the product sold under the name Lipacide UG OR by the company SEPPIC;
- tri(C₁₂-C₁₃)alkyl citrate sold under the name Cosmacol[®] ECI by the company Sasol; tri(C₁₄-C₁₅)alkyl citrate sold under the name Cosmacol[®] ECL by the company Sasol;
- 10-hydroxydecanoic acid, and especially mixtures of 10-hydroxydecanoic acid, of sebacic acid and of 1,10-decanediol, such as the product sold under the name Acnacidol[®] BG by the company Vincience; and
- mixtures thereof.

Preferentially, the anti-seborrhoeic active agent is chosen from:

- zinc salts such as zinc gluconate, zinc pyrrolidonecarboxylate (or zinc pidolate), zinc lactate, zinc aspartate, zinc carboxylate, zinc salicylate and zinc cysteate; and preferably zinc pyrrolidonecarboxylate (or zinc pidolate) or zinc salicylate;
- clove extract, such as the product sold under the name Clove extract powder by the company Maruzen;
- glycine grafted onto an undecylenic chain, such as the product sold under the name Lipacide UG OR by the company SEPPIC;
- tri(C₁₂-C₁₃)alkyl citrate sold under the name Cosmacol[®] ECI by the company Sasol; tri(C₁₄-C₁₅)alkyl citrate sold under the name Cosmacol[®] ECL by the company Sasol;
- and mixtures thereof.

The anti-seborrhoeic active agent is, for example, present in a content ranging from 0.1% to 10% by weight, preferably from 0.1% to 5% by weight and preferentially from 0.5% to 3% by weight relative to the total weight of the composition.

19. Astringents

According to the invention, the term "astringents" means agents for combating the dilation of the sebaceous follicles.

As astringents that may be used in the composition according to the invention, mention may be made of extracts of mushroom pulp (*Polyporus officinalis*), for instance Laricyl LS8865[®] from Cognis, extracts of *Terminalia catappa* and *Sambucus nigra*, for instance Phytofirm LS9120[®] from Cognis, extracts of gall nut, for instance Tanlex VE[®] from Ichimaru Pharcos, aluminium hydroxychloride, centella extracts (e.g. Plantactiv centella from Cognis), dicetyl dimethylammonium chloride, for instance Varisoft 432 CG[®] from Degussa, common horse chestnut extracts, mallow extracts, witch-hazel extracts, sweet almond extracts, marshmallow root

extracts and linseed extracts, for instance Almondermin LS 3380® from Cognis, burdock extracts, nettle extracts, birch extracts, horsetail extracts, camomile extracts, for instance those sold under the name Extrapone 9 special® by the company Symrise, skullcap extracts, European meadowsweet extracts (for example Cytobiol Ulmaire from Libiol), a mixture of extracts of white ginger, of horsetail, of nettle, of rosemary and of yucca, for instance Herb extract B1348® from Bell
5 Flavors & Fragrances, extracts of acacia, of elm, of white willow, of cinnamon, of birch and of meadowsweet, Panama sapogenins, zinc phenolsulphonate from Interchemical, extracts of gentian, of cucumber and of walnut, the mixture of extracts of Ratanhia, of
10 grapefruit, of gumweed and of oak gall, for instance Epilami® from Alban Müller.

As preferred astringents according to the invention, use will be made of skullcap extracts, European meadowsweet extracts, meadowsweet extracts, gentian extracts and burdock extracts, and mixtures thereof.
20

20. Cicatrizing agents

Examples of cicatrizing agents that may especially
25 be mentioned include:
allantoin, urea, certain amino acids, for instance hydroxyproline, arginine, and serine, and also extracts of white lily (for instance Phytélène Lys 37EG 16295 from Indena), a yeast extract, for instance the
30 cicatrizing agent LS L0/7225B from Laboratoires Sérobiologiques), tamanu oil, extract of *Saccharomyces cerevisiae*, for instance Biodynes® TRF® from Arch Chemical, oat extracts, chitosan and derivatives, for instance chitosan glutamate, carrot extracts, artemia
35 extract, for instance GP4G® from Vincience, sodium acexamate, lavandin extracts, propolis extracts, ximeninic acid and salts thereof, rose hip oil, marigold extracts, for instance Souci Ami® Liposolible from Alban Müller, horsetail extracts, lemon peel

extracts, for instance Herbasol® citron from Cosmetochem, helichrysum extracts, common yarrow extracts and folic acid.

As preferred cicatrizing agents according to the invention, use will be made of arginine, serine, folic acid, tamanu oil, sodium acexamate, horsetail extracts and helichrysum extracts, and mixtures thereof.

21. Anti-inflammatory agents

As particular anti-inflammatory agents that may be used according to the invention, mention may be made of cortisone, hydrocortisone, indomethacin, betamethasone, azelaic acid, acetaminophen, diclofenac, clobetasol propionate, folic acid; an extract of *Eperua falcata* bark, such as the product sold by the company Cognis under the name Eperuline®; an extract of *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B®; and mixtures thereof.

Preferred anti-inflammatory agents that will be mentioned are azelaic acid, folic acid, an extract of *Eperua falcata* bark, such as the product sold by the company Cognis under the name Eperuline®; an extract of *Paeonia suffruticosa* root, such as the product sold by the company Ichimaru Pharcos under the name Botanpi Liquid B®; and mixtures thereof.

22. Anti-acne agents

In one advantageous aspect of the invention, the composition may also comprise at least one anti-acne active agent.

The term "anti-acne active agent" especially means any active agent that has effects on the specific flora of greasy skin, for instance *Propionibacterium acnes* (*P. acnes*).

These effects may be bactericidal.

Antibactericidal active agents that may especially be mentioned include:

- active agents and preserving agents with antimicrobial activity mentioned in patent application DE 103 24 567, which is incorporated into the present invention by reference,
- 5 - Asiatic acid,
- the monoethanolamine salt of 1-hydroxy-4-methyl 6-trimethylpentyl-2-pyridone (INCI name: piroctone olamine), sold especially under the name Octopirox[®] by the company Clariant;
- 10 - citronellic acid, perillic acid (or 4-isopropenyl-cyclohex-1-enecarboxylic acid),
- glyceryl 2-ethylhexyl ether (INCI name: ethylhexylglycerine), for example sold under the name Sensiva SC 50[®] by the company Shulke & Mayr,
- 15 - glyceryl caprylate/caprate, for example sold under the name Capmul MCM[®] by the company Abitec;
- sodium calcium phosphosilicate, especially sold under the names Bioactive Glasspowder[®] and Actysse Premier BG[®] by the company Schott Glass;
- 20 - silver-based particles, for example those sold under the name Metashine ME 2025 PS[®] by the company Nippon Sheet Glass;
- hop cone extract (*Humulus lupulus*) obtained by supercritical CO₂ extraction, such as the product sold
- 25 under the name HOP CO2-TO extract[®] by the company Flavex Natureextrakte,
- St. John's Wort extract obtained by supercritical CO₂ extraction, such as the product sold under the name St. John's Wort CO2-TO extract[®] by the company Flavex
- 30 Natureextrakte,
- the mixture of extracts of roots of *Scutellaria baicalensis*, of *Paeonia suffruticosa* and *Glycyrrhiza glabra*, such as the product sold under the name BMB - CF[®] by the company Naturogin,
- 35 - argan tree extract, for instance Argapure LS9710[®] from Cognis;
- bearberry leaf extracts, for instance the product sold under the name Melfade-J by the company Pentapharm;

- 10-hydroxy-2-decanoic acid such as Acnacidol P[®] from Vincience, sodium ursolate, azelaic acid, diiodomethyl p-tolyl sulphone such as Amical Flowable[®] from Angus, malachite powder, zinc oxide such as Zincare[®] from Elementis GMBH, octadecenedioic acid such as Arlatone dioic DCA[®] from Uniqema; 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 salts thereof, miconazole and salts thereof, itraconazole, terconazole, econazole, ketoconazole, saperconazole, fluconazole, clotrimazole, butoconazole, oxiconazole, sulphaconazole, sulconazole, terbinafine, ciclopirox, ciclopiroxolamine, undecylenic acid and salts thereof, benzoyl peroxide, 3-hydroxybenzoic acid, 4-hydroxybenzoic acid, phytic acid, N-acetyl-L-cysteine, lipoic acid, azelaic acid and salts thereof, arachidonic acid, resorcinol, 3,4,4'-trichlorocarbanalide, octoxyglycerine or octoglycerine, octanoylglycine such as Lipacid C8G[®] from SEPPIC, caprylyl glycol, 10-hydroxy-2-decanoic acid, dichlorophenylimidazoldioxolane and derivatives thereof described in patent application WO 93/18743, iodopropynyl butylcarbamate, 3,7,11-trimethyldodeca-2,5,10-trienol or farnesol, phytosphingosines; quaternary ammonium salts, for instance cetyltrimethylammonium salts and cetylpyridinium salts, and

- mixtures thereof.

Mention may also be made of certain surfactants with an antimicrobial effect, for instance sodium cocoamphoacetate or disodium diacetate such as Miranol C2M Conc. NP, betaines, for instance the cocoyl betaine Genagen KB from Clariant, sodium lauryl ether sulphate, for instance Emal 270 D from Kao, decyl glucoside, for instance Plantacare 2000 UP, branched C₁₂₋₁₃ dialkyl malates, for instance Cosmacol EMI, propylene glycol

monoesters, for instance propylene glycol monolaurate, monocaprylate or monocaprate, lauryldimethylamine betaine, for instance Empigen BB/LS, and also polyquaternary ammoniums such as Quaternium-24 or Bardac 2050 from Lonza and those described in patent FR 0 108 283, and mixtures thereof.

As preferred antimicrobial agents, an agent chosen from octoglycerine or octoxyglycerine, and 10-hydroxy-2-decanoic acid, and mixtures thereof, will be used in the compositions of the invention.

Other additional anti-acne active agents may be added to the abovementioned anti-acne active agents.

Mention may be made especially of active agents with bacterial anti-adhesion effects or agents that act on the biofilm of bacteria to prevent them from multiplying.

As agents for preventing and/or reducing the adhesion of microorganisms, mention may be made especially of: phytanetriol and derivatives thereof as described in patent application EP 1 529 523, plant oils such as wheatgerm oil, calendula oil, castor oil, olive oil, avocado oil, sweet almond oil, groundnut oil, jojoba oil, sesame seed oil, apricot kernel oil, sunflower oil and macadamia oil, described in patent EP 1 133 979, or certain surfactants such as disodium cocoamphodiacetate, oxyethylenated (7 EO) glyceryl cocoate, 18-hexadecenyl succinate, octoxyglyceryl palmitate, octoxyglyceryl behenate, dioctyl adipate, PPG-15 stearyl ether, and the branched C₁₂-C₁₃ dialkyl tartrates described in patent EP 1 129 694, and mixtures thereof.

In particular with regard to the propagation of *P. acnes*, or as active agents that act on the biofilm of bacteria to prevent them from proliferating, mention may be made of pentylene glycol, Nylon-66 (polyamide 66 fibres), rice bran oil, polyvinyl alcohol such as Celvol 540 PV alcohol[®] from Celanese Chemical, rapeseed oil such as Akorex L[®] from Karlshamns, and fructose derivatives, and mixtures thereof.

The anti-acne active agent may be present in a content ranging from 0.01% to 10% by weight, preferably from 0.05% to 5% by weight, relative to the total weight of the composition.

5 According to the nature and/or the solubility of the abovementioned active agents, those skilled in the art will know how to select the most suitable embodiment according to the invention.

The cosmetic and/or dermatological active agents
10 will be present in one of the compositions according to the invention in a content ranging from 0.001% to 20% by weight, relative to the total weight of the composition, preferably from 0.01% to 10%, even more preferentially from 0.5% to 5%, and more preferably
15 from 0.1% to 1% by weight, relative to the total weight of the composition.

For "peeling" applications, the contents of cosmetic and/or dermatological active agents may range from 1% to 50% by weight, relative to the total weight
20 of the composition, preferably from 1% to 30% by weight, relative to the total weight of the composition.

Peelings are a well-known means for improving the appearance and/or the texture of the skin and/or of the
25 scalp, especially for improving the radiance and homogeneity of the complexion and/or for reducing the visible and/or tactile irregularities of the skin, and in particular for improving the surface appearance of the skin, for attenuating actinic lentigo, acne or
30 chickenpox marks, and also for preventing, attenuating or combating the signs of skin aging, and especially for smoothing out irregularities in the texture of the skin, such as wrinkles and fine lines.

They have the effect of removing a surface part of
35 the skin to be treated (epidermis and possibly the upper layer of the dermis), via chemical methods. Concrete, but in no way limiting, examples illustrating the invention will now be given.

COSMETIC ASSEMBLY

According to another aspect, the invention also relates to a cosmetic assembly comprising:

a container delimiting at least one compartment, said
5 container being closed by a closing member; and
a composition as described above and placed inside said compartment.

The container may be in any suitable form. It may especially be in the form of a bottle, a tube, a jar, a
10 case, a box, a sachet or a carton.

The closing member may be in the form of a removable stopper, a lid, a cap, a tear-off strip or a capsule, in particular of the type comprising a body attached to the container and a cover cap articulated
15 on the body. It may also be in the form of a member for selectively closing the container, in particular a pump, a valve or a flat valve.

The container may be combined with an applicator. The applicator may be in the form of a brush, as described, for example, in patent FR 2 722 380. The
20 applicator may be in the form of a block of foam or of elastomer, a felt or a spatula. The applicator may be free (powder puff or sponge) or securely fastened to a rod borne by the closing member, as described, for example, in patent US 5 492 426. The applicator may be
25 securely fastened to the container, as described, for example, in patent FR 2 761 959.

The product may be contained directly in the container, or indirectly. By way of example, the
30 product may be placed on an impregnated support, in particular in the form of a wipe or of a pad, and placed (individually or in plurality) in a box or in a sachet. Such a support incorporating the product is described, for example, in application WO 01/03538,
35 including correcting pencils.

The closing member may be coupled to the container by screwing. Alternatively, the closing member and the container are coupled other than by screwing, in particular via a bayonet mechanism, by click-fastening,

gripping, welding, bonding or by magnetic attraction. The term "click-fastening" is intended to mean in particular any system involving the crossing of a bead or cord of material by elastic deformation of a portion, in particular of the closing member, followed by return to the elastically unconstrained position of said portion after crossing of the bead or cord.

The container may be at least partially made of thermoplastic. By way of examples of thermoplastics, mention may be made of polypropylene or polyethylene.

Alternatively, the container is made of nonthermoplastic material, in particular glass or metal (or alloy).

The container may have rigid walls or deformable walls, in particular in the form of a tube or of a tubular bottle.

The container may comprise means for initiating or facilitating the distribution of the composition. By way of example, the container may have deformable walls so as to allow the composition to exit in response to a positive pressure inside the container, said positive pressure being caused by elastic (or nonelastic) squeezing of the walls of the container.

The container may be constituted of a carton with a base delimiting at least one housing containing the composition, and a lid, in particular articulated on the base, and capable of at least partially covering said base. Such a carton is described, for example, in application WO 03/018423 or in patent FR 2 791 042.

The container may be fitted with a drainer arranged in the region of the aperture of the container. Such a drainer makes it possible to wipe the applicator and possibly the rod to which it may be securely fastened. Such a drainer is described, for example, in patent FR 2 792 618.

The invention will now be illustrated by means of the following non-limiting examples. The amounts of the ingredients in the following formulation examples are expressed as % by weight related back to the entire

formulation.

Examples 1 to 3: Cream gels:

Ingredients	Ex. 1	Ex. 2	Ex. 3
Phenylethyl resorcinol	0.3	0.5	
Caprylyl glycol	0.5	0.5	0.5
Caprylic/capric triglyceride (and) sodium acrylates copolymer (Luvigel EM-BASF)	3	3	3
Water	qs 100	qs 100	qs 100
Triethanolamine	0.2	0.2	0.2
Ethylhexyl salicylate	5	5	5
Drometrizole trisiloxane	2	2	2
Inulin lauryl carbamate	0.3	0.3	0.3
Cyclohexasiloxane	2	2	2
Glycerol	5	5	5
Propylene glycol	10	10	10
Octocrylene	7	7	7
Butyl methoxydibenzoylmethane	3	3	3
Capryloyl salicylic acid	0.3		
Terephthalylidenedicamphor- sulphonic acid	0.5	0.5	0.5
Preservative	0.8	0.8	0.8
Disodium EDTA	0.1	0.1	0.1
Salicylic acid		0.5	0.5
Lucinol			0.3

Examples 4 and 5: Hand cream:

Ingredients	Ex. 4	Ex. 5
Phenylethyl resorcinol	0.3	0.3
Isopropyl lauroyl sarcosinate	3	3
Water	qs 100	qs 100
Triethanolamine	0.9	0.9
Ethylhexyl salicylate	5	5
Drometrizole trisiloxane	7	7
Synthetic wax	2	2
Cyclohexasiloxane	7	7
Glycerol	5	5
Dimethicone	13	13
Octocrylene	7	7
Butyl methoxydibenzoylmethane	3	3
Capryloyl salicylic acid	0.1	
Terephthalylidenedicamphor-sulphonic acid	0.5	0.5
Preservative	0.8	0.8
Disodium EDTA	0.2	0.2
Dimethicone/PEG-10/15 crosspolymer	4.2	4.2
Dimethicone crosspolymer	0.2	0.2
Hydrogenated polyisobutene	5	5
Aluminium starch octenylsuccinate	2	2
Salicylic acid		1.0

COMPARATIVE EVALUATION OF THE PREVENTION OF BROWNING OF THE SKIN

The following two formulations are prepared:

Ingredients	Ex. 6 not part of the invention
Phenylethyl resorcinol	0.1
Capryloyl salicylic acid	0.1
Disodium EDTA	0.15
Triethanolamine	0.1
Phenoxyethanol	0.7
Preservative	0.3
Cetyl alcohol	0.5
Ethylhexylmethoxycinnamate	7.5
Titanium dioxide (and) aluminium (and) stearic acid	2
Acrylates/C10-30 alkylacrylate crosspolymer	0.3
Cyclopentasiloxane	6
Glycerol	5
Stearic acid	1.5
Glyceryl stearate (and) PEG-100 stearate	0.5
Tocopheryl acetate	0.2

5

The graph of figure 1 shows that the composition has a critical wavelength λ_c equal to 349 nm.

Ingredients	Ex. 7 according to the invention
Complexing agent	0
Triethanolamine	0.5
Preservatives	1
Ethylhexyl cocoate	3
Stearyl alcohol	1.3
Butyl methoxydibenzoylmethane	3
Terephthalylidenedicamphorsulphonic acid	2
Octocrylene	5
Drometrizole trisiloxane	1.3
Aluminium starch octenylsuccinate	2
Xanthan gum	0.3
Acrylates/C10-30 alkyl acrylate crosspolymer	0.2
Cyclopentasiloxane	3
C12-15 Alkyl benzoate	8
Glycerol	5
Glyceryl stearate and PEG-100 stearate	2
Potassium cetyl phosphate	1.3
Phenylethyl resorcinol	0.1
Capryloyl salicylic acid	0.1
Water	qs 100

The graph of figure 1 shows that composition 7 has a critical wavelength λ_c equal to 377 nm.

5 In vivo tests on Examples 6 and 7 were carried out on 8 volunteers meeting the following criteria:

They have a highly pigmented type V skin, associated with an Individual Typological Angle (ITA°) of less than 15° during the selection.

10 The phototype is expressed in the form of the ITA° angle calculated from the value of L^* and b^* of the skin.

$$ITA^{\circ} = (\text{ATAN} ((L^*-50)/b))^{\circ} \cdot 180/3,14159$$

where L^* is the brightness of the skin, b^* its yellow component, obtained by conventional colorimetry measurements using a Minolta CR200 colorimeter. ATAN is the arc-tangent function. This calculation, which is well known to those skilled in the art, is described in detail in Chardon A, Crétois I, Hourseau C: Skin colour typology and suntanning pathways. Int J Cosm Scie, 13, 191-208, 1991.

The skin types can be grouped together according to their ITA° in the following way:

$ITA^{\circ} > 55^{\circ}$: very fair skin
 $41^{\circ} < ITA^{\circ} < 55^{\circ}$: fair skin
 $28^{\circ} < ITA^{\circ} < 41^{\circ}$: intermediate skin
 $10^{\circ} < ITA^{\circ} < 28^{\circ}$: matt skin
 $-30^{\circ} < ITA^{\circ} < 10^{\circ}$: brown skin
 $ITA^{\circ} < -30^{\circ}$: black skin.

Minizones are delimited on the back and subjected to a UVA + UVB spectrum of 290 to 400 nm.

Each product zone (application at 2 mg/cm^2) was exposed according to 6 increasing doses of UV (D1 to D6). The zone without product is denoted "DMPnp".

25 Quantification of the pigmentation:

Visual grading of the pigmentation: scale with 14 levels of evaluation.

Colorimetric measurements on each exposed zone (treated or untreated) + one measurement on the adjacent control zone.

Use of the measurements:

- Comparison, for each UV dose, for each product (and also for the naked skin, DMPnp) and for each individual, of the level of UV pigmentation induced compared with the untreated, unexposed zone:

- Use of the parameters L^* , a^* , b^* , then calculation, for each dose of UVJ, for each product (or untreated exposed zone) and for each individual, of

their variation and of the parameter $(\Delta E)^2 = \Delta a^{*2} + \Delta b^{*2} + \Delta L^{*2}$.

The greater the ΔE , the darker the exposed skin.

5 - The variation in the ITA° angle between the exposed zone and the unexposed control zone, which makes it possible to observe the change in skin class before and after exposure of each of the zones. $\Delta ITA^\circ = ITA^\circ \text{ spot exposed} - ITA^\circ \text{ adjacent skin}$: the greater the ΔITA , the darker the exposed skin.

10 The results are represented in the curves of figure 2.

 These results demonstrate that the composition characterized by a critical wavelength value (λ_c) of greater than 370 nm exhibits greater effectiveness for
15 preventing browning than the composition which has a critical wavelength value (λ_c) of less than 370 nm.

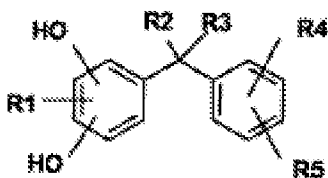
CLAIMS

1. Cosmetic method for controlling browning of the skin induced by UV radiation, consisting in
 5 applying, to the surface of the skin, at least one composition comprising, in a cosmetically acceptable carrier:

- a) at least one depigmenting agent and
- b) at least one system for screening out both UVA
 10 radiation with wavelengths between 320 and 400 nm and UVB radiation with wavelengths between 280 and 320 nm;
- c) and optionally at least one desquamating agent; said composition having a critical wavelength λ_c of
 15 greater than 370 nm.

2. Method according to Claim 1, for controlling browning of dark skin induced by UV radiation.

3. Method according to Claim 1 or 2, in which the depigmenting agent is chosen from hydroxylated
 20 diphenylmethane derivatives corresponding to formula (I) below:



in which:

25 R_1 is chosen from a hydrogen atom, a methyl group, a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 4 carbon atoms, an -OH group and a halogen,

R_2 is chosen from a hydrogen atom, a methyl group, and a
 30 saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms,

R_3 is chosen from a methyl group or a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms,

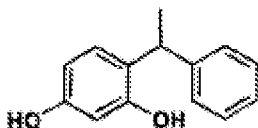
35 R_4 and R_5 are, independently of one another, chosen from

a hydrogen atom, a methyl group, a saturated or unsaturated, linear or branched alkyl chain containing from 2 to 5 carbon atoms, an -OH group or a halogen; and also the S-configuration enantiomers thereof, the R-configuration enantiomers thereof or the racemic mixtures thereof.

4. Method according to Claim 3, in which the hydroxylated diphenylmethane derivatives are chosen from those of formula (I) in which:

- R₁, R₂, R₄ and R₅ denote a hydrogen atom;
- R₃ is a methyl group;
- the -OH groups are in the ortho- and para-position with respect to the bond formed with the carbon linking the two aromatic nuclei to one another.

5. Method according to Claim 4, in which the hydroxylated diphenylmethane derivative is 4-(1-phenylethyl)-1,3-benzenediol or 4-(1-phenylethyl)-1,3-dihydroxybenzene or otherwise known as phenylethyl resorcinol or phenylethylbenzenediol or styryl resorcinol, of formula (II) below:



6. Method according to any one of Claims 1 to 5, in which the screening system is constituted of:

- a) at least, as UVA screening agent: butyl methoxydibenzoylmethane, and preferably combined with terephthalylidenedicamphorsulphonic acid, and
- b) at least, as UVB screening agent, octocrylene, and preferably combined with ethylhexyl salicylate.

7. Method according to Claim 6, in which the screening system will also comprise a hydrophobic UVA and UVB screening agent chosen from drometrizole trisiloxane, bis(ethylhexyloxyphenyl)methoxyphenyl-triazine, methylenebis(benzotriazolyl)tetramethylbutylphenol in micronized form, or mixtures thereof.

8. Method according to any one of Claims 1 to 5, in which the screening system is constituted of:

a) at least, as UVA screening agent: n-hexyl 2-(4-diethylamino-2-hydroxybenzoyl)benzoate, and

5 b) at least one hydrophobic UVA and UVB screening agent chosen from drometrizole trisiloxane, bis(ethylhexyloxyphenol)methoxyphenyltriazine, methylenebis(benzotriazolyl)tetramethylbutylphenol in micronized form, or mixtures thereof.

10 9. Method according to any one of Claims 1 to 5, in which the screening system is constituted of at least one organic UV screening agent and at least one inorganic UV screening agent.

15 10. Method according to any one of Claims 1 to 9, in which the composition also comprises at least one desquamating agent.

20 11. Method according to Claim 10, in which the desquamating agent is chosen from beta-hydroxy acids, 5-n-octanoylsalicylic acid (or capryloyl salicylic acid); urea; glycolic acid, citric acid, lactic acid, tartaric acid, malic acid or mandelic acid; 4-(2-hydroxyethyl)piperazine-1-propanesulphonic acid (HEPES); *Saphora japonica* extract; honey; N-acetylglucosamine; sodium methyl glycine diacetate, 25 and mixtures thereof.

30 12. Method according to any one of Claims 1 to 11, in which the composition also comprises at least one ingredient that promotes the solubilisation of the depigmenting agent and/or at least one ingredient that promotes the stabilisation of the depigmenting agent.

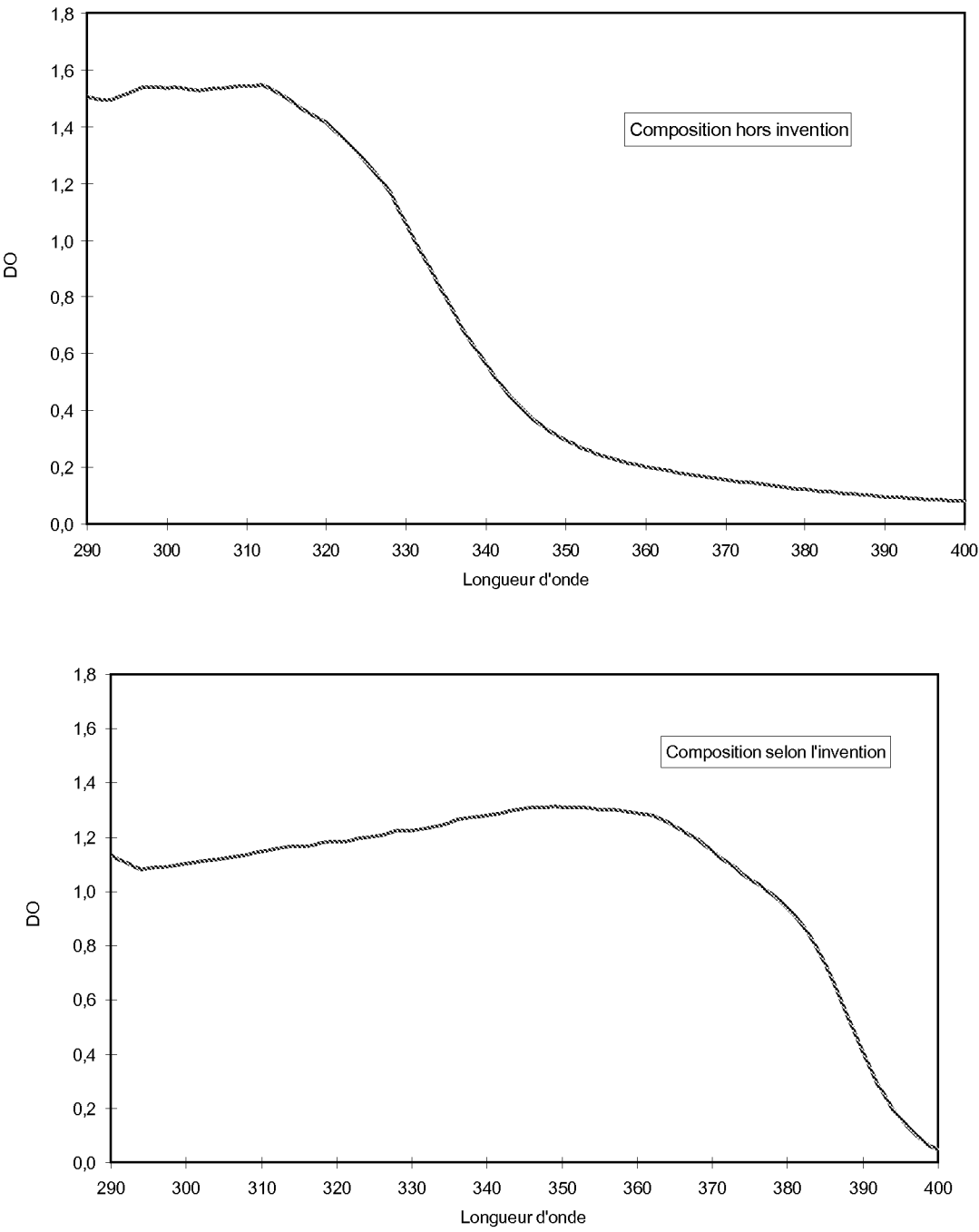
35 13. Method according to any one of Claims 1 to 12, in which the composition also comprises at least one adjuvant chosen from hydrophilic or lipophilic gelling agents; preservatives; solvents; fragrances; bactericides; odour absorbers; dyestuffs; plant extracts, salts, basic agents; acids; nonionic, anionic or cationic surfactants; fillers chosen from matting fillers, fillers with a soft-focus effect, fluorescent agents, abrasive or exfoliant fillers and mixtures

thereof; active agents chosen from moisturisers, agents for improving the barrier function, antioxidants, dermo-decontracting agents, anti-glycation agents, agents for stimulating the synthesis of dermal and/or epidermal macromolecules and/or for preventing their degradation, agents for stimulating fibroblast or keratinocyte proliferation and/or keratinocyte differentiation, agents for promoting the maturation of the horny envelope, NO-synthase inhibitors, peripheral benzodiazepine receptor (PBR) antagonists, agents for increasing the activity of the sebaceous glands, agents for stimulating the energy metabolism of cells, tensioning agents, fat-restructuring agents, slimming agents, agents for promoting the cutaneous capillary circulation, calmatives and/or anti-irritants, sebo-regulators or anti-seborrhoeic agents, astringents, cicatrising agents, anti-inflammatory agents and anti-acne agents.

14. Composition according to any one of Claims 1 to 13.

15. Cosmetic or dermatological assembly comprising:

- a) a container delimiting at least one compartment, said container being closed by a closing member; and
- b) a composition placed inside said compartment, the composition being in accordance with any one of the preceding claims.



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FIG 1

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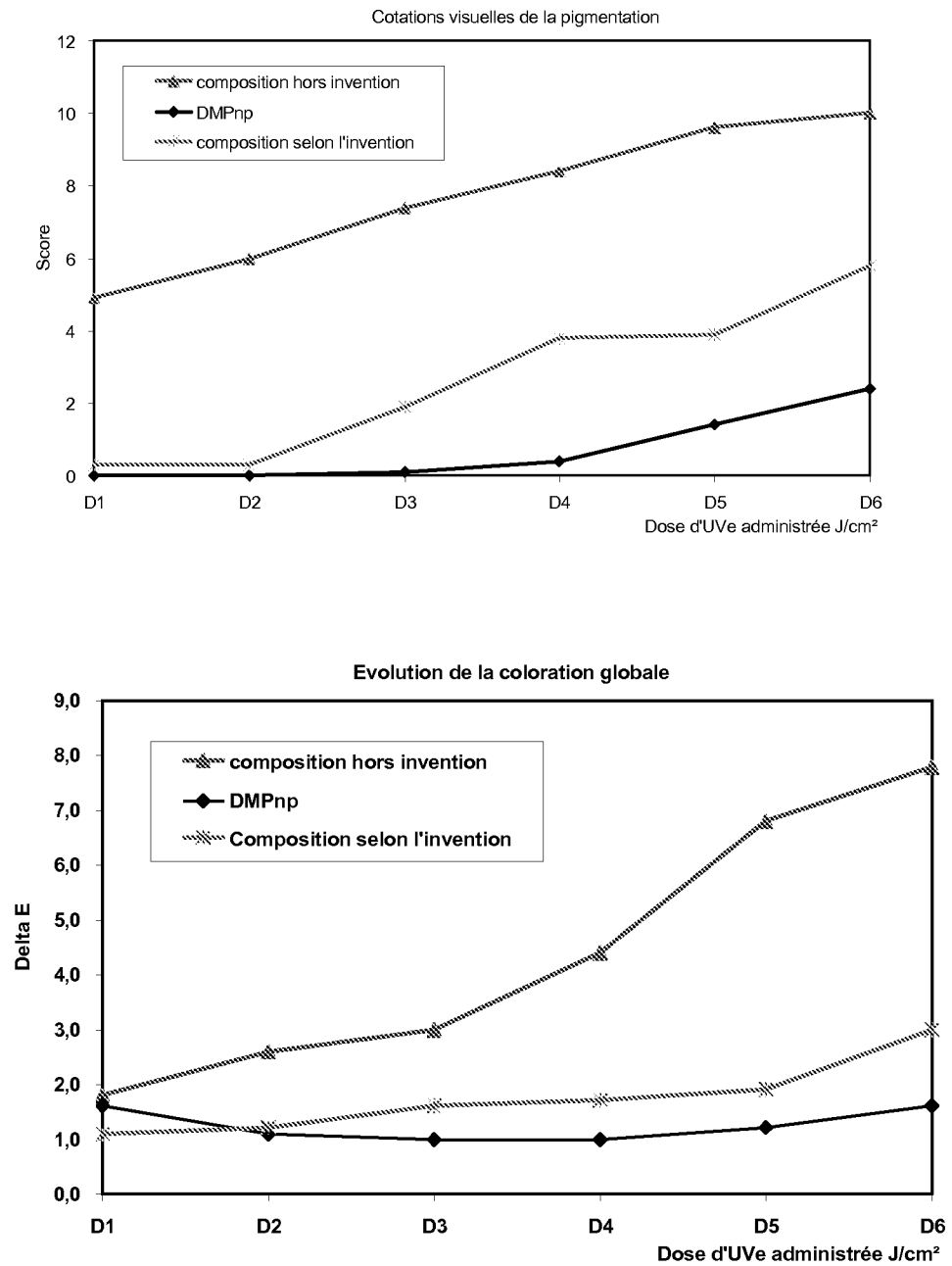
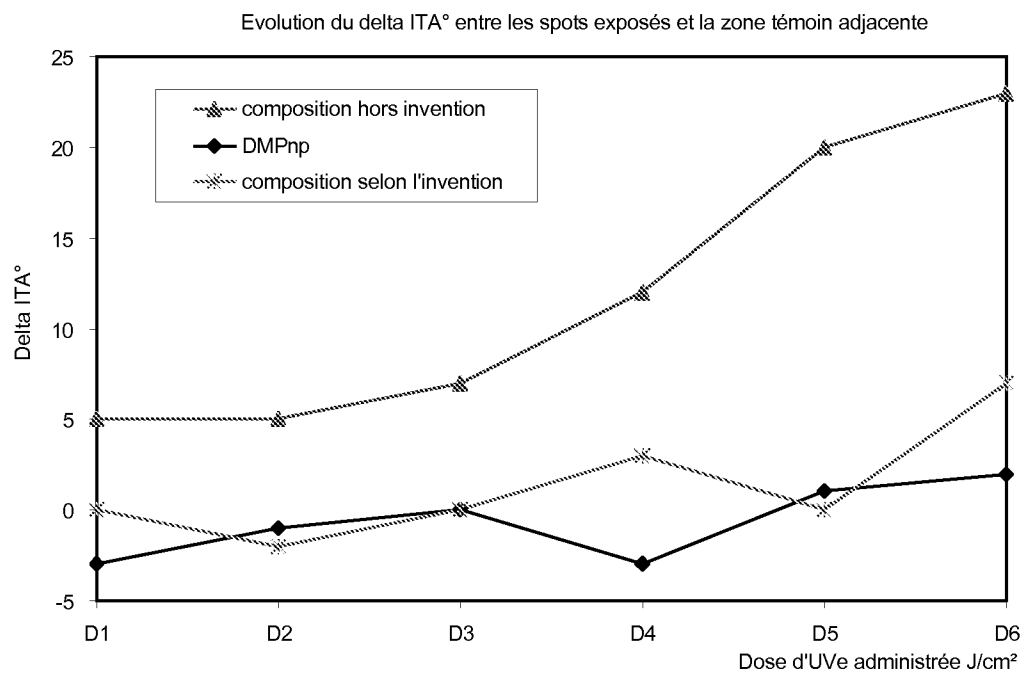


FIG 2

**FIG 3**