Title: COMPOSITION WITH IMPROVED RADIANCE EFFECT

Abstract: The present invention relates to a composition for caring for and/or making up keratin materials, comprising at least one nacre, at least one triglyceride of fatty acids, at least one ether of the formula \(-O-\) and at least one ester of dextrin.
COMPOSITION WITH IMPROVED RADIANCE EFFECT

The present invention relates to a composition for caring for and/or making up keratin materials, which has improved optical effects.

The expression "compositions for caring for and/or making up keratin materials" according to the invention is understood to mean cosmetic compositions different from rinse-off cleansing compositions.

In particular, they will be compositions for caring for and/or making up the skin of the face and/or of the body, especially facial skin.

PRIOR ART

For centuries, consumers around the world are in search of novel cosmetic products for improving the appearance of keratin materials and especially the skin, in particular the optical cosmetic effect of the skin, such as brightening effect, coverage effect and radiance effect of the skin.

The "coverage effect" means the reduction of imperfections of keratin materials, such as unevenness of skin tone, pores, wrinkles, or fine lines, and improvement of the appearance of the keratin materials, in particular the skin and lips.

By "radiance effect" it refers to a healthy glow effect, which is understood to mean a natural coloration of the skin, with an improvement in the dull appearance of the complexion (desaturating or chromatic and anti-dull complexion effect).

Cosmetic compositions able to bring skin the optical effects as mentioned above are known, for example the foundation products containing colorants and oils in emulsion type.

However they are still not satisfying in terms of instant radiance effect.

Furthermore, the instant radiance effect is expected to be long-lasting, i.e., the radiance effect does not change, or only slightly changes after a period of time, for example after 5 hours.

Furthermore, it is still necessary to improve coverage effect.

There is thus a need to provide a composition for caring for and/or making up keratin materials overcoming the above mentioned disadvantages, and having an improved instant radiance effect.
This effect is long-lasting, for example the radiance is seen after 5 hours, with a slight change or no change.

Moreover, there is a need to provide a stable composition possessing an improved optical effect as mentioned above.

**SUMMARY OF THE INVENTION**

An objective of the present invention is to provide a composition for caring for and/or making up keratin materials, with improved optical effects, in particular radiance effect.

Another objective of the present invention is to provide a composition as described above which is stable over time.

The inventors have found that the purpose can be achieved by formulating a composition for caring for and/or making up keratin materials, comprising nacre(s), triglyceride(s) of fatty acid, specific ether(s), and a dextrin ester.

The present invention also relates to a method for caring for and/or making up the keratin materials, comprising the application on the keratin materials of at least one layer of a cosmetic composition as described above.

Therefore, the present invention relates to a composition for caring for and/or making up keratin materials, comprising:

(i) at least one nacre;

(ii) at least one triglyceride of fatty acids, wherein the fatty acid having from 4 to 30 carbon atoms, linear or branched, saturated or unsaturated;

(iii) at least one ether of formula (II):

\[ R_s-O-R_e \]  \hspace{1cm} \text{formula (II)}

wherein:

- \( R_s \) and \( R_e \), which may be identical or different, denote a linear or branched \( \text{C}_6-\text{C}_{25} \) alkyl or alkenyl radical; and

(iv) at least one ester of dextrin.

The composition as such is intended for caring for and/or making up keratin materials, in particular the skin and lips.
More particularly, one other aspect of the present invention is a process for caring for and/or making up keratin materials, in particular the skin and lips, comprising the application to the keratin materials of the composition according to the invention.

The invention also relates to the use of the composition according to the invention for improving the radiance effect of keratin materials, in particular the skin and lips.

Surprisingly, the inventors have found that the association of the above ingredients in a composition is suitable for providing improved optical effect and in particular instant radiance effect to keratin materials.

Furthermore the radiance effect is long-lasting.

Preferably, the coverage effect is improved by the present invention.

Moreover, the composition of the present invention is stable over time.

For the purpose of the invention, by "radiance effect" it refers to an immediate and long-lasting healthy glow effect, which is understood to mean a natural coloration of the skin, with an improvement in the dull appearance of the complexion (desaturating or chromatic and anti-dull complexion effect).

For the purpose of the invention, the "coverage effect" means the reduction of imperfections of keratin materials, such as unevenness of skin tone, pores, wrinkles, or fine lines, and improvement of the appearance of the keratin materials, in particular the skin and lips.

The radiance effect and coverage effect of a composition of the present invention are measured using Glossmeter and Colorimeter, respectively.

More specifically, the protocol of measurement is as follow:

50µm film of the composition of the present invention is applied on the contrast card (sold by the company ERICHSEN under the reference Typ 24/5) evenly. After 24 hours, the contrast card with the composition of the present invention is measured under Glossmeter and Colorimeter, respectively, to obtain the gloss value, which represents the immediate effect, and L* value, which is used to calculate coverage effect.

The Glossmeter is produced by the company KONICA MINOLTA under the tradename MULTI GLOSS 268 PLUS, with a test angle at 60°, for the measurement of the present invention.

The Colorimeter is produced by the company KONICA MINOLTA under the tradename CHROMA METER CR-400, for the measurement of the present invention.
Besides, the long-lasting radiance effect is measured following the steps of:

1. applying 100 mg of the compositions of the invention on half face of 12 women models with ages between 20 and 45, respectively;
2. evaluating the radiance (reflection) of the faces of the women models using the equipment SAMBA produced by Bossa Nova Technologies at a standard condition room (21±1°C & 45±5%), immediately and after 5 hours.

The higher the gloss value and coverage value are, the better immediate radiance effect and coverage effect are.

The lower the difference between radiance (reflection) immediately measured and that measured after 5 hours, the better long-lasting radiance effect is.

Preferably, to achieve the purpose of the present invention:

- the gloss value (immediate radiance) is expected to be greater than or equal to 70;
- the coverage (calculated by L*) is expected to be greater than or equal to 70; and
- the difference of radiance (which represents the long-lasting radiance effect) is expected to be less than or equal to 12.

"Stable over time" is understood to mean compositions of the present invention which, after storage at all temperatures between 4°C and 45°C for 2 months, do not exhibit any macroscopic change in colour, smell or viscosity, any variation in pH or any variation in microscopic appearance.

By "keratin materials" we intend to mean human keratin materials such as skin, lips, and nails, in particular skin and lips, more preferably skin, particularly facial skin.

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

In that which follows and unless otherwise indicated, the limits of a range of values are included within this range, in particular in the expressions "of between" and "ranging from ... to ...".

Moreover, the expression "at least one" used in the present description is equivalent to the expression "one or more".

DETAILED DESCRIPTION OF THE PRESENT INVENTION

(i) Nacre(s)
The composition of the present invention comprises at least one nacre.

The composition according to the present invention comprises at least one nacre.
For the purposes of the present invention, the term "nacre" means coloured particles of any shape, which may or may not be iridescent, in particular produced by certain molluscs in their shell, or alternatively synthesized, and which have a colour effect via optical interference.
The nacres used in the compositions according to the present invention may be in lamellar (or platelet form), spherical (or globular) form, or in any other intermediate form between these defined forms.
In the present patent application, the term "spherical particles" means particles in the form or substantially in the form of a sphere.
The term "lamellar particles" or "platelet form" means herein particles of parallelepipedal shape (rectangular or square surface), discoid shape (circular surface) or ellipsoid shape (oval surface), characterized by three dimensions: a length, a width and a height.
The nacres may be selected from nacreous pigments such as mica coated with an iron oxide, mica coated with bismuth oxychloride, mica coated with Titanium oxide or dioxide, mica coated with chromium oxide, mica coated with tin oxide, mica coated with Sn0₂, mica coated by BaS0₄, mica coated with an organic dye and also nacreous pigments based on bismuth oxychloride.
They may also be mica particles at the surface of which are superimposed at least two successive layers of metal oxides and/or of organic dyestuffs.
Examples of nacres that may also be mentioned include natural mica coated with titanium oxide, with iron oxide, with natural pigment or with bismuth oxychloride.
In particular, the nacres may be mentioned are platelets type mica coated with titanium oxide, iron oxide, or both of them.
Among the nacres available on the market, mention may be made of the nacres Timica® sold by the company BASF, Flamenco and Duochrome (based on mica) sold by the company Engelhard, the Timiron nacres sold by the company Merck, the Prestige mica-based nacres sold by the company Eckart, and the Sunshine synthetic mica-based nacres sold by the company Sun Chemical.
The nacres may more particularly have a yellow, pink, red, bronze, orange, brown, gold and/or coppery colour or tint.
As illustrations of nacres that may be used in the context of the present invention, mention may be made in particular of gold-coloured nacres sold especially by the company Engelhard under the names Brilliant gold 212G (Timica), Gold 222C (Cloisonne), Sparkle gold (Timica), Gold 4504 (Chromalite) and Monarch gold 233X (Cloisonne); the bronze nacres sold especially by the company Merck under the names Bronze fine (17384) (Colorona) and Bronze (17353) (Colorona) and by the company Engelhard under the name Super bronze (Cloisonne); the orange nacres sold especially by the company Engelhard under the names Orange 363C (Cloisonne) and Orange MCR 101 (Cosmica) and by the company Merck under the names Passion orange (Colorona) and Matte orange (17449) (Microna); the brown-tinted nacres sold especially by the company Engelhard under the names Nu-antique copper 340XB (Cloisonne) and Brown CL4509 (Chromalite); the nacres with a copper glint sold especially by the company Engelhard under the name Copper 340A (Timica); the nacres with a red glint sold especially by the company Merck under the name Sienna fine (17386) (Colorona); the nacres with a yellow glint sold especially by the company Engelhard under the name Yellow (4502) (Chromalite); the red-tinted nacres with a golden glint sold especially by the company Engelhard under the name Sunstone G012 (Gemtone); the pink nacres sold especially by the company Engelhard under the name Tan opale G005 (Gemtone); the black nacres with a golden glint sold especially by the company Engelhard under the name Nu antique bronze 240 AB (Timica); the blue nacres sold especially by the company Merck under the name Matte blue (17433) (Microna); the white nacres sold by the company BASF under the tradename Timica® Terra White MN4501; the black nacres sold by the company BASF under the tradename Timica® Terra Black MN4498; the brown nacres sold by the company BASF under the tradename Timica® Terra Brown MN4509; the red nacres sold by the company BASF under the tradename Timica® Terra Red MN4506; the yellow nacres sold by the company BASF under the tradename Timica® Terra Yellow MN4502; the white nacres with a silvery glint sold especially by the company Merck under the name Xirona Silver; and the golden-green pinkish-orange nacres sold especially by the company Merck under the name Indian summer (Xirona), and mixtures thereof.

According to a preferred embodiment, the nacre useful to the present invention is in platelet form. More particularly, the nacre is platelets of mica at the surface of which are superimposed at least two successive layers of metal oxides.
The nacres of this type are commercially available, for example, sold by the company BASF under the tradename Timica® Terra White MN4501, which is a white powder.

Advantageously, the nacre is present in the composition of the present invention in an amount ranging from 0.5% to 15% by weight, preferably from 1% to 10% by weight, relative to the total weight of the composition.

(ii) Triglyceride(s) of fatty acids

The composition of the present invention comprises at least one triglyceride of fatty acids, said fatty acid each independently having from 4 to 30 carbon atoms, linear or branched, saturated or unsaturated.

Triglycerides have the general formula (I):

\[
\text{CH}_2(\text{OOCR}_1)\text{CH}(\text{OOCR}_2)\text{CH}_2(\text{OOCR}_3)
\]

(II)

wherein R\textsubscript{1}, R\textsubscript{2} and R\textsubscript{3} are usually of different chain lengths but could be the same, e.g., C\textsubscript{4}-C\textsubscript{30} and more usually C\textsubscript{6}-C\textsubscript{24}.

Examples of triglycerides are given in the CTFA Cosmetic Ingredient Handbook. Triglyceride of fatty acids are esters of glycerol.

Preferred glyceride fatty esters contain carboxylic acids of carbon chain length ranging from C\textsubscript{6} to C\textsubscript{24}, preferably from C\textsubscript{7} to C\textsubscript{22}, and more preferably from C\textsubscript{7} to C\textsubscript{8}, linear or branched, saturated or unsaturated.

Synthetic triglycerides include, but are not limited to, triethylhexanoin, trimyristin, triolein, tristearin and glyceryl trilaurate.

Vegetable derived glyceride fatty esters are particularly preferred, and specific examples of preferred materials as sources of glyceride fatty esters include peanut oil, sesame oil, avocado oil, coconut, cocoa butter, almond oil, safflower oil, corn oil, cotton seed oil, castor oil, hydrogenated castor oil, olive oil, jojoba oil, palm oil, soybean oil, wheat germ oil, linseed oil, and sunflower seed oil. Coconut oil, sunflower oil, castor oil and mixtures thereof are particularly preferred, especially coconut oil.

In one embodiment said triglyceride of fatty acids is liquid.

"Liquid triglyceride of fatty acids" means a triglyceride of fatty acids which is in liquid form at 20°C and atmospheric pressure, typically at 101325 Pa.

In one embodiment, liquid triglycerides of fatty acids contain from 4 to 10 carbon atoms such as
triglycerides of heptanoic acid, 2-ethylhexanoic acid, octanoic acids or alternatively, for example, sunflower, maize, soya bean, gourd, grape seed, sesame, hazelnut, apricot, macadamia, arara, sunflower, castor and avocado oils, caprylic/capric acid triglycerides such as those sold by the company Stearineries Dubois or those sold under the names Miglyol® 810, 812 and 818, jojoba oil, and shea butter oil.

Representative triglycerides include the glyceryl esters of heptanoic acid, 2-ethylhexanoic acid, octanoic acids, caprylic acid, capric acid, isostearic acid, adipic acid, lauric acid, stearic acid, and mixtures thereof.

In one embodiment, said fatty acids of said triglyceride have from 6 to 12 carbon atoms.

In one embodiment, said triglyceride is selected from the group consisting of C₆ to C₁₂ triglycerides, including triheptanoin, capric triglyceride, caprylic triglyceride, triethylhexanoin, tristearin, triolein, tristearin and glyceryl trilaureate, and mixtures thereof.

Mentions may be made in particular of the ingredient triethylhexanoin, such as the product sold by the company Nihon Surfactant under the tradename Nikkol Trifat S308.

In one embodiment, the triglyceride of fatty acids is present in the composition in an amount ranging from 0.05% to 20% by weight, preferably from 0.1% to 10% by weight, relative to the total weight of the composition.

(iii) Ether useful in the composition of the invention

The composition of the present invention comprises at least one ether of formula (II),

\[ \text{R}_5\text{O-R}_6 \]  \text{formula (II)}

In the formula (II):

\( \text{R}_5 \) and \( \text{R}_6 \), which may be identical or different, denote a linear or branched C₆-C₂₅ alkyl or alkenyl radical.

Preferably, the ether of formula (II) is chosen from compounds for which the radicals \( \text{R}_5 \) and \( \text{R}_6 \), which may be identical or different, denote a linear or branched C₆-C₂₂ alkyl or alkenyl radical.

More particularly, according to the present invention, the radicals \( \text{R}_5 \) and \( \text{R}_6 \) are identical.

In accordance with one particular embodiment of the invention, the preferred dialkyl ether is chosen from di-n-hexyl ether, di-n-heptyl ether, di-n-octyl ether, di-n-nonyl ether, di-n-decyl ether, di-isodecyl ether, di-n-dodecyl ether, di-n-eteradecyl ether, di-n-hexadecyl ether, di-n-oxtadecyl ether, or a mixture thereof.
$R_5$ and $R_6$ preferentially denote a C$_8$ radical.

These compounds may be prepared according to the process described in patent application DE 41 27 230.

Most preferably, the ether of formula (II) is di-n-octyl ether (INCI name: dicaprylyl ether). Such product is commercially available, for example those sold under the name Cetiol OE by the company Cognis (BASF), or Rofetan OE by the company Ecogreen Oleochemicals.

Advantageously, the ether of formula (II) is present in the composition according to the invention in an amount ranging from 0.1% to 20% by weight, preferably from 1% to 15% by weight, relative to the weight of the composition.

**(iv) Dextrin ester**

According to the invention, the composition comprises at least one ester of dextrin, preferably an ester of dextrin and a fatty acid.

According to the present invention, the dextrin ester is preferably ester of dextrin and a fatty acid which is saturated or unsaturated, linear or branched C$_{12}$ to C$_{24}$ fatty acid.

Preferably, the dextrin ester is an ester of dextrine and a C$_{12}$-C$_{18}$ fatty acid, for example myristic acid, palmitic acid, or a mixture thereof.

Mentions may be made of dextrin palmitate, for example those commercialized under the reference RHEOPEARL KL2® OR by the company CflBA FLOUR, dextrin myristate, for example such as those commercialized under the references Rheopearl MKL2® by the company CflBA FLOUR, or a mixture thereof.

According to yet another preferred embodiment, the ester of dextrin and a fatty acid of the present invention is dextrin myristate.

Preferably the composition according to the invention comprise at least one ester of dextrin ranging from 0.01% to 10% by weight and preferably from 0.1% to 5% by weight, relative to the total weight of the composition.

According to a preferred embodiment, the present invention relates to a composition for caring for and/or making up keratin materials, comprising:

(i) from 1% to 10% by weight of at least one nacre;
(ii) from 0.1% to 10% by weight of at least one triglyceride of fatty acids, wherein the fatty acid having from 4 to 30 carbon atoms, linear or branched, saturated or unsaturated;

(iii) from 1% to 15% by weight of at least one ether of formula (II);

\[ \text{Rs-O-Re} \text{ formula (II)} \]

wherein:

- \( R_s \) and \( R_e \), which may be identical or different, denote a linear or branched \( C_6-C_{25} \) alkyl or alkenyl radical; and

(iv) from 0.1% to 5% by weight of at least one ester of dextrin,

wherein the amount being relative to the total weight of the composition.

The composition according to the present invention may be in various forms, for example, suspensions, dispersions, solutions, gels, emulsions, such as oil-in-water (O/W), water-in-oil (W/O), and multiple (e.g., W/O/W, polyol/O/W, and 0/W/O) emulsions, creams, foams, sticks, dispersions of vesicles, for instance, of ionic and/or nonionic lipids, two-phase and multi-phase lotions, sprays, powders, and pastes. The composition may be anhydrous, for example, it can be an anhydrous paste or stick. The composition may also be a leave-in composition.

According to one embodiment, the composition according to the present invention is in the form of a liquid composition.

According to a preferred embodiment, the composition according to the present is in the form of a water-in-oil emulsion, comprising an aqueous phase dispersed in a continuous fatty phase.

**Fatty phase**

A composition in accordance with the present invention may comprise at least one liquid and/or solid fatty phase, preferably liquid fatty phase.

According to one embodiment, the composition according to the present invention is in the form of an emulsion.

In particular, a composition of the invention may comprise at least one liquid fatty phase, especially at least one oil, which is different from the ingredients listed above.

The term "oil" refers to any fatty body in liquid form at room temperature (20-25°C) and atmospheric pressure.
These oils may be of animal, plant, mineral or synthetic origin.
The oils may be volatile or non-volatile.
The term "volatile oil" refers to any non-aqueous medium capable of evaporating from the skin or lips, in less than one hour, at room temperature (20-25°C) and atmospheric pressure (760 mmHg). The volatile oil is a volatile cosmetic oil, liquid at room temperature. More specifically, a volatile oil has an evaporation rate of between 0.01 and 200 mg/cm²/min, inclusive.
The term "non-volatile oil" is intended to mean an oil remaining on the skin or keratin fiber at ambient temperature and atmospheric pressure. More specifically, a non-volatile oil has an evaporation rate strictly below 0.01 mg/cm²/min.
To measure this evaporation rate, 15g of oil or a mixture of oils to be tested are introduced into a crystallizer, 7cm in diameter, placed on a scale located in a large 0.3m³ chamber temperature-controlled at a temperature of 25°C, and humidity-controlled with a relative humidity of 50%. The liquid is left to evaporate freely, without stirring, by providing ventilation with a fan (PAPST-MOTOREN, reference 8550 N, rotating at 2700 rpm) positioned vertically above the crystallizer containing the solvent, with the blades directed toward the crystallizer and at a distance of 20cm from the base of the crystallizer. The mass of oil remaining in the crystallizer is measured at regular intervals. The evaporation rates are expressed in mg of oil evaporated per surface area unit (cm²) and per time unit (minute).
The oils that are suitable for the present invention may be additional hydrocarbon-based oils different from the ingredients mentioned above, silicone-based or fluorine-based.
According to the invention, the term "silicone oil" refers to an oil including at least one silicon atom, and in particular at least on Si-O group.
The term "fluorine oil" refers to an oil including at least one fluorine atom.
The term "hydrocarbon oil" refers to an oil containing primarily hydrogen and carbon atoms.
The oils may optionally include oxygen, nitrogen, sulfur and/or phosphorus atoms, for example, in the form of hydroxyl or acid radicals.
As additional hydrocarbon oils, mentions may be made of volatile oils such as C8-C16 alkanes, for example dodecane, tetradecane; non-volatile oils such as hydrocarbon oils of animal origin, hydrocarbon oils of plant origin, linear or branched hydrocarbons of mineral or synthetic origin, synthetic ethers having from 10 to 40 carbon atoms; polyol esters and pentaerythritol esters, esters of diol dimers and diacid dimers, copolymers of a diol dimer and of a diacid dimer and
esters thereof, copolymers of polyols and of diacid dimers, fatty alcohols that are liquid at ambient temperature, C12-C22, higher fatty acids, oils of higher molar mass having in particular a molar mass ranging from approximately 400 to approximately 10,000 g/mol, lipophilic polymers, hydroxylated esters, aromatic esters, esters of C24-C28 branched fatty acids or fatty alcohols, and mixtures thereof.

As silicone oils, mention may be made of:
linear or cyclic volatiles oils, especially those with a viscosity of less than or equal to 8 centistokes (cSt) (8 \times 10^{-6} \text{m}^2/\text{s}), and especially containing from 2 to 10 silicon atoms and in particular from 2 to 7 silicon atoms, these silicones optionally comprising alkyl or alkoxy groups containing from 1 to 10 carbon atoms;
linear or cyclic non-volatile polydimethylsiloxanes (PDMS); polydimethylsiloxanes comprising alkyl, alkoxy or phenyl groups, which are pendant or at the end of a silicone chain, these groups containing from 2 to 24 carbon atoms; for example cyclohexasiloxane, which is commercially available under the tradename Silsoft 1217 sold by the company Momentive Performance Materials.
phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyl trimethylsiloxy diphenyl siloxanes, diphenyl dimethicones, diphenyl methylidiphenyl trisiloxanes and 2-phenylethyl trimethylsiloxy silicates, for example the product phenyl trimethicone sold by the company Dow Corning under the tradename Dow Corning 556 Cosmetic Grade Fluid, and mixtures thereof.

Preferably, the oil is selected from linear or cyclic non-volatile polydimethylsiloxanes, phenyl silicones, more preferably selected from cyclohexasiloxane, phenyl trimethicone, or a mixture thereof.

According to a preferred embodiment, when exists, the additional oil (excluding the oils of (ii) and (iii) as claimed above) is present in the composition of the present invention in an amount ranging from 0.01% to 20% by weight, preferably from 0.1% to 10% by weight, relative to the total weight of the composition.

Advantageously, the fatty phase is present in the composition in an amount ranging from 0.5% to 70% by weight, preferably from 10% to 50% by weight, relative to the total weight of the composition.

**Aqueous phase**
The composition according to the invention may comprise an aqueous phase.

The aqueous phase comprises water.

The aqueous phase may also comprise water-miscible organic solvents (at room temperature: 25°C), for instance monoalcohols containing from 2 to 6 carbon atoms, such as ethanol or isopropanol; polyols especially containing from 2 to 20 carbon atoms, preferably containing from 2 to 10 carbon atoms and preferentially containing from 2 to 6 carbon atoms, such as glycerol, propylene glycol, butylene glycol, pentylene glycol, hexylene glycol, dipropylene glycol or diethylene glycol; glycol ethers (especially containing from 3 to 16 carbon atoms) such as mono-, di- or tripropylene glycol (Ci-C₄)alkyl ethers, mono-, di- or triethylene glycol (Ci-C₄)alkyl ethers, and mixtures thereof.

The aqueous phase may also comprise stabilizers.

The aqueous phase may also comprise any water-soluble or water-dispersible compound that is compatible with an aqueous phase, such as gelling agents, film-forming polymers, thickeners or surfactants, and mixtures thereof.

In particular, a composition of the invention may comprise an aqueous phase in a content ranging from 20% to 85% by weight, especially from 30% to 75% by weight relative to the total weight of the composition.

**Film former(s)**

Advantageously, the compositions according to the invention comprise at least one film former.

Preferably the film former is chosen from the hydrogenated hydrocarbon resins.

Hydrogenated hydrocarbon resins useful according to various embodiments of the disclosure include, by way of example only, one or more chosen from hydrogenated styrene/methyl styrene/indene copolymers, hydrogenated polycyclopentadienes, and mixtures thereof.

Exemplary commercially available hydrogenated hydrocarbon resin products that may be used include, but are not limited to, products sold by Eastman Chemical Company under the trade name Regalite™, e.g., R1090, R1100, R7100, S1100, and S5100 (hydrogenated styrene/methyl styrene/indene copolymer); products sold by Eastman Chemical Company under the trade names Eastotac™ and Regalrez™, e.g., Regalrez™ 1085 (hydrogenated hydrocarbon resin, with a Mw of about 1000); and products such as hydrogenated polycyclopentadiene, sold by Kobo Products under the trade name Koboguard®, e.g., Koboguard® 5400 IDD.
According to various embodiments of the disclosure, the molecular weight of the at least one hydrogenated hydrocarbon resin may range from 500 to 1500, such as, for example, from 500 to 1200. In at least one exemplary embodiment of the disclosure, the molecular weight ranges from 500 to 900.

According to a preferred embodiment, the compositions of the invention comprise hydrogenated styrene/methyl styrene/indene copolymer as film former.

According to an embodiment, when exists, the amount of film former in the compositions of the invention is from 0.01% to 5% by weight, preferably from 0.1% to 2% by weight, in relation to the total weight of said composition.

**Pigment(s)**

According to a preferred embodiment, the composition of the present invention may comprises at least one pigment.

"Pigments" are white or coloured, organic or inorganic, non-interference particles which are insoluble in aqueous and non-aqueous media and are intended for colouring the composition.

Not included, therefore, in this regard are nacres (natural or otherwise), metallic pigments, interference pigments, etc.

Inorganic pigments which can be used in the invention include oxides or dioxides of titanium, zirconium or cerium, and also oxides of zinc, iron or chromium, Prussian blue, manganese violet, ultramarine blue and chromium hydrate, and mixtures thereof.


According to one preferred embodiment, use will be made of inorganic pigments, selected more particularly from titanium oxides and iron oxides (especially yellow, black and red), advantageously coated with at least one hydrophobic agent.

The pigments of the invention are preferably wholly or partly surface-treated with a hydrophobic agent, more particularly with a fluoro, fatty acid or amino acid, or silicone compound, or a mixture thereof.
Their initial particle size \(D_{0.5}\) is especially less than 20 \(\mu\eta\), preferably between 0.4 and 10 \(\mu\eta\), end points included.

By way of example, the hydrophobic treatment agent may be selected from fatty acids such as stearic acid; metal soaps such as aluminium dimyristate and the aluminium salt of hydrogenated tallow glutamate; perfluoroalkyl phosphates and polyhexafluoropropylene oxides; perfluoropolyethers; amino acids; N-acylamino acids or salts thereof; lecithin, isopropyl trisostearyl titanate, isostearyl sebacate, and silicone compounds such as dimethicones or polydimethylsiloxanes, and mixtures thereof.

The hydrophobic treatment agent is preferably selected from perfluoroalkyl phosphates, polyhexafluoropropylene oxides, perfluoropolyethers, amino acids, N-acylamino acids or salts thereof, isopropyl trisostearyl titanate, and mixtures thereof.

More preferably, the hydrophobic agent is selected from perfluoroalkyl phosphates, N-acylamino acids or salts thereof, isopropyl trisostearyl titanate, and mixtures thereof.

The surface-treated pigments may be prepared according to chemical, electronic, chemomechanical or mechanical surface treatment techniques that are well known to the skilled person. It is also possible to use commercial products.

The surface agent may be absorbed or adsorbed on the pigments by solvent evaporation, chemical reaction and creation of a covalent bond.

According to one version, the surface treatment comprises a coating of the pigments.

The coating may represent from 0.1 to 10\% by weight and more particularly from 1\% to 5\% by weight, of the total weight of the coated pigments.

Coating may be carried out, for example, by adsorption of a liquid surface agent on the surface of the pigments, by simple mixing with stirring of the pigments and of said surface agent, optionally under hot conditions, prior to the incorporation of the pigments into the other ingredients of the care or makeup composition.

Coating may be carried out, for example, by chemical reaction of a surface agent with the surface of the pigments and creation of a covalent bond between the surface agent and the pigments.

This method is described especially in patent US 4,578,266.

Amino acid or fatty acid treatment agent
The hydrophobic treatment agent may be selected from fatty acids, such as stearic acid; metal soaps, such as aluminium dimyristate and the aluminium salt of hydrogenated tallow glutamate; amino acids; N-acylamino acids or salts thereof; lecithin, isopropyl trisostearyltitane (or alternatively called ITT), and mixtures thereof.

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

The fatty acids in the present invention are more particularly acids with hydrocarbon chains having from 1 to 30 carbon atoms, preferably having from 5 to 18 carbon atoms. The hydrocarbon chain may be saturated, monounsaturated or polyunsaturated.

Examples of pigments coated with fatty acids include those containing the disodium stearoylglutamate/aluminium hydroxide pairing, these being sold in particular under the trade name NAI-TAO-77891, NAI-C33-8073-10, NAI-C33-8075, NAI-C47-051-10, NAI-C33-115, NAI-C33-134, NAI-C33-8001-10, NAI-E33-7001-10, NAI-C33-9001-10 from the company Miyoshi Kasei.

Examples of pigments treated with isopropyltitanium triisostearate (ITT) include those sold under the trade name BWBO-12 (Iron oxide CI77499 and isopropyl titanium triisostearate), BWYO-12 (Iron oxide CI77492 and isopropyl titanium triisostearate) and BWRO-12 (Iron oxide CI77491 and isopropyl titanium triisostearate) by the company Kobo.

Preferably, pigments coated with disodium stearoylglutamate/aluminium hydroxide are used in the present invention.

Preferably, when exists, the pigment is present in the composition of the invention in an amount from 1% to 30% by weight, preferably from 2% to 25% by weight, and more preferably from 5% to 20% by weight, relative to the total weight of the composition.

**Method and use**

Another aspect of the present invention is a process for caring for and/or making up keratin materials, using the composition according to the present invention as explained above.
The method for caring for and/or making up keratin materials according to the present invention comprises the application on the keratin materials of at least one layer of cosmetic composition according to the present invention.

The method according to the present invention can improve optical cosmetic effects, such as instant radiance effect, without deteriorating other cosmetic effects.

The invention also relates to the use of the composition according to the invention for improving the optical effect of keratin materials, in particular the skin and lips, more particularly the skin. Preferably, the optical effect includes instant radiance effect, furthermore long-lasting radiance effect, and coverage effect.

It is to be understood that a person skilled in the art can choose the appropriate presentation form, as well as its method of preparation, on the basis of his/her general knowledge, taking into account the nature of the constituents used, for example, their solubility in the vehicle, and the application envisaged for the composition.

The examples that follow are aimed at illustrating the compositions and processes according to this invention, but are not in any way a limitation of the scope of the invention.

EXAMPLES

I. Preparation

The invention formula 1 and comparative formulas 1, 2, and 3 were prepared:

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<th>Comparative formula (% by weight relative to the total weight of the formula)</th>
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Comparative formula 1 contains SILICA SILYLATE replacing dextrin ester of the present invention;

Comparative formula 2 contains oil TRIDECYL TRIMELLITATE instead of ingredients (ii) and (iii) of the invention;

Comparative formula 3 does not contain the nacre (i) as claimed.

The invention and comparative formulas were prepared following the steps of:
- heat phase B to 90°C till homogenized,
- mill the phase C at room temperature,
- mix phase A, phase B and Phase C until homogenized at room temperature,
- add phase D to homogenizer with the homogenizer Turbolab 2500 produced by the company PIERRE GUERIN TECHNOLOGIES.

II. Evaluation of the invention and comparative formulas

The radiance effects and stabilities of the invention and comparative formulas listed above after applying on keratin materials were evaluated, using the following protocols.

Method for evaluating immediate radiance of the compositions of the invention and comparative formulas:
apply 50 µη thickness film of the formulas, respectively, on contrast cards, dry the cards with
the formulas at room temperature (20-25°C) for 24h, then measure the gloss value using
Glossmeter at 60°;

**Method for evaluating long-lasting radiance of the invention formulas**

1. Applying 100 mg of the compositions of the invention on half face of 12 women models with
ages between 20 and 45, respectively;
2. evaluating the radiance (reflection) of the faces of the women models using the equipment
SAMBA produced by Bossa Nova Technologies at a standard condition room (21±1°C &
45±5%), immediately and after 5 hours.

For the purpose of the present invention, it is expected that the less change in the value of
radiance between immediate and that at 5 hours, the better long-lasting radiance effect is
observed.

**Method for evaluating the coverage of the invention and comparative formulas:**

apply 50µm thickness film of the formulas, respectively, on contrast cards, dry the cards with the
formulas at room temperature (20-25°C) for 24h, then measure L* value by Colorimeter on both
black and white areas of the contrast cards, then use the following formula to calculate the in-
vitro coverage,

\[
Coverage_{\text{in-vitro}} = \left( \frac{L_{\text{black}} + 16}{L_{\text{white}} + 16} \right)^3 \times 100
\]

The higher the gloss value and coverage value are, the better immediate radiance effect and
coverage effect are.

The lower the difference between radiance immediately measured and that measured after 5
hours, the better long-lasting radiance effect is.

Preferably, to achieve the purpose of the present invention:

the gloss value (immediate radiance) is expected to be greater than or equal to 70;
the coverage (calculated by L*) is expected to be greater than or equal to 70; and
the difference of radiance (which represents the long-lasting radiance effect) is expected to be
less than or equal to 12.

**Method for evaluating the stability of the invention and example formulas**
The invention and comparative formulas were kept under 4°C, 37°C, and 45°C for 2 months. They were also kept in oven for 7 days under temperature change from -20°C to 20°C every 6 hours, continuously.

The results of the evaluation are as follow.

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<th>Item</th>
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<th>Comparative formula</th>
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<tr>
<td>Immediate radiance (gloss value)</td>
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<td>Long-lasting radiance (difference between radiance</td>
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<tr>
<td>(reflection) value immediate after application and</td>
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<tr>
<td>5 hours after application)</td>
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<td>Coverage (calculated by L*)</td>
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<td>Stability</td>
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From the results above, it is observed that all formulas are stable at different temperatures.

Unlike the comparative formulas 1, 2, and 3, the invention formula 1 has an improved instant radiance effect, and an improved coverage. The comparative formulas 1, 2, and 3 are not satisfying in one or both effects evaluated aforementioned.

Finally, the invention formula 1 is observed to have a good long-lasting radiance effect.
 Claims

1. A composition for caring for and/or making up keratin materials, comprising:

(i) at least one nacre;

(ii) at least one triglyceride of fatty acids, wherein the fatty acid having from 4 to 30 carbon atoms, linear or branched, saturated or unsaturated;

(iii) at least one ether of formula (II);

\[ R_s \text{-O-} R_e \text{ formula (II)} \]

wherein:

- \( R_s \) and \( R_e \), which may be identical or different, denote a linear or branched \( C_6-C_{25} \) alkyl or alkenyl radical; and

(iv) at least one ester of dextrin.

2. Composition of claim 1, wherein the nacre is selected from mica coated with iron oxide, mica coated with bismuth oxychloride, mica coated with Titanium oxide or dioxide, mica coated with chromium oxide, mica coated with tin oxide, mica coated with Sn02, mica coated by BaS04, mica coated with an organic dye, nacreous pigments based on bismuth oxychloride, or a mixture thereof; preferably selected from mica at the surface of which are superimposed at least two successive layers of metal oxides and/or of organic dyestuffs; more preferably selected from platelets type mica coated with titanium oxide, iron oxide, or both of them.

3. Composition of claim 1 or 2, wherein the nacre is present in the composition of the present invention in an amount ranging from 0.5% to 15% by weight, preferably from 1% to 10% by weight, relative to the total weight of the composition.

4. Composition of any one of the preceding claims 1 to 3, wherein the triglyceride of fatty acid is selected from the compound of formula (I),

\[ \text{CH}_2(\text{OOCR}_i)\text{CH}(\text{OOCR}_2)\text{CH}_2(\text{OOCR}_3) \text{ (I)} \]

wherein: \( R_i \), \( R_2 \), and \( R_3 \) are, same or different, carbon chains containing \( C_4-C_{30} \) carbon atoms, preferably containing \( C_6-C_{24} \) carbon atoms.
5. Composition of any one of the preceding claims 1 to 4, wherein the triglyceride of fatty acid is selected from the group consisting of trioctanoin, capric triglyceride, caprylic triglyceride, triethyhexanoin, trimyristin, triolein, tristearin and glycercytrilaurate, and mixtures thereof; preferably triethylhexanoin.

6. Composition of any one of the preceding claims 1 to 5, wherein the triglyceride of fatty acid is present in the composition in an amount ranging from 0.05% to 20% by weight, preferably from 0.1% to 10% by weight, relative to the total weight of the composition.

7. Composition of any one of the preceding claims 1 to 6, wherein in the formula (II):

    Rs-O-Re formula (II)

wherein:

the radicals R₅ and R₆, which may be identical or different, denote a linear or branched C₆-C₁₂ alkyl or alkenyl radical;

more particularly the radicals R₅ and R₆ are identical.

8. Composition of any one of the preceding claims 1 to 7, wherein the ether (iii) of formula (II) is selected from the group consisting of dialkyl ethers comprising di-n-hexyl ether, di-n-heptyl ether, di-n-octyl ether, di-n-nonyl ether, di-n-decyl ether, di-isodecyl ether, di-n-dodecyl ether, di-n-eteradecyl ether, di-n-hexadecyl ether, di-n-oxtadecyl ether, or a mixture thereof; preferably di-n-octyl ether.

9. Composition of any one of the preceding claims 1 to 8, wherein the ether of formula (II) is present in the composition according to the invention in an amount ranging from 0.1% to 20% by weight, preferably from 1% to 15% by weight, relative to the weight of the composition.

10. Composition of any one of the preceding claims 1 to 9, wherein the dextrin ester is a dextrin ester of fatty acid; preferably is a ester of dextrin and a saturated or unsaturated, linear or branched C₁₂ to C₂₄ fatty acid; preferably is an ester of dextrin and a C₁₄-C₁₈ fatty acid, more preferably is dextrin palmitate, dextrin myristate, or a mixture thereof.

11. Composition of any one of the preceding claims 1 to 10, wherein the ester of dextrin is present in the composition in an amount ranging from 0.01% to 10% by weight and preferably from 0.1% to 5% by weight, relative to the total weight of the composition.

12. Composition for caring for and/or making up keratin materials, comprising:

   (i) from 1% to 10% by weight of at least one nacre;
(ii) from 0.1% to 10% by weight of at least one triglyceride of fatty acids, wherein the fatty acid having from 4 to 30 carbon atoms, linear or branched, saturated or unsaturated;

(iii) from 1% to 15% by weight of at least one ether of formula (II);

\[ \text{Rs-O-Re} \quad \text{formula (II)} \]

wherein:

R5 and R6, which may be identical or different, denote a linear or branched C6-C25 alkyl or alkenyl radical; and

(iv) from 0.1% to 5% by weight of at least one ester of dextrin,

wherein the amount being relative to the total weight of the composition.

13. Composition of any one of the preceding claims 1 to 12 further comprises at least one film former; preferably selected from hydrogenated hydrocarbon resins; more preferably selected from hydrogenated styrene/methyl styrene/indene copolymers, hydrogenated polycyclopentadienes, or a mixture thereof.

14. Composition of any one of the preceding claims 1 to 13 further comprises at least one pigment; preferably selected from inorganic pigments; more preferably selected from titanium oxides and iron oxides, advantageously coated with at least one hydrophobic agent; more preferably selected from inorganic pigments of titanium oxides and iron oxides coated with fatty acids containing disodium stearoylglutamate/ aluminium hydroxide pairing.

15. Process for caring for and/or making up keratin materials, characterized in application of the composition of any one of the preceding claims 1 to 14.

16. Use of the composition of any one of the preceding claims 1 to 14 for improving the optical effect of keratin materials, in particular the skin and lips, more particularly the skin.
**INTERNATIONAL SEARCH REPORT**

**International application No.**

PCT/CN2015/097871

**A. CLASSIFICATION OF SUBJECT MATTER**

A61K 8/19(2006.01); A61K 8/72(2006.01); A61Q 1/02(2006.01); A61Q 5/12(2006.01); A61K 8/37(2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

A61K7; A61Q/

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, CNKI, CNPAT, EPDOC, keratin, nacre+, triglyceride, ether, dextrin, L'oreal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>US 2012294816 A1 (L'OREAL S.A.) 22 November 2012 (2012-11-22) description, paragraphs [0149], [0159]-[0161] and [0176]-[0179]</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
  * "A": document defining the general state of the art which is not considered to be of particular relevance
  * "E": earlier application or patent but published on or after the international filing date
  * "L": document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  * "O": document referring to an oral disclosure, use, exhibition or other means
  * "P": document published prior to the international filing date but later than the priority date claimed
  * "R": later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  * "X": document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  * "Y": document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  * "&": document member of the same patent family

Date of the actual completion of the international search

02 August 2016

Date of mailing of the international search report

25 August 2016

Name and mailing address of the ISA/CN

STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA
6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088, China

Authorized officer

FENG,Zhiqiang

Facsimile No. (86-10)62019451

Telephone No. (86-10)82245537

Form PCT/ISA/210 (second sheet) (July 2009)
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