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(54) Title: COSMETIC COMPOSITION FOR KERATIN FIBERS

(57) Abstract: The present invention relates to a cosmetic composition for keratin fibers, in a mousse form, comprising: (a) at least one fatty material; (b) at least one glucoside type surfactant; (c) at least one non-volatile alkaline agent; and (d) at least one oxidizing agent, and (e) at least one foam stabilizer wherein the amount of the (a) fatty material (s) is 20% by weight or more, preferably 30% by weight or more, and more preferably 40% by weight or more, relative to the total weight of the composition. The present invention is useful, because the cosmetic composition according to the present invention can have good foamability as well as good bleaching or coloring ability, without offensive odor from ammonia.



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## DESCRIPTION

## COSMETIC COMPOSITION FOR KERATIN FIBERS

## TECHNICAL FIELD

The present invention relates to a cosmetic composition in the form of a mousse, particularly a dyeing or a bleaching composition, for keratin fibers such as hair.

## BACKGROUND ART

In addition to higher performance of products for bleaching or coloring hair, consumers of such products are more and more sensitive to the usage quality of the products. From the view point of usage quality, for example, malodor from ammonia which is typically contained as an alkaline agent in conventional hair bleaching or coloring products; difficulty in self-handling conventional hair bleaching or coloring products which are in the form of a liquid, gel or cream; risk of the product dripping during the application to the hair; and the like can be regarded as strong drawbacks.

In order to reduce the problems occurring with the pungent odor of ammonia, it has been proposed to replace totally or partially replacing this alkaline agent by another one such as monoethanolamine. However, the consequence of this modification is a decrease of the bleaching or coloring efficiency of the composition.

Recently, an alternative to the hair dyeing or bleaching compositions based on ammonia as alkaline agent has been proposed, with compositions comprising high amounts of fatty materials. Such compositions usually comprise more than 20 % of fatty compounds, in combination with an oxidizing agent, with or without an oxidative dye. Such compositions provide high bleaching or coloring ability with relative small amount of alkaline agent and advantageously without ammonia.

In order to enhance the usage quality of hair bleaching or coloring products, foam textures have been recently recognized on the market as strong improvements, especially from the view point of easier self-handling.

Current hair bleaching or coloring products to be applied in the form of a mousse in the market generally include a foaming surfactant, an oxidizing agent, and an alkaline agent, with or

without an oxidative dye. In order to realize adequate bleaching or coloring property comparable to conventional hair bleaching or coloring products, ammonia is in general used as the alkaline agent in such products. Consequently, the problem of the odor due to the presence of ammonia is not solved.

To obtain compositions in the form of a mousse from the compositions comprising high amounts of fatty compounds was not proposed because it was thought that high amounts of fatty materials may suppress or collapse foam.

#### DISCLOSURE OF INVENTION

An objective of the present invention is to provide a cosmetic composition for keratin fibers such as hair which is the form of a mousse, which comprises high amounts of fatty compounds but still can have good foamability and exhibit a good stability of the resulting foam, as well as a good bleaching or dyeing ability.

The above objective of the present invention can be achieved by a cosmetic composition for keratin fibers, in the form of a mousse, comprising:

- (a) at least one fatty material;
- (b) at least one glucoside type surfactant;
- (c) at least one non-volatile alkaline agent;
- (d) at least one oxidizing agent; and
- (e) at least one foam stabilizer,

wherein

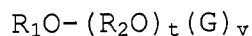
the amount of the (a) fatty material(s) is 20% by weight or more, preferably 30% by weight or more, and more preferably 40% by weight or more, relative to the total weight of the composition.

It is preferable that the (a) fatty material be in the form of a liquid at ambient temperature and under atmospheric pressure.

The (a) fatty material may preferably be selected from the group consisting of oils of animal or plant origin, synthetic glycerides, fatty esters other than animal or plant oils and synthetic glycerides, fatty alcohols, fatty acids, silicone oils, and aliphatic hydrocarbons. More preferably, the fatty material is aliphatic hydrocarbon such as mineral oil.

The (b) glucoside type surfactant may preferably be selected from the group consisting of alkyl glucosides and alkyl polyglucosides.

The (b) glucoside type surfactant may preferably be represented by the following general formula:



wherein

R<sub>1</sub> represents a linear or branched alkyl radical containing from 1 to 30, preferably 6 to 28, and more preferably 8 to 26 carbon atoms, or an aralkyl radical containing from 7 to 30, preferably 7 to 28, and more preferably 7 to 26 carbon atoms;

R<sub>2</sub> represents an alkylene radical containing from 2 to 4 carbon atoms;

G represents a reduced sugar containing 5 or 6 carbon atoms;

t denotes a value ranging from 0 to 10; and

v denotes a value ranging from 1 to 15.

The reduced sugar containing 5 or 6 carbon atoms represented by G in the above formula may be selected from the group consisting of glucose, fructose and galactose.

It is preferable that the amount of the (b) glucoside type surfactant(s) be 0.1 to 15% by weight, preferably 0.5 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.

The (c) non-volatile alkaline agent may be an inorganic alkaline agent selected from the group consisting of alkaline metal hydroxides; alkaline earth metal hydroxides; alkaline metal (hydrogeno)carbonates; alkaline earth metal(hydrogeno)carbonates; and alkaline metal metasilicates.

The (c) non-volatile alkaline agent may be an organic alkaline agent selected from the group consisting of monoamines and derivatives thereof; diamines and derivatives thereof; polyamines and derivatives thereof; amino acids and derivatives thereof; oligomers of amino acids and derivatives thereof; polymers of amino acids and derivatives thereof; urea and derivatives thereof; and guanidine and derivatives thereof.

It is preferable that the (c) non-volatile alkaline agent be selected from alkanolamines. More preferably the non volatile alkaline agent is monoethanolamine.

It is preferable that the amount of the (c) non-volatile alkaline agent (s) be 0.01 to 15% by weight, preferably 0.1 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.

The (d) oxidizing agent may be hydrogen peroxide or persalts such as persulfates. More preferably, the oxidizing agent is hydrogen peroxide.

It is preferable that the amount of the (d) oxidizing agent(s) be 0.1 to 15% by weight, preferably 0.5 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.

The (e) foam stabilizer may be a rheology modifier selected from hydrophilic or lipophilic, organic or inorganic polymers and non-polymers, preferably chosen from organophilic clays and fumed silicas, fatty acid amides, and thickening polymers such as cellulose polymers, galactomannans and derivatives thereof, gums of microbial origin, acrylic acid or acrylamidopropanesulfonic acid crosslinked homopolymers; associative polymers, and mixture thereof.

The (e) foam stabilizer may preferably be selected from cellulose polymers.

It is preferable that the amount of the (e) foam stabilizer(s) be 0.05 to 20% by weight, preferably 0.1 to 15% by weight, and more preferably 0.5 to 10% by weight, relative to the total weight of the composition.

The cosmetic composition according to the present invention may further comprise (f) at least one coloring substance selected from the group consisting of direct dyes and oxidation dyes.

The present invention also relates to a cosmetic process for keratin fibers comprising a step of forming a foam by mixing or shaking the cosmetic composition according to the present invention; and applying the foam to the keratin fibers. It is possible to use a non-aerosol device or an aerosol device to form the foam.

Finally, the present invention also relates to a multi-compartment system or kit comprising at least a first compartment and a second compartment in which the first compartment comprises at least one non-volatile alkaline agent (components (c)) and optionally at least one coloring substance (component (f)), and the second compartment comprises at least one oxidizing agent (component (d)), the other essential components (a), (b) and (e) being present, separately or not, in at least one of the first and second compartments or in others; the amount of fatty material(s) (component (a)) in the composition obtained by mixing

the compartments being 20 % by weight or more, preferably 30% by weight or more, and more preferably 40% by weight or more, relative to the total weight of the composition.

#### BEST MODE FOR CARRYING OUT THE INVENTION

The inventors performed diligent research and found that a specific foam approach in combination with the technology relating to composition with high amounts of fatty materials could lead to good foamability and stability of the resulting foam, as well as good bleaching or coloring ability, in addition to no-malodor.

In addition, the foam formed by the cosmetic composition according to the present invention can show good consistency, as well as good applicability to the keratin fibers.

Furthermore, the cosmetic composition according to the present invention can provide superior cosmetic properties other than bleaching or coloring ability, such as good feeling to touch.

According to the present invention, the improvement of the cosmetic composition for treating keratin fibers such as hair can be achieved by specific conditions of the type and the amount of components in the cosmetic composition.

Thus, the cosmetic composition according to the present invention is characterized by being in the form of a mousse, and comprising:

- (a) at least one fatty material;
- (b) at least one glucoside type surfactant;
- (c) at least one non-volatile alkaline agent;
- (d) at least one oxidizing agent; and
- (e) at least one foam stabilizer

wherein

the amount of the (a) fatty material(s) is 20% by weight or more, preferably 30% by weight or more, and more preferably 40% by weight or more, relative to the total weight of the composition.

Hereinafter, the cosmetic composition according to the present invention will be explained in a more detailed manner.

In the present invention, the terms foam or mousse are used indifferently.

A mousse according the present invention is the mixture of gas, preferably air, with a composition preferably in the form of

liquid, cream or gel, and the mixture (expanded or aerated composition) can have at room temperature (preferably 25°C) a density preferably less than 0.5, more preferably less than 0.3, better less than 0.2. The cosmetic composition according to the present invention may be an aerated composition.

**(a) Fatty Material**

The cosmetic composition according to the present invention comprises at least one fatty material, and two or more fatty materials may be used in combination. Thus, a single type of fatty material or a combination of different type of fatty materials may be used.

The term "fatty material" means an organic compound that is insoluble in water at ordinary temperature (25°C) and at atmospheric pressure (760 mmHg) (solubility of less than 5%, preferably 1% and even more preferentially 0.1%). The fatty material may contain, in its structure, a sequence of at least two siloxane groups or at least one hydrocarbon-based chain containing at least 6 carbon atoms. In addition, the fatty substances may be soluble in organic solvents under the same temperature and pressure conditions, for instance chloroform, ethanol, benzene or decamethylcyclopentasiloxane.

In the scope of the invention, it has to be noted that fatty material(s) do(es) not comprise any C<sub>2</sub>-C<sub>3</sub> oxyalkylene units or any glycerolated units.

The fatty material may be in the form of a liquid or a solid. Here, "liquid" and "solid" mean that the fatty material is in the form of a liquid or a paste (non-solid) or solid, respectively, at ambient temperature (25°C) under atmospheric pressure (760 mmHg or 10<sup>5</sup>Pa). It is preferable that the fatty material be in the form of a liquid or a paste, more preferably in the form of a liquid, at ambient temperature and under atmospheric pressure.

The fatty material may be selected from the group consisting of oils of animal or plant origin, mineral oils, synthetic glycerides, esters of fatty alcohols and/or fatty acids other than animal or plant oils and synthetic glycerides, fatty alcohols, fatty acids, silicone oils and aliphatic hydrocarbons. These fatty materials may be volatile or non-volatile. Preferably, the fatty material(s) is(are) selected from aliphatic hydrocarbons, plant oils, fatty alcohols, esters of a fatty acid and/or of a fatty alcohol other than animal or plant oils and synthetic glycerides, or mixtures thereof.

As examples of aliphatic hydrocarbons, mention may be made of, for example, linear or branched hydrocarbons such as mineral oil (e.g., liquid paraffin), paraffin, vaseline or petrolatum, naphthalenes, and the like; hydrogenated polyisobutene, isoeicosan, polydecenes, hydrogenated polyisobutenes such as Parleam, and decene/butene copolymer; and mixtures thereof.

As examples of other aliphatic hydrocarbons, mention may also be made of linear or branched, or possibly cyclic C<sub>6</sub>-C<sub>16</sub> lower alkanes. Examples that may be mentioned include hexane, undecane, dodecane, tridecane and isoparaffins such as isohexadecane and isodecane.

As example of synthetic glycerides mention may be made of, for instance, caprylic/capric acid triglycerides, for instance those sold by the company Stéarineries Dubois or those sold under the names Miglyol® 810, 812 and 818 by the company Dynamit Nobel

As examples of silicone oils, mention may be made of, for example, linear organopolysiloxanes such as dimethylpolysiloxanes, methylphenylpolysiloxanes, methylhydrogenpolysiloxanes, and the like; cyclic organopolysiloxanes such as octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, and the like; and mixtures thereof.

As examples of plant oils, mention may be made of, for example, linseed oil, camellia oil, macadamia nut oil, sunflower oil, apricot oil, soybean oil, arara oil, hazelnut oil, corn oil, mink oil, olive oil, avocado oil, sasanqua oil, castor oil, safflower oil, jojoba oil, sunflower oil, almond oil, grapeseed oil, sesame oil, soybean oil, peanut oil, and mixtures thereof.

As examples of animal oils, mention may be made of, for example, squalene, perhydro-squalene and squalane.

As examples of the esters of a fatty acid and/or of a fatty alcohol, which are advantageously different from the animal or plant oils as well as the synthetic glycerides mentioned above, mention may be made especially of esters of saturated or unsaturated, linear or branched C<sub>1</sub>-C<sub>26</sub> aliphatic mono- or polyacids and of saturated or unsaturated, linear or branched C<sub>1</sub>-C<sub>26</sub> aliphatic mono- or polyalcohols, the total carbon number of the esters being greater than or equal to 10.

Among the monoesters, mention may be made of dihydroabietyl behenate; octyldodecyl behenate; isocetyl behenate; cetyl



lactate; C<sub>12</sub>-C<sub>15</sub> alkyl lactate; isostearyl lactate; lauryl lactate; linoleyl lactate; oleyl lactate; (iso)stearyl octanoate; isocetyl octanoate; octyl octanoate; cetyl octanoate; decyl oleate; isocetyl isostearate; isocetyl laurate; isocetyl stearate; isodecyl octanoate; isodecyl oleate; isononyl isononanoate; isostearyl palmitate; methylacetyl ricinoleate; myristyl stearate; octyl isononanoate; 2-ethylhexyl isononate; octyl palmitate; octyl pelargonate; octyl stearate; octyldodecyl erucate; oleyl erucate; ethyl and isopropyl palmitates, 2-ethylhexyl palmitate, 2-octyldecyl palmitate, alkyl myristates such as isopropyl, butyl, cetyl, 2-octyldodecyl, myristyl or stearyl myristate, hexyl stearate, butyl stearate, isobutyl stearate; dioctyl malate, hexyl laurate, 2-hexyldecyl laurate.

Still within the context of this variant, esters of C<sub>4</sub>-C<sub>22</sub> dicarboxylic or tricarboxylic acids and of C<sub>1</sub>-C<sub>22</sub> alcohols and esters of mono-, di- or tricarboxylic acids and of C<sub>2</sub>-C<sub>26</sub> di-, tri-, tetra- or pentahydroxy alcohols may also be used.

The following may especially be mentioned: diethyl sebacate; diisopropyl sebacate; diisopropyl adipate; di-n-propyl adipate; dioctyl adipate; diisostearyl adipate; dioctyl maleate; glyceryl undecylenate; octyldodecyl stearyl stearate; pentaerythrityl monoricinoleate; pentaerythrityl tetraisononanoate; pentaerythrityl tetrapelargonate; pentaerythrityl tetraisonostearate; pentaerythrityl tetraoctanoate; propylene glycol dicaprylate; propylene glycol dicaprinate; tridecyl erucate; triisopropyl citrate; triisostearyl citrate; glyceryl trilactate; glyceryl trioctanoate; trioctyldodecyl citrate; trioleyl citrate; propylene glycol dioctanoate; neopentyl glycol diheptanoate; diethylene glycol diisononanoate; and polyethylene glycol distearates.

Among the esters mentioned above, it is preferred to use ethyl, isopropyl, myristyl, cetyl or stearyl palmitate, 2-ethylhexyl palmitate, 2-octyldecyl palmitate, alkyl myristates such as isopropyl, butyl, cetyl or 2-octyldodecyl myristate, hexyl stearate, butyl stearate, isobutyl stearate; dioctyl malate, hexyl laurate, 2-hexyldecyl laurate, isononyl isononanoate or cetyl octanoate.

The composition may also comprise, as fatty ester, sugar esters and diesters of C<sub>6</sub>-C<sub>30</sub> and preferably C<sub>12</sub>-C<sub>22</sub> fatty acids. It is recalled that the term "sugar" means oxygen-bearing hydrocarbon-based compounds containing several alcohol functions, with or without aldehyde or ketone functions, and which contain at least

4 carbon atoms. These sugars may be monosaccharides, oligosaccharides or polysaccharides.

Examples of suitable sugars that may be mentioned include sucrose (or saccharose), glucose, galactose, ribose, fructose, maltose, mannose, arabinose, xylose and lactose, and derivatives thereof, especially alkyl derivatives, such as methyl derivatives, for instance methylglucose.

The sugar esters of fatty acids may be chosen especially from the group comprising the esters or mixtures of esters of sugars described previously and of linear or branched, saturated or unsaturated C<sub>6</sub>-C<sub>30</sub> and preferably C<sub>12</sub>-C<sub>22</sub> fatty acids. If they are unsaturated, these compounds may comprise one to three conjugated or non-conjugated carbon-carbon double bonds.

The esters according to this variant may also be chosen from mono-, di-, tri-, tetraesters and polyesters, and mixtures thereof.

These esters may be chosen, for example, from oleates, laurates, palmitates, myristates, behenates, cocoates, stearates, linoleates, linolenates, caprates and arachidonates, or mixtures thereof such as, especially, oleo-palmitate, oleo-stearate and palmito-stearate mixed esters.

It is more particularly preferred to use monoesters and diesters and especially sucrose, glucose or methylglucose mono- or dioleates, stearates, behenates, oleopalmitates, linoleates, linolenates and oleostearates.

An example that may be mentioned is the product sold under the name Glucate® DO by the company Amerchol, which is a methylglucose dioleate.

Examples of esters or mixtures of esters of sugar and of fatty acid that may also be mentioned include:

- the products sold under the names F160, F140, F110, F90, F70 and SL40 by the company Crodesta, respectively denoting sucrose palmitostearates formed from 73% monoester and 27% diester and triester, from 61% monoester and 39% diester, triester and tetraester, from 52% monoester and 48% diester, triester and tetraester, from 45% monoester and 55% diester, triester and tetraester, from 39% monoester and 61% diester, triester and tetraester, and sucrose monolaurate;

- the products sold under the name Ryoto Sugar Esters, for example referenced B370 and corresponding to sucrose behenate formed from 20% monoester and 80% di- triester-polyester;
- the sucrose mono-dipalmito-stearate sold by the company Goldschmidt under the name Tegosoft<sup>®</sup> PSE.

The fatty material may be at least one fatty acid, and two or more fatty acids may be used. The fatty acids should be in acidic form (i.e., unalified, to avoid soaps) and may be saturated or unsaturated and contain from 6 to 30 carbon atoms and in particular from 9 to 30 carbon atoms, which is optionally substituted, in particular with one or more hydroxyl groups (in particular 1 to 4). If they are unsaturated, these compounds may comprise one to three conjugated or non-conjugated carbon-carbon double bonds. They are more particularly chosen from myristic acid, palmitic acid, stearic acid, behenic acid, oleic acid, linoleic acid, linolenic acid and isostearic acid. Preferably the fatty material is not a fatty acid.

The fatty material may be at least one fatty alcohol, and two or more fatty alcohols may be used.

The term "fatty alcohol" here means any saturated or unsaturated, linear or branched C<sub>8</sub>-C<sub>30</sub> fatty alcohol, which is optionally substituted, in particular with one or more hydroxyl groups (in particular 1 to 4). If they are unsaturated, these compounds may comprise one to three conjugated or non-conjugated carbon-carbon double bonds.

Among the C<sub>8</sub>-C<sub>30</sub> fatty alcohols, C<sub>12</sub>-C<sub>22</sub> fatty alcohols, for example, are used. Mention may be made among these of lauryl alcohol, cetyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, behenyl alcohol, linoleyl alcohol, undecylenyl alcohol, palmitoleyl alcohol, linolenyl alcohol, myristyl alcohol, arachidonyl alcohol and erucyl alcohol, and mixtures thereof. In one embodiment, cetyl alcohol, stearyl alcohol or a mixture thereof (e.g., cetearyl alcohol), as well as myristyl alcohol, can be used as a solid fatty material. In another embodiment, isostearyl alcohol can be used as a liquid fatty material.

The fatty material may be a wax. Here, "wax" means that the fatty material is substantially in the form of a solid at room temperature (25°C) under atmospheric pressure (760 mmHg), and has a melting point generally of 35°C or more. As the waxy fatty material, waxes generally used in cosmetics can be used alone or in a combination thereof.

For example, the wax may be chosen from carnauba wax, microcrystalline waxes, ozokerites, hydrogenated jojoba oil, polyethylene waxes such as the wax sold under the name "Performalene 400 Polyethylene" by the company New Phase Technologies, silicone waxes, for instance poly(C<sub>24</sub>-C<sub>28</sub>)alkylmethyldimethylsiloxane, such as the product sold under the name "Abil Wax 9810" by the company Goldschmidt, palm butter, the C<sub>20</sub>-C<sub>40</sub> alkyl stearate sold under the name "Kester Wax K82H" by the company Kester Keunen, stearyl benzoate, shellac wax, and mixtures thereof. For example, a wax chosen from carnauba wax, candelilla wax, ozokerites, hydrogenated jojoba oil and polyethylene waxes is used. In at least one embodiment, the wax is preferably chosen from candelilla wax and ozokerite, and mixtures thereof.

As fatty materials, mineral oils are preferable.

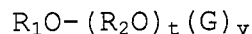
The amount of the (a) fatty material(s) is 20% by weight or more, preferably 30% by weight or more, more preferably 40% by weight or more, and further more preferably 50% by weight or more, relative to the total weight of the cosmetic composition according to the present invention.

#### **(b) Glucoside Type Surfactant**

The cosmetic composition according to the present invention comprises at least one glucoside type surfactant, and two or more glucoside type surfactant(s) may be used in combination. Thus, a single type of glucoside type surfactant or a combination of different type of glucoside type surfactants may be used.

The (b) glucoside type surfactant may preferably be selected from the group consisting of alkyl glucosides and alkyl polyglucosides.

The (b) glucoside type surfactant may preferably be represented by the following general formula:



wherein

R<sub>1</sub> represents a linear or branched alkyl radical containing from 1 to 30, preferably 6 to 28, and more preferably 8 to 26 carbon atoms, or an aralkyl radical containing from 7 to 30, preferably 7 to 28, and more preferably 7 to 26 carbon atoms;

R<sub>2</sub> represents an alkylene radical containing from 2 to 4 carbon atoms;

G represents a reduced sugar containing 5 or 6 carbon atoms;

t denotes a value ranging from 0 to 10 preferably 0 to 4; and v denotes a value ranging from 1 to 15, preferably 1 to 4.

The reduced sugar containing 5 or 6 carbon atoms represented by G in the above formula may be selected from the group consisting of glucose, fructose and galactose.

The (b) glucoside type surfactant may preferably be selected from the group consisting of caprylyl/capryl glucoside, decyl glucoside, lauryl glucoside, cetearyl glucoside, arachidyl glucoside, isostearyl glucoside, oleyl glucoside and mixtures thereof.

Examples of alkylpolyglucosides that may be mentioned include decylglucoside (alkyl-C<sub>9</sub>/C<sub>11</sub>-polyglucoside (1.4)), for instance the product sold under the name Mydol 10 by the company Kao Chemicals, the product sold under the name Plantaren 2000 UP and Plantacare 2000 UP by the company Henkel, and the product sold under the name Oramix NS10 by the company SEPPIC; caprylyl/capryl glucoside, for instance the product sold under the name Oramix CG110 by the company SEPPIC or under the name Lutensol GD70 by the company BASF; laurylglucoside, for instance the products sold under the names Plantaren 1200 N and Plantacare 1200 by the company Henkel; and coco-glucoside, for instance the product sold under the name Plantacare 818/UP by the company Henkel, and mixtures thereof.

According to one embodiment of the present invention, the amount of the (b) glucoside type surfactant(s) may range from 0.1 to 15% by weight, preferably from 0.5 to 10% by weight, and more preferably from 1 to 5% by weight, relative to the total weight of the cosmetic composition according to the present invention.

#### **(c) Non-Volatile Alkaline Agent**

The cosmetic composition according to the present invention comprises at least one non-volatile alkaline agent, and two or more non-volatile alkaline agents may be used. Thus, a single type of non-volatile alkaline agent or a combination of different type of non-volatile alkaline agents may be used.

The term "non-volatile alkaline agent" means that the alkaline agent does not correspond to ammonia which is volatile. A non volatile agent in the scope of the invention means that the vapor pressure is generally lesser than 0.02 mmHg(2.66Pa) at room temperature.

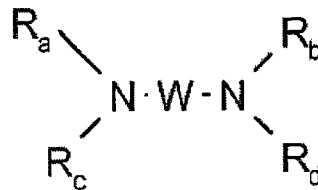
The non-volatile alkaline agent may be an inorganic alkaline agent. It is preferable that the inorganic alkaline agent be selected from the group consisting of alkaline metal hydroxides; and alkaline earth metal hydroxides; alkaline metal (hydrogeno)carbonates; alkaline earth metal (hydrogeno)carbonates; and alkaline metal metasilicates.

As examples of the inorganic alkaline agents, mention may be made of sodium hydroxide, potassium hydroxide, calcium hydroxide, magnesium hydroxide, sodium carbonate, potassium carbonate, sodium hydrogenocarbonate, potassium hydrogenocarbonate, and sodium metasilicate.

The non-volatile alkaline agent may be an organic alkaline agent. It is preferable that the organic alkaline agent be selected from the group consisting of monoamines and derivatives thereof, such as alkanolamines; diamines and derivatives thereof, such as alkanolamines; polyamines and derivatives thereof; amino acids, preferably basic amino acids, and derivatives thereof; oligomers of amino acids, preferably basic amino acids, and derivatives thereof; polymers of amino acids, preferably basic amino acids, and derivatives thereof; urea and derivatives thereof; and guanidine and derivatives thereof.

As examples of the organic alkaline agents, mention may be made of alkanolamines such as mono-, di- and tri-ethanolamine, comprising 1 to 3 hydroxyalkyl ( $C_1$ - $C_4$ ) groups. Particularly, alkanolamines may be selected from monoethanolamine, diethanolamine, triethanolamine, monoisopropanolamine, diisopropanolamine, *N,N*-dimethylethanolamine, 2-amino-2-methyl-1-propanol, triisopropanolamine, 2-amino-2-methyl-1,3-propanediol, 3-amino-1,2-propanediol, 3-dimethylamino-1,2-propanediol, tris(hydroxymethylamino)methane.

The organic alkaline agents may also be selected from urea, guanidine and their derivatives; amino acids such as alanine, arginine, ornithine, citrulline, asparagine, carnitine, cysteine, glutamine, glycine, histidine, lysine, isoleucine, leucine, methionine, *N*-phenylalanine, proline, serine, threonine, tryptophan, tyrosine and valine; basic amino acids such as lysine, histidine, ornithine, citrulline or arginine; and diamines such as those described in the structure below:



wherein W denotes an alkylene such as propylene optionally substituted by a hydroxyl or a C<sub>1</sub>-C<sub>4</sub> alkyl radical, and R<sub>a</sub>, R<sub>b</sub>, R<sub>c</sub> and R<sub>d</sub> independently denote a hydrogen atom, an alkyl radical or a C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl radical, which may be exemplified by 1,3-propanediamine and derivatives thereof.

Among aminoacids basic amino acids such as lysine, histidine, ornithine, citrulline or arginine are preferred.

It is preferable that the non-volatile alkaline agent be selected from alkanolamines, and particularly monoethanolamine.

The non-volatile alkaline agent(s) may be used in a total amount of from 0.01 to 15% by weight, preferably from 0.1 to 10% by weight, and more preferably from 1 to 5% by weight, relative to the total weight of the cosmetic composition according to the present invention.

#### **(d) Oxidizing Agent**

The cosmetic composition according to the present invention comprises at least one oxidizing agent, and two or more oxidizing agents may be used. Thus, a single type of oxidizing agent or a combination of different type of oxidizing agents may be used.

The oxidizing agent may be chosen from hydrogen peroxide, peroxygenated salts, and compounds capable of producing hydrogen peroxide by hydrolysis. For example, the oxidizing agent can be chosen from aqueous hydrogen peroxide solution, urea peroxide, alkali metal bromates and ferricyanides and persalts such as perborates and persulphates.

It is preferable that the oxidizing agent be hydrogen peroxide.

The oxidizing agent's concentration may range from 0.1 to 15% by weight, preferably from 0.5 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the cosmetic composition according to the present invention.

In one embodiment, when the oxidizing agent is hydrogen peroxide, the composition may comprise at least one hydrogen peroxide

stabilizer, which may be chosen, for example, from alkali metal and alkaline-earth metal pyrophosphates, alkali metal and alkaline-earth metal stannates, phenacetin and salts of acids and of oxyquinoline, for example, oxyquinoline sulphate. In another embodiment, at least one stannate optionally in combination with at least one pyrophosphate is used.

It is also possible to use salicylic acid and salts thereof, pyridinedicarboxylic acid and salts thereof, and paracetamol.

In the cosmetic composition, the concentration of the hydrogen peroxide stabilizer may range from 0.0001 to 5% by weight such as from 0.01 to 2% by weight, relative to the total weight of the cosmetic composition according to the present invention.

In the composition comprising hydrogen peroxide, the concentration ratio of the hydrogen peroxide to the stabilizer may range from 0.05:1 to 1,000:1, such as from 0.1:1 to 500:1 and further such as from 1:1 to 300:1.

#### **(e) Foam Stabilizer**

The cosmetic composition according to the present invention comprises at least one foam stabilizer, and two or more foam stabilizers may be used in combination. Thus, a single type of foam stabilizer or a combination of different type of foam stabilizers may be used.

Any substance which can stabilize foam formed by the cosmetic composition according to the present invention may be used as the foam stabilizer.

The foam stabilizer may be a rheology modifier selected from hydrophilic or lipophilic, organic or inorganic polymers and non-polymers.

As the rheology modifier, for example, mention may be made of: partly or totally crosslinked elastomeric organopolysiloxanes, of three-dimensional structure, such as those sold under the names KSG6, KSG16, and KSG18 by Shin-Etsu, Trefil E-505C or Trefil E-506C by Dow Corning, Gransil SR-CYC, SR DMF10, SR-DC556, SR 5CYC gel, SR DMF 10 gel, and SR DC 556 gel by Grant Industries, and SF 1204 and JK 113 by General Electric; and copolymers of a C<sub>36</sub> diacid condensed with ethylenediamine, with a weight-average molecular mass of approximately 6,000, such as the compounds sold by Arizona Chemical under the names Uniclear 80 and Uniclear 100; and



silicone gums, such as the PDMS, having a viscosity of equal to or more than 100,000 centistokes.

The rheology modifier may preferably be chosen from organophilic clays; fumed silicas; fatty acid amides; thickening polymers such as cellulose polymers, galactomannans and derivatives thereof, gums of microbial origin, acrylic acid or acrylamidopropanesulfonic acid crosslinked homopolymers; associative polymers, and mixture thereof.

As the organophilic clays and fumed silicas, for example, mention may be made of:

optionally modified clays, such as hectorites modified with a C<sub>10</sub> to C<sub>22</sub> fatty acid ammonium chloride, such as hectorite modified with distearyldimethylammonium chloride; and pyrogenic silica, optionally having received a hydrophobic surface treatment, whose particle size is less than 1 μm.

As the fatty acid amide, any amide comprising in its structure at least one hydrocarbon-based chain comprising at least 6 carbon atoms may be used. The fatty acid amides may be chosen from compounds derived from an amide of alkanolamine and of a saturated or unsaturated, linear or branched C<sub>8</sub>-C<sub>30</sub> fatty acid, the alkanolamine and/or the fatty acid being optionally oxyalkenylated and more particularly oxyethylenated with 1 to 50 mol of ethylene oxide.

The fatty acid amides are preferably chosen from amides of a C<sub>2</sub>-C<sub>10</sub> alkanolamine and of a C<sub>14</sub>-C<sub>30</sub> fatty acid, and more preferably chosen from amides of a C<sub>2</sub>-C<sub>10</sub> alkanolamine and of a C<sub>14</sub>-C<sub>22</sub> fatty acid.

Advantageously, the fatty acid amide may be chosen from:

- coconut acid monoisopropanolamide, such as the amide sold under the trade name Empilan CLS by the company Huntsman,
- oleic acid diethanolamide, such as the amide sold under the trade name Mexanyl®GT by the company Chimex,
- myristic acid monoethanolamide, such as the amide sold under the trade name Comperlan®MM by the company Cognis,
- soybean fatty acid diethanolamide, such as the amide sold under the trade name Comperlan®VOD by the company Cognis,
- stearic acid ethanolamide, such as the amide sold under the trade name Monamid®S by the company Uniqema,
- oleic acid monoisopropanolamide, such as the amide sold under the trade name Witcamide®61 by the company Witco,
- linoleic acid diethanolamide, such as the amide sold under the trade name Purton®SFD by the company Zschimmer Schwartz,

- stearic acid monoethanolamide, such as the amide sold under the trade name Monamid®972 by the company ICI/Uniqema,
- behenic acid monoethanolamide, such as the amide sold under the trade name Incromide®BEM by the company Croda,
- isostearic acid monoisopropanolamide, such as the amide sold under the trade name Witcamide®SPA by the company Witco,
- erucic acid diethanolamide, such as the amide sold under the trade name erucic acid diethanolamide by the company Stéarineries Dubois,
- ricinoleic acid monoethanolamide, such as the amide sold under the trade name ricinoleic acid monoethanolamide by the company Stéarineries Dubois, and
- rapeseed fatty acid amide containing 4 mol of ethylene oxide, such as the product sold under the name Amidet N by the company Kao.

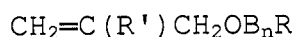
As the cellulose polymers, for example, mention may be made of: hydroxyethylcelluloses, hydroxypropylcelluloses, methylcelluloses, ethylhydroxyethylcelluloses, carboxymethylcelluloses, and quaternized cellulose derivatives.

As the acrylic acid or acrylamidopropanesulfonic acid crosslinked homopolymers, for example, mention may be made of: acrylic acid homopolymers crosslinked with an allylic alcohol ether of the sugar series, for example, the products sold under the names CARBOPOL 980, 981, 954, 2984, and 5984 by the company Goodrich and the products sold under the names SYNTHALEN M and SYNTHALEN K by the company 3 VSA; crosslinked acrylamidomethanesulfonic acid homopolymers, crosslinked acrylamidoethanesulfonic acid homopolymers, crosslinked acrylamidopropanesulfonic acid homopolymers, crosslinked 2-acrylamido-2-methylpropanesulfonic acid homopolymers, crosslinked 2-methylacrylamido-2-methylpropanesulfonic acid homopolymers, and crosslinked 2-acrylamido-n-butanesulfonic acid homopolymers, in particular, crosslinked and partially or totally neutralized poly-2-acrylamido-2-methylpropanesulfonic acids are described and prepared, for example, in German Patent No. 196 25 810.

As the associative polymer, any amphiphilic polymer comprising, in its structure, at least one fatty chain and at least one hydrophilic portion, may be used.

The associative polymers in accordance with the present disclosure may be chosen from anionic, cationic, nonionic and amphoteric polymers.

Among the associative anionic polymers that non-limiting mention may be made of those comprising at least one hydrophilic unit and at least one fatty-chain allyl ether unit, for example, those in which the at least one hydrophilic unit comprises at least one ethylenic unsaturated anionic monomeric residue chosen, for example, from the residue of a vinylcarboxylic acid, the residue of an acrylic acid, and the residue of a methacrylic acid, and in which the at least one fatty-chain allyl ether unit is chosen from the residues of the monomers of formula below:



wherein R' is chosen from H and CH<sub>3</sub>, B is an ethylenoxy radical, n is 0 or an integer ranging from 1 to 100, and R is chosen from hydrocarbon-based radicals chosen from alkyl, arylalkyl, aryl, alkylaryl and cycloalkyl radicals comprising from 8 to 30 carbon atoms, for example, from 10 to 24 and further for example from 12 to 18 carbon atoms.

Anionic amphiphilic polymers of this type are described and prepared, for example, according to an emulsion polymerization process described in document EP-0 216 479.

Associative anionic polymers that non-limiting mention may be made include anionic polymers comprising at least one hydrophilic unit of olefinic unsaturated carboxylic acid type, and at least one hydrophobic unit exclusively of (C<sub>10</sub>-C<sub>30</sub>)alkyl ester of unsaturated carboxylic acid type.

Further examples include the anionic polymers described and prepared according to U.S. Pat. Nos. 3,915,921 and 4,509,949.

Cationic associative polymers that non-limiting mention may be made include quaternized cellulose derivatives and polyacrylates comprising at least one amine side group.

The nonionic associative polymers may be chosen from at least one of:

celluloses modified with groups comprising at least one fatty chain, for example hydroxyethylcelluloses modified with groups comprising at least one fatty chain, such as alkyl groups, for example C<sub>8</sub>-C<sub>22</sub>, arylalkyl and alkylaryl groups, for example Natrosol Plus Grade 330 CS (C<sub>16</sub> alkyls) sold by the company Aqualon,  
celluloses modified with polyalkylene glycol alkylphenyl ether groups,

guars, for example hydroxypropyl guar, modified with groups comprising at least one fatty chain, for example an alkyl chain, copolymers of vinylpyrrolidone and of fatty-chain hydrophobic monomeric residues, copolymers of at least one monomeric residue chosen from C<sub>1</sub>-C<sub>6</sub> alkyl methacrylates and acrylates and of amphiphilic monomeric residues comprising at least one fatty chain, copolymers of monomeric residues chosen from hydrophilic methacrylates and acrylates and of hydrophobic monomeric residues comprising at least one fatty chain, for example the polyethylene glycol methacrylate/lauryl methacrylate copolymer, associative polyurethanes, and mixtures thereof.

For example, the associative polymers may be chosen from associative polyurethanes.

In another example, associative polyurethanes may be chosen from nonionic block copolymers comprising in the chain both hydrophilic blocks usually of polyoxyethylene nature, and hydrophobic blocks that may be chosen from aliphatic sequences, cycloaliphatic sequences, and aromatic sequences.

Further for example, these polymers may comprise at least two hydrocarbon-based lipophilic chains comprising from 6 to 30 carbon atoms, separated by a hydrophilic block, wherein the hydrocarbon-based lipophilic chains may be chosen from pendant chains and chains at the end of a hydrophilic block. In yet another example, the polymers may comprise at least one pendant chain. In another example, the polymers may comprise a hydrocarbon-based chain at one or both ends of a hydrophilic block.

For example, the associative polyurethanes may be blocked in triblock or multiblock form. The hydrophobic blocks may thus be at each end of the chain (for example: triblock copolymer with a hydrophilic central block) or distributed both at the ends and within the chain (for example multiblock copolymer). These polymers may also be chosen from graft polymers and starburst polymers.

In another example, the associative polyurethanes are triblock copolymers in which the hydrophilic block is a polyoxyethylene chain comprising from 50 to 1000 oxyethylene groups. In general, the associative polyurethanes comprise a urethane bond between the hydrophilic blocks, hence the name.

By way of example, among the associative polymers that may be used, non-limiting mention may be made of the polymer C<sub>16</sub>-OE120-c.sub-.16 from the company Servo Delden (under the name SER AD FX1100, which comprises a urethane functional group and has a weight-average molecular weight of 1300), wherein OE is an oxyethylene unit. In another example, an associative polymer that may also be used is Rheolate 205 comprising a urea functional group, sold by the company Rheox, or Rheolate 208 or 204. These associative polyurethanes are sold in pure form.

In yet another example, the product DW 1206B from Rohm & Haas comprising a C<sub>20</sub> alkyl chain with a urethane bond, sold at a solids content of 20% in water, may also be used.

Further for example, it is also possible to use solutions or dispersions of these polymers, for example, in water or in aqueous-alcoholic medium. Examples of such polymers that non-limiting mention may be made include SER AD FX1010, SER AD FX1035 and SER AD 1070 from the company Servo Delden, and Rholate 255, Rheolate 278 and Rheolate 244 sold by the company Rheox. It is also possible to use the product DW 1206F and DW 1206J, and also Acrysol RM 184 or Acrysol 44 from the company Rohm & Haas, or alternatively Borchigel LW 44 from the company Borchers.

In yet another example, the polymers that may be used include those described in the article by G. Fonnum, J. Bakke and Fk. Hansen--Colloid Polym. Sci 271, 380-389 (1993).

The foam stabilizer may more preferably be selected from cellulose polymers.

According to one embodiment of the present invention, the amount of the foam stabilizer(s) may range from 0.05 to 20% by weight, preferably from 0.1 to 15% by weight, and more preferably from 0.5 to 10% by weight, relative to the total weight of the cosmetic composition according to the present invention.

#### **(f) Coloring Substance**

The cosmetic composition according to the present invention can comprise at least one coloring substance, and two or more coloring substances may be used. Thus, a single type of coloring substance or a combination of different type of coloring substances may be used.

The coloring substance may be an oxidation dye.

The oxidation dye can be selected from oxidation bases, oxidation couplers, and the acid addition salts thereof.

The oxidation base can be selected from those conventionally known in oxidation dyeing, preferably from the group consisting of ortho- and para-phenylenediamines, double bases, ortho- and para-aminophenols, heterocyclic bases and the acid addition salts thereof.

Among the para-phenylenediamines, may be mentioned more particularly para-phenylenediamine, para-tolylenediamine, 2-chloro-para-phenylenediamine, 2,3-dimethyl-para-phenylenediamine, 2,6-dimethyl-para-phenylenediamine, 2,6-diethyl-para-phenylenediamine, 2,5-dimethyl-para-phenylenediamine, N,N-dimethylpara-phenylenediamine, N,N-diethyl-para-phenylenediamine, N,N-dipropyl-paraphenylenediamine, 4-amino-N,N-diethyl-3-methylaniline, N,N-bis( $\beta$ -hydroxyethyl)-paraphenylenediamine, 4-N,N-bis( $\beta$ -hydroxyethyl)amino-2-methylaniline, 4-N,N-bis( $\beta$ -hydroxyethyl)amino-2-chloroaniline, 2- $\beta$ -hydroxyethyl-para-phenylenediamine, 2-fluoro-paraphenylenediamine, 2-isopropyl-para-phenylenediamine, N-( $\beta$ -hydroxypropyl)-paraphenylenediamine, 2-hydroxymethyl-para-phenylenediamine, N,N-dimethyl-3-methylpara-phenylenediamine, N,N-(ethyl- $\beta$ -hydroxyethyl)-para-phenylenediamine, N-( $\beta,\gamma$ -dihydroxypropyl)-para-phenylenediamine, N-(4'-aminophenyl)-para-phenylenediamine, N-phenyl-para-phenylenediamine, 2- $\beta$ -hydroxyethyloxy-para-phenylenediamine, 2- $\beta$ -acetyl-amino-ethyloxy-para-phenylenediamine, N-( $\beta$ -methoxyethyl)-para-phenylenediamine, 2-methyl-1-N- $\beta$ -hydroxyethyl-para-phenylenediamine, N-(4-aminophenyl)-3-hydroxy-pyrrolidine, 2-[(2-[(4-Aminophenyl)amino]ethyl)(2-hydroxyethyl)amino]-ethanol, and addition salts thereof with an acid. Most particularly preferred bases are para-phenylenediamine, para-tolylenediamine, 2-isopropyl-paraphenylenediamine, 2- $\beta$ -hydroxyethyl-para-phenylenediamine, 2- $\beta$ -hydroxyethyloxy-para-phenylenediamine, 2,6-dimethyl-para-phenylenediamine, 2,6-diethyl-para-phenylenediamine, 2,3-dimethyl-para-phenylenediamine, N,N-bis( $\beta$ -hydroxyethyl)-paraphenylenediamine, 2-chloro-para-phenylenediamine, and addition salts thereof with an acid.

Among the double bases, the following bases can be cited N,N'-bis( $\beta$ -hydroxyethyl)-N,N'-bis(4'-aminophenyl)-1,3-diaminopropanol, N,N'-bis( $\beta$ -hydroxyethyl)-N,N'-bis(4'-aminophenyl)ethylenediamine, N,N'-bis(4-aminophenyl)-tetramethylenediamine, N,N'-bis( $\beta$ -hydroxyethyl)-N,N'-bis(4-aminophenyl)tetramethylenediamine, N,N'-bis(4-methylaminophenyl)tetramethylenediamine, N,N'-bis(ethyl)-N,N'-bis(4'-amino-3'-methylphenyl)ethylene-diamine, 1,8-bis(2,5-diaminophenoxy)-3,5-dioxaoctane, and addition salts thereof with

an acid.

The para-aminophenols that can be used are para-aminophenol, 4-amino-3-methylphenol, 4-amino-3-fluorophenol, 4-amino-3-hydroxymethylphenol, 4-amino-2-methylphenol, 4-amino-2-hydroxymethylphenol, 4-amino-2-methoxymethylphenol, 4-amino-2-aminomethylphenol, 4-amino-2-( $\beta$ -hydroxyethylaminomethyl)phenol, and addition salts thereof with an acid.

The ortho-aminophenols which can be used as oxidation bases in the context of the present invention are chosen in particular from 2-aminophenol, 2-amino-1-hydroxy-5-methylbenzene, 2-amino-1-hydroxy-6-methylbenzene, 5-acetamido-2-aminophenol, and addition salts thereof with an acid.

Among the heterocyclic bases which can be used as oxidation bases in the dyeing compositions in accordance with the invention, there may be mentioned more particularly pyridine derivatives, pyrimidine derivatives, pyrazole derivatives, and addition salts thereof with an acid.

Among the pyridine derivatives, there may be mentioned more particularly the compounds described for example in Patents GB 1,026,978 and GB 1,153,196, such as 2,5-diaminopyridine, 2-(4-methoxyphenyl)amino-3-aminopyridine, 2,3-diamino-6-methoxypyridine, 2-( $\beta$ -methoxyethyl)amino-3-amino-6-methoxypyridine, 3,4-diaminopyridine, and addition salts thereof with an acid.

Among the pyrimidine derivatives, there may be mentioned more particularly the compounds described, for example, in Patents DE 2 359 399; JP 88-169571; JP 91-10659 or patent application WO 96/15765, such as 2,4,5,6-tetraaminopyrimidine, 4-hydroxy-2,5,6-triaminopyrimidine, 2-hydroxy-4,5,6-triaminopyrimidine, 2,4-dihydroxy-5,6-diaminopyrimidine, 2,5,6-triamino-pyrimidine, and the pyrazolopyrimidine derivatives such as those mentioned in patent application FR-A-2 750 048 and among which there may be mentioned pyrazolo[1,5-a]-pyrimidine-3,7-diamine; 2,5-dimethylpyrazolo[1,5-a]-pyrimidine-3,7-diamine; pyrazolo[1,5-a]pyrimidine-3,5-diamine; 2,7-dimethylpyrazolo[1,5-a]pyrimidine-3,5-diamine; 3-aminopyrazolo[1,5-a]pyrimidin-7-ol; 3-amino-pyrazolo[1,5-a]pyrimidin-5-ol; 2-(3-amino-pyrazolo-[1,5-a]pyrimidin-7-ylamino)ethanol, 2-(7-aminopyrazolo[1,5-a]pyrimidin-3-ylamino)ethanol, 2-[(3-amino-pyrazolo[1,5-a]pyrimidin-7-yl)-(2-hydroxy-ethyl)amino]-ethanol, 2-[(7-aminopyrazolo[1,5-a]pyrimidin-3-yl)-(2-hydroxyethyl)amino]ethanol, 5,6-dimethylpyrazolo-[1,5-

alpyrimidine-3,7-diamine, 2,6-dimethylpyrazolo-[1,5-a]pyrimidine-3,7-diamine, 2,5,N7,N7-tetramethyl-pyrazolo[1,5-a]pyrimidine-3,7-diamine, 3-amino-5-methyl-7-imidazolylpropyl-aminopyrazolo[1,5-a]-pyrimidine, addition salts thereof and their tautomeric forms, when a tautomeric equilibrium exists, and addition salts thereof with an acid.

Among the pyrazole derivatives, there may be mentioned more particularly the compounds described in Patents DE 3 843 892, DE 4 133 957 and patent applications WO 94/08969, WO 94/08970, FR-A-2 733 749 and DE 195 43 988 such as 4,5-diamino-1-methylpyrazole, 3,4-diaminopyrazole, 4,5-diamino-1-(4'-chlorobenzyl)-pyrazole, 4,5-diamino-1,3-dimethylpyrazole, 4,5-diamino-3-methyl-1-phenylpyrazole, 4,5-diamino-1-methyl-3-phenylpyrazole, 4-amino-1,3-dimethyl-5-hydrazino-pyrazole, 1-benzyl-4,5-diamino-3-methylpyrazole, 4,5-diamino-3-tert-butyl-1-methylpyrazole, 4,5-diamino-1-tertbutyl-3-methylpyrazole, 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-methylpyrazole, 4,5-diamino-1-( $\beta$ -hydroxyethyl)pyrazole, 4,5-diamino-1-ethyl-3-methylpyrazole, 4,5-diamino-1-ethyl-3-(4'-methoxyphenyl)pyrazole, 4,5-diamino-1-ethyl-3-hydroxymethylpyrazole, 4,5-diamino-3-hydroxymethyl-1-methylpyrazole, 4,5-diamino-3-hydroxymethyl-1-isopropyl-pyrazole, 4,5-diamino-3-methyl-1-isopropyl-pyrazole, 4-amino-5-(2'-aminoethyl)amino-1,3-dimethylpyrazole, 3,4,5-triaminopyrazole, 1-methyl-3,4,5-triamino-pyrazole, 3,5-diamino-1-methyl-4-methylaminopyrazole, 3,5-diamino-4-( $\beta$ -hydroxy-ethyl)amino-1-methylpyrazole, and addition salts thereof with an acid.

Among the heterocyclic bases which can be used as oxidation bases, there may be mentioned more particularly diaminopyrazolopyrazolones and especially 2,3-diamino-6,7-dihydro-1H,5H-[pyrazolo[1,2,a]pyrazol-1-one (IV) and the addition salts of these diaminopyrazolopyrazolones with an acid.

The oxidation dye may be an oxidation coupler which can be selected from those conventionally known in oxidation dyeing, preferably from the group consisting of meta-phenylenediamines, meta-aminophenols, meta-diphenols, naphthols, heterocyclic couplers and the acid addition salts thereof.

The heterocyclic couplers may be selected from the group consisting of indole derivatives, indoline derivatives, sesamol and its derivatives, pyridine derivatives, pyrazolotriazole derivatives, pyrazolones, indazoles, benzimidazoles, benzothiazoles, benzoxazoles, 1,3-benzodioxoles, quinolines and addition salts thereof with an acid.



These couplers are more particularly chosen from 2,4-diamino-1-( $\beta$ -hydroxyethoxy)benzene, 2-methyl-5-aminophenol, 5-N-( $\beta$ -hydroxyethyl)amino-2-methylphenol, 3-aminophenol, 2-chloro-3-amino-6-methylphenol, 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2-amino-4-( $\beta$ -hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 2-methyl-5-hydroxyethylaminophenol, 4-amino-2-hydroxytoluene, 1,3-bis(2,4-diaminophenoxy)-propane, sesamol, 1-amino-2-methoxy-4,5-methylene-dioxybenzene,  $\alpha$ -naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 6-hydroxy-indoline, 2,6-dihydroxy-4-methylpyridine, 1-H-3-methylpyrazol-5-one, 1-phenyl-3-methylpyrazol-5-one, 2-amino-3-hydroxypyridine, 3,6-dimethylpyrazolo[3,2-c]-1,2,4-triazole, 2,6-dimethylpyrazolo[1,5-b]-1,2,4-triazole and addition salts thereof with an acid.

In general, the addition acid salts of the oxidation bases and couplers are chosen in particular from hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

The cosmetic composition according to the present invention may comprise an oxidation dye or dyes in an amount of from 0.0001 to 20% by weight, preferably 0.0005 to 15% by weight, and more preferably 0.005 to 10% by weight, relative to the total weight of the composition.

The coloring substance may be a direct dye.

The direct dye can be selected from ionic and nonionic species, preferably cationic or nonionic species.

Examples of suitable direct dyes that may be mentioned include the following direct dyes: azo dyes; methine dyes; carbonyl dyes; azine dyes; nitro (hetero)aryl dyes; tri(hetero)arylmethane dyes; porphyrin dyes; phthalocyanin dyes, and natural direct dyes, alone or as mixtures.

More particularly, the azo dyes comprise an -N=N- function, the two nitrogen atoms of which are not simultaneously engaged in a ring. However, it is not excluded for one of the two nitrogen atoms of the sequence -N=N- to be engaged in a ring.

The dyes of the methine family are more particularly compounds comprising at least one sequence chosen from  $>C=C<$  and  $-N=C<$ , the two atoms of which are not simultaneously engaged in a ring. However, it is pointed out that one of the nitrogen or carbon atoms of the sequences may be engaged in a ring. More particularly, the dyes of this family are derived from compounds

of the type such as methines, azomethines, mono- and diarylmethanes, indoamines (or diphenylamines), indophenols, indoanilines, carbocyanins, azacarbocyanins and isomers thereof, diazcarbocyanins and isomers thereof, tetraazacarbocyanins and hemicyanins.

As regards the dyes of the carbonyl family, examples that may be mentioned include dyes chosen from acridone, benzoquinone, anthraquinone, naphthoquinone, benzanthrone, anthranthrone, pyranthrone, pyrazolanthrone, pyrimidinoanthrone, flavanthrone, idanthrone, flavone, (iso)violanthrone, isoindolinone, benzimidazolone, isoquinolinone, anthrapyridone, pyrazoloquinazolone, perinone, quinacridone, quinophthalone, indigoid, thioindigo, naphthalimide, anthrapyrimidine, diketopyrrolopyrrole and coumarin.

As regards the dyes of the cyclic azine family, mention may be made especially of azine, xanthene, thioxanthene, fluorindine, acridine, (di)oxazine, (di)thiazine and pyronin.

The nitro (hetero)aromatic dyes are more particularly nitrobenzene or nitropyridine direct dyes.

As regards the dyes of porphyrin or phthalocyanin type, it is possible to use cationic or non-cationic compounds, optionally comprising one or more metals or metal ions, for instance alkali metals, alkaline-earth metals, zinc and silicon.

Examples of particularly suitable direct dyes that may be mentioned include nitrobenzene dyes; azo direct dyes; azomethine direct dyes; methine direct dyes; azacarbocyanin direct dyes, for instance tetraazacarbocyanins (tetraazapentamethines); quinone and in particular anthraquinone, naphthoquinone or benzoquinone direct dyes; azine; xanthene; triarylmethane; indoamine; indigoid; phthalocyanin direct dyes, porphyrins and natural direct dyes, alone or as mixtures thereof.

Among the natural direct dyes that may be used according to the invention, mention may be made of lawsone, juglone, alizarin, purpurin, carminic acid, kermesic acid, purpurogallin, protocatechaldehyde, indigo, isatin, curcumin, spinulosin, apigenidin and orceins. It is also possible to use extracts or decoctions containing these natural dyes and especially henna-based poultices or extracts.

When they are present, the direct dye(s) more particularly represent from 0.0001% to 10% by weight and preferably from

0.005% to 5% by weight relative to the total weight of the composition.

**(g) Other Components**

The cosmetic composition according to the present invention may comprise an aqueous medium.

The aqueous medium in the cosmetic composition according to the present invention may comprise water. The amount of water may be less than 80 wt%, preferably 5 wt% to 75 wt%, more preferably 10 wt% to 75wt%, and further more preferably 20 wt% to 70wt%, relative to the total weight of the composition.

The aqueous medium may further comprise at least one organic solvent. The organic solvent is preferably water-miscible. As the organic solvent, there may be mentioned, for example, C<sub>1</sub>-C<sub>4</sub> alkanols, such as ethanol and isopropanol; polyols and glycol ethers such as glycerol, 2-butoxyethanol, propylene glycol, monomethyl ether of propylene glycol, monoethyl ether and monomethyl ether of diethylene glycol; and aromatic alcohols such as benzyl alcohol and phenoxyethanol; analogous products; and mixtures thereof.

The organic solvents may be present in an amount ranging from 1 to 40 wt%, preferably from 1 to 30 wt%, and more preferably from 5 to 20 wt%, relative to the total weight of the composition.

The cosmetic composition according to the present invention may or may not comprise at least one additional surfactant other than the above (b) glucoside type surfactant.

The additional surfactant used in the present invention may be selected from the group consisting of anionic surfactants, amphoteric surfactants, cationic surfactants and nonionic surfactants other than the above (b) glucoside type surfactant. Two or more additional surfactants may be used in combination. Thus, a single type of additional surfactant or a combination of different type of additional surfactants may be used.

(Anionic Surfactants)

According to the present invention, the type of anionic surfactant is not limited. It is preferable that the anionic surfactant be selected from the group consisting of (C<sub>6</sub>-C<sub>30</sub>)alkyl sulfates, (C<sub>6</sub>-C<sub>30</sub>)alkyl ether sulfates, (C<sub>6</sub>-C<sub>30</sub>)alkylamido ether sulfates, alkylaryl polyether sulfates, monoglyceride sulfates;

(C<sub>6</sub>-C<sub>30</sub>)alkylsulfonates, (C<sub>6</sub>-C<sub>30</sub>)alkylamide sulfonates, (C<sub>6</sub>-C<sub>30</sub>)alkylaryl sulfonates,  $\alpha$ -olefin sulfonates, paraffin sulfonates; (C<sub>6</sub>-C<sub>30</sub>)alkyl phosphates; (C<sub>6</sub>-C<sub>30</sub>)alkyl sulfosuccinates, (C<sub>6</sub>-C<sub>30</sub>)alkyl ether sulfosuccinates, (C<sub>6</sub>-C<sub>30</sub>)alkylamide sulfosuccinates; (C<sub>6</sub>-C<sub>30</sub>)alkyl sulfoacetates; (C<sub>6</sub>-C<sub>24</sub>)acyl sarcosinates; (C<sub>6</sub>-C<sub>24</sub>)acyl glutamates; (C<sub>6</sub>-C<sub>30</sub>)alkylpolyglycoside carboxylic ethers; (C<sub>6</sub>-C<sub>30</sub>)alkylpolyglycoside sulfosuccinates; (C<sub>6</sub>-C<sub>30</sub>)alkyl sulfosuccinamates; (C<sub>6</sub>-C<sub>24</sub>)acyl isethionates; N-(C<sub>6</sub>-C<sub>24</sub>)acyl taurates; C<sub>6</sub>-C<sub>30</sub> fatty acid salts; coconut oil acid salts or hydrogenated coconut oil acid salts; (C<sub>8</sub>-C<sub>20</sub>)acyl lactylates; (C<sub>6</sub>-C<sub>30</sub>)alkyl-D-galactoside uronic acid salts; polyoxyalkylenated (C<sub>6</sub>-C<sub>30</sub>)alkyl ether carboxylic acid salts; polyoxyalkylenated (C<sub>6</sub>-C<sub>30</sub>)alkylaryl ether carboxylic acid salts; and polyoxyalkylenated (C<sub>6</sub>-C<sub>30</sub>)alkylamido ether carboxylic acid salts.

It is more preferable that the anionic surfactant be selected from salts of (C<sub>6</sub>-C<sub>30</sub>)alkyl sulfate.

In at least one embodiment, the anionic surfactants are in the form of salts such as salts of alkali metals, for instance sodium; salts of alkaline-earth metals, for instance magnesium; ammonium salts; amine salts; and amino alcohol salts. Depending on the conditions, they may also be in acid form.

#### (Amphoteric Surfactants)

According to the present invention, the type of amphoteric surfactant is not limited. The amphoteric or zwitterionic surfactants can be, for example (nonlimiting list), amine derivatives such as aliphatic secondary or tertiary amine, and optionally quaternized amine derivatives, in which the aliphatic radical is a linear or branched chain comprising 8 to 22 carbon atoms and containing at least one water-solubilizing anionic group (for example, carboxylate, sulphonate, sulphate, phosphate or phosphonate).

The amphoteric surfactant may preferably be selected from the group consisting of betaines and amidoaminocarboxylated derivatives.

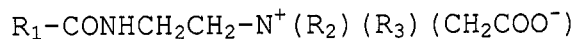
The betaine-type amphoteric surfactant is preferably selected from the group consisting of alkylbetaines, alkylamidoalkylbetaines, sulfobetaines, phosphobetaines, and alkylamidoalkylsulfobetaines, in particular, (C<sub>8</sub>-C<sub>24</sub>)alkylbetaines, (C<sub>8</sub>-C<sub>24</sub>)alkylamido(C<sub>1</sub>-C<sub>8</sub>)alkylbetaines, sulphobetaines, and (C<sub>8</sub>-C<sub>24</sub>)alkylamido(C<sub>1</sub>-C<sub>8</sub>)alkylsulphobetaines. In one embodiment, the amphoteric surfactants of betaine type are chosen from (C<sub>8</sub>-

C<sub>24</sub>)alkylbetaines, (C<sub>8</sub>-C<sub>24</sub>)alkylamido(C<sub>1</sub>-C<sub>8</sub>)alkylsulphobetaines, sulphobetaines, and phosphobetaines.

Non-limiting examples that may be mentioned include the compounds classified in the CTFA dictionary, 9th edition, 2002, under the names cocobetaine, laurylbetaine, cetylbetaine, coco/oleamidopropylbetaine, cocamidopropylbetaine, palmitamidopropylbetaine, stearamidopropylbetaine, cocamidoethylbetaine, cocamidopropylhydroxysultaine, oleamidopropylhydroxysultaine, cocohydroxysultaine, laurylhydroxysultaine, and cocosultaine, alone or as mixtures.

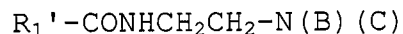
The betaine-type amphoteric surfactant is preferably an alkylbetaine and an alkylamidoalkylbetaine, in particular cocobetaine and cocamidopropylbetaine.

Among the amidoaminecarboxylated derivatives, mention may be made of the products sold under the name Miranol, as described in U.S. Pat. Nos. 2,528,378 and 2,781,354 and classified in the CTFA dictionary, 3rd edition, 1982 (the disclosures of which are incorporated herein by reference), under the names Amphocarboxyglycinates and Amphocarboxypropionates, with the respective structures:



in which:

R<sub>1</sub> denotes an alkyl radical of an acid R<sub>1</sub>-COOH present in hydrolysed coconut oil, a heptyl, nonyl or undecyl radical, R<sub>2</sub> denotes a beta-hydroxyethyl group, and R<sub>3</sub> denotes a carboxymethyl group; and



in which:

B represents -CH<sub>2</sub>CH<sub>2</sub>OX',

C represents -(CH<sub>2</sub>)<sub>z</sub>-Y', with z=1 or 2,

X' denotes a -CH<sub>2</sub>CH<sub>2</sub>-COOH group, -CH<sub>2</sub>-COOZ', -CH<sub>2</sub>CH<sub>2</sub>-COOH, -CH<sub>2</sub>CH<sub>2</sub>-COOZ' or a hydrogen atom,

Y' denotes -COOH, -COOZ', -CH<sub>2</sub>-CHOH-SO<sub>3</sub>Z' or a -CH<sub>2</sub>-CHOH-SO<sub>3</sub>H radical,

Z' represents an ion of an alkaline or alkaline earth metal such as sodium, an ammonium ion or an ion issued from an organic amine, and

R<sub>1</sub>' denotes an alkyl radical of an acid R<sub>1</sub>'-COOH present in coconut oil or in hydrolysed linseed oil, an alkyl radical, such as a C<sub>7</sub>, C<sub>9</sub>, C<sub>11</sub> or C<sub>13</sub> alkyl radical, a C<sub>17</sub> alkyl radical and its

iso form, or an unsaturated C<sub>17</sub> radical.

It is preferable that the amphoteric surfactant be selected from (C<sub>8</sub>-C<sub>24</sub>)-alkyl amphomonoacetates, (C<sub>8</sub>-C<sub>24</sub>)alkyl amphodiacetates, (C<sub>8</sub>-C<sub>24</sub>)alkyl amphomonopropionates, and (C<sub>8</sub>-C<sub>24</sub>)alkyl amphodipropionates

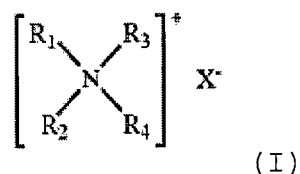
These compounds are classified in the CTFA dictionary, 5th edition, 1993, under the names Disodium Cocoamphodiacetate, Disodium Lauroamphodiacetate, Disodium Caprylamphodiacetate, Disodium Capryloamphodiacetate, Disodium Cocoamphodipropionate, Disodium Lauroamphopropionate, Disodium Caprylamphodipropionate, Disodium Caprylamphodipropionate, Lauroamphodipropionic acid and Cocoamphodipropionic acid.

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

(Cationic Surfactants)

According to the present invention, the type of cationic surfactant is not limited. The cationic surfactant may be selected from the group consisting of optionally polyoxyalkylenated, primary, secondary or tertiary fatty amine salts, quaternary ammonium salts, and mixtures thereof.

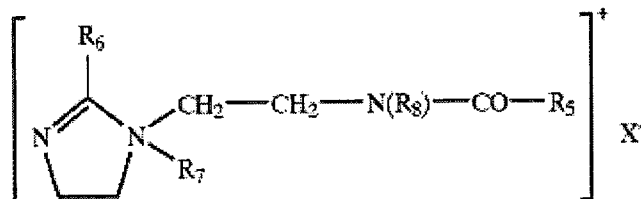
Examples of quaternary ammonium salts that may be mentioned include, but are not limited to: those of general formula (I) below:



wherein

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub>, which may be identical or different, are chosen from linear and branched aliphatic radicals comprising from 1 to 30 carbon atoms and optionally comprising heteroatoms such as oxygen, nitrogen, sulfur and halogens. The aliphatic radicals may be chosen, for example, from alkyl, alkoxy, C<sub>2</sub>-C<sub>6</sub> polyoxyalkylene, alkylamide, (C<sub>12</sub>-C<sub>22</sub>)alkylamido(C<sub>2</sub>-C<sub>6</sub>)alkyl, (C<sub>12</sub>-C<sub>22</sub>)alkylacetate and hydroxyalkyl radicals; and aromatic radicals such as aryl and alkylaryl; and X<sup>-</sup> is chosen from halides, phosphates, acetates, lactates, (C<sub>2</sub>-C<sub>6</sub>) alkyl sulfates and alkyl- or alkylaryl-sulfonates;

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



(II)

wherein:

R<sub>5</sub> is chosen from alkenyl and alkyl radicals comprising from 8 to 30 carbon atoms, for example fatty acid derivatives of tallow or of coconut;

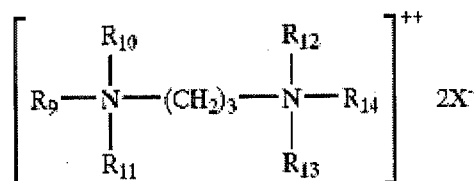
R<sub>6</sub> is chosen from hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl radicals, and alkenyl and alkyl radicals comprising from 8 to 30 carbon atoms;

R<sub>7</sub> is chosen from C<sub>1</sub>-C<sub>4</sub> alkyl radicals;

R<sub>8</sub> is chosen from hydrogen and C<sub>1</sub>-C<sub>4</sub> alkyl radicals; and

X<sup>-</sup> is chosen from halides, phosphates, acetates, lactates, alkyl sulfates, alkyl sulfonates, and alkylaryl sulfonates. In one embodiment, R<sub>5</sub> and R<sub>6</sub> are, for example, a mixture of radicals chosen from alkenyl and alkyl radicals comprising from 12 to 21 carbon atoms, such as fatty acid derivatives of tallow, R<sub>7</sub> is methyl and R<sub>8</sub> is hydrogen. Examples of such products include, but are not limited to, Quaternium-27 (CTFA 1997) and Quaternium-83 (CTFA 1997), which are sold under the names "Rewoquat®" W75, W90, W75PG and W75HPG by the company Witco;

diquaternary ammonium salts of formula (III):



(III)

wherein:

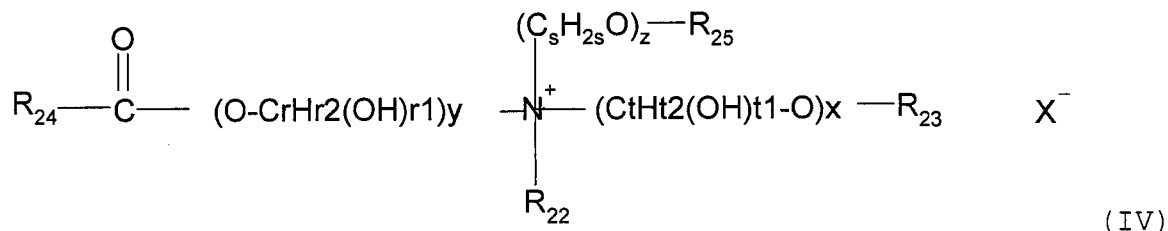
R<sub>9</sub> is chosen from aliphatic radicals comprising from 16 to 30 carbon atoms;

R<sub>10</sub> is chosen from hydrogen or alkyl radicals comprising from 1 to 4 carbon atoms or a group (R<sub>16a</sub>) (R<sub>17a</sub>) (R<sub>18a</sub>) N<sup>+</sup> (CH<sub>2</sub>)<sub>3</sub>;

R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>16a</sub>, R<sub>17a</sub>, and R<sub>18a</sub>, which may be identical or different, are chosen from hydrogen and alkyl radicals comprising from 1 to 4 carbon atoms; and

X<sup>-</sup> is chosen from halides, acetates, phosphates, nitrates, ethyl sulfates, and methyl sulfates. An example of one such diquaternary ammonium salt is FINQUAT CT-P of FINETEX (Quaternium-89) or FINQUAT CT of FINETEX (Quaternium-75); and

quaternary ammonium salts comprising at least one ester function, such as those of formula (IV) below:

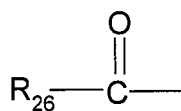


wherein:

R<sub>22</sub> is chosen from C<sub>1</sub>-C<sub>6</sub> alkyl radicals and C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl and dihydroxyalkyl radicals;

R<sub>23</sub> is chosen from:

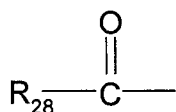
the radical below:



linear and branched, saturated and unsaturated C<sub>1</sub>-C<sub>22</sub> hydrocarbon-based radicals R<sub>27</sub>, and hydrogen,

R<sub>25</sub> is chosen from:

the radical below:



linear and branched, saturated and unsaturated C<sub>1</sub>-C<sub>6</sub> hydrocarbon-based radicals R<sub>29</sub>, and hydrogen,

R<sub>24</sub>, R<sub>26</sub>, and R<sub>28</sub>, which may be identical or different, are chosen from linear and branched, saturated and unsaturated, C<sub>7</sub>-C<sub>21</sub>, hydrocarbon-based radicals;

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

each of r<sub>1</sub> and t<sub>1</sub>, which may be identical or different, is 0 or 1, and r<sub>2</sub>+r<sub>1</sub>=2r and t<sub>1</sub>+2t=2t;

y is chosen from integers ranging from 1 to 10;

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

X<sup>-</sup> is chosen from simple and complex, organic and inorganic anions; with the proviso that the sum x+y+z ranges from 1 to 15, that when x is 0, R<sub>23</sub> denotes R<sub>27</sub>, and that when z is 0, R<sub>25</sub> denotes R<sub>29</sub>.

R<sub>22</sub> may be chosen from linear and branched alkyl radicals. In one embodiment, R<sub>22</sub> is chosen from linear alkyl radicals. In another embodiment, R<sub>22</sub> is chosen from methyl, ethyl, hydroxyethyl, and dihydroxypropyl radicals, for example methyl and ethyl radicals. In one embodiment, the sum x+y+z ranges from 1 to 10. When R<sub>23</sub> is a hydrocarbon-based radical R<sub>27</sub>,



it may be long and comprise from 12 to 22 carbon atoms, or short and comprise from 1 to 3 carbon atoms. When  $R_{25}$  is a hydrocarbon-based radical  $R_{29}$ , it may comprise, for example, from 1 to 3 carbon atoms. By way of a non-limiting example, in one embodiment,  $R_{24}$ ,  $R_{26}$ , and  $R_{28}$ , which may be identical or different, are chosen from linear and branched, saturated and unsaturated,  $C_{11}$ - $C_{21}$  hydrocarbon-based radicals, for example from linear and branched, saturated and unsaturated  $C_{11}$ - $C_{21}$  alkyl and alkenyl radicals. In another embodiment,  $x$  and  $z$ , which may be identical or different, are 0 or 1. In one embodiment,  $y$  is equal to 1. In another embodiment,  $r$ ,  $s$  and  $t$ , which may be identical or different, are equal to 2 or 3, for example equal to 2. The anion  $X^-$  may be chosen from, for example, halides, such as chloride, bromide, and iodide; and  $C_1$ - $C_4$  alkyl sulfates, such as methyl sulfate. However, methanesulfonate, phosphate, nitrate, tosylate, an anion derived from an organic acid, such as acetate and lactate, and any other anion that is compatible with the ammonium comprising an ester function, are other non-limiting examples of anions that may be used according to the invention. In one embodiment, the anion  $X^-$  is chosen from chloride and methyl sulfate.

In another embodiment, the ammonium salts of formula (IV) may be used, wherein:

$R_{22}$  is chosen from methyl and ethyl radicals,

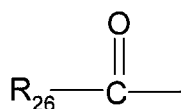
$x$  and  $y$  are equal to 1;

$z$  is equal to 0 or 1;

$r$ ,  $s$  and  $t$  are equal to 2;

$R_{23}$  is chosen from:

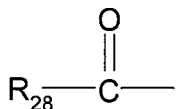
the radical below:



methyl, ethyl, and  $C_{14}$ - $C_{22}$  hydrocarbon-based radicals, hydrogen;

$R_{25}$  is chosen from:

the radical below:



and hydrogen;

$R_{24}$ ,  $R_{26}$ , and  $R_{28}$ , which may be identical or different, are chosen from linear and branched, saturated and unsaturated,  $C_{13}$ - $C_{17}$  hydrocarbon-based radicals, for example from linear and branched, saturated and unsaturated,  $C_{13}$ - $C_{17}$  alkyl and alkenyl radicals.

In one embodiment, the hydrocarbon-based radicals are linear.

Non-limiting examples of compounds of formula (IV) that may be mentioned include salts, for example chloride and methyl sulfate, of diacyloxyethyl-dimethylammonium, of diacyloxyethyl-hydroxyethyl-methylammonium, of monoacyloxyethyl-dihydroxyethyl-methylammonium, of triacyloxyethyl-methylammonium, of monoacyloxyethyl-hydroxyethyl-dimethylammonium, and mixtures thereof. In one embodiment, the acyl radicals may comprise from 14 to 18 carbon atoms, and may be derived, for example, from a plant oil, for instance palm oil and sunflower oil. When the compound comprises several acyl radicals, these radicals may be identical or different.

These products may be obtained, for example, by direct esterification of optionally oxyalkylenated triethanolamine, triisopropanolamine, alkyldiethanolamine or alkyldiisopropanolamine onto fatty acids or onto mixtures of fatty acids of plant or animal origin, or by transesterification of the methyl esters thereof. This esterification may be followed by a quaternization using an alkylating agent chosen from alkyl halides, for example methyl and ethyl halides; dialkyl sulfates, for example dimethyl and diethyl sulfates; methyl methanesulfonate; methyl para-toluenesulfonate; glycol chlorohydrin; and glycerol chlorohydrin.

Such compounds are sold, for example, under the names Dehyquart® by the company Cognis, Stepanquat® by the company Stepan, Noxamium® by the company Ceca, and "Rewoquat® WE 18" by the company Rewo-Goldschmidt.

The compositions according to the invention may comprise, for example, a mixture of quaternary ammonium mono-, di- and triester salts with a weight majority of diester salts.

Other non-limiting examples of ammonium salts that may be used in the compositions according to the invention include the ammonium salts comprising at least one ester function described in U.S. Pat. Nos. 4,874,554 and 4,137,180.

Among the quaternary ammonium salts mentioned above that may be used in compositions according to the invention include, but are not limited to, those corresponding to formula (I), for example tetraalkylammonium chlorides, for instance dialkyldimethylammonium and alkyltrimethylammonium chlorides in which the alkyl radical comprises from about 12 to 22 carbon atoms, such as behenyltrimethylammonium,

distearyldimethylammonium, cetyltrimethylammonium and benzyldimethylstearylammonium chloride; palmitylamidopropyltrimethylammonium chloride; and stearamidopropyldimethyl(myristyl acetate)ammonium chloride, sold under the name "Ceraphyl® 70" by the company Van Dyk.

According to one embodiment, the cationic surfactant that may be used in the compositions of the invention is chosen from quaternary ammonium salts, for example from behenyltrimethylammonium chloride, cetyltrimethylammonium chloride, Quaternium-83, Quaternium-87, Quaternium-22, behenylamidopropyl-2,3-dihydroxypropyldimethylammonium chloride, palmitylamidopropyltrimethylammonium chloride, and stearamidopropyldimethylamine.

(Nonionic Surfactants)

According to the present invention, the type of additional nonionic surfactant is not limited as long as it is not the above (b) glucoside type surfactant.

The nonionic surfactants are compounds well known in themselves (see, e.g., in this regard, "Handbook of Surfactants" by M. R. Porter, Blackie & Son publishers (Glasgow and London), 1991, pp. 116-178). Thus, they can, for example, be chosen from alcohols, alpha-diols, alkylphenols and esters of fatty acids that are polyethoxylated, polypropoxylated or polyglycerolated and have at least one fatty chain comprising, for example, from 8 to 18 carbon atoms, it being possible for the number of ethylene oxide or propylene oxide groups to range from 2 to 50, and for the number of glycerol groups to range from 2 to 30. Maltose derivatives may also be mentioned. Non-limiting mention may also be made of copolymers of ethylene oxide and/or of propylene oxide; condensates of ethylene oxide and/or of propylene oxide with fatty alcohols; polyethoxylated fatty amides comprising, for example, from 2 to 30 mol of ethylene oxide; polyglycerolated fatty amides comprising, for example, from 1 to 5 glycerol groups, such as from 1.5 to 4; ethoxylated fatty acid esters of sorbitan comprising from 2 to 30 mol of ethylene oxide; ethoxylated oils from plant origin; fatty acid esters of sucrose; fatty acid esters of polyethylene glycol; fatty acid mono or diesters of glycerol; N-(C<sub>6</sub>-C<sub>24</sub>)alkylglucamine derivatives, amine oxides such as (C<sub>10</sub>-C<sub>14</sub>)alkylamine oxides or N-(C<sub>10</sub>-C<sub>14</sub>)acylaminopropylmorpholine oxides; and mixtures thereof.

The nonionic surfactants may preferably be chosen from monooxyalkylenated or polyoxyalkylenated, monoglycerolated or

polyglycerolated nonionic surfactants. The oxyalkylene units are more particularly oxyethylene or oxypropylene units, or a combination thereof, preferably oxyethylene units.

Examples of oxyalkylenated nonionic surfactants that may be mentioned include:

oxyalkylenated (C<sub>8</sub>-C<sub>24</sub>)alkylphenols,  
saturated or unsaturated, linear or branched, oxyalkylenated C<sub>8</sub>-C<sub>30</sub> alcohols,  
saturated or unsaturated, linear or branched, oxyalkylenated C<sub>8</sub>-C<sub>30</sub> amides,  
esters of saturated or unsaturated, linear or branched, C<sub>8</sub>-C<sub>30</sub> acids and of polyethylene glycols,  
polyoxyalkylenated esters of saturated or unsaturated, linear or branched, C<sub>8</sub>-C<sub>30</sub> acids and of sorbitol,  
saturated or unsaturated, oxyalkylenated plant oils,  
condensates of ethylene oxide and/or of propylene oxide, inter alia, alone or as mixtures.

The surfactants contain a number of moles of ethylene oxide and/or of propylene oxide of between 1 and 100 and preferably between 2 and 50. Advantageously, the nonionic surfactants do not comprise any oxypropylene units.

In accordance with one preferred embodiment of the invention, the oxyalkylenated nonionic surfactants are chosen from oxyethylenated C<sub>8</sub>-C<sub>30</sub> alcohols or ethoxylated fatty esters

Examples of ethoxylated fatty alcohols (or C<sub>8</sub>-C<sub>30</sub> alcohols) that may be mentioned include the adducts of ethylene oxide with lauryl alcohol, especially those containing from 9 to 50 oxyethylene groups and more particularly those containing from 10 to 12 oxyethylene groups (Laureth-10 to Laureth-12, as the CTFA names); the adducts of ethylene oxide with behenyl alcohol, especially those containing from 9 to 50 oxyethylene groups (Beheneth-9 to Beheneth-50, as the CTFA names); the adducts of ethylene oxide with cetearyl alcohol (mixture of cetyl alcohol and stearyl alcohol), especially those containing from 10 to 30 oxyethylene groups (Cetareth-10 to Cetareth-30, as the CTFA names); the adducts of ethylene oxide with cetyl alcohol, especially those containing from 10 to 30 oxyethylene groups (Ceteth-10 to Ceteth-30, as the CTFA names); the adducts of ethylene oxide with stearyl alcohol, especially those containing from 10 to 30 oxyethylene groups (Steareth-10 to Steareth-30, as the CTFA names); the adducts of ethylene oxide with isostearyl alcohol, especially those containing from 10 to 50 oxyethylene

groups (Isosteareth-10 to Isosteareth-50, as the CTFA names); and mixtures thereof.

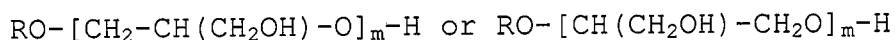
Examples of ethoxylated fatty esters that may be mentioned include the adducts of ethylene oxide with esters of lauric acid, palmitic acid, stearic acid or behenic acid, and mixtures thereof, especially those containing from 9 to 50 oxyethylene groups, such as PEG-9 to PEG-50 laurate (as the CTFA names: PEG-9 laurate to PEG-50 laurate); PEG-9 to PEG-50 palmitate (as the CTFA names: PEG-9 palmitate to PEG-50 palmitate); PEG-9 to PEG-50 stearate (as the CTFA names: PEG-9 stearate to PEG-50 stearate); PEG-9 to PEG-50 palmitostearate; PEG-9 to PEG-50 behenate (as the CTFA names: PEG-9 behenate to PEG-50 behenate); and mixtures thereof.

Mixtures of these oxyethylenated derivatives of fatty alcohols and of fatty esters may also be used.

According to one preferred embodiment of the invention, the cosmetic composition according to the present invention comprises at least one ethoxylated fatty alcohol.

As examples of monoglycerolated or polyglycerolated nonionic surfactants, monoglycerolated or polyglycerolated C<sub>8</sub>-C<sub>40</sub> alcohols are preferably used.

In particular, the monoglycerolated or polyglycerolated C<sub>8</sub>-C<sub>40</sub> alcohols correspond to the following formula:



in which R represents a linear or branched C<sub>8</sub>-C<sub>40</sub> and preferably C<sub>8</sub>-C<sub>30</sub> alkyl or alkenyl radical, and m represents a number ranging from 1 to 30 and preferably from 1 to 10.

As examples of compounds that are suitable in the context of the invention, mention may be made of lauryl alcohol containing 4 mol of glycerol (INCI name: Polyglyceryl-4 Lauryl Ether), lauryl alcohol containing 1.5 mol of glycerol, oleyl alcohol containing 4 mol of glycerol (INCI name: Polyglyceryl-4 Oleyl Ether), oleyl alcohol containing 2 mol of glycerol (INCI name: Polyglyceryl-2 Oleyl Ether), cetearyl alcohol containing 2 mol of glycerol, cetearyl alcohol containing 6 mol of glycerol, oleocetyl alcohol containing 6 mol of glycerol, and octadecanol containing 6 mol of glycerol.

The alcohol may represent a mixture of alcohols in the same way that the value of m represents a statistical value, which means

that, in a commercial product, several species of polyglycerolated fatty alcohol may coexist in the form of a mixture.

Among the monoglycerolated or polyglycerolated alcohols, it is more particularly preferred to use the C<sub>8</sub>/C<sub>10</sub> alcohol containing 1 mol of glycerol, the C<sub>10</sub>/C<sub>12</sub> alcohol containing 1 mol of glycerol and the C<sub>12</sub> alcohol containing 1.5 mol of glycerol.

Preferably, the nonionic surfactant may be a nonionic surfactant with an HLB from 8 to 18. The HLB is the ratio between the hydrophilic part and the lipophilic part in the molecule. This term HLB is well known to those skilled in the art and is described in "The HLB system. A time-saving guide to emulsifier selection" (published by ICI Americas Inc., 1984).

According to one embodiment of the present invention, the amount of the additional surfactant(s) may range from 0.1 to 20% by weight, preferably from 0.5 to 15% by weight, and more preferably from 1 to 10% by weight, relative to the total weight of the cosmetic composition according to the present invention.

The cosmetic composition according to the present invention may also comprise an effective amount of other agents, known previously elsewhere in oxidation dyeing, such as various common adjuvants, for instance ammonia, sequestering agents such as EDTA and etidronic acid, UV screening agents, silicones other than those mentioned before such as organomodified silicones (such as with amine groups), preserving agents, ceramides, pseudoceramides, vitamins or provitamins, for instance panthenol, opacifiers, and so on.

The form of the cosmetic composition according to the present invention is not particularly limited, and may take various forms such as an O/W emulsion, a W/O emulsion, a multiple emulsion or the like. The form of an O/W emulsion is preferable. The pH of the cosmetic composition according to the present invention applied to the keratin fibers may be generally, for example, from 4 to 12. It can range from 6 to 12, preferably 7 to 11, and may be adjusted to the desired value using at least one acidifying agent that is well known in the prior art.

The acidifying agents can be, for example, mineral or organic acids, for instance hydrochloric acid, orthophosphoric acid, carboxylic acids, for instance tartaric acid, citric acid, lactic acid, or sulphonic acids.

The viscosity of the cosmetic composition according to the present invention is not particularly limited. The viscosity can be measured at 25°C with viscosimeters or rheometers preferably with coneplan geometry. Preferably the viscosity of the cosmetic composition according to the invention can range, for example, from 1 to 2000 Pa.s, and preferably from 1 to 1000 Pa.s at 25°C with a shear rate of  $1s^{-1}$ .

The composition according to the invention may also comprise a propellant. For the purposes of the invention, the term "propellant" means any compound that is gaseous at a temperature of 20°C and at atmospheric pressure, and that can be stored under pressure in liquid or gaseous form in an aerosol container.

The propellant may be chosen from optionally halogenated volatile hydrocarbons, such as n-butane, propane, isobutane, pentane or a halogenated hydrocarbon, and mixtures thereof. Carbon dioxide, nitrous oxide, dimethyl ether (DME), nitrogen or compressed air may also be used as propellant. Mixtures of propellants may also be used. Dimethyl ether and/or non-halogenated volatile hydrocarbons are preferably used. The propellant(s) may be present in the composition in a content of between 1% and 15%, preferably between 2% and 10% and more preferably between 3% and 8% by weight relative to the total weight of the composition.

The cosmetic composition according to the present invention can be prepared by mixing the essential components (a) to (e), together with the above optional component(s), if necessary.

More particularly, the cosmetic composition according to the present invention is a ready-to-use composition. For the purposes of the present invention, the expression "ready-to-use" composition is defined herein as a composition to be applied immediately to keratin fibers such as hair. The "ready-to-use" composition may be prepared by, for example, mixing or shaking the essential components (a) to (e), and any optional component(s), if necessary prior to the application on the keratin fibers.

The cosmetic composition according to the present invention may be formulated into a multi-compartment system or kit comprising at least a first compartment and a second compartment, in which the first compartment comprises at least one non-volatile alkaline agent (component(c)) and optionally at least one coloring substance (direct dyes and/or oxidation dyes - component

(f)); and the second compartment comprises at least one oxidizing agent (component (d)); the other essential components (fatty material (component (a)), glucoside type surfactant (component (b)), foam stabilizer (component (e)) and any optional component(s) being present, separately or not, in at least one of the first and second compartments or in other(s); the amount of fatty material(s) (component (a)) in the composition obtained by mixing the compartments being of 20 % by weight or more, relative to the total weight of the composition.

The multi-compartment system may be equipped with a means for mixing and/or applying the above compositions such as a valve and a nozzle.

The composition in the form of a mousse according to the present invention can be formed from air, inert gas or a mixture thereof with the previously described composition.

According to a specifically preferred embodiment, the composition according to the present invention has the form of a temporary foam produced just before use.

According to this embodiment, the composition can be packaged in a foam dispenser. It can involve either products referred to as "aerosols" dispensed from a pressurized container by means of a propellant gas and thus forming a foam at the time of their dispensing, or compositions dispensed from a container by means of a mechanical pump connected to a dispensing head where the passage of the composition through the dispensing head transforms it into a foam in the area of the outlet orifice of such a head at the latest.

According to a first variant, the dispenser can be an aerosol furthermore containing the composition according to the present invention, generally divided into two parts: one with the oxidizing agent(s) and the other with the alkaline agent(s) and optionally the coloring substance(s); and a propellant gas. In such a configuration, generally the two parts are stored separately, each in a pressurized container. Thus the propellant gases selected for each of the containers can be adapted to the part of the composition with which it is mixed.

The propellant gas which can be used may be chosen among the previously mentioned gases and in particular among carbon dioxide, nitrogen, nitrogen oxide, dimethyl ether, volatile hydrocarbons such as butane, isobutane, propane and pentane, and mixtures thereof.



In practice, for this variant, aerosol packaging can be used with a single container which has two pouches inside it. The dispensing head is such that what is sprayed in foam form is the composition according to the present invention, meaning the mixture of the composition with the oxidizing agent(s) and the composition with the oxidation coloring substance(s).

According to another embodiment, the composition can be in a "pump bottle" type foam dispenser. These dispensers include a dispensing head for delivering the composition, a pump and a plunger tube for transferring the composition from the container, into the head, for dispensing the product. The foam is formed by forcing the composition to pass through a material including a porous substance such as a sintered material, a filtering grid of plastic or metal, or similar structures.

Such dispensers are known to a person skilled in the art and are described in the patents: US patent 3,709,437 (Wright), US patent 3,937,364 (Wright), US patent 4,022,351 (Wright), US patent 4,1147,306 (Bennett), US patent 4,184,615 (Wright), US patent 4,598,862 (Rice), US patent 4,615,467 (Grogan et al.), and US patent 5,364,031 (Tamiguchi et al.).

According to this variant, the oxidizing agent(s) is packaged in a first container having a cap, and the alkaline agent(s) and optionally the coloring substance(s) are packaged in the second container, separate from the first, and also sealed by a closing unit. The closing unit can be a pump dispensing mechanism. The composition according to the present invention is then formed before use by mixing a composition with the oxidizing agent(s) and a composition with the coloring substance(s). For this purpose, and to limit the number of containers supplied, one of the first or second containers has a sufficient inside volume for receiving the entirety of both compositions therein. The mixture of the compositions can then be homogenized by closing this container and shaking the container. Advantageously the container is closed directly with the dispensing head. This dispensing head comprises a mechanical pump held in a ring intended for assembly by clicking or screwing onto the neck of the container which contains the mixture. The pump comprises a pump body connected to a plunger tube in order to dispense the entirety of the mixture. The pump also comprises a pushbutton for actuating the pump body, such that with each actuation, a dose of composition is aspirated from inside the plunger tube and ejected in foam form at the dispensing head orifice.

Preferably the containers are made of a thermoplastic material, and are made by extrusion blow molding or injection blow molding processes. In particular, the container intended for packaging the composition with the coloring substance(s) can be made of a material comprising a nonzero proportion of EVOH. For example the pump is the standard "F2-L9" model sold by the REXAM company.

According to this preferred embodiment, the purpose of the present invention is a non-aerosol device comprising the composition from the present invention.

The present invention also relates to a cosmetic process for keratin fibers such as hair, comprising: forming a foam by mixing or shaking the cosmetic composition according to the present invention; and applying the composition in the form of a mousse to the keratin fibers. The mixing or shaking can be performed by any means such as a spoon and a whisk, to aerate the cosmetic composition. In another embodiment, the mixing or shaking is performed by using a device dispensing a mousse, aerosol or non aerosol, such a described before.

In one embodiment of the cosmetic process, the cosmetic composition according to the present invention can be used in treating (e.g., coloring or bleaching) keratin fibers such as hair, comprising, for example, the steps of: applying to wet or dry keratin fibers a cosmetic composition in the form of a mousse which is either prepared by mixing or shaking, just before the application to the keratin fibers, one or more of the essential components (a) to (d) and the other essential components in the cosmetic composition according to the present invention; leaving the cosmetic composition to act for an exposure time, ranging, for example, from approximately 1 to 60 minutes, or from approximately 5 to 45 minutes; rinsing the fibers; and optionally washing them with shampoo, rinsing them again and then drying them.

The application of the cosmetic composition may be realized at room temperature or with the use of a warming device which is able to produce a temperature ranging from 40 to 220°C, preferably ranging from 40 to 80°C.

#### EXAMPLES

The present invention will be described in more detail by way of examples, which however should not be construed as limiting the scope of the present invention.

### Examples 1-2 and Comparative Examples 1-2

[Preparations]

The following compositions according to Examples 1-2 and Comparative Examples 1-2, shown in Table 1, were prepared by mixing the components shown in Table 1. The numerical values for the amounts of the components shown in the Tables are all based on "% by weight" as active raw materials.

Table 1

Component	Ex. 1	Ex. 2	Comp. Ex. 1	Comp. Ex. 2
Mineral Oil	25.70	25.70	25.70	5.00
Caprylyl/Capryl glucoside (60%)	1.03	1.03	-	1.03
Hydroxyethylcellulose	1.07	1.07	1.07	1.07
Ethanolamine	2.21	2.21	2.21	2.21
Hydrogen Peroxide (50%)	4.28	4.28	4.28	4.28
p-Phenylenediamine	-	0.50	-	-
p-Aminophenol	-	0.50	-	-
4-Amino-2-hydroxytoluene	-	0.50	-	-
Resorcinol	-	0.50	-	-
PEG-40 hydrogenated castor oil	0.43	0.43	0.43	0.43
Coco-betaine (30%)	4.28	4.28	4.28	4.28
Sodium Laureth Sulfate (70%)	0.75	0.75	0.75	0.75
Steareth-20	0.04	0.04	0.04	0.04
Steareth-2	0.04	0.04	0.04	0.04
Glycerin	2.29	2.29	2.29	2.29
Ascorbic acid	0.21	0.21	0.21	0.21
Sodium Metabisulfite	0.21	0.21	0.21	0.21
Pentasodium Pentetate (40%)	0.34	0.34	0.34	0.34
Tetrasodium Etidronate	0.11	0.11	0.11	0.11
Tetrasodium Pyrophosphate	0.02	0.02	0.02	0.02
Sodium Salicylate	0.02	0.02	0.02	0.02
Water	balance	balance	balance	balance

[Evaluations]

The bleaching ability and foaming property of the compositions according to Example 1 and Comparative Examples 1-2, and the

coloring property of the composition according to Example 2, were measured and evaluated as follows.

(1) Bleaching Ability

Each composition was applied immediately after the preparation thereof onto a swatch of Japanese black hair in a weight ratio 4:1 (the composition : the hair swatch). The applied hair swatch was left for 30 minutes at 30°C. Then, it was washed out by shampoo and dried. Color of the hair swatch was then measured by Minolta CM-508d. Calculating this value in comparison with untreated black hair swatch and  $\Delta E$  (between the color of the untreated original hair and the color of the bleached hair under  $L^*a^*b^*$  system) was calculated. For the evaluation of hair bleaching ability, the following criteria was used.

Bleaching Ability Criteria

$\Delta E$	Bleaching ability
Less than 5	Low
Between 5-7	Medium
More than 8	High

(2) Foaming Property

140 g of each composition was put into a container with a volume of 500 ml (diameter 8cm, height 12.5cm), and the container was closed with a cap. Then, the composition in the container was shaken vigorously 30 times. The cap was opened, and the foaming volume was determined by the ratio of the foam volume to the volume of the container. In other words, the foaming property was determined by the following equation: Foaming Volume (%) = Foam Volume After Shaken/Volume of Container (500 ml). For the evaluation of foaming property, following criteria was used.

Foaming Property Criteria

Foaming Volume	Foaming Property
Less than 60%	Bad
Between 60-80%	Medium
More than 80%	Good

The results of the evaluations are shown in Table 2 as follows.

Table 2

	Ex. 1	Comp. Ex. 1	Comp. Ex. 2
Bleaching Ability	High	Medium	Low
Foaming Property	Good	Bad	Good

It was found that only the composition according to Example 1 has satisfactory properties in terms of both of bleaching ability and foaming property.

### (3) Coloring Property

The composition according to Example 2 was applied immediately after the preparation thereof onto a swatch of Japanese bleached hair (light brown) in a weight ratio 4:1 (the composition: the hair swatch). The applied hair swatch was left for 30 minutes at 30°C. Then, it was washed out by shampoo and dried. The color of the hair swatch was checked by eye-observation.

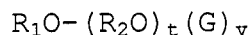
It was found that the hair swatch was dyed to have reddish blown color.

Thus, the composition according to Example 2 was confirmed to have good coloring property.

Since the composition according to Example 2 has the same ingredients as the composition according to Example 1 has, except for oxidation dye precursors and couplers, the composition according to Example 2 should also have satisfactory properties, in terms of both of bleaching ability and foaming property, which are equivalent to those for Example 1.

## CLAIMS

1. A cosmetic composition for keratin fibers, in the form of a mousse, comprising:
  - (a) at least one fatty material;
  - (b) at least one glucoside type surfactant;
  - (c) at least one non-volatile alkaline agent;
  - (d) at least one oxidizing agent, and
  - (e) at least one foam stabilizerwherein  
the amount of the (a) fatty material(s) is 20% by weight or more, preferably 30% by weight or more, and more preferably 40% by weight or more, relative to the total weight of the composition.
2. The cosmetic composition according to Claim 1, wherein the (a) fatty material is in the form of a liquid at ambient temperature and under atmospheric pressure.
3. The cosmetic composition according to Claim 1 or 2, wherein the (a) fatty material is selected from the group consisting of oils of animal or plant origin, synthetic glycerides, fatty esters other than animal or plant oils and synthetic glycerides, fatty alcohols, fatty acids, silicone oils, and aliphatic hydrocarbons.
4. The cosmetic composition according to any one of Claims 1 to 3, wherein the (a) fatty material is chosen from aliphatic hydrocarbons and particularly is mineral oil.
5. The cosmetic composition according to any one of Claims 1 to 4, wherein the (b) glucoside type surfactant is selected from the group consisting of alkyl glucosides and alkyl polyglucosides.
6. The cosmetic composition according to any one of Claims 1 to 5, wherein the (b) glucoside type surfactant is represented by the following general formula:



wherein

$R_1$  represents a linear or branched alkyl radical containing from 1 to 30, preferably 6 to 28, and more preferably 8 to 26 carbon atoms, or an aralkyl radical containing from 7 to 30, preferably 7 to 28, and more preferably 7 to 26 carbon atoms;

R<sub>2</sub> represents an alkylene radical containing from 2 to 4 carbon atoms;

G represents a reduced sugar containing 5 or 6 carbon atoms;

t denotes a value ranging from 0 to 10; and

v denotes a value ranging from 1 to 15.

7. The cosmetic composition according to Claim 6, wherein the reduced sugar containing 5 or 6 carbon atoms is selected from the group consisting of glucose, fructose and galactose.
8. The cosmetic composition according to any one of Claims 1 to 7, wherein the amount of the (b) glucoside type surfactant(s) is 0.1 to 15% by weight, preferably 0.5 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.
9. The cosmetic composition according to any one of Claims 1 to 8, wherein the (c) non-volatile alkaline agent is an inorganic alkaline agent selected from the group consisting of alkaline metal hydroxides; alkaline earth metal hydroxides; alkaline metal (hydrogeno)carbonates; alkaline earth metal(hydrogeno)carbonates; and alkaline metal metasilicates.
10. The cosmetic composition according to any one of Claims 1 to 8, wherein the (c) non-volatile alkaline agent is an organic alkaline agent selected from the group consisting of monoamines and derivatives thereof; diamines and derivatives thereof; polyamines and derivatives thereof; amino acids and derivatives thereof; oligomers of amino acids and derivatives thereof; polymers of amino acids and derivatives thereof; urea and derivatives thereof; and guanidine and derivatives thereof.
11. The cosmetic composition according to any one of Claims 1 to 8, wherein the (c) non-volatile alkaline agent is selected from alkanolamines, preferably monoethanolamine.
12. The cosmetic composition according to any one of Claims 1 to 11, wherein the amount of the (c) non-volatile alkaline agent (s) is 0.01 to 15% by weight, preferably 0.1 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.
13. The cosmetic composition according to any one of Claims 1 to 12, wherein the (d) oxidizing agent is hydrogen peroxide.

14. The cosmetic composition according to any one of Claims 1 to 13, wherein the amount of the (d) oxidizing agent(s) is 0.1 to 15% by weight, preferably 0.5 to 10% by weight, and more preferably 1 to 5% by weight, relative to the total weight of the composition.
15. The cosmetic composition according to any one of Claims 1 to 14, wherein the (e) foam stabilizer is a rheology modifier selected from hydrophilic or lipophilic, organic or inorganic polymers and non-polymers, preferably chosen from organophilic clays; fumed silicas; fatty acid amides; thickening polymers such as cellulose polymers, galactomannans and derivatives thereof, gums of microbial origin, acrylic acid or acrylamidopropanesulfonic acid crosslinked homopolymers; associative polymers, and mixture thereof.
16. The cosmetic composition according to any one of Claims 1 to 15, wherein the (e) foam stabilizer is selected from cellulose polymers.
17. The cosmetic composition according to any one of Claims 1 to 16, wherein the amount of the (e) foam stabilizer(s) is 0.05 to 20% by weight, preferably 0.1 to 15% by weight, and more preferably 0.5 to 10% by weight, relative to the total weight of the composition.
18. The cosmetic composition according to any one of Claims 1 to 17, further comprising (f) at least one coloring substance selected from the group consisting of direct dyes and oxidation dyes.
19. A cosmetic process for keratin fibers comprising a step of forming a foam by mixing or shaking the cosmetic composition according to any one of Claims 1 to 18; and applying the foam to the keratin fibers.
20. The cosmetic process according to Claim 19 using a non aerosol device to form the foam.
21. The cosmetic process according to Claim 19 using an aerosol device to form the foam.
22. A multi-compartment system or kit comprising at least a first compartment and a second compartment, in which the first compartment comprises at least one non-volatile alkaline agent (component (c)) according to any one of claims 9 to 11



and optionally at least one coloring substance (component (f)) according to claim 18 and the second compartment comprises at least one oxidizing agent (component (d)) according to claim 13; the other essential components (a), (b) and (e) being present, separately or not, in at least one of the first and second compartments or in others; and the amount of fatty material(s) (component (a)) according to claim 1 in the composition obtained by mixing the compartments being of 20 % by weight or more, relative to the total weight of the composition.

**INTERNATIONAL SEARCH REPORT**

International application No PCT/JP2011/076342
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**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61K8/04 A61K8/31 A61K8/60 A61K8/73 A61Q5/08  
 A61Q5/10  
 ADD.  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**  
 Minimum documentation searched (classification system followed by classification symbols)  
 A61K 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)  
 EPO-Internal, CHEM ABS Data, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	----- US 2006/242773 A1 (KRAVTCHENKO SYLVAIN [CN] ET AL) 2 November 2006 (2006-11-02) paragraphs [0013], [0014] -----	1-22
Y	US 2010/162492 A1 (HERCOUET LEILA [FR] ET AL) 1 July 2010 (2010-07-01) claim 1 -----	1-22
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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	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  13 August 2012	Date of mailing of the international search report  22/08/2012
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Lenzen, Achim
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## INTERNATIONAL SEARCH REPORT

International application No

PCT/JP2011/076342

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A,P	"Polyquat 7", 9 August 2012 (2012-08-09), pages 1-2, XP55035117, Retrieved from the Internet: URL: <a href="http://www.aussiesoapsupplies.com.au/polyquat-7.html">http://www.aussiesoapsupplies.com.au/polyquat-7.html</a> [retrieved on 2012-08-09] paragraph 2, last sentence -----	1-22
A	US 2010/251488 A1 (FUJINUMA HIROYUKI [JP] ET AL) 7 October 2010 (2010-10-07) examples 1-15 -----	1-22

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