



(51) International Patent Classification:

A61K 8/19 (2006.01)

A61Q 5/10 (2006.01)

A61K 8/41 (2006.01)

(21) International Application Number:

PCT/EP2024/068160

(22) International Filing Date:

27 June 2024 (27.06.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

FR2306939

30 June 2023 (30.06.2023)

FR

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: COMPOSITION COMPRISING A PARTICULAR BASE AMMONIUM BICARBONATE AND FATTY ACID

(57) Abstract: The invention relates to a composition comprising at least one particular base, ammonium bicarbonate and fatty acid.



WO 2025/003345 A1

Description

Title of Invention: Composition comprising a particular base ammonium bicarbonate and fatty acid.

- [0001] The invention relates to a composition comprising at least one particular base ammonium bicarbonate and fatty acid.
- [0002] The invention also relates to a process for dyeing keratin fibres, notably the hair, using this composition.
- [0003] Finally, the invention relates to the use of such a composition for dyeing keratin fibres, and notably the hair.
- [0004] Many people have sought for a long time to modify the colour of their hair and in particular to mask their grey hair.
- [0005] In the field of dyeing hair keratin fibres, in particular human keratin fibres, it is already known practice to dye hair keratin fibres via various techniques using direct dyes or pigments for non-permanent dyeing, or dye precursors for permanent dyeing.
- [0006] There are essentially three types of process for dyeing the hair:
- [0007] a) “permanent” dyeing, the function of which is to afford a substantial modification to the natural colour and which uses oxidation dyes which penetrate into the hair fibre and form the dye via an oxidative condensation process;
- [0008] b) non-permanent, semi-permanent or direct dyeing, which does not use the oxidative condensation process and withstands four or five shampoo washes; it consists in dyeing keratin fibres with dye compositions containing direct dyes;
- [0009] c) temporary dyeing, which gives rise to a modification of the natural colour of the hair that remains from one shampoo wash to the next, and which serves to enhance or correct a shade that has already been obtained. It may also be likened to a “makeup” process.
- [0010] It is thus known practice to dye keratin fibres, in particular human keratin fibres such as the hair, to obtain “permanent” dyeing with dye compositions containing oxidation dye precursors, notably oxidation bases, such as ortho- or para-phenylenediamines, ortho- or para-aminophenols, or heterocyclic compounds such as pyrazoles, pyrazolinones or pyrazolopyridines. These oxidation bases are colourless or weakly coloured compounds which, when combined with oxidizing products, can give rise to coloured compounds via a process of oxidative condensation.
- [0011] It is also possible to vary the shades obtained with these oxidation bases by combining them with couplers or colour modifiers. The variety of molecules used as oxidation bases and couplers allows a wide range of colours to be obtained.
- [0012] However, the use of these dye compositions may entail a certain number of

drawbacks.

- [0013] Specifically, after application to keratin fibres, the dyeing power obtained may not be entirely satisfactory, or may even be weak, and lead to a limited range of colours.
- [0014] The colourings may also be insufficiently fast with respect to external agents such as light, shampoo washing or perspiration, and may also be too selective, i.e. the difference in colouring is too great along the same keratin fibre that is differently sensitized between its end and its root.
- [0015] Consumers are moreover in search of dyeing products that are more environmentally friendly, notably based on ingredients of natural origin, and which have good application qualities, are easy to use and give good dyeing properties.
- [0016] The formulation of environmentally-friendly cosmetic products, i.e. products whose design and development take account of environmental issues, is becoming a major preoccupation for contributing towards meeting the global challenges.
- [0017] It thus proves essential to propose more sustainable compositions, thereby enabling these environmental challenges to be met.
- [0018] Thus, there is a real need to provide a composition for dyeing keratin fibres, in particular human keratin fibres such as the hair, which is more environmentally friendly and which is capable of producing good colour build-up, intensity and chromaticity, while at the same time having low selectivity and good fastness, notably good resistance to shampoo washing, and which is capable of delivering good dyeing performance, even after a period of storage, while at the same time having good application qualities and retaining good sensory performance notably in terms of sheen, smoothness, suppleness, straightening and disentangling of keratin fibres such as the hair.
- [0019] These aims and others are achieved by the present invention, one subject of which is thus a composition comprising:
- [0020] - at least one base chosen from: 2- β -hydroxyethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof;
- [0021] - ammonium bicarbonate
- at least one fatty acid.
- [0022] According to a preferred embodiment, the composition according to the invention is a composition for dyeing keratin fibres, notably the hair.
- [0023] The composition according to the invention may notably lead to chromatic, powerful, intense and sparingly selective colourings, i.e. colourings that are uniform along the

length of the fibre.

[0024] The composition according to the invention has good resistance to shampoo washing and also good stability over time, notably little or no change in its viscosity during storage.

[0025] The composition according to the invention has good application qualities, notably in terms of texture, ease of application, adhesion to the hair and lengthening.

[0026] The composition according to the invention can also afford good cosmetic qualities, notably in terms of sheen, smoothness and suppleness, and a more natural feel, while at the same time preserving the integrity of the fibre.

[0027] The composition according to the invention can also provide keratin fibres with cosmetic compositions which do not have a strong ammonia odour.

[0028] A subject of the invention is also a process for dyeing the hair using the composition of the invention.

[0029] A subject of the invention is also a kit comprising, in a first compartment, a composition as defined previously and, in a second compartment, an oxidizing composition comprising at least one chemical oxidizing agent.

[0030] According to the invention, the term "*chemical oxidizing agent*" means an oxidizing agent other than atmospheric oxygen.

[0031] Other subjects, features, aspects and advantages of the invention will emerge even more clearly on reading the description and the examples that follow.

[0032] In the text hereinbelow, unless otherwise indicated, the limits of a range of values are included in that range, notably in the expressions "between" and "ranging from ... to ...".

[0033] Moreover, the expression "*at least one*" used in the present description is equivalent to the expression "*one or more*".

Oxidation base

[0034] The composition according to the invention comprises at least one particular oxidation base.

[0035] The oxidation bases may be present in the form of salts, solvates and/or solvates of salts.

[0036] The composition according to the invention comprises at least one oxidation base chosen from 2- β -hydroxyethyl-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof.

[0037] The addition salts, when they are present in the composition according to the invention, are notably chosen from the addition salts with an acid, such as the

hydrochlorides, hydrobromides, sulfates, citrates, succinates, tartrates, lactates, tosylates, benzenesulfonates, phosphates and acetates, and the addition salts with a base such as sodium hydroxide, potassium hydroxide, aqueous ammonia, amines or alkanolamines.

- [0038] Moreover, the solvates, when they are present in a composition according to the invention, more particularly represent the hydrates of said bases and/or the combination of said bases with a linear or branched C1 to C4 alcohol such as methanol, ethanol, isopropanol or n-propanol. Preferably, the solvates are hydrates.
- [0039] The total content of oxidation base(s) chosen from 2- β -hydroxyethyl-para-phenylenediamine, 2-(γ -hydroxypropyl)-para-phenylenediamine, 2-methoxymethyl-para-phenylenediamine, an addition salt thereof, solvates thereof, and/or solvates of the salts thereof and mixtures thereof preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, even better still from 0.1% to 3% by weight relative to the total weight of the composition.
- [0040] When it is present, the total content of oxidation base chosen from 2- β -hydroxyethyl-para-phenylenediamine, an addition salt thereof, solvates thereof and/or solvates of the salts thereof, preferably ranges from 0.001% to 20% by weight, more preferably from 0.005% to 15% by weight, more preferentially from 0.01% to 10% by weight, better still from 0.05% to 5%, even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0041] When it is present, the total content of oxidation base chosen from 2-(γ -hydroxypropyl)-para-phenylenediamine, an addition salt thereof, solvates thereof and/or solvates of the salts thereof, preferably ranges from 0.001% to 20% by weight, more preferably from 0.005% to 15% by weight, more preferentially from 0.01% to 10% by weight, better still from 0.05% to 5%, even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0042] When it is present, the total content of oxidation base chosen from 2-methoxymethyl-para-phenylenediamine, an addition salt thereof, solvates thereof and/or solvates of the salts thereof, preferably ranges from 0.001% to 20% by weight, more preferably from 0.005% to 15% by weight, more preferentially from 0.01% to 10% by weight, better still from 0.05% to 5%, even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0043] The composition according to the invention may optionally also comprise one or more additional oxidation bases, other than 2- β -hydroxyethyl-para-phenylenediamine, 2-(γ -hydroxypropyl)-para-phenylenediamine and 2-methoxymethyl-para-phenylenediamine, addition salts thereof, solvates thereof and solvates of salts thereof, chosen from para-phenylenediamines, bis(phenyl)alkylenediamines, para-aminophenols,

ortho-aminophenols and heterocyclic bases, addition salts thereof, solvates thereof and solvates of salts thereof.

[0044] Among the para-phenylenediamines that may be mentioned are, for example, para-phenylenediamine, para-toluenediamine, 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-dimethyl-para-phenylenediamine, N,N-diethyl-para-phenylenediamine, N,N-dipropyl-para-phenylenediamine, 4-amino-N,N-diethyl-3-methylaniline, N,N-bis(β -hydroxyethyl)-para-phenylenediamine, 4-N,N-bis(β -hydroxyethyl)amino-2-methylaniline, 4-N,N-bis(β -hydroxyethyl)amino-2-chloroaniline, 2-fluoro-para-phenylenediamine, 2-isopropyl-para-phenylenediamine, N-(β -hydroxypropyl)-para-phenylenediamine, 2-hydroxymethyl-para-phenylenediamine, N,N-dimethyl-3-methyl-para-phenylenediamine, N-ethyl-N-(β -hydroxyethyl)-para-phenylenediamine, N-(β,γ -dihydroxypropyl)-para-phenylenediamine, N-(4'-aminophenyl)-para-phenylenediamine, N-phenyl-para-phenylenediamine, 2- β -hydroxyethyloxy-para-phenylenediamine, 2- β -acetylaminoethyloxy-para-phenylenediamine, N-(β -methoxyethyl)-para-phenylenediamine, 4-aminophenylpyrrolidine, 2-thienyl-para-phenylenediamine, 2- β -hydroxyethylamino-5-aminotoluene and 3-hydroxy-1-(4'-aminophenyl)pyrrolidine, and the corresponding addition salts, solvates and/or solvates of salts thereof.

[0045] Among the bis(phenyl)alkylenediamines that may be mentioned, for example, are N,N'-bis(β -hydroxyethyl)-N,N'-bis(4'-aminophenyl)-1,3-diaminopropanol, N,N'-bis(β -hydroxyethyl)-N,N'-bis(4'-aminophenyl)ethylenediamine, N,N'-bis(4-aminophenyl)tetramethylenediamine, N,N'-bis(β -hydroxyethyl)-N,N'-bis(4-aminophenyl)tetramethylenediamine, N,N'-bis(4-methylaminophenyl)tetramethylenediamine, N,N'-bis(ethyl)-N,N'-bis(4'-amino-3'-methylphenyl)ethylenediamine and 1,8-bis(2,5-diaminophenoxy)-3,6-dioxaoctane, and the corresponding addition salts, the solvates and solvates of the salts.

[0046] Among the para-aminophenols that are mentioned are, for example, para-aminophenol, 4-amino-3-methylphenol, 4-amino-3-fluorophenol, 4-amino-3-chlorophenol, 4-amino-3-hydroxymethylphenol, 4-amino-2-methylphenol, 4-amino-2-hydroxymethylphenol, 4-amino-2-methoxymethylphenol, 4-amino-2-aminomethylphenol, 4-amino-2-(β -hydroxyethylaminomethyl)phenol and 4-amino-2-fluorophenol, and the corresponding addition salts, the solvates and solvates of the salts.

[0047] Among the ortho-aminophenols that may be mentioned, for example, are

2-aminophenol, 2-amino-5-methylphenol, 2-amino-6-methylphenol and 5-acetamido-2-aminophenol, and the corresponding addition salts, the solvates and the solvates of the salts.

[0048] Among the heterocyclic bases that may be mentioned, for example, are pyridine, pyrimidine and pyrazole derivatives.

[0049] Among the pyridine derivatives that may be mentioned are the compounds described, for example, in patents GB 1 026 978 and GB 1 153 196, for example 2,5-diaminopyridine, 2-(4-methoxyphenyl)amino-3-aminopyridine and 3,4-diaminopyridine, and the corresponding addition salts, the solvates and the solvates of the salts.

[0050] Other pyridine oxidation bases that are useful in the present invention are the 3-aminopyrazolo[1,5-a]pyridine oxidation bases or the corresponding addition salts described, for example, in patent application FR 2 801 308. Examples that may be mentioned include pyrazolo[1,5-a]pyrid-3-ylamine, 2-acetylaminopyrazolo[1,5-a]pyrid-3-ylamine, 2-(morpholin-4-yl)pyrazolo[1,5-a]pyrid-3-ylamine, 3-aminopyrazolo[1,5-a]pyridine-2-carboxylic acid, 2-methoxypyrazolo[1,5-a]pyrid-3-ylamine, (3-aminopyrazolo[1,5-a]pyrid-7-yl)methanol, 2-(3-aminopyrazolo[1,5-a]pyrid-5-yl)ethanol, 2-(3-aminopyrazolo[1,5-a]pyrid-7-yl)ethanol, (3-aminopyrazolo[1,5-a]pyrid-2-yl)methanol, 3,6-diaminopyrazolo[1,5-a]pyridine, 3,4-diaminopyrazolo[1,5-a]pyridine, pyrazolo[1,5-a]pyridine-3,7-diamine, 7-(morpholin-4-yl)pyrazolo[1,5-a]pyrid-3-ylamine, pyrazolo[1,5-a]pyridine-3,5-diamine, 5-(morpholin-4-yl)pyrazolo[1,5-a]pyrid-3-ylamine, 2-[(3-aminopyrazolo[1,5-a]pyrid-5-yl)(2-hydroxyethyl)amino]ethanol, 2-[(3-aminopyrazolo[1,5-a]pyrid-7-yl)(2-hydroxyethyl)amino]ethanol, 3-aminopyrazolo[1,5-a]pyridin-5-ol, 3-aminopyrazolo[1,5-a]pyridin-4-ol, 3-aminopyrazolo[1,5-a]pyridin-6-ol, 3-aminopyrazolo[1,5-a]pyridin-7-ol, 2- β -hydroxyethoxy-3-aminopyrazolo[1,5-a]pyridine and 2-(4-dimethylpiperazinium-1-yl)-3-aminopyrazolo[1,5-a]pyridine, and the corresponding addition salts, the solvates and the solvates of the salts.

[0051] More particularly, the oxidation bases that are useful in the present invention are chosen from 3-aminopyrazolo[1,5-a]pyridines and preferably substituted on carbon atom 2 with:

[0052] a) a (di)(C1-C6)(alkyl)amino group, said alkyl group possibly being substituted with at least one hydroxyl, amino or imidazolium group;

[0053] b) an optionally cationic 5- to 7-membered heterocycloalkyl group containing from 1 to 3 heteroatoms, optionally substituted with one or more (C1-C6)alkyl groups, such as a di(C1-C4)alkylpiperazinium group; or

[0054] c) a (C1-C6)alkoxy group optionally substituted with one or more hydroxyl groups,

such as a β -hydroxyalkoxy group, and the corresponding addition salts, the solvates and the solvates of the salts.

[0055] Among the pyrimidine derivatives that may be mentioned are the compounds described, for example, in patents DE 2359399; JP 88-169571; JP 05-63124; EP 0770375 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-triaminopyrimidine and the addition salts thereof, the solvates and the solvates of the salts thereof, and the tautomeric forms thereof, when a tautomeric equilibrium exists.

[0056] Among the pyrazole derivatives that may be mentioned are the compounds described in patents DE 3843892 and DE 4133957 and patent applications WO 94/08969, WO 94/08970, FR-A-2 733 749 and DE 195 43 988, for instance 4,5-diamino-1-methylpyrazole, 4,5-diamino-1-(β -hydroxyethyl)pyrazole, 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-hydrazinopyrazole, 1-benzyl-4,5-diamino-3-methylpyrazole, 4,5-diamino-3-tert-butyl-1-methylpyrazole, 4,5-diamino-1-tert-butyl-3-methylpyrazole, 4,5-diamino-1-(β -hydroxyethyl)-3-methylpyrazole, 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-isopropylpyrazole, 4,5-diamino-3-methyl-1-isopropylpyrazole, 4-amino-5-(2'-aminoethyl)amino-1,3-dimethylpyrazole, 3,4,5-triaminopyrazole, 1-methyl-3,4,5-triaminopyrazole, 3,5-diamino-1-methyl-4-methylaminopyrazole and 3,5-diamino-4-(β -hydroxyethyl)amino-1-methylpyrazole, and the corresponding addition salts, the solvates and the solvates of the salts. Use may also be made of 4,5-diamino-1-(β -methoxyethyl)pyrazole.

[0057] A 4,5-diaminopyrazole will preferably be used and even more preferentially 4,5-diamino-1-(β -hydroxyethyl)pyrazole and/or a corresponding salt, a solvate and/or a solvate of a salt.

[0058] The pyrazole derivatives that may also be mentioned comprise diamino-N,N-dihydropyrazolopyrazolones and in particular those described in patent application FR-A-2 886 136, such as the following compounds and the corresponding addition salts: 2,3-diamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 2-amino-3-ethylamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 2-amino-3-isopropylamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 2-amino-3-(pyrrolidin-1-yl)-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 4,5-diamino-1,2-dimethyl-1,2-dihydropyrazol-3-one, 4,5-diamino-1,2-diethyl-1,2-d

1,2-dihydropyrazol-3-one, 4,5-diamino-1,2-bis(2-hydroxyethyl)-1,2-dihydropyrazol-3-one, 2-amino-3-(2-hydroxyethyl)amino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 2-amino-3-dimethylamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, 2,3-diamino-5,6,7,8-tetrahydro-1H,6H-pyridazino[1,2-a]pyrazol-1-one, 4-amino-1,2-diethyl-5-(pyrrolidin-1-yl)-1,2-dihydropyrazol-3-one, 4-amino-5-(3-dimethylaminopyrrolidin-1-yl)-1,2-diethyl-1,2-dihydropyrazol-3-one and 2,3-diamino-6-hydroxy-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one, the corresponding addition salts, the solvates thereof and the solvates of the salts thereof.

[0059] Use will preferably be made of 2,3-diamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one and/or a corresponding salt, solvate and/or solvate of a salt.

[0060] Use will preferably be made, as heterocyclic bases, of 4,5-diamino-1-(β -hydroxyethyl)pyrazole and/or 2,3-diamino-6,7-dihydro-1H,5H-pyrazolo[1,2-a]pyrazol-1-one and/or 2- β -hydroxyethoxy-3-aminopyrazolo[1,5-a]pyridine and/or a corresponding salt, solvate and/or solvate of a salt.

[0061] The addition salts of the additional oxidation bases present in the composition according to the invention are notably chosen from the addition salts with an acid, such as the hydrochlorides, hydrobromides, sulfates, citrates, succinates, tartrates, lactates, tosylates, benzenesulfonates, methanesulfonates, phosphates and acetates, and the addition salts with a base such as sodium hydroxide, potassium hydroxide, aqueous ammonia, amines or alkanolamines.

[0062] Moreover, the solvates of the additional oxidation bases more particularly represent the hydrates of said oxidation bases and/or the combination of said oxidation bases with a linear or branched C₁ to C₄ alcohol such as methanol, ethanol, isopropanol or n-propanol. Preferably, the solvates are hydrates.

[0063] In a particular embodiment, the composition according to the invention is free of oxidation bases chosen from para-phenylenediamine, para-toluenediamine, addition salts thereof, solvates thereof and solvates of the salts thereof.

[0064] When the composition according to the invention comprises one or more additional oxidation bases, the total content of the additional oxidation base(s), other than 2- β -hydroxyethyl-para-phenylenediamine and addition salts thereof, solvates thereof and/or solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine and addition salts thereof, solvates thereof and/or solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine and addition salts thereof, solvates thereof and/or solvates of salts thereof and mixtures thereof, present in the composition according to the invention, preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, even better still from 0.1% to 3% by weight relative to the total weight of the composition.

Ammonium bicarbonate

[0065] The composition according to the invention comprises ammonium bicarbonate.

[0066] The total content of ammonium bicarbonate preferably ranges from 0.01% to 20% by weight, preferentially from 0.05% to 15% by weight, more preferentially from 0.1% to 10% by weight, even more preferentially from 0.4% to 5% by weight, better still from 0.5% to 4% by weight, and better still from 1% to 3% by weight, relative to the total weight of the composition.

Additional alkaline agent

[0067] The composition according to the invention may comprise one (or more) alkaline agent(s) in addition to ammonium bicarbonate.

[0068] Preferably, the composition according to the invention comprises one (or more) additional alkaline agent(s).

[0069] Preferably, the additional alkaline agent(s) may be chosen from organic alkaline agents and inorganic alkaline agents.

[0070] Preferably, the organic alkaline agent(s) are chosen from organic amines, the pK_b of which at 25°C is less than 12, more preferentially less than 10 and even more advantageously less than 6. It should be noted that it is the pK_b corresponding to the function which has the highest basicity. In addition, the organic amines do not comprise any alkyl or alkenyl fatty chains comprising more than ten carbon atoms.

[0071] The organic alkaline agent(s) are preferably chosen from alkanolamines, in particular mono-, di- or tri-hydroxy(C1-C6)alkylamines, such as 2-amino-2-methylpropanol, monoethanolamine, oxyethylenated and/or oxypropylenated ethylenediamines, amino acids, polyamines, and mixtures thereof.

[0072] The term “alkanolamine” means an organic amine comprising a primary, secondary or tertiary amine function, and one or more linear or branched C1-C8 alkyl groups bearing one or more hydroxyl radicals.

[0073] Among the compounds of this type, mention may be made of monoethanolamine (MEA), 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 and tris(hydroxymethylamino)methane.

[0074] More particularly, the amino acids that may be used are of natural or synthetic origin, in their L, D or racemic form, and include at least one acid function chosen more particularly from carboxylic acid, sulfonic acid, phosphonic acid and phosphoric acid functions. The amino acids may be in neutral or ionic form.

[0075] As amino acids that may be used in the present invention, mention may notably be made of aspartic acid, glutamic acid, alanine, arginine, ornithine, citrulline, asparagine,

carnitine, cysteine, glutamine, glycine, histidine, lysine, isoleucine, leucine, methionine, N-phenylalanine, proline, serine, taurine, threonine, tryptophan, tyrosine and valine.

[0076] Among the inorganic alkaline agents that may be used in the composition according to the invention, mention may be made of ammonium hydroxide (also known as aqueous ammonia), mineral hydroxides, silicates, metasilicates, phosphates or hydrogen phosphates, and in particular alkali metal silicates or metasilicates, notably sodium silicate and sodium metasilicate.

[0077] Among the mineral hydroxides, use will preferably be made of sodium hydroxide, potassium hydroxide or mixtures thereof, preferably sodium hydroxide.

[0078] Preferably, the additional alkaline agent(s) are chosen from ammonium hydroxide, alkanolamines, alkali metal silicates and metasilicates, mineral hydroxides and mixtures thereof, more preferentially chosen from ammonium hydroxide, alkanolamines and mixtures thereof, better still chosen from ammonium hydroxide, monoethanolamine and mixtures thereof.

[0079] Even more preferentially, the additional alkaline agent is ammonium hydroxide.

[0080] Advantageously, the total content of the additional alkaline agent(s) ranges from 0.01% to 20% by weight, preferably from 0.1% to 15% by weight, more preferentially from 0.5% to 10% by weight and even more preferentially from 1% to 7% by weight, relative to the total weight of the composition.

Fatty acid

[0081] The composition according to the invention comprises one or more fatty acids.

[0082] The term "fatty acid" means a long-chain carboxylic acid, notably a linear or branched, saturated or unsaturated alkyl chain, comprising from 6 to 40 carbon atoms, preferably from 8 to 30 carbon atoms, more preferentially from 10 to 30 carbon atoms and better still from 14 to 22 carbon atoms.

[0083] Preferably, the fatty acids include at least one carboxylic acid group and a linear or branched, saturated or unsaturated, in particular saturated, alkyl chain comprising from 10 to 30 carbon atoms, in particular from 14 to 22 carbon atoms.

[0084] More preferentially, the fatty acids according to the invention are chosen from compounds having the structure $R-C(O)OH$ in which R represents a linear or branched, saturated or unsaturated, in particular saturated, alkyl group comprising from 6 to 40 carbon atoms, preferably from 8 to 30 carbon atoms, preferentially from 12 to 24 carbon atoms, better still from 14 to 20 carbon atoms.

[0085] For the purposes of the present invention, the fatty acids present in the composition are neither oxyalkylenated nor glycerolated.

[0086] The fatty acids may be chosen from solid fatty acids and liquid fatty acids, and mixtures thereof.

- [0087] For the purposes of the present invention, the term “solid fatty acid” means a fatty acid with a melting point of greater than 25°C, preferably greater than or equal to 28°C, more preferentially greater than or equal to 30°C at atmospheric pressure (1.013×10⁵Pa).
- [0088] The solid fatty acids used in the present invention are notably chosen from myristic acid, cetylic acid, stearyl acid, palmitic acid, arachidic acid, stearic acid, lauric acid, behenic acid, 12-hydroxystearic acid, and mixtures thereof, preferably chosen from palmitic acid, lauric acid, myristic acid, stearic acid, and mixtures thereof, better still from palmitic acid, myristic acid, stearic acid, and mixtures thereof.
- [0089] For the purposes of the present invention, the term “liquid fatty acid” means a fatty acid with a melting point of less than or equal to 25°C, preferably less than or equal to 20°C at atmospheric pressure (1.013×10⁵Pa).
- [0090] The liquid fatty acid(s) according to the invention may be chosen from oleic acid, linoleic acid, arachidonic acid, and mixtures thereof, preferentially oleic acid.
- [0091] Preferably, the fatty acid(s) present in the composition according to the invention are chosen from fatty acids including at least one carboxylic acid group and a linear or branched, saturated or unsaturated alkyl chain comprising from 10 to 30 carbon atoms, in particular from 14 to 22 carbon atoms.
- [0092] According to a preferred embodiment, the fatty acid(s) present in the composition according to the invention are chosen from solid fatty acids, preferably chosen from palmitic acid, lauric acid, myristic acid, stearic acid and mixtures thereof, preferentially from palmitic acid, lauric acid, myristic acid, stearic acid and mixtures thereof.
- [0093] Preferably, the fatty acid(s) are chosen from myristic acid, palmitic acid, stearic acid, and mixtures thereof.
- [0094] The fatty acid(s), which are preferably solid, are generally present in a total content ranging from 0.01% to 10% by weight, preferably from 0.05% to 5%, preferentially from 0.1% to 1% by weight, better still from 0.2% to 0.5% by weight relative to the total weight of the composition.

Fatty substances other than fatty acids

- [0095] The composition according to the invention may comprise one or more fatty substances other than fatty acids.
- [0096] Preferably, the composition according to the invention comprises one or more fatty substances other than fatty acids.
- [0097] The term “*fatty substance*” means an organic compound that is insoluble in water at 25°C and at atmospheric pressure (1.013×10⁵Pa) (solubility of less than 5% by weight, preferably less than 1% by weight, even more preferentially less than 0.1% by weight). They bear in their structure at least one hydrocarbon-based chain including at least 6 carbon atoms and/or a sequence of at least two siloxane groups. In addition, the fatty

substances are generally soluble in organic solvents under the same temperature and pressure conditions, for instance chloroform, dichloromethane, carbon tetrachloride, ethanol, benzene, toluene, tetrahydrofuran (THF), liquid petroleum jelly or decamethylcyclopentasiloxane.

- [0098] The fatty substances that may be used in the present invention are neither (poly)oxyalkylenated nor (poly)glycerolated.
- [0099] Preferably, the fatty substances that are useful according to the invention are non-silicone fatty substances.
- [0100] The term “non-silicone fatty substance” refers to a fatty substance not containing any Si-O bonds and the term “silicone fatty substance” refers to a fatty substance containing at least one Si-O bond.
- [0101] The fatty substances that are useful according to the invention may be liquid fatty substances (or oils) and/or solid fatty substances. The term “liquid fatty substance” means a fatty substance with a melting point of less than or equal to 25°C at atmospheric pressure (1.013×10^5 Pa) and the term “solid fatty substance” means a fatty substance with a melting point of greater than 25°C at atmospheric pressure (1.013×10^5 Pa).
- [0102] For the purposes of the present invention, the melting point corresponds to the temperature of the most endothermic peak observed on thermal analysis (differential scanning calorimetry or DSC) as described in the standard ISO 11357-3; 1999. The melting point may be measured using a differential scanning calorimeter (DSC), for example the calorimeter sold under the name MDSC 2920 by the company TA Instruments. In the present patent application, all the melting points are determined at atmospheric pressure (1.013×10^5 Pa).
- [0103] More particularly, the liquid fatty substance(s) may be chosen from liquid hydrocarbons comprising more than 6 carbon atoms, non-silicone oils of animal origin, oils of triglyceride type of plant or synthetic origin, fluoro oils, liquid fatty alcohols, liquid esters of fatty acid and/or of fatty alcohol other than triglycerides, and mixtures thereof.
- [0104] It is recalled that the fatty alcohols and esters more particularly contain at least one saturated or unsaturated, linear or branched hydrocarbon-based group comprising from 6 to 40 and better still from 8 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 unconjugated carbon-carbon double bonds.
- [0105] By way of example, the liquid hydrocarbons comprising more than 6 carbon atoms may be chosen from C_6 to C_{16} liquid hydrocarbons, which may be linear, branched, optionally cyclic, and preferably saturated. Mention may be made of hexane,

cyclohexane, undecane, dodecane, isododecane, tridecane or isoparaffins, such as isohexadecane or isodecane, and mixtures thereof.

- [0106] The liquid hydrocarbons comprising more than 6 carbon atoms may also be chosen from linear or branched liquid hydrocarbons comprising more than 16 carbon atoms, which are of mineral or synthetic origin, and are preferably chosen from liquid paraffins or liquid petroleum jelly (or mineral oil), polydecenes, hydrogenated polyisobutene such as Parleam®, and mixtures thereof.
- [0107] The liquid hydrocarbons comprising more than 6 carbon atoms may also be chosen from mixtures of alkanes containing from 8 to 28 carbon atoms, more particularly from 15 to 28 carbon atoms; mention may be made of mixtures having, for example, the following INCI names: C15-19 Alkane, C18-C21 Alkane, C21-C28 Alkane, for instance the products Gemseal 40, Gemseal 60 and Gemseal 120 sold by Total, Emogreen L19 sold by SEPPIC and Emogreen L15 sold by SEPPIC, more particularly Emogreen L19 sold by SEPPIC.
- [0108] A hydrocarbon-based oil of animal origin that may be mentioned is perhydrosqualene.
- [0109] The triglyceride oils of plant or synthetic origin are preferably chosen from liquid fatty acid triglycerides including from 6 to 30 carbon atoms, for instance heptanoic or octanoic acid triglycerides, or alternatively, for example, sunflower oil, corn oil, soybean oil, marrow oil, grapeseed oil, sesame seed oil, hazelnut oil, apricot oil, macadamia oil, arara oil, castor oil, avocado oil, caprylic/capric acid triglycerides, for instance those sold by the company Stéarinerie Dubois or those sold under the names Miglyol® 810, 812 and 818 by the company Dynamit Nobel, jojoba oil and shea butter oil, and mixtures thereof.
- [0110] The liquid fatty alcohols that are suitable for use in the invention are more particularly chosen from linear or branched, saturated or unsaturated alcohols, preferably unsaturated or branched alcohols, including from 6 to 40 carbon atoms and preferably from 8 to 30 carbon atoms. These fatty alcohols are neither oxyalkylenated nor glycerolated. Examples that may be mentioned include octyldodecanol, 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol, isostearyl alcohol, oleyl alcohol, linolenyl alcohol, ricinoleyl alcohol, undecylenyl alcohol and linoleyl alcohol, and mixtures thereof. Preferably, oleyl alcohol will be used.
- [0111] As regards the liquid fatty acid and/or fatty alcohol esters, other than the triglycerides mentioned previously, mention may be made notably of esters of saturated or unsaturated, linear C1 to C26 or branched C3 to C26 aliphatic mono- or polyacids and of saturated or unsaturated, linear C1 to C26 or branched C3 to C26 aliphatic mono- or polyalcohols, the total carbon number of the esters being greater than or equal to 6 and more advantageously greater than or equal to 10.

- [0112] Preferably, for the esters of monoalcohols, at least one from among the alcohol and the acid is branched.
- [0113] Among the monoesters, mention may be made of dihydroabietyl behenate; octyldodecyl behenate; isocetyl behenate; isostearyl lactate; lauryl lactate; linoleyl lactate; oleyl lactate; isostearyl octanoate; isocetyl octanoate; octyl octanoate; decyl oleate; isocetyl isostearate; isocetyl laurate; isocetyl stearate; isodecyl octanoate; isodecyl oleate; isononyl isononanoate; isostearyl palmitate; methyl acetyl ricinoleate; octyl isononanoate; 2-ethylhexyl isononate; octyldodecyl erucate; oleyl erucate; ethyl palmitate, isopropyl palmitate, 2-ethylhexyl palmitate, 2-octyldodecyl palmitate; alkyl myristates such as isopropyl 2-octyldodecyl myristate, isobutyl stearate; 2-hexyldodecyl laurate, and mixtures thereof.
- [0114] Esters of C4 to C22 dicarboxylic or tricarboxylic acids and of C1 to C22 alcohols and esters of monocarboxylic, dicarboxylic or tricarboxylic acids and of C2 to C26 dihydroxy, trihydroxy, tetrahydroxy or pentahydroxy alcohols may also be used.
- [0115] Mention may notably be made of: 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 tetraisostearate; 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, and mixtures thereof.
- [0116] The composition may also comprise, as fatty ester, sugar esters and diesters of C6 to C30 and preferably C12 to C22 fatty acids. It is recalled that the term “sugar” refers to oxygen-bearing hydrocarbon-based compounds bearing several alcohol functions, with or without aldehyde or ketone functions, and which include at least 4 carbon atoms. These sugars may be monosaccharides, oligosaccharides or polysaccharides other than the anionic polysaccharides described previously.
- [0117] Examples of suitable sugars that may be mentioned include sucrose, glucose, galactose, ribose, fucose, maltose, fructose, mannose, arabinose, xylose and lactose, and derivatives thereof, notably alkyl derivatives, such as methyl derivatives, for instance methylglucose.
- [0118] The sugar esters of fatty acids may be chosen notably from the group comprising the esters or mixtures of esters of sugars described above and of linear or branched, saturated or unsaturated C6 to C30 and preferably C12 to C22 fatty acids. If they are unsaturated, these compounds may comprise one to three conjugated or unconjugated carbon-carbon double bonds.

- [0119] The esters may also be chosen from monoesters, diesters, triesters, tetraesters and polyesters, and mixtures thereof.
- [0120] These esters may be, for example, oleates, laurates, palmitates, myristates, behenates, cocoates, stearates, linoleates, linolenates, caprates, arachidonates or mixtures thereof notably such as the mixed oleo-palmitate, oleo-stearate and palmito-stearate esters.
- [0121] More particularly, use is made of monoesters and diesters and notably sucrose, glucose or methylglucose mono- or di-oleates, -stearates, -behenates, -oleopalmitates, -linoleates, -linolenates and -oleostearates, and mixtures thereof.
- [0122] An example that may be mentioned is the product sold under the name Glucate® DO by the company Amerchol, which is a methylglucose dioleate.
- [0123] Preferably, use will be made of a liquid ester of a monoacid and of a monoalcohol.
- [0124] According to one embodiment, the fatty substances other than fatty acids are chosen from liquid fatty substances, preferably from liquid hydrocarbons comprising more than 6 carbon atoms, plant oils, liquid fatty alcohols and liquid fatty esters and mixtures thereof, more preferentially from liquid hydrocarbons comprising more than 6 carbon atoms, better still from liquid paraffin or liquid petroleum jelly (or mineral oil), mixtures of alkanes containing from 8 to 28 carbon atoms, more particularly from 15 to 28 carbon atoms, and mixtures thereof, even better still from mixtures of alkanes containing from 8 to 28 carbon atoms, more particularly from 15 to 28 carbon atoms.
- [0125] The solid fatty substances preferably have a viscosity of greater than 2 Pa.s, measured at 25°C and at a shear rate of 1 s⁻¹.
- [0126] The solid fatty substance(s) are preferably chosen from solid fatty alcohols, solid fatty acid and/or fatty alcohol esters, waxes, ceramides and mixtures thereof.
- [0127] The term “fatty alcohol” means a long-chain aliphatic alcohol comprising from 6 to 40 carbon atoms, preferably from 8 to 30 carbon atoms, and comprising at least one hydroxyl group OH. These fatty alcohols are neither oxyalkylenated nor glycerolated.
- [0128] The solid fatty alcohols that may be used may be chosen, alone or as a mixture, from: myristyl alcohol (or 1-tetradecanol); cetyl alcohol (or 1-hexadecanol); stearyl alcohol (or 1-octadecanol); arachidyl alcohol (or 1-eicosanol); behenyl alcohol (or 1-docosanol); lignoceryl alcohol (or 1-tetracosanol); ceryl alcohol (or 1-hexacosanol); montanyl alcohol (or 1-octacosanol); myricyl alcohol (or 1-triacontanol).
- [0129] Preferentially, the solid fatty alcohol is chosen from cetyl alcohol, stearyl alcohol, behenyl alcohol, myristyl alcohol, arachidyl alcohol, and mixtures thereof, such as cetylstearyl alcohol or cetearyl alcohol. Particularly preferably, the solid fatty alcohol is chosen from cetyl alcohol, stearyl alcohol and mixtures thereof such as cetylstearyl alcohol or cetearyl alcohol.
- [0130] The solid esters of a fatty acid and/or of a fatty alcohol that may be used are preferably chosen from esters derived from a C₉-C₂₆ carboxylic fatty acid and/or from

a C9-C26 fatty alcohol.

- [0131] Mention may notably be made of octyldodecyl behenate, isocetyl behenate, cetyl lactate, stearyl octanoate, octyl octanoate, cetyl octanoate, decyl oleate, hexyl stearate, octyl stearate, myristyl stearate, cetyl stearate, stearyl stearate, octyl pelargonate, cetyl myristate, myristyl myristate, stearyl myristate, diethyl sebacate, diisopropyl sebacate, diisopropyl adipate, di-n-propyl adipate, dioctyl adipate, dioctyl maleate, octyl palmitate, myristyl palmitate, cetyl palmitate, stearyl palmitate, and mixtures thereof.
- [0132] For the purposes of the present invention, a wax is a lipophilic compound, which is solid at 25°C and atmospheric pressure, with a reversible solid/liquid change of state, having a melting point greater than about 40°C, which may be up to 200°C, and having in the solid state anisotropic crystal organization. In general, the size of the wax crystals is such that the crystals diffract and/or scatter light, giving the composition that comprises them a more or less opaque cloudy appearance. By bringing the wax to its melting point, it is possible to make it miscible with oils and to form a microscopically homogeneous mixture, but on returning the temperature of the mixture to room temperature, recrystallization of the wax, which is microscopically and macroscopically detectable (opalescence), is obtained.
- [0133] In particular, the waxes that are suitable for use in the invention may be chosen from waxes of animal, plant or mineral origin, non-silicone synthetic waxes, and mixtures thereof.
- [0134] Mention may be made notably of hydrocarbon-based waxes, for instance beeswax, notably of organic origin, lanolin wax and Chinese insect waxes; rice bran wax, carnauba wax, candelilla wax, ouricury wax, esparto grass wax, berry wax, shellac wax, Japan wax and sumac wax; montan wax, orange wax and lemon wax, microcrystalline waxes, paraffins and ozokerite; polyethylene waxes, the waxes obtained by Fischer-Tropsch synthesis and waxy copolymers, and also esters thereof.
- [0135] Mention may also be made of C20 to C60 microcrystalline waxes, such as Microwax HW.
- [0136] Mention may also be made of the MW 500 polyethylene wax sold under the reference Permalen 50-L Polyethylene.
- [0137] Mention may also be made of the waxes obtained by catalytic hydrogenation of animal or plant oils containing linear or branched C8-C32 fatty chains. Among these waxes, mention may notably be made of isomerized jojoba oil such as trans-isomerized partially hydrogenated jojoba oil, notably the product manufactured or sold by the company Desert Whale under the commercial reference Iso-Jojoba-50®, hydrogenated sunflower oil, hydrogenated castor oil, hydrogenated coconut kernel oil, hydrogenated lanolin oil and bis(1,1,1-trimethylolpropane) tetrastearate, notably the product sold under the name Hest 2T-4S® by the company Heterene.

- [0138] The waxes obtained by hydrogenation of castor oil esterified with cetyl alcohol, such as those sold under the names Phytowax Castor 16L64® and 22L73® by the company Sophim, may also be used.
- [0139] A wax that may also be used is a C20 to C40 alkyl (hydroxystearyl)stearate (the alkyl group comprising from 20 to 40 carbon atoms), alone or as a mixture. Such a wax is notably sold under the names Kester Wax K 82 P®, Hydroxypolyester K 82 P® and Kester Wax K 80 P® by the company Koster Keunen.
- [0140] It is also possible to use microwaxes in the compositions of the invention; mention may notably be made of carnauba microwaxes, such as the product sold under the name MicroCare 350® by the company Micro Powders, synthetic-wax microwaxes, such as the product sold under the name MicroEase 114S® by the company Micro Powders, microwaxes constituted of a mixture of carnauba wax and polyethylene wax, such as the products sold under the names Micro Care 300® and 310® by the company Micro Powders, microwaxes constituted of a mixture of carnauba wax and of synthetic wax, such as the product sold under the name Micro Care 325® by the company Micro Powders, polyethylene microwaxes, such as the products sold under the names Micropoly 200®, 220®, 220L® and 250S® by the company Micro Powders, and polytetrafluoroethylene microwaxes, such as the products sold under the names Microslip 519® and 519 L® by the company Micro Powders.
- [0141] The waxes are preferably chosen from mineral waxes, for instance paraffin wax, petroleum jelly wax, lignite wax or ozokerite; plant waxes, for instance cocoa butter or cork fibre or sugar cane waxes, olive tree wax, rice wax, hydrogenated jojoba wax, ouricury wax, carnauba wax, candelilla wax, esparto grass wax, or absolute waxes of flowers, such as the essential wax of blackcurrant blossom sold by the company Bertin (France); waxes of animal origin, for instance beeswaxes or modified beeswaxes (cera bellina), spermaceti, lanolin wax and lanolin derivatives; microcrystalline waxes; and mixtures thereof, preferentially from plant waxes such as carnauba wax and candelilla wax, and more preferentially candelilla wax (INCI name: *Euphorbia cerifera* wax). The solid fatty substances are preferably chosen from solid fatty alcohols, waxes and mixtures thereof, in particular cetyl alcohol, stearyl alcohol and mixtures thereof, such as cetylstearyl or cetearyl alcohol.
- [0142] According to a preferred embodiment, the fatty substance(s), other than fatty acids, are chosen from liquid hydrocarbons comprising more than 6 carbon atoms, plant oils, fatty alcohols, liquid fatty esters, waxes and mixtures thereof, more preferentially from solid fatty alcohols, plant waxes, mixtures of alkanes containing from 8 to 28 carbon atoms, and mixtures thereof, better still chosen from C15-19 Alkane (INCI name), cetearyl alcohol, candelilla wax and mixtures thereof.
- [0143] The total content of the fatty substance(s) other than fatty acids preferably ranges

from 5% to 35% by weight, more preferentially from 7% to 30% by weight and better still from 8% to 25% by weight relative to the total weight of the composition.

[0144] In a particular embodiment, when the composition according to the invention comprises one or more solid fatty substances other than fatty acids, the total content of the solid fatty substance(s) other than fatty acids preferably ranges from 5% to 30% by weight, more preferentially from 6% to 25% by weight and better still from 7% to 20% by weight, relative to the total weight of the composition.

[0145] In another particular embodiment, the composition according to the invention comprises one or more hydrocarbons comprising more than 6 carbon atoms, the total content of the hydrocarbon(s) comprising more than 6 carbon atoms preferably ranging from 0.01% to 15% by weight, more preferentially from 0.05% to 10% by weight, better still from 0.1% to 5% by weight, and even better still from 0.5% to 4% by weight relative to the total weight of the composition.

Oxidation couplers

[0146] The composition according to the invention may also comprise at least one oxidation coupler.

[0147] Preferably, the composition according to the invention comprises one or more couplers.

[0148] Among the couplers that are useful according to the invention, mention may be made in particular of meta-phenylenediamines, meta-aminophenols, meta-diphenols, naphthalene-based coupling agents and heterocyclic coupling agents, and also the corresponding addition salts, the solvates and solvates of the salts thereof.

[0149] Mention may be made, for example, of 6-hydroxybenzomorpholine, hydroxyethyl-3,4-methylenedioxyaniline, 2-amino-5-ethylphenol, 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2,4-diamino-1-(β -hydroxyethyloxy)benzene, 2-amino-4-(β -hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 1,3-bis(2,4-diaminophenoxy)propane, 3-ureidoaniline, 3-ureido-1-dimethylaminobenzene, sesamol, α -naphthol, 2-methyl-1-naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 2-amino-3-hydroxypyridine, 3,5-diamino-2,6-dimethoxypyridine, 2,6-bis(β -hydroxyethylamino)toluene, 6-hydroxyindoline, 2,6-dihydroxy-4-methylpyridine, 1-H-3-methylpyrazol-5-one, 1-phenyl-3-methylpyrazol-5-one, 2,6-dimethylpyrazolo[1,5-b]-1,2,4-triazole, 2,6-dimethyl[3,2-c]-1,2,4-triazole and 6-methylpyrazolo[1,5-a]benzimidazole, 2-methyl-5-aminophenol, 5-N-(β -hydroxyethyl)amino-2-methylphenol, 3-aminophenol and 3-amino-2-chloro-6-methylphenol, the corresponding addition salts, the solvates and the solvates of the salts thereof, and the corresponding mixtures.

[0150] Preferably, the coupler(s) are chosen from: 6-hydroxybenzomorpholine, the addition

salts thereof, the solvates thereof and/or the solvates of the salts thereof, hydroxyethyl-3,4-methylenedioxyaniline, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, 2-amino-5-ethylphenol, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, and mixtures thereof.

- [0151] In general, the addition salts of the couplers that may be used in the context of the invention are chosen in particular from addition salts with an acid, such as hydrochlorides, hydrobromides, sulfates, citrates, succinates, tartrates, lactates, tosylates, benzenesulfonates, phosphates and acetates, and the addition salts with a base such as sodium hydroxide, potassium hydroxide, aqueous ammonia, amines or alkanolamines.
- [0152] Moreover, the solvates more particularly represent the hydrates of these couplers and/or the combination of these couplers with a linear or branched C1 to C4 alcohol such as methanol, ethanol, isopropanol or n-propanol. Preferably, the solvates are hydrates.
- [0153] In a preferred embodiment, the composition according to the invention is free of oxidation couplers chosen from resorcinol, 2-methylresorcinol, 4-chlororesorcinol, addition salts thereof, solvates thereof and the solvates of the salts thereof.
- [0154] When the composition comprises one or more oxidation couplers, the total content of the coupler(s), salts thereof, solvates thereof, and solvates of the salts thereof, present in the composition according to the invention ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, and even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0155] When they are present, the total content of the couplers chosen from 6-hydroxybenzomorpholine, hydroxyethyl-3,4-methylenedioxyaniline, 2-amino-5-ethylphenol and also the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, and even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0156] When they are present, the total content of the couplers chosen from 6-hydroxybenzomorpholine, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, and even better still from 0.1% to 3% by weight, relative to the total weight of the composition.
- [0157] When they are present, the total content of the couplers chosen from

hydroxyethyl-3,4-methylenedioxyaniline, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, and even better still from 0.1% to 3% by weight, relative to the total weight of the composition.

- [0158] When they are present, the total content of the couplers chosen from 2-amino-5-ethylphenol, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof preferably ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, and even better still from 0.1% to 3% by weight, relative to the total weight of the composition.

Additional surfactants

- [0159] The composition according to the present invention may comprise one (or more) additional surfactant(s), in general other than the fatty acids.
- [0160] According to a preferred embodiment, the composition comprises one (or more) additional surfactant(s).
- [0161] These may be chosen from anionic surfactants other than fatty acids, nonionic surfactants, cationic surfactants, amphoteric surfactants and/or mixtures thereof.
- [0162] According to a preferred embodiment, the additional surfactants are nonionic surfactants.
- [0163] Examples of nonionic surfactants that may be mentioned include the following nonionic surfactants:
- [0164] - oxyalkylenated (C8-C24)alkylphenols;
- [0165] - saturated or unsaturated, linear or branched, oxyalkylenated or glycerolated, preferably oxyalkylenated, C8 to C40 alcohols, preferably including one or two fatty chains;
- [0166] - saturated or unsaturated, linear or branched, oxyalkylenated C8 to C30 fatty acid amides;
- [0167] - esters of saturated or unsaturated, linear or branched, C8 to C30 acids and of polyethylene glycols;
- [0168] - preferably oxyethylenated esters of saturated or unsaturated, linear or branched, C8 to C30 acids and of sorbitol;
- [0169] - fatty acid esters of sucrose;
- [0170] - (C8-C30)alkyl(poly)glucosides and (C8-C30)alkenyl(poly)glucosides, which are optionally oxyalkylenated (0 to 10 oxyalkylene units) and comprising from 1 to 15 glucose units, (C8-C30)alkyl(poly)glucoside esters;
- [0171] - saturated or unsaturated oxyethylenated plant oils;
- [0172] - condensates of ethylene oxide and/or of propylene oxide;

- [0173] - N-(C8-C30)alkylglucamine and N-(C8-C30)acylmethylglucamine derivatives;
- [0174] - aldobionamides;
- [0175] - amine oxides;
- [0176] - oxyethylenated and/or oxypropylenated silicones;
- [0177] - and mixtures thereof.
- [0178] The oxyalkylene units are more particularly oxyethylene or oxypropylene units, or a combination thereof, preferably oxyethylene units.
- [0179] The number of moles of ethylene oxide and/or propylene oxide preferably ranges from 1 to 250, more particularly from 2 to 100, better still from 2 to 50 and even better still from 2 to 40; the number of moles of glycerol ranges notably from 1 to 50 and better still from 1 to 10.
- [0180] As examples of glycerolated nonionic surfactants, use is preferably made of monoglycerolated or polyglycerolated C8 to C40 alcohols, comprising from 1 to 50 mol of glycerol and preferably from 1 to 10 mol of glycerol.
- [0181] Examples of compounds of this type that may be mentioned include 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.
- [0182] Among the glycerolated alcohols, it is more particularly preferred to use a C8 to C10 alcohol containing 1 mol of glycerol, a C10 to C12 alcohol containing 1 mol of glycerol, and a C12 alcohol containing 1.5 mol of glycerol.
- [0183] More preferentially, the nonionic surfactant(s) used in the composition according to the invention are chosen from:
- [0184] - saturated or unsaturated, linear or branched, oxyethylenated or oxypropylenated or glycerolated, preferably oxyethylenated or oxypropylenated, C8-C40, preferably C10-C32, more preferentially C12-C28 alcohols;
- [0185] - (C8-C30)alkyl(poly)glucosides, optionally oxyalkylenated and comprising from 1 to 15 glucose units;
- [0186] - and a mixture thereof.
- [0187] According to a preferred embodiment, the additional surfactants are preferably chosen from nonionic surfactants, more preferentially chosen from saturated or unsaturated, linear or branched, oxyethylenated or oxypropylenated, C8 to C40 alcohols comprising from 1 to 100 mol of ethylene or propylene oxide, preferably from 2 to 50, more particularly from 2 to 40 mol, and including at least one C8-C20 alkyl chain.

- [0188] Preferably, the additional surfactant(s) represent from 0.01% to 20% by weight, preferably from 0.1% to 15% by weight, more preferentially from 0.5% to 10% by weight, better still from 0.8% to 6% by weight and even better still from 1% to 5% by weight relative to the total weight of the composition.

Sequestrants

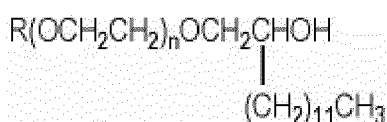
- [0189] The composition according to the invention may comprise at least one sequestrant (or chelating agent).
- [0190] The definition of a “sequestrant” (or “chelating agent”) is well known to those skilled in the art and refers to a compound or a mixture of compounds that are capable of forming a chelate with a metal ion. A chelate is an inorganic complex in which a compound (the sequestrant or chelating agent) is coordinated to a metal ion, i.e. it forms one or more bonds with the metal ion (formation of a ring including the metal ion).
- [0191] A sequestrant (or chelating agent) generally comprises at least two electron-donating atoms which enable the formation of bonds with the metal ion.
- [0192] In the context of the present invention, the sequestrant(s) may be chosen from carboxylic acids, preferably aminocarboxylic acids, phosphonic acids, preferably aminophosphonic acids, polyphosphoric acids, preferably linear polyphosphoric acids, salts thereof, and derivatives thereof.
- [0193] The salts are notably alkali metal, alkaline-earth metal, ammonium and substituted ammonium salts.
- [0194] The following compounds may be mentioned as examples of chelating agents based on polyphosphoric acid: sodium tripolyphosphate (STP), tetrasodium diphosphate, hexametaphosphoric acid, sodium metaphosphate, phytic acid.
- [0195] According to the present invention, the sequestrants are preferably chosen from diethylenetriaminepentaacetic acid (DTPA) and salts thereof, diethylenediaminetetraacetic acid (EDTA) and salts thereof, ethylenediaminedisuccinic acid (EDDS) and salts thereof, etidronic acid and salts thereof, N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof, and mixtures thereof.
- [0196] More preferentially, the sequestrant(s) are chosen from N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof, and mixtures thereof.
- [0197] Among the salts of these compounds, the alkali metal salts and notably the sodium or potassium salts are preferred.
- [0198] When the composition comprises one or more sequestrants, the total content of the sequestrant(s) preferably ranges from 0.001% to 15% by weight, preferentially from 0.005% to 10% by weight, more preferentially from 0.01% to 8% by weight, better still from 0.05% to 5% by weight, even better still from 0.1% to 2% by weight relative to the total weight of the composition.

- [0199] According to a particular embodiment, the composition according to the invention comprises:
- [0200] - at least one oxidation base chosen from: 2- β -hydroxyethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof;
- [0201] - ammonium bicarbonate;
- [0202] - at least one additional alkaline agent;
- [0203] - at least one fatty acid;
- [0204] - at least one fatty substance other than fatty acids, preferably chosen from liquid hydrocarbons comprising more than 6 carbon atoms, plant oils, liquid fatty alcohols, liquid fatty esters and waxes, and mixtures thereof;
- [0205] - at least one coupler, preferably chosen from 6-hydroxybenzomorpholine, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, hydroxyethyl-3,4-methylenedioxyaniline, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, 2-amino-5-ethylphenol, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, and mixtures thereof;
- [0206] - at least one additional surfactant, preferably chosen from nonionic surfactants, more preferentially chosen from saturated or unsaturated, linear or branched, oxyethylenated or oxypropylenated, C8 to C40 alcohols comprising from 1 to 100 mol of ethylene or propylene oxide, preferably from 2 to 50, more particularly from 2 to 40 mol, and including at least one C8-C20 alkyl chain.
- [0207] - at least one sequestrant, preferably chosen from N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof.

Solvents

- [0208] The composition according to the invention may also comprise at least one organic solvent.
- [0209] Examples of organic solvents that may be mentioned include linear or branched C₂-C₄alkanols, such as ethanol, propanol and isopropanol; polyols and polyol ethers, for instance 2-butoxyethanol, propylene glycol, glycerol, 1,3-propanediol, dipropylene glycol, propylene glycol monomethyl ether, diethylene glycol monomethyl ether and monoethyl ether, and also aromatic alcohols or ethers, for instance benzyl alcohol or phenoxyethanol, and mixtures thereof.
- [0210] Preferably, the organic solvent(s) are chosen from polyols, more preferentially chosen from propylene glycol, glycerol, propane-1,3-diol, and mixtures thereof.

- [0211] The organic solvent(s) may be present in a total amount ranging from 0.01% to 30% by weight, preferably from 0.1% to 25% by weight, better still from 0.5% to 20% by weight, even better still from 1% to 15% by weight relative to the total weight of the composition.
- [0212] In addition, the composition according to the invention is preferably an aqueous composition. The composition preferably comprises water in an amount of greater than or equal to 5% by weight, preferably greater than or equal to 10% by weight, and better still greater than or equal to 15% by weight, relative to the total weight of the composition.
- [0213] The composition according to the invention may also comprise one or more nonionic polyoxyalkylenated fatty alcohol ethers of formula (I) below:
- [0214] $R-(O-Alk)_n-OR'$ (I),
- [0215] in which:
- [0216] R denotes a linear or branched, saturated or unsaturated C10-C30 hydrocarbon-based radical,
- [0217] R' denotes a linear or branched, saturated or unsaturated C10-C30 hydrocarbon-based radical, which may be substituted with a hydroxyl radical, said hydroxyl preferably being beta to the ether function,
- [0218] n is an integer between 1 and 100 inclusive, and
- [0219] Alk represents a linear or branched, preferably linear, (C1-C6)alkylene group such as ethylene or propylene, preferably ethylene.
- [0220] According to a particularly advantageous embodiment of the invention, the radical Alk of formula (I) represents a $-CH_2-CH_2-$ group.
- [0221] More particularly, the nonionic ether of a polyoxyalkylenated fatty alcohol of formula (I) is such that R and R', independently of each other, denote a linear or branched, preferably linear, saturated or unsaturated, preferably saturated, C12-C20 and preferably C14-C18 hydrocarbon-based radical; R' possibly being substituted with at least one hydroxyl radical, said hydroxyl radical preferably being beta to the ether function, and n denotes an integer greater than or equal to 20, for example ranging from 20 to 100 and preferably from 40 to 80.
- [0222] Preferably, R and R' denote an alkyl radical.
- [0223] According to a more preferred embodiment, the nonionic ether of a polyoxyalkylenated fatty alcohol of formula (I) is such that: R denotes a C16-C18 alkyl radical, which is preferably linear, and R' denotes a C14 alkyl radical, which is preferably linear, substituted with an OH group, said hydroxyl radical preferably being beta to the ether function, and n is equal to 60.
- [0224] Preferably, the nonionic compound of formula (I) has the following formula



- [0225] with R being a cetyl or stearyl group with $n = 60$.
- [0226] Such a compound is known, for example, in the CTFA dictionary under the name Cetareth 60 myristyl glycol or Hydrogenated talloweth 60 myristyl glycol. A cetareth 60 myristyl glycol is sold, for example, by the company Akzo under the trade name Elfacos GT 282 S.
- [0227] When present, the nonionic polyoxyalkylenated fatty alcohol ether(s) (I) are preferably present in a content ranging from 0.001% to 10% by weight, preferably from 0.005% to 5% by weight, preferentially from 0.075% to 2% by weight, better still from 0.01% to 1% by weight relative to the total weight of the composition.

Additives

- [0228] The composition according to the invention may optionally comprise one or more additives, other than the compounds described previously, and among which mention may be made of cationic, anionic, nonionic or amphoteric polymers or mixtures thereof, vitamins and provitamins including panthenol, sunscreens, mineral or organic pigments, plasticizers, solubilizers, opacifiers or nacreous agents, antioxidants, hydroxy acids, and fragrances.
- [0229] The above additives may generally be present in an amount, for each of them, of between 0 and 20% by weight relative to the total weight of the composition.
- [0230] Preferably, the composition according to the invention does not comprise any cationic polymers.
- [0231] According to one embodiment, the composition according to the invention also comprises one or more chemical oxidizing agents as described below. According to this embodiment, the composition is a ready-to-use composition.
- [0232] Preferably, the pH of the ready-to-use composition is between 8 and 11 and preferentially between 9 and 10.5.
- [0233] According to another embodiment, the composition according to the invention does not comprise any chemical oxidizing agents. According to this embodiment, the composition is preferably intended for mixing with one or more chemical oxidizing agents.
- [0234] Preferably, the pH of the composition not containing any chemical oxidizing agents is between 8 and 13, preferentially between 9 and 12.
- [0235] According to another particular embodiment, the pH of the composition not containing any chemical oxidizing agents is between 7 and 10 and the pH of the ready-to-use composition is between 6 and 9.

Process

- [0236] The present invention also relates to a process for dyeing keratin fibres, preferably the hair, which comprises the application to said keratin fibres of an effective amount of a composition as defined previously, in the presence of an oxidizing agent.
- [0237] The composition may be applied to wet or dry keratin fibres. On conclusion of the treatment, the keratin fibres are optionally rinsed with water, optionally washed with a shampoo and then rinsed with water, before being dried or left to dry.
- [0238] Preferably, the process according to the invention comprises a step of mixing the previously described composition, which does not comprise any chemical oxidizing agents, with an oxidizing composition comprising at least one chemical oxidizing agent. This mixing step is preferably performed at the time of use, just before applying to the hair the composition resulting from the mixing.
- [0239] According to this embodiment, the ready-to-use composition preferably results from the mixing of at least two compositions:
- [0240] a composition comprising:
- [0241] - at least one oxidation base chosen from 2- β -hydroxyethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof;
- [0242] - ammonium bicarbonate,
- at least one fatty acid; and
- [0243] an oxidizing composition comprising one or more chemical oxidizing agents, preferably hydrogen peroxide.
- [0244] In a preferred embodiment, the process for dyeing keratin fibres, preferably the hair, according to the invention, comprises the step of applying to the keratin fibres a composition resulting from the mixing, at the time of use, of at least two compositions:
- [0245] a) a composition comprising:
- [0246] - at least one oxidation base chosen from: 2- β -hydroxyethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-(γ -hydroxypropyl)-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, 2-methoxymethyl-para-phenylenediamine and the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof;
- [0247] - ammonium bicarbonate;
- [0248] - at least one additional alkaline agent;
- [0249] - at least one fatty acid;
- [0250] - at least one fatty substance other than fatty acids, preferably chosen from liquid

- hydrocarbons comprising more than 6 carbon atoms, plant oils, liquid fatty alcohols, liquid fatty esters and waxes, and mixtures thereof;
- [0251] - at least one oxidation coupler;
- [0252] - at least one additional surfactant, preferably chosen from nonionic surfactants, more preferentially chosen from saturated or unsaturated, linear or branched, oxyethylenated or oxypropylenated, C8 to C40 alcohols comprising from 1 to 100 mol of ethylene or propylene oxide, preferably from 2 to 50, more particularly from 2 to 40 mol, and including at least one C8-C20 alkyl chain.
- [0253] - at least one sequestrant, preferably chosen from N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof;
- [0254] b) an oxidizing composition comprising one or more chemical oxidizing agents.
- [0255] More particularly, the chemical oxidizing agent(s) are chosen from hydrogen peroxide, urea peroxide, alkali metal bromates or ferricyanides, peroxygenated salts, for instance persulfates, perborates, peracids and precursors thereof and percarbonates of alkali metals or alkaline-earth metals, and mixtures thereof. The oxidizing agent is preferably chosen from hydrogen peroxide.
- [0256] The oxidizing composition is preferably an aqueous composition. In particular, it comprises more than 5% by weight of water, preferably more than 10% by weight of water and even more advantageously more than 20% by weight of water relative to the total weight of the oxidizing composition.
- [0257] The oxidizing composition may also comprise one or more organic solvents chosen from those listed previously; these solvents more particularly representing, when they are present, from 1% to 40% by weight and preferably from 5% to 30% by weight relative to the weight of the oxidizing composition. The oxidizing composition also preferably comprises one or more acidifying agents. Among the acidifying agents, examples that may be mentioned include mineral or organic acids, for instance hydrochloric acid, orthophosphoric acid, sulfuric acid, carboxylic acids, for instance acetic acid, tartaric acid, citric acid or lactic acid, and sulfonic acids.
- [0258] The oxidizing composition may also comprise fatty substances such as those described previously, preferably chosen from fatty alcohols, liquid hydrocarbons comprising more than 6 carbon atoms and mixtures thereof, surfactants and polymers.
- [0259] Usually, the pH of the oxidizing composition, when it is aqueous, is less than 7, preferably ranging from 1.5 to 4.
- [0260] Preferably, the oxidizing composition comprises hydrogen peroxide as oxidizing agent, in aqueous solution, the concentration of which ranges, more particularly, from 0.1% to 50%, more particularly between 0.5% and 20% and even more preferentially between 1% and 15% by weight, relative to the weight of the oxidizing composition.

Kit

- [0261] Another subject of the invention is a multi-compartment device, preferably comprising two compartments, for dyeing keratin fibres, preferably the hair, comprising at least a first compartment containing the dye composition according to the invention and at least a second compartment containing an oxidizing composition as described above.
- [0262] The compositions of the device according to the invention are packaged in separate compartments, optionally accompanied by suitable application means, which may be identical or different, such as fine brushes, coarse brushes or sponges.
- [0263] The device mentioned above may also be equipped with a means for dispensing the desired mixture onto the hair, for instance the devices described in patent FR 2 586 913.
- [0264] Finally, the present invention relates to the use of a composition as described above, for dyeing keratin fibres, and in particular the hair.
- [0265] The examples that follow serve to illustrate the invention without, however, being limiting in nature.

Examples

- [0266] In the examples that follow, all the amounts are given as mass percentages of active material (AM) relative to the total weight of the composition (unless otherwise mentioned).
- [0267] Example 1

Composition

- [0268] The dye composition A was prepared from the ingredients whose contents are indicated in the table below (% active material):
- [0269] Dye composition
- [0270] [Table 1]

	A
Ammoniumhydroxide	3.29
Ammoniumbicarbonate	2.5
Nonionicsurfactant	2.45
Fattyacid(s)*	0.3
Cetearylalcohol	16
C15-19alkane	2.00
Propyleneglycol	2.00
Candelillawax	0.1
Tetrasodiumglutamatediacetate	0.24

Antioxidant	1.0
Hydroxyethyl-p-phenylenediaminesulfate	1.0
N,N-Bis(2-hydroxyethyl)-p-phenyldiaminesulfate	0.17
m-Aminophenol	0.174
Hydroxybenzomorpholine	0.16
2,4-DiaminophenoxyethanolHCl	0.022
2-Amino-3-hydroxypyridine	0.21
Hydroxyethyl-3,4-methylenedioxyanilineHCl	0.22
Water/Aqua	qs100

[0271] * INCI Name: Stearic acid

[0272] At the time of use, composition A is mixed with 1.5 times its weight of oxidizing agent O.

[0273] The mixture is applied to locks of natural grey hair at a rate of 5 g of mixture per 1 g of hair.

[0274] After a leave-on time of 35 minutes on a hotplate at 27°C, the hair is rinsed, washed with a standard shampoo and dried.

[0275] The result obtained is a beautiful, luminous brown with intense highlights, with good coverage of grey hair and uniform colouring from root to tip.

[0276] In addition, the composition according to the invention affords good sensory performance.

[0277] Example 2

[0278] The compositions A and B were prepared from the ingredients whose contents are indicated in the table below (% active material):

[0279] [Table 2]

	Ainvention	Bcomparative
AMMONIUMBICARBONATE	2.50	2.50
AMMONIUMHYDROXIDE	3.29	3.29
SOLVENT	2.00	2.00
NONIONIQUESURFACTANT	2.45	2.45
TETRASODIUMGLUTAMATEDIACETATE	0.24	0.24
FATTYACID(S)*	0.5	-
CETEARYLALCOHOL	16	16
C15-19ALKANE	2	2

m-AMINOPHENOL	0.17	0.17
2,4-DIAMINOPHENOXYETHANOLHCL	0.02	0.02
ANTIOXYDANT	1.00	1.00
CANDELILLAWAX	0.10	0.10
N,N-BIS(2-HYDROXYETHYL)-p-PHENYLENEDIAMINESULFATE	0.17	0.17
HYDROXYETHYL-p-PHENYLENEDIAMINESULFATE	1.00	1.00
HYDROXYBENZOMORPHOLINE	0.16	0.16
2-AMINO-3-HYDROXYPYRIDINE	0.21	0.21
HYDROXYETHYL-3,4-METHYLENEDIOXYANILINEHCL	0.22	0.22
WATER	QS100	QS100

[0280] * INCI Name : STEARIC ACID

[0281] At the time of use, each of the dye compositions A and B is mixed with 1.5 times its weight of oxidizing agent O (comprising hydrogen 6% by weight of hydrogen peroxide relative to the total weight of the oxidizing agent).

[0282] Each of the mixtures is then applied to locks of permanent waved grey (PWG) hair containing 90% white hairs and highly sensitized hair (SA40), at a rate of 5 g of mixture/g of hair.

[0283] After a leave-on time of 35 minutes at 27°C, the hair is rinsed, washed with a standard shampoo and dried.

[0284] Results

[0285] The colorimetric measurements were performed using a Konica Minolta 3600 spectrophotometer (illuminant D65, angle 10°, specular component included) in the CIELab system.

[0286] The dyeing selectivity is the variation of the colour between permanent waved grey (PWG) hair and highly sensitized hair (SA40). The lower the value of ΔE , the lower the selectivity, and therefore better.

[0287] The selectivity enables evaluation of the colour homogeneity along the entire length of the hair fibre.

[0288] The selectivity is measured by:

[0289] ΔE , which is the variation in colour between the natural hair and the permanent-waved hair, is obtained from the formula:

$$\Delta E = \sqrt{(L^* - L_o^*)^2 + (a^* - a_o^*)^2 + (b^* - b_o^*)^2}$$

[0290] in which L^* represents the intensity and a^* and b^* represent the chromaticity of the dyed permanent waved grey (PWG) hair, and L_o^* represents the intensity and a_o^* and b_o^* represent the chromaticity of the dyed highly sensitized hair (SA40). The lower the value of ΔE , the lower the selectivity and the more uniform the colouring along the hair strands.

[0291] [Table 3]

[0292]

[0293]

	Hair	L^*	a^*	b^*	ΔE
A+O(inv)	PWG	20.9	3.87	3.06	1.63
	SA40	19.54	3.36	2.33	
B+O(comp)	PWG	23.84	4.08	3.71	3.85
	SA40	20.25	3.35	2.54	

[0294]

[0295]

[0296] The A+O mixture according to the invention has a ΔE value lower than that obtained with the comparative B+O mixture. The mixture according to the invention leads to lower selectivity, therefore it affords locks of hair with improved selectivity relative to those treated with the comparative mixture B+O, and consequently improved colour homogeneity from the root to the tip of the hair.

Claims

[Claim 1]

Composition comprising:

- at least one oxidation base chosen from
2- β -hydroxyethyl-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof,
2-(γ -hydroxypropyl)-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof,
2-methoxymethyl-para-phenylenediamine, the addition salts thereof, the solvates thereof and/or the solvates of salts thereof, and mixtures thereof;
- ammonium bicarbonate
- at least one fatty acid.

[Claim 2]

Composition according to the preceding claim, in which the total content of oxidation base chosen from

2- β -hydroxyethyl-para-phenylenediamine, the addition salts thereof, solvates thereof and/or solvates of salts thereof,
2-(γ -hydroxypropyl)-para-phenylenediamine, the addition salts thereof, solvates thereof and/or solvates of salts thereof,
2-methoxymethyl-para-phenylenediamine, the addition salts thereof, solvates thereof and/or solvates of salts thereof and mixtures thereof, ranges from 0.001% to 20% by weight, more preferentially from 0.005% to 15% by weight, better still from 0.01% to 10% by weight, even better still from 0.05% to 5% by weight, even better still from 0.1% to 3% by weight relative to the total weight of the composition.

[Claim 3]

Composition according to either of the preceding claims, in which the total content of ammonium bicarbonate ranges from 0.01% to 20% by weight, preferably from 0.05% to 15% by weight, preferentially from 0.1% to 10% by weight, more preferentially from 0.4% to 5% by weight, better still from 0.5% to 4% by weight, and even better still from 1% to 3% by weight, relative to the total weight of the composition.

[Claim 4]

Composition according to any one of the preceding claims, comprising at least one additional alkaline agent, preferably chosen from ammonium hydroxide, alkanolamines, alkali metal silicates and metasilicates, mineral hydroxides and mixtures thereof, more preferentially chosen from ammonium hydroxide,

- alkanolamines and mixtures thereof, better still chosen from ammonium hydroxide, monoethanolamine and mixtures thereof.
- [Claim 5] Composition according to any one of the preceding claims, in which the at least one fatty acid is(are) chosen from fatty acids including at least one carboxylic acid group and a linear or branched, saturated or unsaturated alkyl chain comprising from 10 to 30 carbon atoms, in particular from 14 to 22 carbon atoms, preferably chosen from solid fatty acids, even more preferentially chosen from palmitic acid, lauric acid, myristic acid, stearic acid and mixtures thereof, better still from palmitic acid, myristic acid, stearic acid and mixtures thereof.
- [Claim 6] Composition according to any one of the preceding claims, in which the total content of the fatty acid(s) ranges from 0.01% to 10% by weight, more preferentially from 0.05% to 5% by weight, better still from 0.1% to 1% by weight, even better still from 0.2% to 0.5% by weight, relative to the total weight of the composition.
- [Claim 7] Composition according to any one of the preceding claims, comprising at least one fatty substance other than fatty acids, preferably chosen from hydrocarbons comprising more than 6 carbon atoms, plant oils, liquid fatty alcohols, liquid fatty esters and waxes, and mixtures thereof, more preferentially from solid fatty alcohols, mixtures of alkanes containing from 8 to 28 carbon atoms, plant waxes, better still from cetearyl alcohol, C15-19 Alkane (INCI name), candelilla wax and mixtures thereof.
- [Claim 8] Composition according to any one of the preceding claims, in which the total content of the fatty substance(s) other than fatty acids ranges from 5% to 35% by weight, more preferentially from 7% to 30% by weight and better still from 8% to 25% by weight relative to the total weight of the composition.
- [Claim 9] Composition according to any one of the preceding claims, comprising at least one additional oxidation base other than the oxidation bases as defined in Claim 1.
- [Claim 10] Composition according to any one of the preceding claims, comprising at least one coupler, preferably chosen from 6-hydroxybenzomorpholine, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, hydroxyethyl-3,4-methylenedioxyaniline, the addition salts thereof, the solvates thereof and/or the solvates of the salts

thereof, 2-amino-5-ethylphenol, the addition salts thereof, the solvates thereof and/or the solvates of the salts thereof, and mixtures thereof.

[Claim 11] Composition according to any one of the preceding claims, not comprising any oxidation couplers chosen from resorcinol, 2-methylresorcinol, 4-chlororesorcinol, addition salts thereof, solvates thereof and the solvates of the salts thereof.

[Claim 12] Composition according to any one of the preceding claims, comprising at least one additional surfactant, the surfactant(s) other than fatty acids preferably being chosen from nonionic surfactants, more preferentially chosen from saturated or unsaturated, linear or branched, oxyethylenated or oxypropylenated, C8 to C40 alcohols comprising from 1 to 100 mol of ethylene or propylene oxide, preferably from 2 to 50, more particularly from 2 to 40 mol, and including at least one C8-C20 alkyl chain.

[Claim 13] Composition according to any one of the preceding claims, comprising at least one sequestrant, preferably chosen from diethylenetriaminepentaacetic acid (DTPA) and salts thereof, diethylenediaminetetraacetic acid (EDTA) and salts thereof, ethylenediaminedisuccinic acid (EDDS) and salts thereof, etidronic acid and salts thereof, N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof, and mixtures thereof, more preferentially from N,N-dicarboxymethylglutamic acid (GLDA) and salts thereof, and mixtures thereof.

[Claim 14] Composition according to any one of the preceding claims, not comprising any chemical oxidizing agent.

[Claim 15] Composition according to any one of Claims 1 to 13, comprising at least one chemical oxidizing agent, preferably hydrogen peroxide.

[Claim 16] Process for dyeing keratin fibres, preferably the hair, comprising the application to the keratin fibres of the composition as defined according to Claim 14.

[Claim 17] Process according to Claim 15, comprising the application to the fibres of a mixture of:

- a) a composition according to any one of Claims 1 to 14,
- b) an oxidizing composition comprising one or more chemical oxidizing agents, preferably hydrogen peroxide.

[Claim 18]

Multi-compartment device, preferably a two-compartment device, for dyeing keratin fibres, preferably the hair, comprising at least a first compartment containing a composition as defined according to any one of Claims 1 to 14 and at least a second compartment containing an oxidizing composition comprising one or more chemical oxidizing agents, preferably hydrogen peroxide.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2024/068160

A. CLASSIFICATION OF SUBJECT MATTER INV. A61K8/19 A61K8/41 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		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	FR 3 130 152 A1 (OREAL [FR]) 16 June 2023 (2023-06-16) claims; examples -----	1 - 18
Y	FR 3 130 151 A1 (OREAL [FR]) 16 June 2023 (2023-06-16) claims; examples -----	1 - 18
Y	FR 3 124 708 A1 (OREAL [FR]) 6 January 2023 (2023-01-06) pages 1-3; claims; examples -----	1 - 18
Y	FR 3 124 707 A1 (OREAL [FR]) 6 January 2023 (2023-01-06) pages 1-3; claims; examples ----- - / - -	1 - 18
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 4 September 2024		Date of mailing of the international search report 19/09/2024
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 Steffen, Pierre

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2024/068160

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	US 2015/283053 A1 (ODMAN SCHMID OEZGE [DE] ET AL) 8 October 2015 (2015-10-08) paragraphs [0006] - [0019], [0078], [0150]; claims; examples -----	1 - 18

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