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(71) Applicant: **KAO GERMANY GMBH** [DE/DE]; Pfungstädter Str. 92-100, 64297 Darmstadt (DE).

(72) Inventors: **NIU, Jing**; Pfungstädter Str. 92 - 100, 64297 Darmstadt (DE). **PRATT, Dominic**; Pfungstädter Str. 92 - 100, 64297 Darmstadt (DE).

(74) Agent: **GRIT, Mustafa**; Pfungstädter Str. 92-100, 64297 Darmstadt (DE).

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(54) Title: AQUEOUS OXIDIZING COMPOSITION

(57) Abstract: Present invention relates to an aqueous oxidizing composition comprising at least one hydrophobic dye which provides improved mixing of such composition with an alkalinizing composition prior to use and/or application such as onto hair.

Aqueous Oxidizing Composition

Present invention relates to an aqueous oxidizing composition comprising at least one hydrophobic dye which provides improved mixing of such composition with an alkalizing composition prior to use and/or application such as onto hair.

Oxidizing compositions have been used in hair coloring and/or lightening for ages. They are mixed with an alkaline composition comprising at least one alkalizing agent which may additionally comprise one or more hair dye for either oxidative or direct dyeing hair. In case of a dyeing composition comprising oxidative dye precursors, the composition is practically colorless and mixing with another colorless composition may not be observed if the mixing is complete or not. The problem is aggravated when the two compositions mixed are viscous compositions because mixing with diffusion is practically negligible. On the other hand, any simple direct dye which colors the external phase of an oil in water emulsion composition may not simply be used because of possible interaction with hair and/or also reaction with the oxidizing agent and/or oxidative dye precursors. Therefore, there is a clear need to observe and control the mixing of the two aqueous compositions and especially two viscous aqueous compositions.

Furthermore, for achieving homogeneous dyeing of hair, coloring composition must be applied homogeneously onto hair. Since the compositions currently available are simply white or colorless, it is not possible to make sure that the composition is applied onto hair homogeneously. There is certainly need for a method which gives possibility to control that the dyeing composition is indeed applied onto the place to be colored and homogeneously.

Inventors of the present invention have found out unexpectedly that hydrophobic dyestuffs indeed make possible observing mixing efficiency of two compositions having elevated consistency and also have no interaction with hair and do not react with either oxidizing agent or with oxidative dye precursors. The same dyes also makes certain that the composition is applied at the parts to be colored homogeneously.

Accordingly, the first object of the present invention is an aqueous emulsion composition comprising one or more oxidizing agent, one or more fatty alcohol and/or oil, one or more surfactant and one or more dyestuff with a logP value at 25°C higher than or equal to 2 wherein the composition is free of solid peroxides and/or persulphates and has a pH below 7.

The log P value used herein means that partition coefficient of the dyestuff between octanol and water at 25°C.

The second object of the present invention is the use of the composition of the present invention for lightening of hair color and/or for coloring hair.

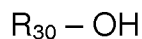
The third object of the present invention is a process for lightening hair colour wherein the composition of the present invention is mixed with another composition comprising one or more alkalizing agent and applied onto hair and after leaving on hair for 5 to 45 min rinsed off from hair and optionally shampooed.

The fourth object of the present inventions is a process for colouring hair wherein the composition of the present invention is mixed with another composition comprising one or more alkalizing agent and one or more oxidative dye precursor applied onto hair and after leaving on hair for 5 to 45 min rinsed off from hair and optionally shampooed.

The fifth object of the present invention is a kit comprising two or more compositions wherein one of the compositions is the composition of the present invention.

Composition of the present invention is an aqueous emulsion composition and comprises one or more fatty alcohol and/or oil.

In principal any fatty alcohol is suitable for the purpose of the present invention. Suitable and non-limiting examples are according to the general structure



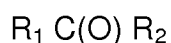
wherein R_{30} is a saturated or unsaturated, straight or branched alkyl chain having 12 to 30 C atoms which may also be substituted with one or more OH groups.

The non-limiting examples to suitable fatty alcohols are arachidyl alcohol, behenyl alcohol, brassica alcohol, C9-11 alcohols, C10-16 alcohols, C12-13 alcohols, C12-15 alcohols, C12-16 alcohols, C14-15 alcohols, C14-22 alcohols, C20-22 alcohols, caprylyl alcohol, cetearyl alcohol, cetyl alcohol, coconut alcohol, decyl alcohol, hydrogenated brassica alcohol, hydrogenated jojoba alcohol, hydrogenated rapeseed alcohol, hydrogenated tallow alcohol, hydroxystearyl alcohol, jojoba alcohol, lauryl alcohol, myristyl alcohol, oleyl alcohol, olive alcohol, palm alcohol, palm kernel alcohol, stearyl alcohol, tallow alcohol, and tridecyl alcohol and their mixtures.

Preferred are cetyl, stearyl, behenyl and cetearyl alcohols and their mixtures. The most preferred is cetearyl alcohol which is the mixture of cetyl and stearyl alcohols.

One or more fatty alcohol is used in the compositions of the present invention at a concentration 0.5 to 30%, preferably 1 to 25% more preferably 2 to 20%, most preferably 2.5 to 15% by weight calculated to the total composition.

The emulsion of the present invention comprises one or more oil either in addition to the one or more fatty alcohols or solely which are preferably liquid at room temperature (20°C). One or more oil may be selected from synthetic and natural oils. Synthetic oils are silicones especially those of nonvolatile ones such as dimethicones with viscosity of 50 to 350 cSt measured by capillary viscosimeter and at 20°C, fatty acid fatty alcohol esters according to the general structure



wherein R_1 is a straight or branched, saturated or unsaturated alkyl with 11 to 21 C atoms and R_2 is a straight or branched, saturated or unsaturated alkyl with 1 to 22 C atoms such as behenyl behenate, behenyl isostearte, butyl stearate, butyl oleate, butyl myristate, butyloctyl oleate, cetyl palmitate, cetyl myristate, cetyl oleate, cetyl caprylate, cetyl caprate, decyl oleate, decyl cocoate, decyl isostearte, ethylhexyl myristate, ethyl hexyl laurate, ethyl hexyl oleate, ethyl isostearte, ethyl laurate, ethyl linoleate, ethyl myristate, ethyl oleate, ethyl palmitate, ethylricinoleate, ethyl stearate, hexyl isostearet, hexyl laurate, hexyl myristate, hexyl stearate, hexyl decyl oleate, isobutyl laurate, isobutyl myristate, isobutyl palmitate, isobutyl stearate, isocetyl behenate, isobutyl laurate, isobutyl oleate, isobutyl stearate, isobutyl cocoate, isohexyl caprate, isopropyl palmitate, isopropyl stearate, isopropyl behenate, isopropyl laurate, isopropyl oleate, isopropyl ricinoleate and isopropyl palmitate, and fatty alcohol ethers according to general structure

R_3 O R_4

wherein R_3 and R_4 are same or different, straight or branched, saturated or unsaturated alkyl with 8 to 22 C atoms such as dicetyl ether, dimyristyl ether, dicypryl ether and dodecyl ether.

Natural oils are mineral oil and plant derived oils such as avocado oil, olive oil, almond oil, peach oil, passiflora oil, black cumin oil, borage oils, evening primrose oil, grape seed oil, hempseed oil, kukui nut oil, rosehip oil, safflower oil, walnut oil and wheat germ oil. The most preferred is mineral oil.

Concentration of oil in the emulsions of the present invention is in the range of 1 to 20%, preferably 1 to 15% more preferably 1 to 10% and most preferably 1 to 5% by weight calculated to the total composition.

In the preferred embodiment of the present invention one or more fatty alcohol and one or more oil are used at a total concentration of 1 to 35%, preferably 1 to 30%, more

preferably 1.5 to 25% and most preferably 2 to 20% by weight calculated to the total of the composition.

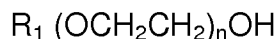
Further preferred embodiment of the present invention is that the weight ratio of the total fatty alcohol to total oil is less than or equal to 1.

The compositions of the present invention comprise one or more emulsifying surfactants also referred as emulgators. Suitable emulgators are anionic, cationic and nonionic ones and preferred are anionic and cationic surfactants and the most preferred are anionic surfactants.

Total concentration of the surfactants varies in the range of 0.05 % to 15%, preferably 0.075 to 12.5%, more preferably 0.1 to 10 and most preferably 0.2 % to 7,5 % by weight, calculated to total composition.

Non-limiting suitable anionic surfactants are especially the known alkyl sulphates and alkyl ether sulfates, carboxylic acids, in particular in form of their alkali salts, as well as protein fatty acid condensates, fatty acid salts, alkyl/alkenyl succinates, anionic amino acid surfactants especially glutamates such as sodium lauroyl glutamate. The preferred anionic surfactants are alkyl sulphates and alkyl ether sulphates and the most preferred is alkyl sulfate types and their salts such as ammonium C12-15 alkyl sulphate, ammonium C12-16 alkyl sulphate, ammonium coco sulphate, ammonium lauryl sulphate, ammonium myristyl sulphate, magnesium coco sulphate, magnesium lauryl sulphate, magnesium coco/TEA sulphate, MEA lauryl sulphate, MIPA lauryl sulphate, potassium lauryl sulphate, sodium caprylyl sulphate, sodium cetearyl sulphate, sodium cetyl sulphate, sodium coco sulphate, sodium decyl sulphate, sodium ethylhexyl sulphate, sodium lauryl sulphate, sodium myristyl sulphate, sodium oleyl sulphate, sodium stearyl sulphate, sodium tridecyl sulphate, TEA coco sulphate, TEA lauryl sulphate, TEA oleyl sulphate and TIPA lauryl sulphate and their mixtures. Particularly preferred is sodium lauryl sulphate.

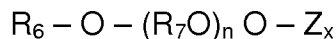
Suitable nonionic surfactants are in particular fatty alcohol polyglycol ethers according to general structure



R_1 is same as above and n is a number between 1 and 50, preferably 5 and 50, and more preferably 10 and 40 and most preferably 10 and 30.

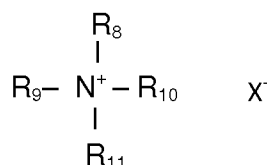
Suitable non-limiting examples to non-ionic surfactants of fatty alcohol polyglycol ethers are ceteth-1, ceteth-2, ceteth-3, ceteth-4, ceteth-5, ceteth-6, ceteth-7, ceteth-10, ceteth-12, ceteth-13, ceteth-14, ceteth-15, ceteth-16, ceteth-17, ceteth-18, ceteth-18, ceteth-20, ceteth-23, ceteth-24, ceteth-25, ceteth-30, ceteth-40, ceteth-45, isoceteth-5, isoceteth-7, isoceteth-10, isoceteth-12, isoceteth-15, isoceteth-20, isoceteth-25, isoceteth-30, isosteareth-2, isosteareth-3, isosteareth-5, isosteareth-8, isosteareth-10, isosteareth-12, isosteareth-15, isosteareth-18, isosteareth-20, isosteareth-22, isosteareth-25, isosteareth-50, steareth-1, steareth-2, steareth-3, steareth-4, steareth-5, steareth-6, steareth-7, steareth-8, steareth-10, steareth-11, steareth-12, steareth-13, steareth-14, steareth-15, steareth-16, steareth-20, steareth-21, steareth-25, steareth-27, steareth-30, steareth-40, steareth-50, ceteareth-2, ceteareth-2, ceteareth-2, ceteareth-2, ceteareth-2, ceteareth-2, ceteareth-2, ceteareth-3, ceteareth-4, ceteareth-5, ceteareth-8, ceteareth-9, ceteareth-10, ceteareth-11, ceteareth-12, ceteareth-13, ceteareth-14, ceteareth-15, ceteareth-16, ceteareth-17, ceteareth-18, ceteareth-20, ceteareth-22, ceteareth-23, ceteareth-24, ceteareth-25, ceteareth-27, ceteareth-28, ceteareth-29, ceteareth-30, ceteareth-33, ceteareth-34, ceteareth-40, ceteareth-50, beheneth-2, beheneth-5, beheneth-10, beheneth-15, beheneth-20, beheneth-25, beheneth-30, oleth-2, oleth-3, oleth-4, oleth-5, oleth-6, oleth-7, oleth-8, oleth-9, oleth-10, oleth-11, oleth-12, oleth-15, oleth-16, oleth-20, oleth-23, oleth-24, oleth-25, oleth-30, oleth-35, oleth-40, oleth-44, oleth-45 and oleth-50 and their mixtures.

Further suitable non-ionic surfactants are fatty acid alkanolamides, amineoxides, and especially C_8 - C_{18} -alkyl polyglucosides of the general structure



wherein R_6 is an alkyl group with 8 to 18 carbon atoms, R_7 is an ethylene or propylene group, Z is a saccharide group with 5 to 6 carbon atoms, n is a number from 0 to 10 and x is a number between 1 and 5. Examples are decyl polyglucoside and cocoyl polyglucoside, both being commercially available.

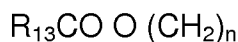
Cationic surfactants especially mono alkyl quaternary ammonium salts of the following general structure



where R_8 is a saturated or unsaturated, branched or non-branched alkyl chain with 8-22 C atoms or



where R_{12} is saturated or unsaturated, branched or non-branched alkyl chain with 7-21 C atoms and n has typical value of 0 – 4 or



where R_{13} is saturated or unsaturated, branched or non-branched alkyl chain with 7-21 C atoms and n has typical value of 0 – 4, and

and R_9 , R_{10} and R_{11} are independent from each other H or lower alkyl chain with 1 to 4 carbon atoms, and X is an anion such as chloride, bromide or methosulfate.

Suitable non-limiting examples are cetrimonium chloride, steartrimonium chloride and behentrimonium chloride.

The compositions of the present invention comprise one or more oxidizing agent. Suitable and non-limiting examples are hydrogen peroxide, urea peroxide, melamine peroxide and sodium bromate and most preferably it is hydrogen peroxide preferably at a concentration of 1 to 20%, preferably 1 to 15% and more preferably 2 to 12% by weight calculated to the total of the composition, and preferably has a pH in the range of 2 to 5, more preferably 2 to 4.

Compositions of the present invention comprise one or more dyestuff with a logP value of more than equal to 2, preferably at a concentration in the range of 0.001 to 1%, more preferably 0.001 to 0.75% and most preferably 0.005 to 0.5% by weight calculated to the total of the composition.

Preferably the dyestuff with a logP value of more than or equal to 2 is free of transition metal ions such as copper and iron and free of anionic and/or cationic solubilizing groups such as $-\text{SO}_3^-$, $-\text{CO}_2^-$ and $-\text{N}+\text{R}_{20}\text{R}_{21}\text{R}_{22}$ wherein R₂₀, R₂₁ and R₂₂ are same or different H, C₁ to C₄ alkyl, C₂ to C₄ alkyl which may be straight or branched, saturated or unsaturated which may additionally be substituted with one or more OH groups.

Suitable non-limiting examples are CI 73360, CI 61565, CI 60725, CI 26100, CI 12085 CI 47000, CI 11115, CI 26150, CI 11336, CI 61104, CI 61500 CI 46005, CI 12140, CI 61554 and CI 11680.

The emulsions of the present invention can comprises one or more polyol at a concentration in the range of 0.1 to 10%, preferably 0.5 to 7.5%, more preferably 0.75 to 5% and most preferably 1 to 5% by weight calculated to the total of the composition. The term polyol means any compound having 2 or more hydroxyl groups in its molecule. Suitable non-limiting examples are glycerin, 1,2-propylene glycol, polyglycerins with 2 to 10 glycerin units, panthenol, glycol, butyleneglycol, 1,2-butanediol, 1,4, butanediol, 2,3-butanediol, pentylene glycol and 1,5-pentanediol. Preferred are glycerin, 1,2-propylene glycol, glycol, butyleneglycol 1,2-butanediol, 1,4,

butanediol, 2,3-butanediol, and panthenol. More preferred are glycerin, 1,2-propylene glycol, glycol, butyleneglycol, and panthenol. Most preferred are glycerin, 1,2-propylene glycol, and panthenol and particularly preferred polyol is glycerin.

For lightening hair color, the composition of the present invention is mixed with another composition comprising one or more alkalizing agent which is preferably also an emulsion and comprises one or more of the fatty alcohol, one or more of the oil and one or more of the surfactants as disclosed above at the above specified concentrations. Suitable are sodium or potassium hydroxide, ammonia, alkanol amines such as monoethanolamine, carbonates such as ammonium carbonate, potassium carbonate, ammonium bicarbonate and ammonium chloride. Concentration of one or more alkalizing agents in total is in the range of 1 to 10% by weight calculated to the total composition. The most preferred are ammonia and monoethanolamine. pH of the composition, preferably an emulsion composition, varies in the range of 6 to 10.5, preferably 6.5 to 10, more preferably 6.8 to 10 and most preferably 8 to 10.

In a further embodiment of the present invention the composition mixed with the composition of the present invention comprise one or more oxidative dye precursors. Suitable examples to the oxidative dye precursors are p-phenylenediamine, p-methylaminophenol and substituted p-phenylenediamines such as 2,5-diamino-toluene, 2-n-propyl or 2-ethyl-p-phenylenediamine, 2,6-di-methyl-p-phenylene-diamine, 2-(2,5-diaminophenyl) ethanol, 1-amino-4-bis-(2'-hydroxy-ethyl)amino-benzene, 2-(2-hydroxyethyl amino)-5-aminotoluene, 4,4'-diaminodiphenylamine, 4-aminodiphenylamine, 2-amino-5-N,N-diethyl aminotoluene, 4-amino-N-ethyl-N-isopropyl aniline, 2-chloro-p-phenylenediamine, 1- β -hydroxyethyl-2,5-diamino-4-chlorobenzene, 1- β -hydroxyethyl-2,5-diamino-4-methyl benzene, 2-methoxy-p-phenylenediamine, N,N-diethyl-p-phenylenediamine, 1-amino-4- β -methoxyethyl aminobenzene, 1-dimethyl-amino-4-aminobenzene, 1-hydroxy-2,5-diamino-4-methyl benzene, 1-hydroxymethyl-2,5-diaminobenzene, 1,3-dimethyl-2,5-diaminobenzene, 1,4-diamino isopropyl benzene and/or 1-amino-4- β -hydroxypropyl aminobenzene, pyrazole and the derivatives thereof such as 1-hydroxyethyl-4,5-diaminopyrazole, 3,4-diamino-5-hydroxypyrazole, 3,5-

diaminopyrazole, 3,5-diamino pyrazol-1-carboxamide, 3-amino-5-hydroxypyrazole, 1-phenyl-2-methylpyrazole, 1-phenyl-3-methylpyrazole-5-one, 3,5-dimethylpyrazole, 3,5-dimethylpyrazole-1-methanol, 3,5-diamino-1,2,4-triazole, 4-aminophenol and the derivatives thereof such as 4-amino-3-methylphenol, 2-chloro-4-aminophenol, 2,6-dichloro-4-aminophenol, 2,4-diamino-phenol, 2,6-dibromo-4-aminophenol, tetraamino pyrimidines, triaminohydroxy pyrimidines, diaminomono- and -dihydroxy pyrimidines, aminotriazines, 5-amino salicylic acid and/or 1,2,4-triamino benzene or the water-soluble salts thereof.

Further suitable aminopyridines are 2,5-diaminopyridine, 2,3-diaminopyridine, 2,6-diaminopyridine, 3-amino-2-methyl amino-6-methoxypyridine, 2-dimethyl-5-aminopyridine, 2-dimethyl aminoethyl-3-hydroxypyridine, 2-amino-4,6-dimethyl pyridine, 2-amino-3-hydroxypyridine, 3-amino-2(β -hydroxyethyl amino)-6-methoxy-pyridine, 2,6-dimethyl amino-5-aminopyridine, 2-di(hydroxyethyl) amino-5-aminopyridine, 2-hydroxyethyl amino-5-aminopyridine, 4-hydroxy-2,5,6-triaminopyrimidine and/or the water-soluble salts thereof.

Further, indole and indoline derivatives can as well be contained in the colouring composition of the present invention. Examples to those are: 6-aminoindol, 6-hydroxyindole, 1-ethyl-6-hydroxyindole, 1-methyl-4-hydroxyindol, 1-methyl-6-hydroxyindole, 2-methyl-6-hydroxyindole, 5-hydroxyindol, 4-hydroxyindol, 5,6-dihydroxyindole, 6-aminoindoline, 6-hydroxyindoline, 1-ethyl-6-hydroxyindoline, 1-methyl-4-hydroxyindoline, 1-methyl-6-hydroxyindoline, 2-methyl-6-hydroxyindoline, 5-hydroxyindoline, 4-hydroxyindoline, 5,6-dihydroxyindoline and their respective salts.

Suitable coupling agents are resorcinol, 2-methyl resorcinol, 4-chlororesorcinol, 2-amino-4-chlorophenol, 5-amino-4-methoxy-2-methylphenol, 3-amino-phenol, 1-methyl-2-hydroxy-4-aminobenzene, 3-N,N-dimethyl aminophenol, 2,6-dihydroxy-3,5-dimethoxypyridine, 5-amino-3-methylphenol, 6-amino-3-methylphenol, 3-amino-2-methylamino-6-methoxypyridine, 2-amino-3-hydroxy-pyridine, 2-dimethyl-amino-5-aminopyridine, 2,6-diaminopyridine, 1,3-diamino- benzene, 1-amino-3-(2'-hy-

droxyethylamino)benzene, 1-amino-3-[bis(2'-hydroxy-ethyl) amino]benzene, α -naphthol, 4,6-dichlororesorcinol, 1,3-diamino-toluene, 1-hydroxy naphthalene, 4-hydroxy-1,2-methylenedioxy benzene, 1,5-dihydroxy naphthalene, 1,6-dihydroxy naphthalene, 1,7-dihydroxy naphthalene, 2,7-dihydroxy naphthalene, 1-hydroxy-2-methyl naphthalene, 4-hydroxy-1,2-methyldioxy benzene, 2,4-diamino-3-chlorophenol, 5-amino-2-methoxyphenol and/or 1-methoxy-2-amino-4-(2'-hydroxyethyl amino)benzene or the water-soluble salts thereof. 5-amino-2-methylphenol, 2-methyl-5-hydroxyethylaminophenol, 2,4-diaminophenoxyethanol, 2-amino-4-hydroxyethylaminoanisole, 2-methyl-5-amino-6-chlorophenol, 1,3-bis(2,4-diaminophenoxy)propane, 2-bis(2-hydroxyethyl)aminotoluene, 2-amino-5-methylphenol or the water-soluble salts thereof.

Concentration of one or more oxidative dyes in total – total concentration of precursors and couplers, if present - is in the range of 0.001 to 10% by weight, preferably 0.01 to 7.5% more preferably 0.05 to 5%, most preferably 0.1 to 3% by weight calculated to the total composition.

In a still further embodiment of the present invention, the composition mixed with the composition of the present invention comprises one or more direct dyes either alone or in combination with one or more oxidative dye precursors.

Suitable direct dyes are selected from cationic, anionic, neutral nitro dyes and their mixtures. Preferred are cationic and neutral nitro dyes and their mixtures.

Any cationic direct dye is in principal suitable for the compositions. Examples are Basic Blue 6, Basic Blue 7, Basic Blue 9, Basic Blue 26, Basic Blue 41, Basic Blue 99, Basic Brown 4, Basic Brown 16, Basic Brown 17, Natural Brown 7, Basic Green 1, Basic Orange 31, Basic Red 2, Basic Red 12, Basic Red 22, Basic Red 51, Basic Red 76, Basic Violet 1, Basic Violet 2, Basic Violet 3, Basic Violet 10, Basic Violet 14, Basic Yellow 57 and Basic Yellow 87.

Any anionic dye is in principal suitable for the compositions. Suitable examples are such as Acid Black 1, Acid Blue 1, Acid Blue 3, Food Blue 5, Acid Blue 7, Acid Blue 9, Acid Blue 74, Acid Orange 3, Acid Orange 6, Acid Orange 7, Acid Orange 10, Acid Red 1, Acid Red 14, Acid Red 18, Acid Red 27, Acid Red 50, Acid Red 52, Acid Red 73, Acid Red 87, Acid Red 88, Acid Red 92, Acid Red 155, Acid Red 180, Acid Violet 9, Acid Violet 43, Acid Violet 49, Acid Yellow 1, Acid Yellow 23, Acid Yellow 3, Food Yellow No. 8, D&C Brown No. 1, D&C Green No. 5, D&C Green No. 8, D&C Orange No. 4, D&C Orange No. 10, D&C Orange No. 11, D&C Red No. 21, D&C Red No. 27, D&C Red No. 33, D&C Violet 2, D&C Yellow No. 7, D&C Yellow No. 8, D&C Yellow No. 10, FD&C Red 2, FD&C Red 40, FD&C Red No. 4, FD&C Yellow No. 6, FD&C Blue 1, Food Black 1, Food Black 2, Disperse Black 9 and Disperse Violet 1 and their alkali metal salts such as sodium, potassium.

Among those, the preferred anionic dyestuffs are Acid Red 52, Acid Violet 2, Acid Red 33, Acid Orange 4, Acid Red 27 and Acid Yellow 10 and their salts. The most preferred anionic dyes are Acid Red 52, Acid Violet 2, Acid Red 33, Acid Orange 4 and Acid Yellow 10, and their salts

Neutral dyes, so called nitro dyes for shading purposes are also optionally contained in the compositions. Suitable ones are HC Blue No.2, HC Blue No.4, HC Blue No.5, HC Blue No.6, HC Blue No.7, HC Blue No.8, HC Blue No.9, HC Blue No.10, HC Blue No.11, HC Blue No.12, HC Blue No.13, HC Brown No.1, HC Brown No.2, HC Green No.1, HC Orange No.1, HC Orange No.2, HC Orange No.3, HC Orange No.5, HC Red BN, HC Red No.1, HC Red No.3, HC Red No.7, HC Red No.8, HC Red No.9, HC Red No.10, HC Red No.11, HC Red No.13, HC Red No.54, HC Red No.14, HC Violet BS, HC Violet No.1, HC Violet No.2, HC Yellow No.2, HC Yellow No.4, HC Yellow No.5, HC Yellow No.6, HC Yellow No.7, HC Yellow No.8, HC Yellow No.9, HC Yellow No.10, HC Yellow No.11, HC Yellow No.12, HC Yellow No.13, HC Yellow No.14, HC Yellow No.15, 2-Amino-6-chloro-4-nitrophenol, picramic acid, 1,2-Diamino-4-nitrobenzol, 1,4-Diamino-2-nitrobenzol, 3-Nitro-4-aminophenol, 1-Hydroxy-2-amino-3-nitrobenzol and 2-hydroxyethylpicramic acid.

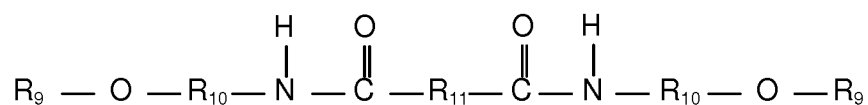
Concentration of one or more direct dyes in total is in the range of 0.001 to 10% by weight, preferably 0.01 to 7.5% more preferably 0.05 to 5%, most preferably 0.1 to 3% by weight calculated to total composition.

Any of the above mentioned compositions, composition of the present invention and also the composition mixed with the present invention, can comprise one or more of the substances disclosed below.

The composition may comprise ceramide type of compound such as cetyl-PG-hydroxyethylpalmitamide.

Further optional ingredient are sterols, especially the phytosterols are useful hair restructuring compounds can be present in the above mentioned compositions. Especially preferred ones are of plant origin for example ergosterol, sitosterol, stigmasterol, fucosterol, brassicasterol, fungisterol, campesterol, zymosterol, ascosterol, cerevisterol, episterol, faecosterol, spinasterol. Among those phytosterols, the ones found in "Avocadin" which is the unsaponified fraction of the avocado oil is more preferred.

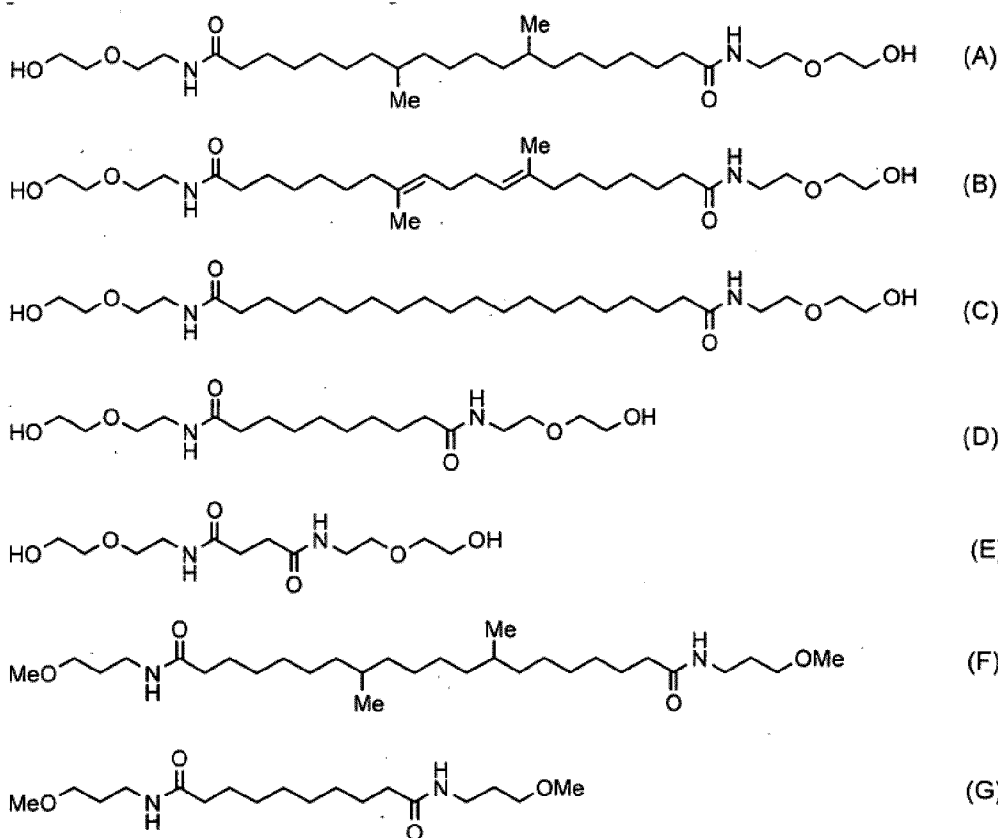
In a further preferred embodiment of the present invention, compositions may comprises at least one diamine compound. Preferred diamide compounds are according to the general structure



wherein R_9 is a linear or branched, saturated or unsaturated alkyl chain with 1 to 12 C atoms which may be substituted with hydroxy and/or alkoxy groups, preferably R_9 is linear or branched, saturated or unsaturated alkyl chain with 1 to 12 C atoms which may be substituted by 1 to 3 substituents selected from a hydroxy group and C1 to C6 alkoxy

group, more preferably R₉ is a unsubstituted alkyl group with 1 to 12 C atoms, and alkyl group with 2 to 12 C atoms substituted by one or two hydroxyl groups, by one alkoxy group with 1 to 6 C atoms or by one hydroxyl and one alkoxy group with 2 to 6 C atoms, R₁₀ is linear or branched alkyl chain with 1 to 5 C atoms, preferably linear or branched alkyl chain with 2 to 5 C atoms and more preferably an alkyl chain with 2 to 3 C atoms, and R₁₁ linear or branched, saturated or unsaturated alkyl chain with 1 to 22 C atoms, preferably linear or branched, saturated or unsaturated alkyl chain with 11 to 22 C atoms.

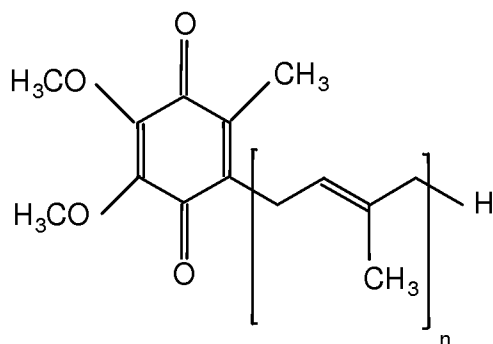
Preferred individual diamide compounds are the ones according to the formula A to G.



Particularly preferred diamide compound is the compound F which is bis(methoxypropylamido) isodocosane and commercially available from Kao Corporation – Japan.

Concentration of diamide compounds in the intermediate treatment compositions of the present invention is in the range of 0.001 to 5%, preferably 0.002 to 3% more preferably 0.005 to 2% and most preferably 0.01 to 1% by weight calculated to the total composition.

Further additional compounds may be present in the above mentioned compositions of the present invention is ubiquinone of the formula



where n is a number between 1 and 10. Preferred ubiquinones are the ones where n is a number between 6 and 10 and especially preferred is Ubiquinone 50 where n is 10, also known as Coenzyme Q10. Concentration ubiquinone of the above formula in the compositions is from 0.0001 to 1%, preferably from 0.0002 to 0.75%, more preferably from 0.0002 to 0.5% and most preferably from 0.0005 to 0.5% by weight, calculated to the total composition.

The composition of the present invention may further comprise the compounds found customarily in such compositions such as chelating agents such as EDTA and/or etidronic acid and/or their salts, pH adjusting agents such as organic and/or inorganic acids and/or their salts, preservatives, oxidizing agent stabilizing agents such as acetaminophen and/or salicylic acid, fragrance and additional compounds especially improving hair conditions.

In a further embodiment of the present invention the composition has a viscosity in the range of 500 to 50000 mPa.s, preferably 750 to 40000 mPa.s, more preferably 1000 to 35000 mPa.s, and most preferably 2000 to 30000 mPa.s, and in particular 5000 to 20000 mPa.s measured at 20 °C with a Brookfield viscosimeter with a suitable Spindle such as Spindle 5.

In a still further preferred embodiment of the present invention the composition mixed with the composition of the present invention has the viscosity in the range of 500 to 50000 mPa.s, preferably 750 to 40000 mPa.s, more preferably 1000 to 35000 mPa.s, and most preferably 2000 to 30000 mPa.s, and in particular 5000 to 20000 mPa.s measured at 20 °C with a Brookfield viscosimeter with a suitable Spindle such as Spindle 5.

The following examples are to illustrate but not to limit the invention.

Example 1

Oxidizing emulsion composition

	% by weight
Cetearyl alcohol	10.0
Mineral oil	3.5
Sodium lauryl sulphate	2.0
Hydrogen peroxide	9.0
CI 73360	0.01
Salicylic acid	0.05
Etidronic acid	0.3
Phosphoric acid/sodium phosphate	q.s. to pH 2.5
Water	to 100

The above composition had a viscosity of approximately 15000 mPa.s measured with Brookfield viscosimeter Spinle 4 at 20°C.

The above composition was mixed with a commercially available composition under the trade name Topchic which comprises alkalizing agent and one or more oxidative dye precursors and it is an emulsion. It was observed that the red dye CI 73360 made possible to observe the completeness of the mixing and also application of thus obtained composition delivered homogeneous colour on hair. It was not possible to observe homogeneity of the composition prior to application onto hair without the red dye. Additionally it was observed that addition of red dye into the composition did not result in change of hair colour.

Similar observations were made with the examples below.

Example 2

Oxidizing emulsion composition

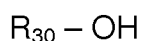
	% by weight
Cetearyl alcohol	10.0
Olive oil	3.5
Ceteareth-20	4.0
Glycerine	2.0
Hydrogen peroxide	9.0
CI 60725	0.03
Salicylic acid	0.05
Etidronic acid	0.3
Phosphoric acid/sodium phosphate	q.s. to pH 2.5
Water	to 100

Example 3**Oxidizing emulsion composition**

	% by weight
Cetearyl alcohol	10.0
Olive oil	3.5
Ceteareth-20	4.0
Glycerine	2.0
Hydrogen peroxide	9.0
CI 47000	0.1
Salicylic acid	0.05
Etidronic acid	0.3
Phosphoric acid/sodium phosphate	q.s. to pH 2.5
Water	to 100

CLAIMS

- 1- An aqueous emulsion composition characterized in that it comprising one or more oxidizing agent, one or more fatty alcohol and/or one or more oil, one or more surfactant and one or more dyestuff with a logP value at 25 °C higher than or equal to 2 wherein the composition is free of solid peroxides and/or persulphates and has a pH below 7.
- 2- The composition according to claim 1 characterized in that the oxidizing agent is hydrogen peroxide and comprised at a concentration 1 to 20% by weight calculated to the total composition.
- 3- The composition according to claims 1 and 2 characterized in that one or more fatty alcohol is selected form compounds according to general structure

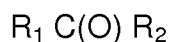


wherein R_{30} is a saturated or unsaturated, straight or branched alkyl chain having 12 to 30 C atoms which may also be substituted with one or more OH groups.

- 4- The composition according to claim 3 characterized in that one or more fatty alcohol is selected from arachidyl alcohol, behenyl alcohol, brassica alcohol, C9-11 alcohols, C10-16 alcohols, C12-13 alcohols, C12-15 alcohols, C12-16 alcohols, C14-15 alcohols, C14-22 alcohols, C20-22 alcohols, caprylyl alcohol, cetearyl alcohol, cetyl alcohol, coconut alcohol, decyl alcohol, hydrogenated brassica alcohol, hydrogenated jojoba alcohol, hydrogenated rapeseed alcohol, hydrogenated tallow alcohol, hydroxystearyl alcohol, jojoba alcohol, lauryl alcohol, myristyl alcohol, oleyl alcohol, olive alcohol, palm alcohol, palm kernel alcohol, stearyl alcohol, tallow alcohol, and tridecyl alcohol and their mixtures, and in particular it is the mixture of cetyl and stearyl alcohols which is cetearyl alcohol.

- 5- The composition according to any of the preceding claims characterized in that one or more fatty alcohols is comprised at a concentration of 0.5 to 30%, preferably 1 to 25% more preferably 2 to 20%, most preferably 2.5 to 15% by weight calculated to the total composition.
- 6- The composition according to any of the preceding claims characterized in that one or more is selected from synthetic and natural oils

wherein synthetic oils are selected from silicones especially those of nonvolatile ones such as dimethicones with viscosity of 50 to 350 cSt measured by capillary viscosimeter and at 20°C, fatty acid fatty alcohol esters according to the general structure



wherein R_1 is a straight or branched, saturated or unsaturated alkyl with 11 to 21 C atoms and R_2 is a straight or branched, saturated or unsaturated alkyl with 1 to 22 C atoms and fatty alcohol ethers according to general structure



wherein R_3 and R_4 are same or different, straight or branched, saturated or unsaturated alkyl with 8 to 22 C atoms

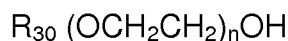
and natural oils are selected from mineral oil and plant derived oils such as avocado oil, olive oil, almond oil, peach oil, passiflora oil, black cumin oil, borage oils, evening primrose oil, grape seed oil, hempseed oil, kukui nut oil, rosehip oil, safflower oil, walnut oil and wheat germ oil wherein the most preferred natural oil is mineral oil.

- 7- The composition according to any of the preceding claims characterised in that one or more oil is present at a concentration in the range of 1 to 20%, preferably 1 to 15% more preferably 1 to 10% and most preferably 1 to 5% by weight calculated to the total composition.
- 8- The composition according to any of the preceding claims characterised in that it comprises one or more fatty alcohol and one or more oil at a total concentration in the range of 1 to 35%, preferably 1 to 30% more preferably 1.5 to 25% and most preferably 2 to 20% by weight calculated to the total composition.
- 9- The composition according to any of the preceding claims characterised in that it comprises one or more surfactant selected from anionic, cationic and nonionic ones and preferred are anionic and cationic surfactants and the most preferred are anionic surfactants, preferably at a total concentration in the range of 0.05 % to 15%, preferably 0.075 to 12.5%, more preferably 0.1 to 10 and most preferably 0.2 % to 7,5 % by weight, calculated to total composition,

wherein

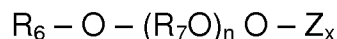
the anionic surfactants are selected from alkyl sulphates and alkyl ether sulfates, carboxylic acids, in particular in form of their alkali salts, fatty acid salts, alkyl/alkenyl succinates, anionic amino acid surfactants especially glutamates such as sodium lauroyl glutamate, and

the nonionic surfactants are selected from fatty alcohol polyglycol ethers according to general structure



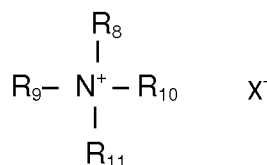
R_{30} is same as above and n is a number between 1 and 50, preferably 5 and 50, and more preferably 10 and 40 and most preferably 10 and 30 and fatty acid

alkanolamides, amineoxides, and C₈-C₁₈-alkyl polyglucosides of the general structure



wherein R₆ is an alkyl group with 8 to 18 carbon atoms, R₇ is an ethylene or propylene group, Z is a saccharide group with 5 to 6 carbon atoms, n is a number from 0 to 10 and x is a number between 1 and 5, and

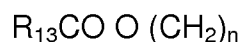
the cationic surfactants especially mono alkyl quaternary ammonium salts of the following general structure



where R₈ is a saturated or unsaturated, branched or non-branched alkyl chain with 8-22 C atoms or



where R₁₂ is saturated or unsaturated, branched or non-branched alkyl chain with 7-21 C atoms and n has typical value of 0 – 4 or



where R₁₃ is saturated or unsaturated, branched or non-branched alkyl chain with 7-21 C atoms and n has typical value of 0 – 4, and

and R₉, R₁₀ and R₁₁ are independent from each other H or lower alkyl chain with 1 to 4 carbon atoms, and X is an anion such as chloride, bromide or methosulfate.

- 10- The composition according to any of the preceding claims characterised in that it comprises one or more dyestuff with a logP value of more than equal to 2 preferably at a concentration in the range of 0.001 to 1%, more preferably 0.001 to 0.75% and most preferably 0.005 to 0.5% by weight calculated to the total of the composition, wherein the is free of transition metal ions such as copper and iron and free of anionic and/or cationic solubilizing groups such as $-\text{SO}_3^-$, $-\text{CO}_2^-$ and $-\text{N}^+\text{R}_2\text{OR}_2$ wherein R20, R21 and R22 are same or different H, C1 to C4 alkyl, C2 to C4 alkyl which may be straight or branched, saturated or unsaturated which may additionally be substituted with one or more OH groups and preferably selected from CI 73360, CI 61565, CI 60725, CI 26100, CI 12085 CI 47000, CI 11115, CI 26150, CI 11336, CI 61104, CI 61500 CI 46005, CI 12140, CI 61554 and CI 11680.
- 11- Use of the composition according to claims 1 to 10 for lightening of hair color and/or for coloring hair.
- 12- Process for lightening hair color wherein according to claims 1 to 10 is mixed with another composition comprising one or more alkalizing agent and applied onto hair and after leaving on hair for 5 to 45 min rinsed off from hair and optionally shampooed.
- 13- Process for coloring hair wherein according to claims 1 to 10 is mixed with another composition comprising one or more alkalizing agent and one or more oxidative dye precursor applied onto hair and after leaving on hair for 5 to 45 min rinsed off from hair and optionally shampooed.

- 14- Process according to claims 12 and 13 wherein the composition according to claims 1 to 10 has a viscosity in the range of 500 to 50000 mPa.s, the composition mixed with the composition according to claims 1 to 10 and comprises one or more alkalizing agent and/or one or more oxidative dye precursors has a viscosity in the range of 500 to 50000 mPa.s, measured at 20°C with a Brookfield viscosimeter with a suitable spindle such as Spindle 5.
- 15- Kit comprising two or more compositions wherein one of the compositions is a composition according to claims 1 to 10.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/076481

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K8/34 A61K8/35 A61K8/46 A61Q5/08 A61Q5/10
 A61K8/92 A61K8/06 A61K8/22
 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	US 2006/242773 A1 (KRAVTCHENKO SYLVAIN [CN] ET AL) 2 November 2006 (2006-11-02) see the example -----	1-15
Y	US 6 060 544 A (KEEN CHRISTOPHER VICTOR [GB]) 9 May 2000 (2000-05-09) see col. 1 , lines 14-18 -----	1-15
A	US 6 398 821 B1 (DIAS LOUIS CARLOS [GB] ET AL) 4 June 2002 (2002-06-04) example V -----	1
A	WO 2010/097558 A2 (OREAL [FR]; LALLEMAN BORIS [FR]; LAGRANGE ALAIN [FR]) 2 September 2010 (2010-09-02) page 20, lines 5-9 in combination with 1 and 11 -----	1

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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- "O" document referring to an oral disclosure, use, exhibition or other means
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- "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

28 September 2015

Date of mailing of the international search report

07/10/2015

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

Rinkel, Bert

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2013/076481

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			DE 69814604 T2	29-04-2004
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			WO 2010097558 A2	02-09-2010
