COMPOSITION CONTAINING OXIDIZING AGENT AND METHOD FOR APPLICATION THEREOF

TECHNICAL FIELD

[0001] The present invention relates to a composition containing an oxidizing agent to be used as a hair dye or a hair bleaching/decoloring agent, and a method for application thereof.

BACKGROUND ART

[0002] There are commonly known hair dyes or hair bleaching/decoloring agents that exerts their effects by mixing a plurality of agents, as hair treatment agent compositions. Among such hair treatment agent compositions, for example, oxidation hair dyes are known which include a first agent containing an alkali agent and an oxidation dye and a second agent containing an oxidizing agent, for example, hydrogen peroxide (oxidizing agent-containing composition). Oxidizing agent-containing compositions in which a stabilizer is employed in order to improve the stability of the oxidizing agent are conventionally known. For example, Patent Document 1 discloses a hydrogen peroxide-containing hair treatment agent that contains 1-hydroxyethane-1,1-diphosphonic acid (etidronic acid) and the like. However, etidronic acid, which has low metal chelating ability, has a problem of providing a relatively poor texture and hair-dyeing property of the hair after hair treatment, and thus a stabilizer that replaces etidronic acid has been required. For example, Patent Document 2 discloses a hydrogen peroxide-containing composition that contains a pyrrolidonecarboxylic ester and the like as a stabilizer for hydrogen peroxide.

PRIOR ART DOCUMENTS

Patent Documents

[0003] Patent Document 1: Japanese Laid-Open Patent Publication No. 2000-344635

Patent Document 2: Japanese Laid-Open Patent Publication No. 2003-201219

SUMMARY OF THE INVENTION

Problems to be Solved by the Invention

[0004] Conventional oxidizing agent-containing compositions, however, have a problem of having insufficient formulation stability. A further improvement in the stability of the oxidizing agent has been also required.

It is an object of the present invention to provide an oxidizing agent-containing composition that is used as a hair dye or a hair bleaching/decoloring agent, the oxidizing agent-containing composition being capable of improving its formulation stability and the stability of the oxidizing agent, and a method for using the oxidizing agent-containing composition.

Means for Solving the Problems

[0005] The present invention is based on a finding that a combination of phenoxyethanol and a specific acid can improve the formulation stability of an oxidizing agent-containing composition and the stability of an oxidizing agent therein. It is to be noted that a numerical value expressing a content of each component in terms of % by mass is a numerical value in a formulation including a solubilizer, such as water (if used), and so forth.

[0006] In order to achieve the object described above, one aspect of the present invention is concerned with an oxidizing agent-containing composition that is mixed with an alkali agent-containing agent for use as a hair dye or a hair bleaching/decoloring agent, the oxidizing agent-containing composition comprising an oxidizing agent (A), phenoxyethanol

(B), an aminocarboxylic acid chelating agent (C), and an acid (D).

[0007] The mass ratio of the content of the component (D) to the content of the component (B) may be 0.01 to 8. The mass ratio of the content of the component (C) to the content of the component (D) may be 0.01 to 10. The component (D) may be phosphoric acid. The pH of the oxidizing agent-containing composition may be 2 to 5.

[0008] Another aspect of the present invention is concerned with a method for using the oxidizing agent-containing composition, the method comprising a step of mixing the oxidizing agent-containing composition with an agent containing an alkali agent to prepare a hair dye or a hair bleaching/decoloring agent.

EFFECTS OF THE INVENTION

[0009] According to the present invention, the formulation stability and the stability of an oxidizing agent can be improved.

EMBODIMENTS OF THE INVENTION

[0010] One embodiment, in which an oxidizing agent-containing composition of the present invention is embodied, will be described hereinafter. The oxidizing agent-containing composition is constituted as a second agent of a hair dye or a hair bleaching/decoloring agent containing an alkali agent and an oxidizing agent, for example. Specific examples of the hair dye or hair bleaching/decoloring agent include two-agent type hair dyes or hair bleaching/decoloring agents, and three-agent type hair dyes or hair bleaching/decoloring agents. The components of the hair dye or hair bleaching/decoloring agent containing a second agent that is constituted as an oxidizing agent-containing composition are exemplified hereinafter.

[0011] <Two-agent type hair bleaching/decoloring agent>

A two-agent type hair bleaching/decoloring agent

comprises a first agent containing at least an alkali agent, for example, and a second agent containing at least an oxidizing agent (A).

[0012] (Second agent of two-agent type hair bleaching/decoloring agent)

The second agent contains phenoxyethanol (ethylene glycol phenyl ether) (B), an aminocarboxylic acid chelating agent (C), an acid (D), and the like in addition to the oxidizing agent (A).

[0013] The oxidizing agent (A) improves a bleaching property for melanin contained in the hair. Specific examples of the oxidizing agent include hydrogen peroxide, urea peroxide, melamine peroxide, sodium percarbonate, sodium perborate, potassium perborate, ammonium persulfate, potassium persulfate, sodium persulfate, sodium peroxide, potassium peroxide, magnesium peroxide, barium peroxide, calcium peroxide, strontium peroxide, hydrogen peroxide adducts of sulfates, hydrogen peroxide adducts of phosphates, and hydrogen peroxide adducts of pyrophosphates. Of the specific example of these oxidizing agents, only one may be contained singly or two or more may be contained in combination.

[0014] The lower limit content of the oxidizing agent (A) in the second agent is appropriately set and preferably 0.1% by mass or more, more preferably 2.0% by mass or more, still more preferably 3.0% by mass or more. In the case where the content of the oxidizing agent (A) is 0.1% by mass or more, the melanin bleaching property can be further improved. The upper limit content of the oxidizing agent (A) in the second agent is appropriately set and is preferably 15.0% by mass or less, more preferably 9.0% by mass or less, still more preferably 6.0% by mass or less. In the case where the content of the oxidizing agent (A) is 15.0% by mass or less, damaging of the hair and the like can be suppressed.

[0015] In the case where hydrogen peroxide is compounded as the oxidizing agent (A) in the second agent, the second agent

contains a stabilizer, for example, sodium stannate, hydroxyethanediphosphonic acid (etidronic acid) or a salt thereof within the range where the objects and effects of the present invention are not impaired, for the purpose of improving the stability of hydrogen peroxide. Specific examples of the salt of hydroxyethanediphosphonic acid include tetrasodium hydroxyethanediphosphonate and disodium hydroxyethanediphosphonate. When sodium stannate is used, the proportion of the content of an aminocarboxylic acid chelating agent (C) described below to the content of the sodium stannate is defined preferably in the range of 0.01 to 35, more preferably in the range of 0.03 to 25, still more preferably in the range of 0.07 to 20. Defining the ratio in such a range further improves the stability of the oxidizing agent.

[0016] Phenoxyethanol (B) improves the formulation stability and the stability of the oxidizing agent. The lower limit content of the component (B) in the second agent is appropriately set and is preferably 0.01% by mass or more, more preferably 0.05% by mass or more, still more preferably 0.1% by mass or more. When the content is 0.01% by mass or more, particularly the stability of the oxidizing agent is further improved. The upper limit content of the component (B) in the second agent is appropriately set and is preferably 5% by mass or less, more preferably 2% by mass or less, still more preferably 1% by mass or less. When the content is 5% by mass or less, particularly the stability of the oxidizing agent is further improved.

[0017] The aminocarboxylic acid chelating agent (C) improves the formulation stability and the stability of the oxidizing agent. The chelating agent (C) also improves the texture of the hair and bleaching/decoloring property. In a hair dye described below, the hair-dyeing property is improved. Specific examples of the aminocarboxylic acid chelating agent include ethylenediaminetetraacetic acid (EDTA),

ethylenediaminehydroxyethyltriacetic acid (HEDTA), dihydroxyethylethylenediamine diacetic acid (DHEDDA), 1,3-propanediamine tetraacetic acid (1,3-PDTA), diethylenetriamine pentaacetic acid (DTPA), triethylenetetramine hexaacetic acid (TTHA), nitrilotriacetic acid (NTA), hydroxyethylimino diacetic acid (HIMDA), L-aspartic acid N, N-diacetic acid (ASDA), salts thereof, derivative thereof, and salts of derivatives thereof. Examples of the salt include alkali metal salts such as sodium salts and potassium salts. Of the specific examples of these components (C), only one may be contained singly or two or more may be contained in combination. Among these, HEDTA, EDTA, DTPA, or a sodium salt thereof is preferable, from the viewpoint of having an excellent effect of improving the formulation stability and the stability of the oxidizing agent.

[0018] The lower limit content of the component (C) in the second agent is appropriately set and is preferably 0.001% by mass or more, more preferably 0.005% by mass or more, still more preferably 0.01% by mass or more. When the content is 0.001% by mass or more, particularly the stability of the oxidizing agent is further improved.

[0019] The upper limit content of the component (C) in the second agent is appropriately set and is preferably 3% by mass or less, more preferably 1% by mass or less, still more preferably 0.5% by mass or less, most preferably 0.3% by mass or less. When the content is 3% by mass or less, particularly the stability of the oxidizing agent is further improved.

[0020] The acid (D) improves the formulation stability and the stability of the oxidizing agent. The acid (D) also improves the bleaching/decoloring property. In a hair dye described below, the hair-dyeing property is improved. The acid (D) may be either of an inorganic acid or an organic acid. Specific examples of the inorganic acid include phosphoric acid, hydrochloric acid, nitric acid, sulfuric acid, and boric acid. Additionally, specific examples of the

phosphoric acid include orthophosphoric acid, polyphosphoric acid, pyrophosphoric acid, and metaphosphoric acid. Specific examples of the organic acid include citric acid, tartaric acid, lactic acid, malic acid, succinic acid, fumaric acid, maleic acid, gluconic acid, glucuronic acid, and benzoic acid. Of the specific example, only one may be contained singly or two or more may be contained in combination. Among these, an inorganic acid, citric acid, or tartaric acid is preferable, and phosphoric acid is more preferable, from the viewpoint of having an excellent effect of improving the stability of the oxidizing agent.

[0021] The lower limit content of the component (D) in the second agent is appropriately set and preferably 0.005% by mass or more, more preferably 0.01% by mass or more, still more preferably 0.02% by mass or more. When the content is 0.005% by mass or more, particularly the stability of the oxidizing agent is further improved. The bleaching/decoloring property is also more improved. In a hair dye described below, the hair-dyeing property is improved.

[0022] The upper limit content of the component (D) in the second agent is appropriately set and is preferably 5% by mass or less, more preferably 2% by mass or less, still more preferably 1% by mass or less. When the content is 5% by mass or less, particularly the stability of the oxidizing agent is further improved. The bleaching/decoloring property is also more improved. In a hair dye described below, the hair-dyeing property is improved.

[0023] The lower limit of the mass ratio of the content of the component (D) to the content of the component (B) in the second agent is appropriately set and preferably 0.01 or more, more preferably 0.03 or more, still more preferably 0.07 or more. The upper limit of the mass ratio is appropriately set and is preferably 8 or less, more preferably 4 or less, still more preferably 3 or less. Defining the mass ratio in the range described above can further improve the stability of the

oxidizing agent. The bleaching/decoloring property is also more improved. In a hair dye described below, the hair-dyeing property is improved.

[0024] The lower limit of the mass ratio of the content of the component (C) to the content of the component (D) in the second agent is appropriately set and preferably 0.01 or more, more preferably 0.05 or more, still more preferably 0.1 or more. The upper limit of the mass ratio is appropriately set and preferably 10 or less, more preferably 7 or less, still more preferably 5 or less, most preferably 3.5 or less. Defining the mass ratio in the range described above can further improve the stability of the oxidizing agent. The bleaching/decoloring property is also more improved. In a hair dye described below, the hair-dyeing property is improved.

[0025] The hair bleaching/decoloring agent may further contain components other than the components aforementioned, such as a solubilizer, a water-soluble polymer, an inorganic polymer, an oil component, a polyhydric alcohol, a surfactant, a pH adjuster other than those described above, a sugar, an antiseptic, a stabilizer, a plant extract, a crude drug extract, a vitamin, a fragrance, an antioxidant, a chelator other than those described above, and an ultraviolet absorber, as necessary.

[0026] A solubilizer is compounded when the second agent is made into a liquid form, for example. Examples of the solubilizer to be used include water and organic solvents (solvents). Specific examples of the organic solvent include ethanol, n-propanol, isopropanol, methyl cellosolve, ethyl cellosolve, methyl carbitol, ethyl carbitol, benzyl alcohol, phenethyl alcohol, γ-phenylpropyl alcohol, cinnamic alcohol, anise alcohol, p-methylbenzyl alcohol, α-dimethylphenethyl alcohol, α-phenylethanol, phenoxyisopropanol, 2-benzyloxyethanol, N-alkylpyrrolidones, alkylene carbonates, and alkyl ethers. Of these solubilizers, only one may be

contained singly or two or more may be contained in combination. Among these, water is preferably applied because water has excellent ability of dissolving other components in the second agent. When water is used as the solvent, the content of water (content at the time of use) in the second agent is preferably 40% by mass or more, more preferably 50% by mass or more.

[0027] The water-soluble polymer imparts an appropriate viscosity to the hair bleaching/decoloring agent. Examples of the water-soluble polymer include natural polymers, semi-synthetic polymers, and synthetic polymers. Specific examples of the natural polymer include starch, guar gum, locust bean gum, quince seed, carrageenan, galactan, gum arabic, tragacanth gum, pectin, mannan, xanthan gum, dextran, succinoglucan, curdlan, hyaluronic acid, gelatin, casein, albumin, collagen, dextrin, and triglucopolysaccharide (pullulan).

[0028] Specific examples of the semi-synthetic polymer include crystalline cellulose, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, hydroxyethyl cellulose dimethyldiallyl ammonium chloride, hydroxypropyl cellulose, carboxymethyl cellulose, sodium carboxymethyl cellulose, hydroxypropyl methylcellulose, cationized cellulose, cationized guar gum, starch phosphate ester, alginic acid propylene glycol ester, and alginates.

[0029] Specific examples of the synthetic polymer include polyvinyl caprolactam, polyvinyl alcohol (PVA), polyvinyl pyrrolidone (PVP), polyvinyl pyrrolidone-vinyl acetate (VP/VA) copolymers, polyvinyl butyral, polyvinyl methyl ether, carboxyvinyl polymers, sodium polyacrylate, polyacrylamide, polyethylene oxide, ethylene oxide/propylene oxide block copolymers, acrylic acid/alkyl acrylate copolymers, polychlorinated dimethylmethylene piperidinium (polychlorinated dimethyldimethylene pyrrolidinium) (polyquaternium-6) (Merquat 100: manufactured by Merck KGaA),

copolymers composed of a half ester of itaconic acid and a polyoxyethylene (hereinafter, referred to as "POE") alkyl ether or an ester of methacrylic acid and a POE alkyl ether, and at least one monomer selected from acrylic acid, methacrylic acid, and alkyl esters thereof. Of these, only one may be contained singly or two or more may be contained in combination.

[0030] Specific examples of inorganic polymer include bentonite, aluminum magnesium silicate, LAPONITE, hectorite, and anhydrous silicic acid. Of these, only one may be contained singly or two or more may be contained in combination.

[0031] The oil component gives a moisture feeling to the hair. For this reason, the hair bleaching/decoloring agent may contain an oil content within the range where the effects of the present invention are not impaired. Examples of the oil component include fats and oils, waxes, hydrocarbons, ester oils, higher alcohols, higher fatty acids, alkyl glyceryl ethers, and silicones. Among these, higher alcohols and hydrocarbons are preferable from the viewpoint of having an excellent effect of improving the formulation stability of the second agent, bleaching/decoloring properties, and a scalp-staining prevention effect, and hydrocarbons are more preferable from the viewpoint of having an excellent effect of further improving the touch. The lower limit content of the higher alcohol or hydrocarbon in the second agent is preferably 0.001% by mass or more, more preferably 0.01% by mass or more, still more preferably 0.05% by mass or more, from the viewpoint of exerting the effect described above. Also the upper limit content is preferably 20% by mass or less, more preferably 10% by mass or less, still more preferably 5% by mass or less, from the viewpoint of exerting the effect described above.

[0032] Specific examples of the oil and fat include Argania spinosa kernel oil, olive oil (purified olive oil), camellia

oil, shea butter, almond oil, safflower oil, sunflower oil, soybean oil, cottonseed oil, sesame oil, corn oil, rapeseed oil, rice bran oil, rice germ oil, grape seed oil, avocado oil, macadamia nut oil, castor oil, coconut oil, evening primrose oil, apricot kernel oil, persic oil, peach kernel oil, palm oil, and egg yolk oil. Specific examples of the wax include lanolin, bee wax, candelilla wax, carnauba wax, and jojoba oil. Specific examples of the hydrocarbon include paraffins, olefin oligomers, polyisobutene, hydrogenated polyisobutene, mineral oil, squalane, polybutene, polyethylene, microcrystalline wax, petrolatum, liquid paraffin, light isoparaffin, light liquid isoparaffin, isoparaffin, α-olefin oligomers, and synthetic squalane.

[0033] Specific examples of the ester oil include diisopropyl adipate, isopropyl myristate, cetyl octanoate, isononyl isononanoate, octyldodecyl myristate, isopropyl palmitate, stearyl stearate, myristyl myristate, isotridecyl myristate, 2-ethylhexyl palmitate, octyldodecyl ricinoleate, a fatty acid cholesteryl/lanosteryl having 10 to 30 carbon atoms, cetyl lactate, lanolin acetate, ethylene glycol di-2-ethylhexanoate, pentaerythritol fatty acid esters, dipentaerythritol fatty acid esters, cetyl caprate, glyceryl tricaprylate, diisostearyl malate, dioctyl succinate, cetyl 2-ethylhexanoate, and hydrogenated castor oil isostearate.

[0034] Specific examples of the higher alcohol include cetyl alcohol (cetanol), 2-hexyldecanol, stearyl alcohol, isostearyl alcohol, cetostearyl alcohol, oleyl alcohol, arachyl alcohol, behenyl alcohol, 2-octyldodecanol, lauryl alcohol, myristyl alcohol, decyltetradecanol, and lanolin alcohol.

[0035] Specific examples of the higher fatty acid include lauric acid, myristic acid, palmitic acid, stearic acid, behenic acid, isostearic acid, 12-hydroxystearic acid, oleic acid, and lanolin fatty acid. Specific examples of the alkyl glyceryl ether include batyl alcohol, chimyl alcohol, selachyl alcohol, and isostearyl glyceryl ether.

[0036] Specific examples of the silicone include dimethylpolysiloxane (dimethicone), methylphenylpolysiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, hydroxyl group-terminated modified dimethylpolysiloxane, highly polymerized silicones, polyether-modified silicones (e.g., (PEG/PPG/butylene/dimethicone) copolymers), amino-modified silicones, betaine-modified silicones, alkyl-modified silicones, alkoxy-modified silicones, mercapto-modified silicones, carboxy-modified silicones, and fluorine-modified silicones. Of these oil components, only one may be contained singly or two or more may be contained in combination.

[0037] Polyhydric alcohols particularly improve the stability of the oxidizing agent. For this reason, the second agent of the hair bleaching/decoloring agent may contain a polyhydric alcohol within the range where the effects of the present invention are not impaired. Examples of the polyhydric alcohol include glycols and glycerins. Examples of glycol include ethylene glycol, diethylene glycol, triethylene glycol, polyethylene glycol, highly polymerized polyethylene glycol, propylene glycol, dipropylene glycol, polypropylene glycol, isoprene glycol, and 1,3-butylene glycol. Examples of the glycerin include diglycerin and polyglycerin. Of these polyhydric alcohols, only one may be contained singly or two or more may be contained in combination.

[0038] The surfactant, as an emulsifier or a component for solubilizing each of the components, emulsifies or solubilizes the hair bleaching/decoloring agent at the time of use, thereby adjusting the viscosity or improving the viscosity stability. For this reason, the hair bleaching/decoloring agent may contain a surfactant within the range where the effects of the present invention are not impaired. Examples of the surfactant include anionic surfactants, cationic surfactants, amphoteric surfactant, and nonionic surfactants. Among these, nonionic surfactants are preferable, from the viewpoint of having an excellent effect of improving the

formulation stability. Additionally, cationic surfactants are preferable from the viewpoint of having an excellent effect of improving the touch and the formulation stability.

[0039] Specific examples of the anionic surfactant include alkyl ether sulfates, alkyl sulfates, alkyl ether sulfate ester salts, alkenyl ether sulfates, alkenyl sulfates, olefin sulfonates, alkane sulfonates, saturated or unsaturated fatty acid salts, alkyl or alkenyl ether carboxylates, α-sulfone fatty acid salts, N-acylamino acid type surfactants, phosphoric acid monoester or diester type surfactants, sulfosuccinic acid esters, N-alkyloylmethyl taurine salts, and derivatives thereof. Specific examples of a counter ion for the anionic group in these surfactants include a sodium ion, a potassium ion, and triethanolamine. A more specific example of the alkyl ether sulfate salt is sodium POE lauryl ether sulfate. Specific examples of the alkyl sulfate include sodium lauryl sulfate and sodium cetyl sulfate. Specific examples of the derivatives of alkyl sulfates include sodium POE lauryl sulfate. Specific examples of the sulfosuccinic acid ester include disodium lauryl sulfosuccinate. Specific examples of the N-alkyloylmethyl taurine salt include sodium N-stearoyl-N-methyltaurine.

[0040] Specific examples of the cationic surfactant include lauryl trimethyl ammonium chloride, cetyl trimethyl ammonium chloride, stearyl trimethyl ammonium chloride, alkyl trimethyl ammonium chlorides, distearyl dimethyl ammonium chloride, cetyl trimethyl ammonium bromide, stearyl trimethyl ammonium bromide, lanolin fatty acid aminopropyl ethyl dimethyl ammonium ethyl sulfates, stearyl trimethyl ammonium saccharine, cetyl trimethyl ammonium saccharine, methacryloyloxyethyl trimethyl ammonium chloride, behenyl trimethyl ammonium methyl sulfate, behenyldimethylamine, diethylaminoethylamide behenate, dimethylaminopropylamide behenate, dimethylaminoethylamide behenate, dimethylstearylamine, palmitoxypropyldimethylamine,

stearoxypropyldimethylamine, and dimethylaminopropylamide stearate. Specific examples of the alkyl trimethyl ammonium chloride include behenyl trimethyl ammonium chloride and arachidyl trimethyl ammonium chloride. The lower limit content of the cationic surfactant in the second agent is preferably 0.001% by mass or more, more preferably 0.01% by mass or more, still more preferably 0.05% by mass or more, from the viewpoint of improving the touch. The upper limit content is preferably 20% by mass or less, more preferably 10% by mass or less, still more preferably 5% by mass or less, from the viewpoint of improving the touch.

[0041] Specific examples of the amphoteric surfactant include coco betaine, lauramidopropyl betaine, cocamidopropyl betaine, sodium lauroamphoacetate, sodium cocoamphoacetate, coconut fatty acid amidopropyl betaine, lauryl betaine (lauryl dimethylaminoacetic acid betaine), and sodium lauryl aminopropionate.

[0042] Specific examples of nonionic surfactant include ether type nonionic surfactants, ester type nonionic surfactants, and alkyl glucosides. Specific examples of the ether type nonionic surfactant include POE cetyl ether (Ceteth), POE stearyl ether (Steareth), POE behenyl ether, POE oleyl ether (Oleth), POE lauryl ether (Laureth), POE octyldodecyl ether, POE hexyldecyl ether, POE isostearyl ether, POE nonylphenyl ether, POE octylphenyl ether, POE polyoxypropylene cetyl ether, and POE polyoxypropylene decyl tetradecyl ether. Among these, POE alkyl ether type nonionic surfactants are more preferable, from the viewpoint of having an excellent effect of improving the formulation stability.

[0043] Specific examples of the ester type nonionic surfactant include POE sorbitan monooleate, POE sorbitan monostearate, POE sorbitan monopalmitate, POE sorbitan monolaurate, POE sorbitan trioleate, POE glyceryl monostearate, POE glyceryl monomyristate, POE sorbit tetraoleate, POE sorbit hexastearate, POE sorbit monolaurate,

POE sorbit bee wax, polyethylene glycol monooleate, polyethylene glycol monostearate, polyethylene glycol monolaurate, lipophilic glyceryl monooleate, lipophilic glyceryl monostearate, self-emulsifying glyceryl monostearate, sorbitan monooleate, sorbitan sesquioleate, sorbitan trioleate, sorbitan monostearate, sorbitan monopalmitate, sorbitan monolaurate, sucrose fatty acid esters, decaglyceryl monolaurate, decaglyceryl monostearate, decaglyceryl monooleate, decaglyceryl monomyristate, and POE-reduced lanolin.

[0044] Specific examples of the alkyl glucoside include alkyl (8 to 16 carbon atoms) glucosides, POE methyl glucoside, and POE dioleate methyl glucoside. Of the specific example of these surfactants, only one may be contained singly or two or more may be contained in combination.

[0045] When the nonionic surfactant contains a polyoxyethylene chain, the number of moles added of ethylene oxide is preferably in the range of 2 to 50. With the number of moles added within the range, the formulation stability is further improved.

[0046] A pH adjuster may be compounded in order to adjust the pH of the hair bleaching/decoloring agent. Examples of the pH adjuster salts of organic acids, in addition to the acid components aforementioned. Specific examples of the salt include sodium salts, potassium salts, and ammonium salts. The content of the pH adjuster in the second agent is preferably such that the pH of the second agent is in the range of 2 to 5, more preferably such that the pH is in the range of 2 to 4. Adjusting the pH of the second agent in such a range further improves the stability of the oxidizing agent contained in the second agent. It should be noted that the pH of the second agent is the pH of a neat liquid of the second agent measured at 25°C.

[0047] Specific examples of the sugar include monosaccharides such as glucose and galactose, disaccharides

such as maltose, sucrose, fructose, and trehalose, and sugar alcohols. Specific examples of the antiseptic include parabens such as methylparaben and sodium benzoate. Specific examples of the stabilizer include phenacetin, 8-hydroxyquinoline, acetanilide, sodium pyrophosphate, barbituric acid, uric acid, and tannic acid. Specific examples of the antioxidant include ascorbic acid and sulfites. Specific examples of the chelator include phosphonic acid chelators.

[0048] The formulation form of the second agent is not particularly limited, and specific examples thereof include formulation forms at 25°C such as a liquid form, for example an aqueous solution and an emulsion, a gel form, a foam form, and a cream form. The formulation form may be aerosol, non-aerosol, or the like. In the case of non-aerosol, the formulation form may further take various forms such as squeeze foamer and pump foamer types. In the case of an aerosol, a propellant and foaming an agent that are known may be applied. Specific examples of the propellant or foaming agent include liquefied petroleum gas (LPG), dimethyl ether (DME), nitrogen gas, and carbonate gas. Of these, only one may be used or two or more may be used in combination.

[0049] (First agent of two-agent type hair bleaching/decoloring agent)

The first agent contains an alkali agent. The alkali agent contained in the first agent accelerates an action of the oxidizing agent to be contained in the second agent and serves to improve the hair bleaching effect and/or hair decoloring effect. In a hair dye described below, the hair-dyeing property is improved.

[0050] Specific examples of the alkali agent include ammonia, alkanolamines, silicates, carbonates, hydrogen carbonates, metasilicates, sulfates, chlorides, phosphates, organic amines, basic amino acids, and hydroxides of an alkali metal or alkali earth metal. Specific examples of the

alkanolamine include monoethanolamine and triethanolamine. Specific examples of the silicate include sodium silicate and potassium silicate. Specific examples of the carbonate include sodium carbonate and ammonium carbonate. Specific examples of the hydrogen carbonate include sodium hydrogen carbonate and ammonium hydrogen carbonate. Specific examples of the metasilicate include sodium metasilicate and potassium metasilicate. Specific examples of the sulfate include ammonium sulfate. Specific examples of the chloride include ammonium chloride. Specific examples of the phosphate include ammonium dihydrogen phosphate, diammonium hydrogen phosphate, sodium dihydrogen phosphate, disodium hydrogen phosphate, and trisodium phosphate. Specific examples of the organic amine include 2-amino-2-methyl-1-propanol (AMP), 2-amino-2-methyl-1,3-propanediol, guanidine, and 1-amino-2-propanol (MIPA). Specific examples of the basic amino acid include arginine and lysine. Specific examples of the hydroxide of an alkali metal or alkali earth metal include sodium hydroxide and potassium hydroxide. Of these alkali agents, only one may be contained singly or two or more may be contained in combination. Among these, ammonia, ammonium salts, alkanolamine, and carbonates are preferably applied, from the viewpoint of having an excellent effect of improving the hair brightness.

[0051] The content of the alkali agent in the hair bleaching/decoloring agent, that is, the mixture of the first agent and the second agent at the time of use is preferably in an amount such that the pH is in the range of 7 to 12, more preferably compounded in an amount such that the pH is in the range of 9 to 12, when the hair bleaching/decoloring agent is applied to a common bleaching/decoloring treatment. Regulating the pH of the mixture to 7 or more can accelerate the action of the oxidizing agent contained in the second agent. Regulating the pH of the mixture to 12 or less can suppress damaging of the hair to be caused by application of the hair bleaching/decoloring agent. It should be noted that

the pH of the hair bleaching/decoloring agent is the pH of a neat liquid of the hair bleaching/decoloring agent measured at 25°C.

[0052] The first agent may contain each component which is generally contained in a hair bleaching/decoloring agent and which does not impair the action of each of the components aforementioned. For example, the first agent may appropriately contain the components contained in the second agent aforementioned within the range where the effects of the present invention are not impaired.

[0053] The formulation form of the first agent is not particularly limited, and specific examples thereof may include formulation forms at 25°C such as a liquid form, for example an aqueous solution and an emulsion, a gel form, a foam form, a cream form, and a solid form. Among these, liquid forms such as an aqueous solution and an emulsion, and a cream form are preferable, from the viewpoint of mixability with the second agent and the like. The formulation form may also be aerosol, non-aerosol, or the like. In the case of aerosol, a propellant and a foaming agent that are known may be applied. Examples of the solid form include powder, particles, and tablets. In the case of a solid formulation form, a dispersant, for example, metal stearates such as calcium stearate and magnesium stearate, sodium sulfate, talc, lactose, and low-substituted hydroxypropylcellulose may be compounded. Of these, only one may be used or two or more may be used in combination.

[0054] <Three-agent type hair bleaching/decoloring agent>

A three-agent type hair bleaching/decoloring agent comprises, for example, a first agent that has the same composition as that of the first agent of the two-agent type hair bleaching/decoloring agent aforementioned, a second agent that has the same composition as that of the second agent of the two-agent type hair bleaching/decoloring agent aforementioned, and a third agent that contains at least a

percarbonate. The three-agent type hair bleaching/decoloring agent thus constituted further improves the brightness because the percarbonate is used as an oxidizing agent in combination.

[0055] (Third agent of three-agent type hair bleaching/decoloring agent)

In the third agent, a dispersant and the like may be compounded, in addition to the percarbonate. Percarbonates improve the oxidizing action to further improve the brightness of the hair after hair treatment. Specific examples of the percarbonate include sodium percarbonate and potassium percarbonate. Of the specific example, only one may be contained singly or two or more may be contained in combination.

[0056] The third agent preferably has a solid formulation form at 25°C, from the viewpoint of the formulation stability. Examples of the solid form include powder, particles, and tablets. The third agent may also contain each component which is generally contained in a hair bleaching/decoloring agent and which does not impair the action of each of the components aforementioned. For example, the third agent may appropriately contain the components contained in the first and second agents aforementioned within the range where the effects of the present invention are not impaired.

[0057] <Two-agent type hair dye>

A two-agent type hair dye comprises, for example, a first agent containing at least an alkali agent and an oxidation dye and a second agent containing at least an oxidizing agent. Differences from the hair bleaching/decoloring agent described above will be mainly described hereinafter.

[0058] (Second agent of two-agent type hair dye)

The second agent of the hair dye has, for example, the same composition as that of the second agent of the hair bleaching/decoloring agent aforementioned.

(First agent of two-agent type hair dye)

The first agent of the hair dye contains, for example, an

alkali agent and an oxidation dye. Examples of the alkali agent to be contained in the first agent are the same as those described as the specific examples of the alkali agent to be used in the hair bleaching/decoloring agent described above. Oxidation dyes are compounds capable of undergoing color development induced by oxidative polymerization by the oxidizing agent and are classified into dye intermediates and couplers. An oxidation dye preferably contains a dye intermediate and a coupler.

[0059] Examples of the dye intermediate include p-phenylenediamine, toluene-2,5-diamine (paratoluylenediamine), N-phenyl-p-phenylenediamine, 4,4'-diaminodiphenylamine, p-aminophenol, o-aminophenol, p-methylaminophenol, N,N-bis(2-hydroxyethyl)-p-phenylenediamine, 2-hydroxyethyl-p-phenylenediamine, o-chloro-p-phenylenediamine, 4-amino-m-cresol, 2-amino-4-hydroxyethylaminoanisole, 2,4-diaminophenyl, 1-hydroxyethyl-4,5-diaminopirazole, and salts thereof. Specific examples of the salt include chlorides and sulfates. Of the specific example of these dye intermediates, only one may be contained singly or two or more may be contained in combination.

[0060] The coupler is bound with the dye intermediate to undergo color development. Examples of the coupler include resorcin, 5-amino-o-cresol, m-aminophenol, α-naphthol, 5-(2-hydroxyethylamino)-2-methylphenol, m-phenylenediamine, 2,4-diaminophenoxyethanol, toluene-3,4-diamine, 2,6-diaminopyridine, diphenylamine, N,N-diethyl-m-aminophenol, phenylmethylpyrazolone, 1,5-dihydroxynaphthalene, and salts thereof. Specific examples of the salt include chlorides and sulfates. Of the specific example of these couplers, only one may be contained singly or two or more may be contained in combination. The oxidation dye, which can variously change the color tone of the hair, preferably comprises at least one selected from the above-described specific examples of the dye intermediate and at least one selected from the above-

described specific examples of the couplers. The first agent may further appropriately contain an oxidation dye published in, for example, Japanese Standards of Quasi-drug Ingredients (published by Yakuji Nippo Limited in June 2006) as a dye other than the above-described oxidation dye.

[0061] The lower limit content of the oxidation dye in the hair dye is appropriately set and is preferably 0.01% by mass or more, more preferably 0.1% by mass or more, still more preferably 0.5% by mass or more. When the content of the oxidation dye is 0.01% by mass or more, particularly the hue can be further improved.

[0062] The upper limit content of the oxidation dye in the hair dye is appropriately set and is preferably 10% by mass or less, more preferably 7% by mass or less, still more preferably 5% by mass or less. When the content of the oxidation dye 10% by mass or less, particularly in the case where a solubilizer is used, the solubility in the solubilizer can be improved.

[0063] The first agent may further contain components other than the components aforementioned, for example, the components contained in the first agent and second agent of the hair bleaching/decoloring agent described above, as required.

<Three-agent type hair dye>

A three-agent type hair dye comprises, for example, a first agent that has the same composition as that of the first agent of the two-agent type hair dye aforementioned, a second agent that has the same composition as that of the second agent of the two-agent type hair dye aforementioned, and a third agent that contains at least a percarbonate. The three-agent type hair dye thus constituted further improves the brightness because the percarbonate is used as an oxidizing agent in combination.

[0064] (Third agent of three-agent type hair dye)

The third agent of the hair dye has, for example, the

same composition as that of the third agent of the hair bleaching/decoloring agent aforementioned. A percarbonate improves the oxidizing action to improve the brightness of the hair after hair treatment. The percarbonate then improves white hair concealability.

[0065] Next, a method for using the oxidizing agent-containing composition of the present embodiment will be described hereinafter.

First, the agents of the hair dye or hair bleaching/decoloring agent comprising the plurality of agents described above are mixed to prepare a mixture of the hair dye or hair bleaching/decoloring agent containing an alkali agent, an oxidizing agent, and the like, and then, this mixture is applied to the hair. The mixing method is not particularly limited, and for example, the mixture may be manually stirred using a stirring rod or brush or may be stirred using a stirring element, an electric stirrer, or the like. When the mixture is in a foam formulation form, the mixture may be foamed by shaking. For application of the mixture of the hair dye or a hair bleaching/decoloring agent to the hair, known methods, for example, a method including taking the agent on a hand wearing a thin glove, a comb, or a brush and applying the agent to the hair can be used. When constituted as an aerosol type agent, each of the agents is dispensed in a foam form. Then the mixture of the agents may be applied to the hair, or the agents may be mixed on the hair while each of the agents is applied to the hair.

[0066] After the mixture has been applied to the hair and a predetermined time has elapsed, a step of rinsing the mixture applied to the hair with water in accordance with a routine method is carried out. Then, a step of washing the hair with a shampoo composition and washing the composition off with water in accordance with a routine method is preferably carried out. The shampoo composition is not particularly limited as long as the composition can be applied for hair

washing, and a known shampoo composition can be applied. Next, a step of rinse-treating the hair by use of a rinse composition and washing the composition off with water in accordance with a routine method is preferably carried out. The rinse composition is not particularly limited as long as the composition can be applied for hair rinsing, and a known rinse composition can be applied. For a treatment step using a rinse composition, a known rinse composition can be applied. Next, a step of drying the hair in accordance with a routine method is preferably carried out.

[0067] According to the oxidizing agent-containing composition to be used as the hair dye or hair bleaching/decoloring agent of the embodiment described above, the following effects can be achieved.

(1) The oxidizing agent-containing composition of the present embodiment contains components (B) to (D) in addition to an oxidizing agent (A). Thus, the composition improves the formulation stability. The composition also improves the stability of the oxidizing agent, particularly hydrogen peroxide.

[0068] (2) In the present embodiment, when the mass ratio of the content of the component (D) to the content of the component (B) is 0.01 to 8, the stability of the oxidizing agent is further improved. The bleaching/decoloring property or hair-dyeing property is also improved.

[0069] (3) In the present embodiment, when the mass ratio of the content of the component (C) to the content of the component (D) is 0.01 to 10, the stability of the oxidizing agent is further improved. The bleaching/decoloring property or hair-dyeing property is also improved.

[0070] The embodiment described above may be modified in the following manners.

· In the hair dye described above, a direct dye published in, for example, Japanese Standards of Quasi-drug Ingredients (published by Yakuji Nippo Limited in June 2006) may be

properly contained as a dye other than the above-described oxidation dye within the range where the effects of the present invention are not impaired. Examples of the direct dye, which may be additionally used for adjusting the dyed hair color tone, include various acidic dyes, basic dyes, nitro dyes, natural dyes, disperse dyes, and HC dyes.

[0071] · In the oxidizing agent-containing composition of the embodiment described above, the components (A) to (D) are only required to be compounded in the oxidizing agent-containing composition during storage. A portion of other components constituting each agent may be constituted as a separate agent to further increase the number of formulation forms. Also in such a constitution, the formulation stability and the stability of the oxidizing agent can be improved.

[0072] · In the hair dye or hair bleaching/decoloring agent of the embodiment described above, as long as the effects of the present invention are achieved, a portion of the components contained in the agents constituting the aforementioned hair dye or hair bleaching/decoloring agent may be constituted as a separate agent to increase the number of formulation forms.

[0073] For example, in the first agent of the hair dye or a hair bleaching/decoloring agent aforementioned, the alkali agent and the components other than the alkali agent may be constituted as separate agents. Alternatively, the hair dye or a hair bleaching/decoloring agent may be constituted as a multi-agent type hair dye or a hair bleaching/decoloring agent further combined with an agent containing an oxidation aid such as a persulfate.

[0074] · In the embodiment described above, the formulation form of the mixture in which each agent is mixed is not particularly limited, and specific examples of such formulation forms, at 25°C, include an emulsified product, a liquid form such as an aqueous solution and an emulsion, a gel form, a foam form, and a cream form.

[0075] · The oxidizing agent-containing composition of the embodiment described above was constituted as the second agent of a multi-agent type hair dye or a hair bleaching/decoloring agent. The embodiment described above may be applied to be constituted as a method for stabilizing an oxidizing agent by compounding phenoxyethanol (B), an aminocarboxylic acid chelating agent (C), and an acid (D) to a composition containing the oxidizing agent (A).

EXAMPLES

[0076] Next, the embodiments described above are more specifically described by reference to Examples and Comparative Examples. It is to be noted that the present invention is not limited to the constitutions described in the Examples.

A first agent and a second agent as an oxidizing agent-containing composition of an oxidation hair dye, each containing components shown in Tables 1 to 4, were prepared. It is to be noted that numerical values in the columns expressing the respective components in each table show contents of components in the instant columns, and units thereof are % by mass. It is to be noted that the notations (A) to (D) in the tables indicate the compounds corresponding to the respective components (A) to (D) as described in the claims of the present application. Meanwhile, the notations (b) and (c) in the tables indicates comparative compositions of the components (B) and (C) as described in the claims of the present application. The numerical value in the parentheses after the compound name POE indicates the number of moles of E.O. added. The first agent and the second agent of each of the oxidation hair dyes shown in Tables 1 to 4 were mixed in a mass ratio of 1:1 to prepare a cream oxidation hair dye.

[0077] The oxidation hair dye obtained was applied to a tuft of black hair and a tuft of white hair (10 cm, manufactured by

Beaulax Co., Ltd.) (hereinafter, referred to simply as hair tufts) using a brush and then allowed to stand at 30°C for 30 minutes. Then, the oxidation hair dye attached onto the hair tufts was washed with water, and thereafter, to the hair tufts, a shampoo (as the shampoo composition, Bigen Treatment Shampoo manufactured by Hoyu Co., Ltd.) was applied twice and a rinse (as the rinse composition, Bigen Treatment Rinse manufactured by Hoyu Co., Ltd.) was applied once. It should be noted that the shampoo composition and the rinse composition are each washed off with water after every treatment. Subsequently, the hair tufts were dried with warm air and then allowed to stand for one day.

[0078] The stability of the oxidizing agent in the second agent before mixing with the first agent and the formulation stability of the second agent were evaluated according to the following methods. The touch and the hair-dyeing property of the hair tufts after the hair dyeing treatment were also evaluated according to the following methods.

[0079] (Stability of oxidizing agent)

Hydrogen peroxide as the oxidizing agent in the second agent was placed in a polyethylene container and left to stand at 60°C for seven days. Thereafter, the amount of the residual hydrogen peroxide was quantified by a redox titration and the residual amount of hydrogen peroxide was calculated. Evaluation criteria are as follows. The case where the residual ratio of hydrogen peroxide was 99% by mass or more, in comparison with the amount of hydrogen peroxide immediately after preparation, was defined as "excellent: 4", the case where the ratio was 98% by mass or more and less than 99% by mass was defined as "fair: 3", the case where the ratio was 96% by mass or more and less than 98% by mass was defined as "relatively poor: 2", and the case where the ratio was less than 96% by mass was defined as "poor: 1". These values were used as evaluation results.

[0080] (Formulation stability of second agent)

With respect to the formulation stability of the second agent in the liquid form, the second agent was placed in a polyethylene container and left to stand at 50°C for a day, and then, five panelists visually determined and evaluated the separation state of the second agent. The separation state was scored on a five-point scale: the case where there was no separation was scored as excellent (5), the case where there was substantially no separation was scored as good (4), the case where separation was slightly observed was scored as fair (3), the case where relatively much separation was observed was scored as relatively poor (2), and the case where much separation was observed was scored as poor (1). From the score results by the panelists, an average value was calculated. The case where the average value was 4.6 or more was defined as "excellent: 5", the case where the average value was 3.6 or more and less than 4.6 was defined as "good: 4", the case where the average value was 2.6 or more and less than 3.6 was "fair: 3", the case where the average value was 1.6 or more and less than 2.6 was defined as "relatively poor: 2", and the case where the average value was less than 1.6 was defined as "poor: 1". These values were used as evaluation results.

[0081] (Touch of hair)

Five panelists determined the touch of the hair tufts after the hair dyeing treatment of each example described above according to the following criteria. Whether the touch was excellent or not was determined by evaluation according to the following criteria. The touch was scored on a five-point scale: excellent (5), good (4), fair (3), relatively poor (2), and poor (1). From the score results by the panelists, an average value was calculated. The case where the average value was 4.6 or more was defined as "excellent: 5", the case where the average value was 3.6 or more and less than 4.6 was defined as "good: 4", the case where the average value was 2.6

or more and less than 3.6 was "fair: 3", the case where the average value was 1.6 or more and less than 2.6 was defined as "relatively poor: 2", and the case where the average value was less than 1.6 was defined as "poor: 1". These values were used as evaluation results.

[0082] (Hair-dyeing property)

With respect to the hair-dyeing property of the hair tufts after hair dyeing treatment of each of the Examples described above, five panelists visually evaluated the tint of the hair tufts after hair dyeing treatment under a standard light source according to the following criteria to determine whether the hair-dyeing property was excellent or not. The hair-dyeing property was scored in five grades: excellent (5), good (4), fair (3), relatively poor (2), and poor (1). From the score results by the panelists, an average value was calculated. The case where the average value was 4.6 or more was defined as "excellent: 5", the case where the average value was 3.6 or more and less than 4.6 was defined as "good: 4", the case where the average value was 2.6 or more and less than 3.6 was "fair: 3", the case where the average value was 1.6 or more and less than 2.6 was defined as "relatively poor: 2", and the case where the average value was less than 1.6 was defined as "poor: 1". These values were used as evaluation results.

[0083] [Table 1]

Second agent (Component)		Example									
		1	2	3	4	5	6	7	8	9	10
(A)	35% by mass hydrogen peroxide	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
(B)	Phenoxyethanol	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
(C)	HEDTA-3Na	0.2	0.2	0.2	-	-	0.2	0.2	0.2	0.2	0.2
	DTPA-5Na	-	-	-	0.2	-	-	-	-	-	-
	EDTA-4Na	-	-	-	-	0.2	-	-	-	-	-
(D)	Phosphoric acid	0.3	-	-	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Citric acid	-	0.3	-	-	-	-	-	-	-	-
	Tartaric acid	-	-	0.3	-	-	-	-	-	-	-
	Cetanol	1	1	1	1	1	-	-	-	1	1

	Stearyl alcohol	-	-	-	-	-	1	-	-	-	-
	Liquid paraffin	-	-	-	-	-	-	1	-	-	-
	POE (2) cetyl ether	1	1	1	1	1	1	1	1	-	1
	POE reduced lanolin	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Glyceryl stearate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Stearyltrimethylammonium chloride (25% by mass)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-
	Sodium stannate	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Purified water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
Total		100	100	100	100	100	100	100	100	100	100
pH of neat liquid of second agent		2.5	3	2.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mass ratio of component (C)/component (D)		0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Mass ratio of component (D)/component (B)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<Evaluation>											
Stability of oxidizing agent (score 1 to 4)		4	3	3	4	4	4	4	4	4	4
Touch of hair (score 1 to 5)		4	4	4	4	4	4	5	4	4	3
Hair-dyeing property (score 1 to 5)		5	5	5	5	5	5	5	4	5	5
Formulation stability (score 1 to 5)		5	5	5	5	5	5	5	4	3	3

[0084] [Table 2]

Second agent (Component)		Example									
		11	12	13	14	15	16	17	18	19	20
(A)	35% by mass hydrogen peroxide	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
(B)	Phenoxyethanol	0.3	0.3	0.3	0.3	0.3	1.2	1	0.15	0.04	0.3
(C)	HEDTA-3Na	0.2	0.2	0.2	0.05	0.3	0.2	0.2	0.2	0.2	0.2
(D)	Phosphoric acid	0.06	0.1	0.8	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Cetanol	1	1	1	1	1	1	1	1	1	1
	POE (2) cetyl ether	1	1	1	1	1	1	1	1	1	1
	POE reduced lanolin	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Glyceryl stearate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Polyethylene glycol (PEG)	-	-	-	-	-	-	-	-	-	0.3
	Stearyltrimethylammonium chloride (25% by mass)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Sodium stannate	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Purified water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
Total		100	100	100	100	100	100	100	100	100	100
pH of neat liquid of second agent		5.0	4.3	2.0	2.1	2.9	2.5	2.5	2.5	2.5	2.5
Mass ratio of component (C)/component (D)		3.33	2.00	0.25	0.17	1.00	0.67	0.67	0.67	0.67	0.67

Mass ratio of component (D)/component (B)	0.20	0.33	2.67	1.00	1.00	0.25	0.30	2.00	7.50	1.00
<Evaluation>										
Stability of oxidizing agent (score 1 to 4)	4	4	3	4	4	3	4	4	3	4
Touch of hair (score 1 to 5)	4	4	4	4	4	4	4	4	4	4
Hair-dyeing property (score 1 to 5)	5	5	5	5	5	5	5	5	5	5
Formulation stability (score 1 to 5)	5	5	5	5	5	5	5	5	5	5

[0085] [Table 3]

Second agent (Component)		Comparative Example				Reference Example
		1	2	3	4	1
(A)	35% by mass hydrogen peroxide	16.6	16.6	16.6	16.6	16.6
(B)	Phenoxyethanol	-	0.3	0.3	-	0.3
(b)	Benzyl alcohol	-	-	-	0.3	
(C)	HEDTA-3Na	0.2	-	0.2	0.2	-
(c)	Etidronic acid	-	-	-	-	0.2
(D)	Phosphoric acid	0.06	0.3	-	0.3	0.3
	Cetanol	1	1	1	1	1
	POE (2) cetyl ether	1	1	1	1	1
	POE reduced lanolin	0.2	0.2	0.2	0.2	0.2
	Glyceryl stearate	0.1	0.1	0.1	0.1	0.1
	Stearyltrimethylammonium chloride (25% by mass)	0.4	0.4	0.4	0.4	0.4
	Sodium stannate	0.01	0.01	0.01	0.01	0.01
	Purified water	Balance	Balance	Balance	Balance	Balance
Total		100	100	100	100	100
pH of neat liquid of second agent		5.2	1.8	8.8	2.5	2.5
Mass ratio of component (C)/component (D)		3.33	-	-	0.67	—
Mass ratio of component (D)/component (B)		-	1.00	-	—	1.00
<Evaluation>						
Stability of oxidizing agent (score 1 to 4)		2	2	1	3	4
Touch of hair (score 1 to 5)		4	1	3	4	2
Hair-dyeing property (score 1 to 5)		5	2	4	5	2
Formulation stability (score 1 to 5)		3	4	4	2	5

[0086] [Table 4]

First agent (component)	
Resorcin	0.5
2,4-dihydroxybenzoic acid	0.33
Para-phenylenediamine	0.4
Para-aminophenol	0.2
Para-toluylenediamine	0.2
α -naphthol	0.2
Meta-aminophenol	0.2
5-Amino-o-cresol	0.2
28% by mass ammonia water	4.0
70% by mass monoethanolamine	10.0
Ammonium hydrogen carbonate	1.5
POE (2) stearyl ether	0.50
POE (30) cetyl ether	0.75
POE (2) cetyl ether	0.75
POE (50) oleyl ether	0.50
Stearyltrimethylammonium chloride	0.25
Petrolatum	0.5
Lanolin	0.5
Liquid paraffin	0.5
Microcrystalline wax	0.5
Cetyl octanoate	0.5
Stearyl stearate	0.5
Cetanol	3.0
Behenyl alcohol	1.0
Stearyl alcohol	3.0
Ascorbic acid	0.5
Polychlorinated dimethylmethylene piperidinium liquid (polychlorinated dimethyldimethylene pyrrolidinium liquid)	0.5
Amodimethicone	0.5
Purified water	q.s.
Total	100

As shown in Tables 1 and 2, it was noted that Examples were each scored as fair or higher with respect to each evaluation item. As shown in Table 3, it was noted that Comparative Example 1, which contains no component (B), was evaluated lower than Example 11 with respect to the stability

of the oxidizing agent. It was noted that Comparative Example 2, which contains no component (C), was evaluated lower than each of the Examples with respect to the stability of the oxidizing agent, the touch of the hair, and the hair-dyeing property. It was noted that Comparative Example 3, which contains no component (D), was evaluated lower than each of the Examples with respect to the stability of the oxidizing agent. It was noted that Comparative Example 4, in which benzyl alcohol is compounded instead of the component (B), was evaluated lower than each of the Examples with respect to the formulation stability. It is noted that Reference Example 1, in which etidronic acid is used as the chelator, was evaluated low with respect to the touch of the hair and the hair-dyeing property although the amount of etidronic acid used is equivalent to that of trisodium HEDTA of Example 1.

CLAIMS

1. An oxidizing agent-containing composition that is mixed with an agent containing an alkali agent to be used as a hair dye or a hair bleaching/decoloring agent, the oxidizing agent-containing composition comprising an oxidizing agent (A), phenoxyethanol (B), an aminocarboxylic acid chelating agent (C), and an acid (D).

2. The oxidizing agent-containing composition according to claim 1, wherein the mass ratio of the content of the component (D) to the content of the component (B) is 0.01 to 8.

3. The oxidizing agent-containing composition according to claim 1, wherein the mass ratio of the content of the component (C) to the content of the component (D) is 0.01 to 10.

4. The oxidizing agent-containing composition according to claim 2, wherein the mass ratio of the content of the component (C) to the content of the component (D) is 0.01 to 10.

5. The oxidizing agent-containing composition according to any one of claims 1 to 4, wherein the component (D) is phosphoric acid.

6. The oxidizing agent-containing composition according to any one of claims 1 to 4, wherein the pH of the oxidizing agent-containing composition is 2 to 5.

7. A method for using the oxidizing agent-containing composition according to any one of claims 1 to 4, comprising a step of mixing the oxidizing agent-containing composition

with an agent containing an alkali agent to prepare a hair dye or a hair bleaching/decoloring agent.