

[Designation of Document] Specification

[Title of the Invention] Hair Cosmetic Composition

[Technical Field]

[0001]

The present invention relates to a hair cosmetic composition and more specifically relates to a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking. The hair cosmetic composition of the invention includes for example hair dye compositions such as oxidation hair dye compositions and hair bleaching/dye-removing compositions.

[Background Art]

[0002]

Hair cosmetic compositions comprising a plurality of agents to be mixed and foamed by shaking have been proposed. For example, Patent Document 1 and Patent Document 2 below disclose hair cosmetic compositions which are multiagent-type hair dyes, such as an oxidation hair dye or a hair bleaching, and which comprises a plurality of agents to be mixed and foamed in a container by shaking.

[Related Art Document]

[Patent Document]

[0003]

[Patent Document 1] JP-A-2011-184428

[Patent Document 2] JP-A-2012-106954

[Summary of the Invention]

[Problems that the Invention is to Solve]

[0004]

The conventional foam hair cosmetics comprising a plurality of agents to be mixed and foamed by shaking have problems because the foam hair cosmetics are apt to be defoamed with time after being foamed, resulting in the deterioration of the quality of the foam, and because the foam retention properties after being foamed are not satisfactory. When the viscosities of the agents composing a hair cosmetic composition are increased in advance to prevent defoaming, excellent foam is difficult to obtain by shaking. Also, when the viscosities of the agents are increased in advance, so-called "lumps" may be generated. Furthermore, the agents are not mixed well by shaking, and the hair dyeing ability, the bleaching ability or the like of the hair cosmetic composition as a hair dye may be deteriorated.

[0005]

Therefore, a technical problem to be solved by the invention is the improvement of the foam retention property of a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking before use, without causing the defects which are caused when the viscosities of the agents are increased in advance.

[Means for Solving the Problems]

[0006]

The inventors of the present application have found that the problem to be solved by the invention can be solved when the agents composing the hair cosmetic composition, which is a hair dye or the

like, are designed to thicken during mixing and foaming of the agents by shaking.

The inventors have focused on the characteristics of anionic polymers selected from acrylic polymers that the anionic polymers thicken as the condition changes from acidic to alkaline, and the inventors have thus found that the agents can be thickened during mixing and foaming when such an anionic polymer is added to an acidic agent. The invention has been thus completed.

[0007]

Furthermore, the inventors of the application have made new findings which could not be expected from the conventional technical knowledge: when a polyether-modified silicone is added to a hair cosmetic composition which is applied to hair in the form of foam, the quality and the amount of the original foam of the hair cosmetic composition are maintained well during the treatment of the hair.

[0008]

(First Invention)

The first invention of the application relates to a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking,

Wherein the plurality of agents include an acidic agent containing one or more anionic polymers selected from acrylic polymers and the mixture of the plurality of agents is alkaline.

[0009]

In the specification of the application, the term "acidic"

means pH 7 or less, and the term "alkaline" means pH of more than 7. The "anionic polymer selected from acrylic polymers" means an acrylic polymer which contains acrylic acid as a monomer and in which the number of anionic groups (carboxyl group, sulfonic group and the like) in the molecule is larger than the number of cationic groups in the same molecule. The polymer thickens when the condition changes from acidic to alkaline.

[0010]

According to the first invention, in the hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking, the plurality of agents include an acidic agent (for example, the second agent containing an oxidant of an oxidation hair dye or a hair bleaching/dye-removing agent), and the acidic agent contains one or more anionic polymers selected from acrylic polymers (hereinafter also referred to as "anionic acrylic polymers"). Because the anionic acrylic polymers do not exert the action of thickening in the acidic agent, the viscosity of the acidic agent can be kept low easily. Accordingly, the agent is not apt to have lumps or to be mixed insufficiently when being mixed and foamed with the other agents by shaking.

[0011]

At the same time, the hair cosmetic composition of the first invention is designed to become alkaline after the agents, including the acidic agent, are mixed. The anionic acrylic polymers exert the action of thickening under an alkaline condition. Thus, the

acrylic polymers exert the action of thickening immediately after the agents are mixed and foamed well by shaking. As a result, the foam retention property after mixing and foaming of the hair cosmetic composition is secured.

[0012]

In this regard, the effects cannot be obtained when one or more acrylic polymers having many cationic groups in the molecules (hereinafter also referred to as "cationic acrylic polymers"), such as a dimethyl diallyl ammonium chloride/acrylic acid copolymer (product name Merquat 280), are added to the acidic agent instead of the anionic acrylic polymers.

[0013]

Furthermore, the first invention of the application is preferably characterized in that the acidic agent contains one or more anionic surfactants.

Because the acidic agent contains one or more anionic surfactants according to the characteristic, a foam hair cosmetic composition with excellent foam quality can be obtained when the agents are mixed and foamed by shaking. Anionic surfactants are known to be suitable for generating foam with excellent quality.

[0014]

When the acidic agent contains a cationic acrylic polymer, the anionic surfactants form a complex with the cationic acrylic polymer, and thus the generation of foam with excellent quality achieved by the anionic surfactants is prevented. However, because

one or more anionic acrylic polymers are contained in the acidic agent in the hair cosmetic composition of the first invention of the application, such a defect is not caused.

[0015]

Furthermore, the first invention of the application is preferably characterized in that an agent other than the acidic agent contains one or more cationic substances selected from cationic surfactants and cationic polymers.

Because an agent other than the acidic agent of the hair cosmetic composition (for example, the first agent containing an alkali agent of an oxidation hair dye or a hair bleaching or the third agent which does not contain an oxidant or an alkali agent) contains one or more cationic substances selected from cationic surfactants and cationic polymers according to the characteristic, the texture of the hair to which the foam hair cosmetic composition has been applied becomes excellent.

[0016]

As the cationic substances are not added to the acidic agent which contains hydrogen peroxide for example, deterioration such as the degradation of the cationic substances (into low-molecular-weight components) due to hydrogen peroxide does not occur during the storage, and the improvement effect on the texture of the hair is exerted.

[0017]

In the case where the acidic agent contains an anionic

surfactant and where an agent other than the acidic agent contains a cationic substance, it is expected that the anionic surfactant and the cationic substance form a complex when the agents are mixed. There are concerns that the formation of such a complex in a foam hair cosmetic composition of aerosol foamer type or non-aerosol foamer type may "cause clogging of the nozzle of a foamer container". However, the formation of the complex does not cause any particular problem in a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking, and the formation of the complex to some degree can improve the miscibility of the agents.

[0018]

Furthermore, the first invention of the application is preferably characterized in that the cationic polymer is poly-dimethylmethylenepiperidinium chloride.

Because the cationic polymer is poly-dimethylmethylenepiperidinium chloride according to the characteristic, the adverse effect on the foaming property is smaller than those of other cationic polymers, and an improvement effect on the texture during washing off is obtained.

[0019]

Furthermore, the first invention of the application is preferably characterized in that the plurality of agents include an agent containing one or more polyether-modified silicones.

The addition of one or more polyether-modified silicones to any of the agents of a hair cosmetic composition comprising a

plurality of agents to be mixed and foamed by shaking has not only an improvement effect on the texture of the hair but also effects that the hair cosmetic composition is less defoamed as compared to a hair cosmetic composition containing a silicone which is generally used as a component for improving the texture of the hair such as an amino-modified silicone or dimethicone and that the quality and the amount of the foam are easily maintained during the treatment of the hair. Accordingly, the improvement effect of the silicone compound on the texture of the hair is obtained, and also the effects of the first invention can be exerted better.

[0020]

Furthermore, the first invention of the application is preferably characterized in that the plurality of agents include an agent containing a higher alcohol and that the one or more polyether-modified silicones are contained in the agent containing the higher alcohol.

The inventors of the application have found that the addition of the polyether-modified silicones also has new effects, namely an inhibitory effect on the precipitation of a higher alcohol which is involved in the viscosity, the brightness and the hair dyeing ability of the hair cosmetic composition and an improvement effect on the storage stability. Therefore, according to the characteristic, when a higher alcohol is contained in the hair cosmetic composition, the precipitation thereof can be prevented, and the storage stability can be improved.

[0021]

When a silicone except for the polyether-modified silicones is added, the effect on the maintenance of the foam retention property after foaming (the inhibitory effect on defoaming) or the inhibitory effect on the precipitation of the higher alcohol cannot be obtained although the improvement effect on the texture of the hair is obtained.

[0022]

Furthermore, the first invention of the application is preferably characterized in that the acidic agent contains one or more non-ionic surfactants.

When one or more non-ionic surfactants are added to the acidic agent, the quality of the foam and the hardness of the foam during mixing and foaming of the agents are further improved, and thus the foam retention property after foaming can be further improved.

[0023]

Furthermore, the first invention of the application is preferably characterized in that the acidic agent contains one or more non-ionic surfactants having HLB of 10 or more.

According to the characteristic, an improvement effect on the quality of the foam and the hardness of the foam during mixing and foaming of the agents is obtained. In addition, when a higher alcohol is contained in the acidic agent, the precipitation thereof can be prevented, and the storage stability can be improved.

[0024]

(Second Invention)

The second invention of the application relates to a hair cosmetic composition which is applied to hair in the form of foam and which contains one or more polyether-modified silicones.

The effects of the addition of one or more polyether-modified silicones to a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking in which the acidic agent contains an anionic acrylic polymer and in which the mixture of the plurality of agents is alkaline have been already described in the section of the first invention.

As the inventors of the application have studied further, the inventors have made the following findings. When one or more polyether-modified silicones are added to a hair cosmetic composition, an improvement effect on the texture of the hair is obtained. Moreover, defoaming of the hair cosmetic composition after foaming is prevented easily, and the quality and the amount of foam are maintained well during the treatment of the hair. These effects can be obtained as long as the hair cosmetic composition is a hair cosmetic composition which is applied to hair in the form of foam, that is, even when the acidic agent of the hair cosmetic composition does not contain the anionic acrylic polymers or when the hair cosmetic composition is not a hair cosmetic composition of multiagent-type or a hair cosmetic composition which is foamed by shaking.

[0025]

Thus, according to the second invention of the application, defoaming after foaming of hair cosmetic compositions of a wide variety of types which are applied to hair in the form of foam can be prevented, and the quality and the amount of foam can be maintained well during the treatment of the hair.

In addition, the addition of one or more polyether-modified silicones has an improvement effect on the texture of the hair which has been treated with the hair cosmetic composition.

[0026]

Furthermore, the second invention of the application is preferably characterized in that an agent containing one or more polyether-modified silicones contains a higher alcohol.

The addition of the polyether-modified silicones can also exert new effects, namely an inhibitory effect on the precipitation of a higher alcohol which is involved in the viscosity, the brightness and the hair dyeing ability of the hair cosmetic composition, and an improvement effect on the storage stability.

[0027]

Furthermore, the second invention of the application is preferably characterized in that the hair cosmetic composition contains a plurality of agents to be mixed and foamed by shaking.

One of preferable embodiments of the hair cosmetic compositions of a wide variety of types according to the second invention is a hair cosmetic composition comprising a plurality of agents "to be mixed and foamed by shaking" for example. A hair

cosmetic composition of this type can be easily foamed by mixing by shaking.

[0028]

Furthermore, the second invention of the application is preferably characterized by containing one or more non-ionic surfactants.

When one or more non-ionic surfactants are added, the quality of the foam and the hardness of the foam are further improved. Thus, the effects of the second invention of the application, namely the inhibitory effect on defoaming after foaming and the effect on the maintenance of the quality and the amount of foam during the treatment of the hair, can be enhanced.

[0029]

Furthermore, the second invention of the application is preferably characterized by containing one or more non-ionic surfactants having HLB of 10 or more.

When one or more non-ionic surfactants having HLB of 10 or more are contained, the inhibitory effect on the precipitation of a higher alcohol and the improvement effect on the storage stability further improve.

[Advantage of the Invention]

[0030]

According to the first invention of the application, the foam retention property after mixing and foaming of a hair cosmetic composition which is obtained by mixing and foaming a plurality of

agents by shaking before use can be improved without causing the defects which are caused when the viscosities of the agents are increased in advance.

[0031]

According to the second invention of the application, defoaming after foaming of hair cosmetic compositions of a wide variety of types which are applied to hair in the form of foam can be prevented, and the quality and the amount of foam can be maintained well during the treatment of the hair.

[Mode for Carrying Out the Invention]

[0032]

Next, embodiments of the invention including the best modes are explained. The technical scope of the invention is not limited by the embodiments.

[0033]

First Embodiment Group

The first embodiment group relates to embodiments of the hair cosmetic composition according to the first invention.

[0034]

[Mixing and Foaming by Shaking]

In the invention, the plurality of agents composing the hair cosmetic composition are mixed and foamed by shaking. The mixture may be foamed by shaking after the agents are mixed, or the agents may be shaken in such a manner that mixing and foaming of the agents are conducted at the same time.

[0035]

The "shaking" is an operation of causing movement in the agents composing the hair cosmetic composition, more preferably an operation of causing random movement such as turbulence or convection.

[0036]

The shaking method is not particularly limited. To foam the agents with a simple operation, the method preferably includes one or more selected from an operation of foaming by shaking a container, an operation of foaming by mixing a gas with the agents by stirring and an operation of generating a gas by stirring and bringing the first agent into contact with another agent. More preferably, the agents are foamed by an operation selected from an operation of foaming by shaking a container, an operation of foaming by mixing a gas with the agents by stirring and an operation of generating a gas by stirring and bringing the first agent into contact with another agent. From the viewpoint of the simpleness of use, an operation of foaming by shaking a container is further preferable.

[0037]

The "operation of generating a gas by stirring and bringing the first agent into contact with another agent" is a concept including an operation of foaming by generating carbon dioxide from a carbonate or the like contained in the first agent using an acid contained in another agent.

[0038]

A suitable container and a suitable stirrer can be used in accordance with the shaking method. For example, an openable and closable airtight container in which the agents composing the hair cosmetic composition can be charged and shaken, such as the containers disclosed in Patent Document 1 and WO2011/151880, can be used. Also, a container having the shape of for example a glass for charging the agents composing the hair cosmetic composition and a stirrer having the shape of for example a spatula for mixing and foaming the agents charged into the container by stirring, such as the container and the stirrer disclosed in Patent Document 2, can be used.

[0039]

The hair cosmetic composition which has been foamed can be suitably used by a known method. For example, the foam hair cosmetic composition may be taken out of the container with a hand wearing a glove or a scoop such as a spatula and used, or the foam hair cosmetic composition may be put on the hair by inclining the container and used.

[0040]

The application also discloses a hair dyeing method, a hair bleaching method and a hair-dye-removing method using the foam hair cosmetic composition prepared by the method above. The foam which is composed appropriately in view of the quality of the foam and in which the shape retention property is excellent is thought to have advantages that the amount of the foam can be measured by eye

and the foam does not drip easily.

[0041]

[Hair Cosmetic Composition]

The hair cosmetic composition of the first embodiment group is a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking. The agents include an acidic agent containing one or more anionic polymers selected from acrylic polymers, and the mixture of the agents is alkaline.

[0042]

The hair cosmetic composition can be taken and applied to hair with a hand wearing a thin glove, a comb or a brush after the hair cosmetic composition is converted into an agent in the form of foam by mixing and foaming the agents by shaking.

[0043]

(Agents Composing Hair Cosmetic Composition)

Examples of the hair cosmetic composition of the first embodiment group include a multiagent-type hair dye such as an oxidation hair dye and a multiagent-type hair bleaching/dye-removing agent. A typical example of the multiagent-type is two-agent-type including a first agent containing an alkali agent and a second agent containing an oxidant (further, an oxidation auxiliary agent), but three-agent-type to which a third agent according to an appropriate formulation or the like is added and the like are also included.

[0044]

The agents composing the hair cosmetic composition are each preferably a liquid agent. Examples of the liquid agent include solution, emulsion, gel and cream agents and the like which each contain water as the base material. These liquid agents preferably have a low viscosity of for example 5000 millipascal-second (mPa·s) or less at 25°C, more preferably 2000 mPa·s or less. In view of excellent miscibility of the agents (for example, the first agent and the second agent), the agents are preferably liquid agents of the same type and further preferably have similar viscosities.

[0045]

In this regard, however, some of the agents composing the hair cosmetic composition may be powdery agents. When all of the agents are composed as powdery agents, the agents are dissolved in water and then mixed and foamed by shaking.

[0046]

(pH of Hair Cosmetic Composition)

The hair cosmetic composition of the first embodiment group contains an acidic agent (for example, the second agent of an oxidation hair dye or a hair bleaching/dye-removing agent), and the mixture of the plurality of agents is alkaline. The pH of the acidic agent is not especially limited but is for example preferably in the range of pH 1 to 7, particularly preferably in the range of pH 2 to 6.

[0047]

In order that the agents including the acidic agent become

alkaline after the agents are mixed, the agents should separately include an alkaline agent (for example, the first agent of an oxidation hair dye or a hair bleaching/dye-removing agent). The pH value of the alkaline agent is not especially limited but is preferably in the range of pH of more than 7 to 13, particularly preferably in the range of pH 8 to 12.

[0048]

The pH value of the hair cosmetic composition which has become alkaline after the agents have been mixed is not especially limited but is preferably in the range of pH of more than 7 to 13, particularly preferably in the range of pH 8 to 11.

[0049]

[Acidic Agent]

An example of the "acidic agent" of the hair cosmetic composition is the second agent of an oxidation hair dye or a hair bleaching/dye-removing agent. The second agent of an oxidation hair dye or a hair bleaching agent contains at least an oxidant and functions as bleach of the melanin contained in the hair. The second agent of a hair-dye-removing agent contains an oxidation auxiliary agent in addition to an oxidant, and the second agent bleaches the melanin contained in the hair and degrades an oxidation dye polymer.

[0050]

(Oxidant)

Examples of the oxidant include hydrogen peroxide, urea peroxide, melamine peroxide, sodium percarbonate, potassium

percarbonate, sodium perborate, potassium perborate, ammonium persulfate, sodium peroxide, potassium peroxide, magnesium peroxide, barium peroxide, calcium peroxide, strontium peroxide, a sulfate-hydrogen peroxide adduct, a phosphate-hydrogen peroxide adduct, a pyrophosphate-hydrogen peroxide adduct and the like. Examples of the oxidation auxiliary agent include persulfuric acid salts such as ammonium persulfate, potassium persulfate and sodium persulfate. Of these examples, hydrogen peroxide is preferable.

[0051]

The oxidant content of the acidic agent is not especially limited but is for example 0.1 to 15 mass%, more preferably 2 to 9 mass%. When the second agent contains hydrogen peroxide as the oxidant, ethylene glycol phenyl ether (phenoxyethanol), hydroxyethane diphosphonic acid or a salt thereof is preferably added to the acidic agent as a stabilizer for improving the stability.

[0052]

(Anionic Acrylic Polymer)

The acidic agent contains one or more anionic acrylic polymers. The anionic acrylic polymers contain acrylic monomer as a monomer and have more anionic groups than cationic groups in the molecule. The anionic acrylic polymers include homopolymers consisting of acrylic monomer and anionic copolymers of acrylic monomer and another monomer. However, copolymers having more cationic groups than anionic groups in the molecule obtained by copolymerization, such as Merquat 280 (product name of a dimethyl diallyl ammonium

chloride/acrylic acid copolymer) and Merquat 3330 (product name of a dimethyl diallyl ammonium chloride-acrylamide-acrylic acid copolymer), are not included. Also, methacrylic polymers which do not contain acrylic monomer are not included. A characteristic of the anionic acrylic polymers of the invention is that the anionic acrylic polymers have a low viscosity or are not viscous in the acidic agent but thicken under an alkaline condition.

[0053]

Examples of the anionic acrylic polymers include alkyl acrylate copolymers, alkyl acrylate/polyoxyethylene ("polyoxyethylene" is also simply referred to as "POE" below) stearyl ether methacrylate copolymers, alkyl acrylate/POE beheneth ether methacrylate copolymers, alkyl acrylate/vinyl neodecanoate crosspolymers, alkyl acrylate/POE stearyl ether itaconate copolymers, alkyl acrylate/POE cetyl ether itaconate copolymers, alkyl acrylate/POE stearyl ether methacrylate crosspolymers and carboxy vinyl polymers.

[0054]

Commercial products can be also used as the anionic acrylic polymers. Examples of commercial products of (meth)acrylic acid/alkyl (meth)acrylate copolymers include Aculyn 33A (Acrylates Copolymer) and Aculyn 33 (both manufactured by Rohm and Haas Company), and examples of commercial products of (meth)acrylic acid/alkyl (meth)acrylate/polyoxyethylene alkyl ether (meth)acrylate copolymers include Aculyn 22 (alkyl acrylate-alkyl

methacrylate·POE(20) stearyl ether copolymer), Aculyn 28 (alkyl acrylate·alkyl methacrylate·POE(25) behenyl ether copolymer) (both manufactured by Rohm and Haas Company) and the like. Examples of commercial products of (meth)acrylic acid/alkyl (meth)acrylate/POE alkyl ether itaconate copolymers include Structure 2001 (Acrylates/Steareth-20 Itaconate) Copolymer), Structure 3001 (Acrylates/Ceteth-20 Itaconate) Copolymer) (both manufactured by Akzo Nobel N.V.) and the like. An example of commercial products of (meth)acrylic acid/alkyl (meth)acrylate/POE alkyl ether (meth)acrylate crosspolymers is Aculyn 88 (Acrylates/Steareth-20 Methacrylate Crosspolymer) (product name: manufactured by Rohm and Haas Company), and an example of commercial products of (meth)acrylic acid/alkyl (meth)acrylate/vinyl neodecanoate crosspolymers is Aculyn 38 (Acrylates/Vinyl Neodecanoate Crosspolymer). Examples of commercial products of carboxy vinyl polymers include Carbopol (manufactured by Nikko Chemicals Co., Ltd.) and the like.

[0055]

Preferable anionic acrylic polymers are as follows for example. That is, alkyl acrylate·alkyl methacrylate·POE(20) stearyl ether copolymer (product name: Aculyn 22), (acrylates/steareth-20 itaconate) copolymer (product name: Structure 2001), alkyl acrylate copolymer emulsion (product name: Aculyn 33) and carboxy vinyl polymer (product name: Carbopol) are preferable.

[0056]

The degree of polymerization or the molecular weight of each anionic acrylic polymer is not especially limited, but for example, anionic acrylic polymers having a degree of polymerization or a molecular weight showing a viscosity of 5000 mPa·s or more at an aqueous solution concentration of 1% and at pH 8 can be preferably used.

[0057]

The anionic acrylic polymer content of the acidic agent is not especially limited. Considering the thickening effect after the agents are mixed, the anionic acrylic polymer content is an amount resulting in an amount in the range of 0.01 to 5 mass% for use (when the agents are mixed), more preferably an amount resulting in an amount in the range of 0.05 to 3 mass%, particularly preferably an amount resulting in an amount in the range of 0.1 to 2 mass%.

[0058]

(Anionic Surfactant)

The acidic agent preferably contains one or more anionic surfactants. The anionic surfactants do not cause problem with the storage stability even when the anionic surfactants are added to the acidic agent, and foam with excellent quality can be obtained when the agents are mixed and foamed by shaking.

[0059]

Examples of the anionic surfactants include alkyl ether sulfates, POE alkyl ether sulfates, alkyl sulfates, 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 surfactants, phosphate mono- or di-ester surfactants and sulfosuccinate esters. The counter ions of the anionic groups of the surfactants may be any of sodium ion, potassium ion and triethanolamine for example.

[0060]

More specific examples include sodium lauryl sulfate, sodium myristyl sulfate, potassium lauryl sulfate, ammonium lauryl sulfate, triethanolamine lauryl sulfate, sodium cetyl sulfate, sodium stearyl sulfate, sodium POE lauryl ether sulfate, triethanolamine POE lauryl ether sulfate, ammonium POE lauryl ether sulfate, sodium POE stearyl ether sulfate, sodium stearoyl methyl taurate, triethanolamine dodecylbenzene sulfonate, sodium tetradecene sulfonate, sodium lauryl phosphate, POE lauryl ether phosphate and salts thereof, N-lauroyl glutamic acid salts (sodium lauroyl glutamate and the like), N-lauroylmethyl- β -alanine salts, N-acylglycine salts, N-acylglutamic acid salts, lauric acid and myristic acid, which are higher fatty acids, and salts of the higher fatty acids.

[0061]

The anionic surfactant content of the acidic agent is not especially limited but is for example an amount resulting in an amount in the range of 0.01 to 5 mass% when the agents are mixed, more preferably an amount resulting in an amount in the range of 0.05

to 3.2 mass%, particularly preferably an amount resulting in an amount in the range of 0.2 to 1.5 mass%.

[0062]

(Non-Ionic Surfactant)

Furthermore, the acidic agent preferably contains one or more non-ionic surfactants together with the one or more anionic surfactants. The non-ionic surfactants do not cause problem with the storage stability even when the non-ionic surfactants are added to the acidic agent, and foam with excellent quality and excellent hardness can be obtained due to the synergistic effect with the anionic surfactants when the agents are mixed and foamed by shaking.

[0063]

Examples of the non-ionic surfactants include ether-type and ester-type non-ionic surfactants.

[0064]

Specific examples of the ether-type non-ionic surfactants include POE cetyl ether (Ceteth), POE stearyl ether (Steareth), POE behenyl ether (Beheneth), POE oleyl ether (Oleth), POE lauryl ether (Laureth), POE octyldodecyl ether, POE hexyldecyl ether, POE isostearyl ether, POE nonylphenyl ether and POE octylphenyl ether.

[0065]

Specific examples of the ester-type non-ionic surfactants include POE sorbitan monooleate, POE sorbitan monostearate, POE sorbitan monopalmitate, POE sorbitan monolaurate, POE sorbitan trioleate, POE glycerol monostearate, POE glycerol monomyristate,

POE sorbitol tetraoleate, POE sorbitol hexastearate, POE sorbitol monolaurate, POE sorbitol beeswax, polyethylene glycol monooleate, polyethylene glycol monostearate, polyethylene glycol monolaurate, lipophilic glycerol monooleate, lipophilic glycerol monostearate, self-emulsifying glycerol monostearate, sorbitan monooleate, sorbitan sesquioleate, sorbitan trioleate, sorbitan monostearate, sorbitan monopalmitate, sorbitan monolaurate, sucrose fatty acid esters, decaglyceryl monolaurate, decaglyceryl monostearate, decaglyceryl monooleate and decaglyceryl monomyristate.

[0066]

Moreover, examples of the non-ionic surfactants also include alkyl polyglucosides. Alkyl polyglucosides are etherified compounds of a sugar and a fatty alcohol, and the degree of condensation of the sugar is preferably 1 to 2. The alkyl chain length is preferably 8 to 16. An example thereof is alkyl(8-16) glucoside.

[0067]

As the non-ionic surfactants, non-ionic surfactants having HLB of 10 or more are preferably used, and ether-type non-ionic surfactants having HLB of 10 or more are particularly preferably used. Also, the non-ionic surfactants are preferably added to the acidic agent and to an agent other than the acidic agent. As a result of the addition, foam in a particularly excellent amount and with particularly excellent quality can be obtained.

[0068]

The non-ionic surfactant content of the acidic agent is not especially limited but is for example preferably an amount resulting in an amount in the range of 0.01 to 5 mass% when the agents are mixed, particularly preferably an amount resulting in an amount in the range of 0.1 to 3 mass%.

[0069]

[Alkaline Agent]

In order that the mixture of the agents composing the hair cosmetic composition becomes alkaline, the agents include an alkaline agent. An example of the alkaline agent is the first agent of an oxidation hair dye or a hair bleaching/dye-removing agent. The first agent of an oxidation hair dye or a hair bleaching agent contains at least an alkali agent, and the first agent of an oxidation hair dye further contains an oxidation dye. The alkali agent promotes the function of the oxidant contained in the acidic agent and thus has an improvement effect on the hair bleaching effect or the hair-dye-removing effect. The oxidation dye contains a major intermediate or contains a major intermediate and a coupler. The oxidation dye forms an oxidation dye polymer in the hair due to the function of the oxidant and develops a color. A direct dye is sometimes further added to the oxidation hair dye to control the color tone of the hair dye.

[0070]

(Alkali Agent)

Examples of the alkali agent include ammonia, alkanolamines,

silicates, carbonates, bicarbonates, metasilicates, sulfates, chlorides, phosphates, basic amino acids and the like. Specifically, examples of alkanolamines include monoethanolamine, triethanolamine and the like, and examples of silicates include sodium silicate and potassium silicate. Examples of carbonates include sodium carbonate and ammonium carbonate, and examples of bicarbonates include sodium bicarbonate and ammonium bicarbonate. Examples of metasilicates include sodium metasilicate and potassium metasilicate, and an example of sulfates is ammonium sulfate. An example of chlorides is ammonium chloride, and examples of phosphates include monoammonium phosphate and diammonium phosphate. Examples of basic amino acids include arginine, lysine and salts thereof. Ammonia and ammonium salts are preferable of these examples.

[0071]

The alkali agent content of the alkaline agent is not limited but is for example 0.1 to 20 mass% when the agents are mixed, more preferably 1 to 15 mass%.

[0072]

(Oxidation Dye)

The major intermediate of the oxidation dye is a dye precursor which is mainly o- or p-phenylenediamine or aminophenol and is generally a colorless or slightly colored compound. The major intermediate is used alone or used together with a coupler.

[0073]

Examples of the major intermediate include p-phenylenediamine, toluene-2,5-diamine (p-toluylenediamine), 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-diaminophenol, salts thereof and the like. Examples of the salts are hydrochlorides, sulfates, acetates and the like.

[0074]

Major couplers are m-diamines, aminophenols or diphenols. Specific examples thereof include resorcinol, catechol, pyrogallol, phloroglucin, gallic acid, hydroquinone, 5-amino-o-cresol, m-aminophenol, 5-(2-hydroxyethylamino)-2-methylphenol, m-phenylenediamine, 2,4-diaminophenoxyethanol, toluene-3,4-diamine, α -naphthol, 2,6-diaminopyridine, diphenylamine, 3,3'-iminodiphenyl, 1,5-dihydroxynaphthalene, tannic acid, salts thereof and the like.

[0075]

Examples of the direct dye include acid dyes, basic dyes, nitro dyes, natural dyes, disperse dyes and the like.

[0076]

[Agent Other Than Acidic Agent]

Of the agents, an agent other than the acidic agent preferably contains one or more cationic substances selected from cationic

surfactants and cationic polymers. The "agent other than the acidic agent" may be the alkaline agent or a third agent other than the acidic agent and the alkaline agent.

[0077]

(Cationic Substance)

The cationic substances improve the texture of the hair when the foam hair cosmetic composition is applied to the hair. When the cationic substances are added to the acidic agent, the cationic substances may be degraded by hydrogen peroxide into low-molecular-weight components, and the improvement effect on the texture may deteriorate. However, because the cationic substances are added to the alkaline agent, there is no problem with the storage stability.

[0078]

Examples of the cationic surfactants include lauryltrimethylammonium chloride, cetyltrimethylammonium chloride, stearyltrimethylammonium chloride (steartrimonium chloride), behenyltrimethylammonium chloride (behentrimonium chloride), distearyldimethylammonium chloride, cetyltrimethylammonium bromide, stearyltrimethylammonium bromide, lanolin fatty acid amino propylethyldimethylammonium ethyl sulfate, stearyltrimethylammonium saccharin, cetyltrimethylammonium saccharin, methacryloyl oxyethyltrimethylammonium chloride, behenyltrimethylammonium methyl sulfate and the like.

[0079]

Of the cationic surfactants, stearyltrimethylammonium chloride and cetyltrimethylammonium chloride are particularly preferable in view of the amount of the foam and the quality of the foam during foaming.

[0080]

Examples of the cationic polymers include cationized cellulose derivatives, cationic starch, cationized guar gum, polymers or copolymers of diallyl quaternary ammonium salts, quaternary polyvinylpyrrolidone and the like.

[0081]

More specifically, examples of cationized cellulose include polymers of quaternary ammonium salts obtained by adding glycidyltrimethylammonium chloride to hydroxyethyl cellulose (Polyquaternium-10, for example Leogard G and GP by Lion Corporation, Polymer JR-125, JR-400, JR-30M, LR-400 and LR-30M by Amerchol Corporation), hydroxyethyl cellulose/dimethyl diallyl ammonium chloride copolymers (Polyquaternium-4, for example Celquat H-100 and L-200 by Akzo Nobel N.V.) and the like.

[0082]

Examples of polymers or copolymers of diallyl quaternary ammonium salts include dimethyl diallyl ammonium chloride polymers (poly-dimethylmethylenepiperidinium chloride) [Polyquaternium-6, for example Merquat 100 by The Lubrizol Corporation], dimethyl diallyl ammonium chloride/acrylic acid copolymers [Polyquaternium-22, for example Merquat 280 by The Lubrizol

Corporation], acrylic acid/diallyl quaternary ammonium salt/acrylamide copolymers [Polyquaternium-39, for example Merquat Plus 3331 by The Lubrizol Corporation] and the like.

[0083]

Examples of quaternary polyvinylpyrrolidone include quaternary ammonium salts obtained from a copolymer of vinylpyrrolidone (VP) and dimethylamino ethyl methacrylate and diethyl sulfatate [Polyquaternium-11, for example Gafquat 734 and 755 by ISP Japan] and the like.

[0084]

Of the cationic polymers, poly-dimethylmethylenepiperidinium chloride is particularly preferable from the viewpoint of improvement of the texture during washing off.

[0085]

The cationic substance content is not especially limited but is for example an amount in the range of 0.01 to 5 mass% when the agents are mixed, more preferably an amount in the range of 0.1 to 3 mass%.

[0086]

[Polyether-Modified Silicone]

The hair cosmetic composition of the first embodiment group preferably contains a polyether-modified silicone. The polyether-modified silicone can be added to any one or more of the acidic agent, the alkaline agent and "the agent other than the acidic

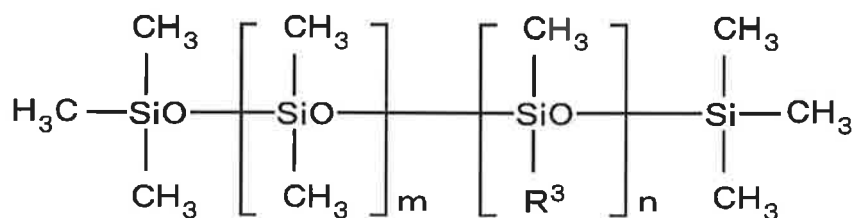
agent". However, since the component exerts an inhibitory effect on the precipitation of a higher alcohol in addition to an improvement effect on the texture of the hair and an inhibitory effect on defoaming after foaming of the hair cosmetic composition, the polyether-modified silicone is particularly preferably added to the agent containing a higher alcohol.

[0087]

The polyether-modified silicone has a structure in which a polyether chain containing polyethylene glycol and/or polypropylene glycol is attached to a silicone chain including dimethylpolysiloxane. Examples thereof are those shown by the general formulae of "Chem. 1" to "Chem. 4" below. In the general formulae, R^3 in the formulae represents $R^4-O-(C_2H_4O)_a-(C_3H_6O)_b-A$, wherein A is hydrogen atom or a hydrocarbon group having 1 to 12 carbon atoms. R^4 and R^5 represent a divalent hydrocarbon group having 2 to 4 carbon atoms, m represents an integer of 1 to 1000, and n represents an integer of 1 to 100. a and b represent an integer of 0 to 50 and satisfy $a+b \geq 1$.

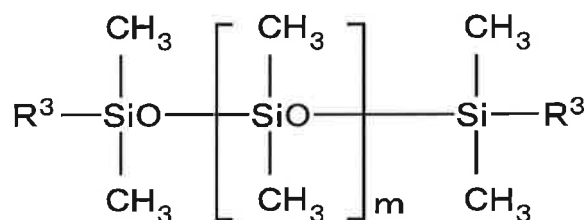
[0088]

[Chem. 1]



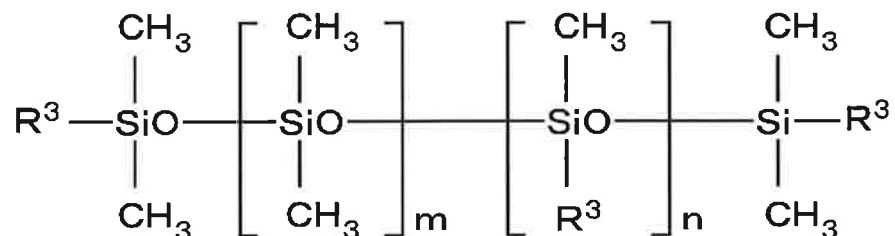
[0089]

[Chem. 2]



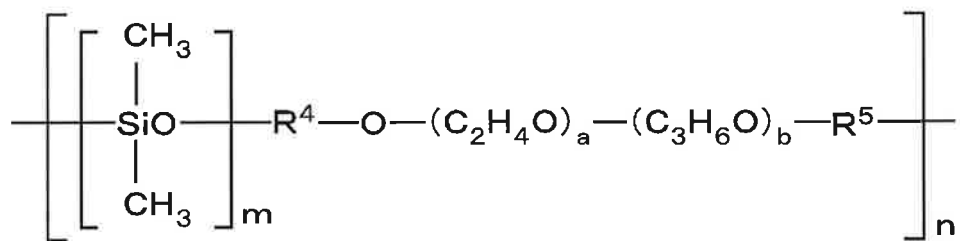
[0090]

[Chem. 3]



[0091]

[Chem. 4]



[0092]

Specific examples of the polyether-modified silicone include PEG-11 methyl ether dimethicone, PEG/PPG-20/6 dimethicone, PEG-10 dimethicone, PEG-12 dimethicone, PEG-10 methyl ether dimethicone, PEG17 dimethicone and the like. Commercial products may be used as the component. Specifically, examples thereof are product names

Silicone KF6011 (manufactured by Shin-Etsu Silicone Co., Ltd.), ABIL B88183 (manufactured by Goldschmidt GmbH), Silicone SH3771M (manufactured by Dow Corning Toray Silicone Co., Ltd.), Silicone SS-2801 (manufactured by Dow Corning Toray Silicone Co., Ltd.) and Silsoft 895 (manufactured by Momentive Performance Materials Inc). One of the polyether-modified silicones may be added alone, or a combination of two or more thereof may be added.

[0093]

From the viewpoints of maintenance of the amount of the foam and the improvement of the texture, PEG-n dimethicone (n represents an integer of 1 or more) is preferable, and PEG-10 dimethicone and PEG-12 dimethicone are particularly preferable.

[0094]

The polyether-modified silicone content of the hair cosmetic composition is not especially limited but is preferably an amount in the range of 0.01 to 10 mass% when the agents are mixed, particularly preferably an amount in the range of 0.1 to 5 mass%.

[0095]

[Other Components of Hair Cosmetic Composition]

The acidic agent, the alkaline agent and "the agent other than the acidic agent" of the hair cosmetic composition according to the first embodiment group can optionally contain components other than the above components, such as amphoteric ionic surfactants, solubilizers, oily components, water-soluble polymer compounds, sugars, antiseptics, stabilizers, pH-adjusting agents, plant

extracts, crude drug extracts, vitamins, fragrances, antioxidants, ultraviolet absorbers and chelating agents, within the range which does not impair the effects of the invention. Some of the components are specifically described below.

[0096]

(Amphoteric Ionic Surfactant)

Examples of amphoteric ionic surfactants include alkyl betaine-type, fatty acid amidopropyl betaine-type, alkyl imidazole-type and amino acid-type.

[0097]

More specifically, examples thereof include lauryl betaine, amide betaine, carbobetaine, sulfobetaine, hydroxysulfobetaine, amido sulfobetaine, sodium 2-undecyl-N-carboxymethyl-N-hydroxyethylimidazolinium betaine, cocoamidopropyl betaine, lauryldimethylaminoacetic acid betaine, stearyldimethylaminoacetic acid betaine, coconut oil fatty acid amidopropyl betaine and the like.

[0098]

(Solubilizer)

A solubilizer is added to make the agents of the hair cosmetic composition liquid. The solubilizer is water or an organic solvent. Examples of the organic solvent include ethanol, n-propanol, isopropanol, methyl cellosolve, methyl carbitol, benzyl alcohol, phenethyl alcohol, γ -phenylpropyl alcohol, cinnamic alcohol, p-methylbenzyl alcohol, α -phenylethanol, phenoxyethanol,

phenoxyisopropanol, N-alkyl pyrrolidones, alkylene carbonates, alkyl ethers and the like. Water is particularly preferably used. The water content during mixing is preferably 50 mass% or more, more preferably 70 mass% or more.

[0099]

(Oily Component)

Examples of oily components include polyhydric alcohols, fat or oil, wax, higher alcohols, higher fatty acids, alkyl glyceryl ethers, esters, silicones, hydrocarbons and the like.

[0100]

Polyhydric alcohols include glycols and glycerols. Examples of glycols include ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, isoprene glycol, 1,3-butylene glycol and the like, and examples of glycerols include glycerol, diglycerol, polyglycerol and the like.

[0101]

Examples of fat or oil include olive oil, rose hip oil, camellia oil, shea butter, macadamia nut oil, almond oil, tea seed oil, safflower oil, sunflower oil, soybean oil, cottonseed oil, sesame oil, beef tallow, cocoa butter, corn oil, peanut oil, rapeseed oil, rice bran oil, rice germ oil, wheat germ oil, adlay oil, grapeseed oil, avocado oil, carrot oil, castor oil, linseed oil, coconut oil, mink oil, egg yolk oil and the like.

[0102]

Examples of wax include beeswax, candelilla wax, carnauba wax,

jojoba oil, lanolin, spermaceti wax, rice bran wax, sugarcane wax, palm wax, montan wax, cotton wax, bayberry wax, shellac wax and the like.

[0103]

Examples of higher alcohols include lauryl alcohol, myristyl alcohol, cetyl alcohol (cetanol), stearyl alcohol, cetostearyl alcohol, arachyl alcohol, behenyl alcohol, 2-hexyldecanol, isostearyl alcohol, 2-octyldodecanol, decyltetradecanol, oleyl alcohol, linoleyl alcohol, lanolin alcohol and the like.

[0104]

Examples of higher fatty acids include lauric acid, myristic acid, palmitic acid, stearic acid, behenic acid, isostearic acid, hydroxystearic acid, 12-hydroxystearic acid, oleic acid, undecylenic acid, linoleic acid, ricinoleic acid, lanolin fatty acid and the like.

[0105]

Examples of alkyl glyceryl ethers include batyl alcohol (monostearyl glyceryl ether), chimyl alcohol (monocetyl glyceryl ether), selachyl alcohol (monooleyl glyceryl ether), isostearyl glyceryl ether and the like.

[0106]

Examples of esters include diisobutyl adipate, cetyl octanoate, isononyl isononanoate, diisopropyl sebacate, octyldodecyl myristate, isopropyl palmitate, stearyl stearate, hexyl laurate, hexyldecyl dimethyloctanoate, triisodecyl myristate,

fatty acid (C10-30) (cholesterol/lanosterol esters), lauryl lactate, acetylated lanolin, ethylene glycol di-2-ethylhexanoate, dipentaerythritol fatty acid esters, N-alkylglycol monoisostearate, diisostearyl malate and the like.

[0107]

Examples of silicones except for polyether silicones include dimethylpolysiloxane (INCI name: dimethicone), dimethylpolysiloxane having a hydroxy end group (INCI name: dimethiconol), methylphenylpolysiloxane, decamethylcyclopentasiloxane, highly polymerized silicones having an average polymerization degree of 650 to 10000, amino-modified silicones, betaine-modified silicones, alkyl-modified silicones, alkoxy-modified silicones, carboxy-modified silicones and the like.

[0108]

Of the above examples, examples of amino-modified silicones include an aminopropylmethylsiloxane-dimethylsiloxane copolymer (INCI name: aminopropyl dimethicone), an aminoethylaminopropylsiloxane-dimethylsiloxane copolymer (INCI name: amodimethicone), an aminoethylaminopropylmethylsiloxane-dimethylsiloxane copolymer (INCI name: trimethylsilyl amodimethicone) and the like.

[0109]

Examples of hydrocarbons include α -olefin oligomer, light isoparaffin, light liquid isoparaffin, liquid isoparaffin, liquid paraffin, squalane, polybutene, paraffin, microcrystalline wax,

Vaseline and the like.

[0110]

(Water-Soluble Polymer Compound)

As the water-soluble polymer compound, anionic, non-ionic and amphoteric polymer compounds except for the anionic acrylic polymers and the cationic polymers can be used. Examples thereof include hydroxyethyl cellulose and the like.

[0111]

Second Embodiment Group

The second embodiment group relates to embodiments of the hair cosmetic composition according to the second invention.

[0112]

[Hair Cosmetic Composition]

The hair cosmetic composition according to the second embodiment group is a hair cosmetic composition which is applied to hair in the form of foam and which contains one or more polyether-modified silicones. The hair cosmetic composition may contain a single agent or may contain a plurality of agents, such as two, three or more agents, which are mixed before use.

[0113]

The method or the means for foaming the hair cosmetic composition containing a single agent before use or for mixing and foaming the hair cosmetic composition containing a plurality of agents before use is not limited. For example, a single-agent-type or multiagent-type hair cosmetic composition can be foamed using

a known aerosol foamer container using a propellant, or a single-agent-type or multiagent-type hair cosmetic composition can be foamed using a known non-aerosol foamer container. Moreover, a single-agent-type hair cosmetic composition can be foamed by shaking, or a multiagent-type hair cosmetic composition can be mixed and foamed by shaking.

[0114]

The method in "Mixing and Foaming by Shaking" described in the first embodiment group can be applied or used as it is as the method for foaming or mixing and foaming a single-agent-type or multiagent-type hair cosmetic composition by shaking.

[0115]

The agent or the agents composing the hair cosmetic composition according to the second embodiment group is/are each preferably a liquid agent but may be a powdery agent. When the agent(s) is composed as a powdery agent(s), the agent(s) is foamed after dissolving the agent(s) in water or another liquid agent. Examples of the liquid agent include solution, emulsion, gel and cream agents and the like which each contain water as the base material. These liquid agents preferably have a low viscosity of for example 5000 millipascal-second (mPa·s) or less at 25°C, more preferably 3000 mPa·s or less. When the hair cosmetic composition is of multiagent-type, in view of excellent miscibility of the agents (for example, the first agent and the second agent), the agents are preferably liquid agents of the same type and further preferably

have similar viscosities.

[0116]

The product category of the hair cosmetic composition according to the second embodiment group is not especially limited, and examples thereof include hair dyes such as an oxidation hair dye, an acidic hair dye and a temporary dye. Bleaching agents such as a hair bleaching agent and a hair bleaching/dye-removing agent are also included. In addition, hair cosmetics of a wide range such as shampoo and bed head repairs are included. However, a hair cosmetic composition which is applied to hair and then left for a certain period to treat the hair is particularly preferable, and in this sense, typical examples are the hair dyes and the bleaching agents.

[0117]

A preferable example of the hair cosmetic composition according to the second embodiment group is a hair cosmetic composition which is applied to hair in the form of foam obtained by mixing and foaming a plurality of agents by shaking. Also, some of particularly preferable examples thereof are all the hair cosmetic compositions according to the first embodiment group on the condition that one or more polyether-modified silicones are contained.

[0118]

[Major Components of Hair Cosmetic Composition]

The hair cosmetic composition according to the second

embodiment group contains one or more polyether-modified silicones. Moreover, the hair cosmetic composition preferably contains a non-ionic surfactant having HLB of 10 or more. The non-ionic surfactant is particularly effective when the hair cosmetic composition contains a higher alcohol because the non-ionic surfactant prevents the precipitation of the higher alcohol.

[0119]

(Polyether-Modified Silicone)

The kinds and the content of the polyether-modified silicones are as described in the section "Polyether-Modified Silicone" of the hair cosmetic composition according to the first embodiment group. When the hair cosmetic composition is of multiagent-type, any of the agents may contain the one or more polyether-modified silicones. However, the polyether-modified silicones exert an inhibitory effect on the precipitation of a higher alcohol in addition to an improvement effect on the texture of the hair and an inhibitory effect on defoaming after foaming of the hair cosmetic composition as compared to other silicones. Thus, when the hair cosmetic composition according to the second embodiment group is of multiagent-type and when one or more of the agents contain a higher alcohol, the one or more polyether-modified silicones are particularly preferably added to the agent(s).

[0120]

(Non-Ionic Surfactant Having HLB of 10 or more)

The hair cosmetic composition according to the second

embodiment group preferably further contains a non-ionic surfactant having HLB of 10 or more.

[0121]

Examples of the non-ionic surfactant having HLB of 10 or more include POE(5) alkyl(C12-14) ether (HLB of about 10.5), POE(10) stearyl ether (HLB of 12.4), POE(7) lauryl ether (HLB of 12.5), POE(9) tridecyl ether (HLB of 13.3), POE(11) lauryl ether (HLB of 14.5), POE(15) cetyl ether (HLB of 14.7), POE(30) behenyl ether (HLB of 16.1), POE(21) lauryl ether (HLB of 16.7), POE(30) cetyl ether (HLB of 16.9), POE(40) oleyl ether (HLB of 17) and the like. The HLB values are the values calculated by the Griffin's method.

[0122]

When the hair cosmetic composition is of multiagent-type, any of the agents may contain the non-ionic surfactant having HLB of 10 or more. However, the component enhances the inhibitory effect of the polyether-modified silicones on the precipitation of a higher alcohol. Thus, when the hair cosmetic composition according to the second embodiment group is of multiagent-type and when one or more of the agents contain a higher alcohol, the non-ionic surfactant having HLB of 10 or more is particularly preferably added to the agent(s) together with the polyether-modified silicones.

[0123]

[Other Components of Hair Cosmetic Composition]

The hair cosmetic composition according to the second embodiment group can optionally contain components other than the

above components, such as surfactants except for the non-ionic surfactants having HLB of 10 or more and oily components except for the polyether-modified silicones as well as oxidants, alkali agents, anionic or cationic water-soluble polymers, oxidation dyes, solubilizers, sugars, antiseptics, stabilizers, pH-adjusting agents, plant extracts, crude drug extracts, vitamins, fragrances, antioxidants, ultraviolet absorbers and chelating agents, within the range which does not impair the effects of the invention.

[0124]

The details of these components are the same as those described for the hair cosmetic composition according to the first embodiment group.

[Examples]

[0125]

Next, Examples and Comparative Examples of the invention are explained. The technical scope of the invention is not limited by the following Examples and Comparative Examples.

[0126]

In Table 1 to Table 5 below, the specific components listed below are indicated by the following component symbols in the margin on the left-hand side of the component names.

[0127]

Anionic acrylic polymer: component symbol (aA)

Cationic acrylic polymer: component symbol (cA)

Anionic surfactant: component symbol (B)

Cationic surfactant/cationic polymer: component symbol (C)

Polyether-modified silicone: component symbol (D)

Non-ionic surfactant: component symbol (E)

Non-ionic surfactant having HLB of 10 or more: component symbol (F)

Also, product name "Aculyn 22" was used as the alkyl acrylate-alkyl methacrylate-POE(20) stearyl ether copolymer of the components shown in the tables.

[0128]

Example Group I

[Preparation of Hair Cosmetic Compositions]

Hair cosmetic compositions (hair bleaching agent compositions) according to Example 1 to Example 22 and Comparative Example 1 to Comparative Example 3 containing first and second agents in the form of liquid having the respective compositions shown in Table 1 to Table 3 at the end were prepared according to a general method. The hair cosmetic compositions were all for applying to hair after mixing and foaming the first agent and the second agent at the same time by shaking at the mixing ratios shown in the cells "Mixing Ratio of First Agent : Second Agent".

[0129]

The values of the components are the concentrations (mass%) of the components in the first agent or the second agent in the respective Examples and Comparative Examples. The viscosities of the liquid first agent and the liquid second agent of each of the

hair cosmetic compositions according to the Examples and the Comparative Examples, which were measured by the following method for measuring the viscosity, are shown in the cells "Viscosity of First Agent" and "Viscosity of Second Agent" in the tables. The unit of the values is "mPa·s".

(Method for Measuring Viscosity)

The viscosities of the first agent and the second agent can be measured using for example a type B viscometer under the measurement conditions of 25°C and one minute. A specific example of the type B viscometer is a type BL viscometer, VISCOMETER (manufactured by Toki Sangyo Co., Ltd). The rotor and the rotation speed used are appropriately selected in accordance with the measurable viscosity range of the measurement device. For example, when the viscosity range is 10 mPa·s or less, the viscosities can be determined using a BL adapter under the condition of 60 rpm. When the viscosity range is 10 to 100 mPa·s, the viscosities can be determined using a rotor No. 1 under the condition of 60 rpm. When the viscosity range is 100 to 500 mPa·s, the viscosities can be determined using a rotor No. 2 under the condition of 60 rpm. When the viscosity range is 500 to 2000 mPa·s, the viscosities can be determined using a rotor No. 3 under the condition of 60 rpm. When the viscosity range is 2000 to 10000 mPa·s, the viscosities can be determined using a rotor No. 4 under the condition of 60 rpm. When the viscosity range is 10000 to 20000 mPa·s, the viscosities can be determined using a rotor No. 4 under the condition of 30 rpm.

[0130]

[Evaluation of Hair Cosmetic Compositions]

The following evaluation items of the hair cosmetic compositions according to Example 1 to Example 22 and Comparative Example 1 to Comparative Example 3 were evaluated.

[0131]

(Preparation Operation of Foam Hair Bleaching Agent Compositions)

As the container, a container which had a cylinder container main body with a bottom having a shape in which the diameter of the opening was larger than that of the bottom (the inside diameter of the opening was 8.5 cm, the inside diameter of the bottom was 7 cm, and the height was 14 cm) and a hemispheric lid which could close the opening of the container main body in a liquid-tight manner was used. The container was transparent, and the inside of the container could be seen visually from the outside of the container. The volume of the container main body was 600 ml, and the volume of the whole container, namely when the opening was covered with the lid, was 770 ml. The shape of the container was similar to the container disclosed in Figs. 1 and 2 of WO2011/151880.

[0132]

Into the container main body, 50 g of the first agent and 50 g of the second agent according to an example were charged, and then the container was closed with the lid in a liquid-tight manner. The container was shaken up and down 30 times with a swing of 30 cm, and a foam hair bleaching agent composition was thus obtained.

[0133]

(Defoaming of Foamed Hair Cosmetic Compositions)

After the shaking operation, the container was left still at 25°C for 10 minutes, and then the amount and the state of the foam remaining in the container main body were observed visually. The criteria of the evaluation were as follows. In each example, the average of the scores of five tests was rounded off to the nearest whole number, and an integer score was obtained as the evaluation result. The results of the evaluation are shown in the cells "Defoaming" in the tables.

[0134]

-Criteria of Evaluation-

5: No defoaming is observed, and the state of foam on the upper surface is maintained.

4: The height of the liquid collected at the bottom of the container main body is 2 mm or less.

3: The height of the liquid collected at the bottom of the container main body is more than 2 mm and 7 mm or less.

2: The height of the liquid collected at the bottom of the container main body is more than 7 mm and 10 mm or less.

1: The height of the liquid collected at the bottom of the container main body is more than 10 mm.

[0135]

(Amount of Foam after Foaming)

After the shaking operation, the container was left still at

25°C for one minute, and the foam attached to the lid was also collected in the container main body. Then, the lid was removed, and the amount of the foam in the container main body was observed visually.

[0136]

The area along the height direction of the container main body was divided equally into 11 areas, and the amount of the foam was evaluated on a scale of 1 to 11 based on the area which the upper surface of the formed foam was in. Here, the area closest to the bottom was area 1, and the area closest to the opening was area 11. As the value is larger, the amount of the foam is evaluated to be more. In this regard, even when the score was "11", defects, such as a gush of the foam out of the container when the lid was loosened or dripping of the foam when the lid was removed, were not caused. The results of the evaluation are shown on the scale of 1 to 11 in the cells "Amount of Foam" in the tables.

[0137]

(Quality of Foam after Foaming)

The foam formed by the shaking operation was evaluated by an analyzer who had the expertise in hair cosmetic compositions obtained by mixing and foaming a plurality of agents by shaking, from the viewpoint of shape retention property. The criteria of the evaluation were as follows. The results of the evaluation are shown in the cells "Quality of Foam" in the tables. The test was conducted five times in each example. The average of the scores

was rounded off to the nearest whole number, and an integer score was obtained as the evaluation result.

[0138]

-Criteria of Evaluation-

Foam in an amount of about 3 cm³ was scooped from the container main body with a hand wearing a nitrile glove and caused to stand still for 10 seconds. The foam was evaluated visually as to how much the shape of the foam was lost or maintained after the standing period. The evaluation was on the scale of 1 to 10 below for the accuracy.

[0139]

10: The foam is not deformed.

9: Gray zone: although it cannot be determined that "the foam is not deformed", it cannot be determined that the foam is slightly deformed, either.

8: The foam is slightly deformed.

7: Gray zone: although the degree is more than "the foam is slightly deformed", it cannot be determined that the foam is deformed to some degree.

6: The foam is deformed to some degree.

5: Gray zone: although the degree is more than "the foam is deformed to some degree", it cannot be determined that the foam is deformed obviously.

4: The foam is deformed obviously.

3: Gray zone: although the degree is more than "the foam is

deformed obviously", it cannot be determined that the foam is deformed considerably.

2: The foam is deformed considerably.

1: The degree is more than "the foam is deformed considerably", and the foam is deformed extremely.

[0140]

(Miscibility of First Agent and Second Agent)

The first agent according to an example was colored with a colorant, and the degree of mixing of the color was observed visually after the first agent was mixed with the second agent by shaking. The criteria of the evaluation were as follows. The test was conducted three times in each example, and an adequate evaluation rank was determined by comprehensively evaluating the results. The results of the evaluation are shown in the cells "Miscibility" in the tables.

[0141]

-Criteria of Evaluation-

A: No unevenness of color

B: Little unevenness of color

C: Considerable unevenness of color

[0142]

(Precipitation in First Agent)

The first agent according to an example was stored in a glass bottle at 5°C for 12 hours, and whether crystals were formed or not was observed visually. The criteria of the evaluation were as

follows. The state of three bottles under the same conditions was observed in each example, and an adequate evaluation rank was determined by comprehensively evaluating the results. The results of the evaluation are shown in the cells "Precipitation in First Agent" in the tables. This item was not evaluated in Examples 21 and 22.

[0143]

-Criteria of Evaluation-

A: No crystals

B: Some crystals but not so many

C: Considerable number of crystals

[0144]

Example Group II

[Preparation of Hair Cosmetic Compositions]

Hair cosmetic compositions according to Example 23 to Example 39 containing first and second agents in the form of liquid having the respective compositions shown in Table 4 and Table 5 at the end were prepared according to a general method.

[0145]

The hair cosmetic compositions were all for applying to hair after mixing and foaming the first agent and the second agent at the mixing ratios shown in the cells "Mixing Ratio of First Agent : Second Agent". For the evaluation of "Quality of Foam" and "Amount of Foam" described below, the first agent and the second agent were mixed and foamed at the same time by shaking in the same manner as

in "Preparation Operation of Foam Hair Bleaching Agent Compositions" described for the Example group I.

[0146]

The values of the components are the concentrations (mass%) of the components in the first agent or the second agent in the respective Examples. The viscosities of the liquid first agent and the liquid second agent of each of the hair cosmetic compositions according to the Examples, which were measured by the method for measuring the viscosity described for the Example group I, are shown in the cells "Viscosity of First Agent" and "Viscosity of Second Agent" in the tables. The unit of the values is "mPa·s".

[0147]

Moreover, the components composing the compositions are indicated by the component symbols in the same manner as in the Example group I.

[0148]

Furthermore, the component (A) contents during the mixing of the first agent and the second agent are shown (unit mass%) in the cells "Mass of Acrylic Polymer During Mixing" in the tables. Also, the mass ratios of the anionic acrylic polymer content to the total non-ionic surfactant content during the mixing of the first agent and the second agent are shown in the item "Acrylic Polymer/All Non-Ionic Surfactants", and the mass ratios of the anionic acrylic polymer content to the total anionic surfactant content during the mixing of the first agent and the second agent are shown in the item

"Acrylic Polymer/All Anionic Surfactants".

[0149]

[Evaluation of Hair Cosmetic Compositions]

The following evaluation items of the hair cosmetic compositions according to Example 23 to Example 39 were evaluated.

[0150]

(Defoaming of Foamed Hair Cosmetic Compositions)

The item was evaluated by the same evaluation method and by the same criteria of evaluation as in the Example group I. The results of the evaluation are shown in the cells "Defoaming" in the tables.

[0151]

(Amount of Foam after Foaming)

The item was evaluated by the same evaluation method and by the same criteria of evaluation as in the Example group I. The results of the evaluation are shown in the cells "Amount of Foam" in the tables.

[0152]

(Quality of Foam after Foaming)

The item was evaluated by the same evaluation method and by the same criteria of evaluation as in the Example group I. The results of the evaluation are shown in the cells "Quality of Foam" in the tables.

[0153]

(Miscibility of First Agent and Second Agent)

The item was evaluated by the same evaluation method and by the same criteria of evaluation as in the Example group I. The results of the evaluation are shown in the cells "Miscibility" in the tables.

[0154]

(Precipitation in First Agent)

The item was evaluated by the same evaluation method and by the same criteria of evaluation as in the Example group I. Although the results of the evaluation are not shown in Table 4 and Table 5, the evaluation results of Example 23 to Example 39 were all rank "A".

[0155]

[Table 1]

First Agent	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7	Example 8	Example 9	Example 10	Example 11	Example 12	Example 13	Example 14
Monostearolamine	7	7	7	7	7	7	7	7	7	7	7	7	7	7
(E) Polyoxyethylene(21) lauryl ether (HLB of 16.7)	13	13		10	13	13	13	13	13	13	13	13	13	13
(E) Polyoxyethylene(5) alkyl (7-14) ether (HLB of about 10.5)				3										
(E) Polyoxyethylene(30) cetyl ether (HLB of 16.9)														
(C) Stearyltrimethylammonium chloride	5	5		2			5	5	5	5	5	5	5	5
(C) Cetyltrimethylammonium chloride				2	5									
(C) Lauryltrimethylammonium chloride				1		5								
Mentyl alcohol	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2-Octyldodecanol	0.4	0.4		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1,3-Butylene glycol	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Propylene glycol	7	7	7	7	7	7	7	7	7	7	7	7	7	7
(D) PEG10 dimethicone	1			1	1					1.7	1	1	1	1
(D) PEG12 dimethicone									1					
Dimethicone								1						
(C) Polydimethylsilyloxypropylamine chloride	0.7		0.7	0.7	0.7	0.7	1.7	0.7	0.7			0.7	0.7	0.7
(C) O-12-hydroxy-3-(trimethylammonio)propylhydroxyethyl cellulose chloride											0.1			
Trisodium hydroxyethyl ethylenediamine triacetate	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Hydroxyethyl cellulose														
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Viscosity of First Agent	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Form of First Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Second Agent														
35% Hydrogen peroxide solution	17	17	17	17	17	17	17	17	17	17	17	17	17	17
(aA) Acrylate/acryl methacrylate/polyoxyethylene(20) steryl ether copolymer	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
(aA) (Acrylates/stearth-20 (itaconate) copolymer				0.2								1.5		
(aA) Alkyl acrylate copolymer emulsion													1.5	
(E) Alkyl(8-16) glucoside	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
(E) Polyoxyethylene(2) lauryl ether (HLB of 6.5)														1
(E) Polyoxyethylene(21) lauryl ether (HLB of 16.7)														
(E) Polyoxyethylene(30) cetyl ether (HLB of 16.9)														
(B) Ammonium lauryl sulfate	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1
(B) TEA polyoxyethylene lauryl ether sulfate				0.5										
Hydroxyethane diphosphoric acid	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
pH-adjusting agent	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Viscosity of Second Agent	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Form of Second Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Mixing Ratio of First Agent : Second Agent	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3
Evaluation														
Defoaming	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Amount of Foam (Scale of 1-11)	9	7	7	9	10	8	10	5	9	8	7	10	11	6
Quality of Foam (Scale of 1-10)	8	8	7	7	9	6	8	7	10	10	10	9	9	7
Miscibility	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Precipitation in First Agent	A	B	A	A	A	A	B	B	A	A	A	A	A	A

[0156]

[Table 2]

First Agent	Example 15	Example 16	Example 17	Example 18	Example 19	Example 20	Comparative Example 1	Comparative Example 2	Comparative Example 3
Monothanolamine	7	7	7	7	7	7	7	7	7
(E) Polyoxyethylene(21) lauryl ether (HLB of 16.7)	13	13	13	13	6.5	13	13	13	13
(E) Polyoxyethylene(5) alkyl(12-14) ether (HLB of about 10.5)					6.5				
(E) Polyoxyethylene(30) cetyl ether (HLB of 16.9)					5				
(C) Stearyltrimethylammonium chloride	5	5	5	5	5	5	5	5	5
(C) Cetyltrimethylammonium chloride									
(C) Lauryltrimethylammonium chloride									
Myristyl alcohol	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2-Octyldodecanol	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1,3-Butylene glycol	7	7	7	7	7	7	7	7	7
Propylene glycol	7	7	7	7	7	7	7	7	7
(D) PEG10 dimethicone	1	1	1	1	1	1	1	1	1
(D) PEG12 dimethicone									
(aA) Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer								1.5	
(C) Polydimethylmethylpiperidinium chloride	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
(C) O-2-hydroxy-3-(trimethylammonio)propylhydroxyethyl cellulose chloride									
(cA) Dimethyl diallyl ammonium chloride/acrylic acid copolymer									1.5
Trisodium hydroxyethyl ethylenediamine triacetate	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Hydroxyethyl cellulose			0.3						
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100
Viscosity of First Agent	5	5	25	5	5	5	5	35	35
Form of First Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Second Agent									
35% Hydrogen peroxide solution	17	17	17	17	17	17	17	17	17
(aA) Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer	1.5	1.5	1.5	1.5	1.5	1.5			
(aA) (Acrylates/stearth-20 itaconate) copolymer									
(aA) Alkyl acrylate copolymer emulsion									
(E) Alkyl(8-16) glucoside		2.5	2.5	2.5	2.5		2.5	2.5	2.5
(E) Polyoxyethylene(2) lauryl ether (HLB of 6.5)									
(E) Polyoxyethylene(21) lauryl ether (HLB of 16.7)	2.5								
(E) Polyoxyethylene(30) cetyl ether (HLB of 16.9)									
(B) Ammonium lauryl sulfate	1		1	1	1	1	1	1	1
(B) TEA polyoxyethylene lauryl ether sulfate		3							
Hydroxyethane diphenylphosphonic acid	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Hydroxyethyl cellulose			0.3						
pH-Adjusting agent	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100
Viscosity of Second Agent	10	10	10	75	10	10	10	10	10
Form of Second Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Mixing Ratio of First Agent : Second Agent	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3	2:3
Evaluation									
Defoaming	9	3	5	5	4	4	2	1	1
Amount of Foam (Scale of 1-11)	10	11	7	5	8	8	10	8	8
Quality of Foam (Scale of 1-10)	9	6	8	6	7	7	3	1	2
Miscibility	A	A	A	A	A	A	A	C	A
Precipitation in First Agent	A	A	A	A	A	A	A	C	A

[0157]

Precipitation was observed in the first agent of Comparative Example 2. The precipitates were analyzed, and as a result, the precipitates were not the higher alcohols. It is believed that a complex of the anionic acrylic polymer and the cationic components was precipitated.

[0158]

[Table 3]

	First Agent	Example 21
	28% Ammonia	4
(E)	Polyoxyethylene(21) lauryl ether (HLB of 16.7)	13
	Cetanol	0.1
	Isostearyl alcohol	0.4
	Propylene glycol	10
(C)	Poly-dimethylmethylenepiperidinium chloride	0.6
	Hydroxyethyl cellulose	0.3
	Trisodium hydroxyethyl ethylenediamine triacetate	0.04
	Purified water	balance
	Total	100
	Viscosity of First Agent	20
	Form of First Agent	liquid
	Second Agent	
	35% Hydrogen peroxide solution	17
(aA)	Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer	1.5
(E)	Alkyl(8-16) glucoside	2.5
(B)	Ammonium lauryl sulfate	1
	Hydroxyethane diphosphonic acid	0.2
	pH-Adjusting agent	proper amount
	Purified water	balance
	Total	100
	Viscosity of Second Agent	10
	Form of Second Agent	liquid
	Mixing Ratio of First Agent : Second Agent	2:3
	Evaluation	
	Defoaming	5
	Amount of Foam (Scale of 1-11)	7
	Quality of Foam (Scale of 1-10)	8
	Miscibility	A

	First Agent	Example 22
	28% Ammonia	4
(E)	Polyoxyethylene(21) lauryl ether (HLB of 16.7)	15
	Cetanol	0.1
	1,3-Butylene glycol	10
	Hydroxyethyl cellulose	0.3
	Purified water	balance
	Total	100
	Viscosity of First Agent	
	Form of First Agent	liquid
	Second Agent	15
	35% Hydrogen peroxide solution	17
(aA)	Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer	1.5
(E)	Alkyl(8-16) glucoside	2.5
	Hydroxyethane diphosphonic acid	0.2
	pH-Adjusting agent	proper amount
	Purified water	balance
	Total	100
	Viscosity of Second Agent	10
	Form of Second Agent	liquid
	Mixing Ratio of First Agent : Second Agent	2:3
	Evaluation	
	Defoaming	5
	Amount of Foam (Scale of 1-11)	6
	Quality of Foam (Scale of 1-10)	8
	Miscibility	A

[0159]

[Table 4]

First Agent	Example 23	Example 24	Example 25	Example 26	Example 27	Example 28	Example 29	Example 30	Example 31	Example 32	Example 33
Monoethanolamine	7	7	7	7	7	7	7	7	7	7	7
(F) Polyoxyethylene(21) lauryl ether (HLB of 16.7)	13	13	13	13	13	13	1	5	10	15	15
(C) Stearyltrimethylammonium chloride	5	5	5	5	5	5	5	5	5	5	5
Myristyl alcohol	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2-Octyldodecanol	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1,3-Butylene glycol	7	7	7	7	7	7	7	7	7	7	7
Propylene glycol	7	7	7	7	7	7	7	7	7	7	7
(D) PEG10 dimethicone	1	1	1	1	1	1	1	1	1	1	1
(C) Poly-dimethylmethylenepiperidinium chloride	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Trisodium hydroxyethyl ethylenediamine triacetate	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Hydroxyethyl cellulose	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100	100	100
Viscosity of First Agent	25	25	25	25	25	25	10	10	10	10	10
Form of First Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Second Agent											
35% Hydrogen peroxide solution	17	17	17	17	17	17	17	17	17	17	17
(aA) Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer	0.2	0.5	1	1.5	2.3	2.7	1.5	1.5	1.5	1.5	1.5
(E) Alkyl(8-16) glucoside	2.5	2.5	2.5	2.5	2.5	2.5	1	1	1	5	10
(B) Ammonium lauryl sulfate	1	1	1	1	1	1	1	1	1	1	1
Hydroxyethane diphosphonic acid	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
pH-Adjusting agent	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount
Purified water	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100	100	100	100	100	100
Viscosity of Second Agent	10	10	10	10	10	10	10	10	10	25	3000
Form of Second Agent	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Mixing Ratio of First Agent : Second Agent	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Mass% of Acrylic Polymer During Mixing	0.12	0.30	0.60	0.90	1.38	1.62	0.90	0.90	0.90	0.90	0.90
Acrylic Polymer/All Non-Ionic Surfactants	0.02	0.04	0.09	0.13	0.21	0.24	0.90	0.35	0.20	0.10	0.08
Acrylic Polymer/All Anionic Surfactants	0.20	0.50	1.00	1.50	2.30	2.70	1.50	1.50	1.50	1.50	1.50
Evaluation											
Defoaming	3	5	5	5	5	5	5	5	5	5	5
Amount of Foam (Scale of 1-11)	10	10	9	8	7	5	5	7	9	8	6
Quality of Foam (Scale of 1-10)	7	7	8	9	10	8	7	7	9	10	6
Miscibility	A	A	A	A	A	A	A	A	A	A	A

[0160]

[Table 5]

First Agent	Example 34	Example 35	Example 36	Example 37	Example 38	Example 39
Monoethanolamine	7	7	7	7	7	7
(F) Polyoxyethylene(21) lauryl ether (HLB of 16.7)	13	13	13	13	13	13
(C) Stearyltrimethylammonium chloride	5	5	5	5	5	5
Myristyl alcohol	0.1	0.1	0.1	0.1	0.1	0.1
2-Octyldodecanol	0.4	0.4	0.4	0.4	0.4	0.4
1,3-Butylene glycol	7	7	7	7	7	7
Propylene glycol	7	7	7	7	7	7
PEG10 dimethicone	1	1	1	1	1	1
(C) Poly-dimethylmethylenepiperidinium chloride	0.7	0.7	0.7	0.7	0.7	0.7
Trisodium hydroxyethyl ethylenediamine triacetate solution	0.04	0.04	0.04	0.04	0.04	0.04
Purified water	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100
Viscosity of First Agent	10	10	10	10	10	10
Form of First Agent	liquid	liquid	liquid	liquid	liquid	liquid
Second Agent						
35% Hydrogen peroxide solution	17	17	17	17	17	17
(aA) Alkyl acrylate/alkyl methacrylate/polyoxyethylene(20) stearyl ether copolymer	1.5	1.5	1.5	1.5	1.5	1.5
(E) Alkyl(8-16) glucoside	2.5	2.5	2.5	2.5	2.5	2.5
(B) Ammonium lauryl sulfate	0	0.1	0.5	2	3	3.5
Hydroxyethane diphosphonic acid	0.2	0.2	0.2	0.2	0.2	0.2
pH-Adjusting agent	proper amount	proper amount	proper amount	proper amount	proper amount	proper amount
Purified water	balance	balance	balance	balance	balance	balance
Total	100	100	100	100	100	100
Viscosity of Second Agent	10	10	10	10	10	10
Form of Second Agent	liquid	liquid	liquid	liquid	liquid	liquid
Mixing Ratio of First Agent : Second Agent	2.3	2.3	2.3	2.3	2.3	2.3
Mass% of Acrylic Polymer During Mixing	0.90	0.90	0.90	0.90	0.90	0.90
Acrylic Polymer/All Non-Ionic Surfactants	0.13	0.13	0.13	0.13	0.13	0.13
Acrylic Polymer/All Anionic Surfactants	-	15.00	3.00	0.75	0.50	0.43
Evaluation						
Defoaming	3	3	5	5	5	5
Amount of Foam (Scale of 1-11)	11	11	8	6	5	5
Quality of Foam (Scale of 1-10)	6	7	9	7	7	6
Miscibility	A	A	A	A	A	A

[Industrial Applicability]

[0161]

According to the invention, a hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking before use and in which the foam retention property after mixing and foaming is improved without causing the defects caused by increasing the viscosities of the agents in advance is provided.

[Designation of Document] Claims

[Claim 1]

A hair cosmetic composition comprising a plurality of agents to be mixed and foamed by shaking,

Wherein the plurality of agents include an acidic agent containing one or more anionic polymers selected from acrylic polymers and the mixture of the plurality of agents is alkaline.

[Claim 2]

The hair cosmetic composition according to claim 1 which is characterized in that the acidic agent contains one or more anionic surfactants.

[Claim 3]

The hair cosmetic composition according to claim 1 which is characterized in that the plurality of agents include an agent containing one or more polyether-modified silicones.

[Claim 4]

The hair cosmetic composition according to claim 3 which is characterized in that the plurality of agents include an agent containing a higher alcohol and that the one or more polyether-modified silicones are contained in the agent containing the higher alcohol.

[Claim 5]

The hair cosmetic composition according to any one of claims 1 to 4 which is characterized in that the acidic agent contains one or more non-ionic surfactants having HLB of 10 or more.