Description

HAIR STYLING AGENT COMPOSITION

Field of the Invention

[0001]

The present invention relates to a hair styling agent composition.

Background of the Invention

[0002]

In the field of hair styling products, various adhesive polymers and film-forming polymers for hair setting are used in order to fix and maintain the hair in a desired shape.

[0003]

For example, Patent Document 1 discloses a copolymer containing an ester type monomer of an alcohol having 4 to 30 carbon atoms and (meth)acrylic acid, and an ester type monomer of a particular polyoxyalkylene group and (meth)acrylic acid, as constituent monomers, and having a cloudy point. The document describes that a hair styling product in which this copolymer is blended forms a hydrophobic film and shows excellent properties for maintenance of hair styling. In addition, Patent Document 2 proposes a hair styling product containing a polymer comprising a monomer unit having a pendant poly(alkyleneoxy) substituent for provision of a hair styling product which can improve hair volume. The document discloses, in Examples, a poly(nonaethylene glycol methyl ether acrylate) homopolymer as an example of the above polymer.

[0004]

When improvement of the set retention ability of a hair style is desired, generally, one may increase the amount of a blended adhesive polymer or a blended polymer for setting which forms a strong film to increase the adhesiveness of the polymer or the strength of the polymer film. On the other hand, hair styling products which can fix and maintain the hair in a desired shape while keeping a natural feel without making the hair stiff or sticky is desired.

[0005]

However, when the adhesive polymer is employed, an attempt for increasing set retention ability may cause excessive stickiness, and imparting natural feel of the hair may be prevented. On the other hand, when the strong film-forming polymer is employed, although the stickiness is low, the hair often becomes stiff, and a natural feel is not obtained. Further, when the film once formed is broken, the hair style cannot be maintained.

[0006]

For addressing this problem, for example, Patent Document 3 proposes a hair styling product in which a copolymer of hydroxyethyl acrylate and methoxyethyl acrylate, and a polyhydric alcohol are blended at a particular ratio, for provision of a hair styling product exhibiting excellent hair style retaining while imparting a texture which is not sticky but silky.

[0007]

(Patent Document 1) JP-A-2001-316435

(Patent Document 2) JP-A-2009-503191

(Patent Document 3) JP-A-2011-251930

Summary of the Invention

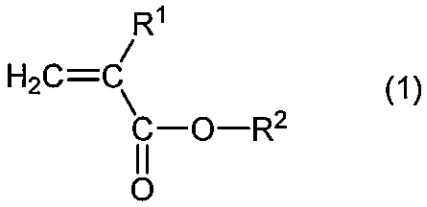
[0008]

The present invention provides a hair styling agent composition comprising the following components (A) and (B), wherein a mass ratio of the component (B) to the component (A), (B)/(A), is 0.03 or more and 1 or less:

(A) a polymer obtained by copolymerizing a monomer component comprising a monomer (a-1) and a monomer (a-2)

(a-1) 35 mass% or more and 50 mass% or less of a (meth)acrylate-based monomer represented by formula (1);

[0009]



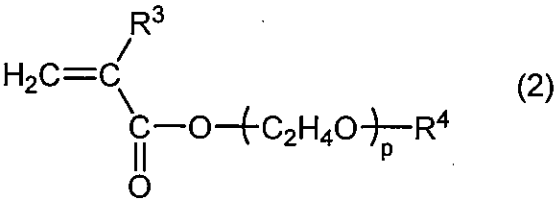
(1)

[0010]

wherein R^1 represents a hydrogen atom or a methyl group, and R^2 represents an alkyl group having 1 to 8 carbon atoms,

(a-2) 50 mass% or more and 65 mass% or less of a (meth)acrylate-based monomer containing ethylene oxide groups represented by formula (2);

[0011]



(2)

[0012]

wherein R^3 represents a hydrogen atom or a methyl group, R^4 represents an alkyl group having 1 to 4 carbon atoms, and p represents an integer of 20 to 90,

(B) one or two or more member selected from the group consisting of the following (b-1) and (b-2)

(b-1) a copolymer of a hydroxyalkyl (meth)acrylate ester and an alkoxyalkyl (meth)acrylate ester; and

(b-2) a copolymer of a hydroxyalkyl (meth)acrylate ester, an alkoxyalkyl (meth)acrylate ester, and a (meth)acrylic acid dialkylamide.

Detailed Description of the Invention

[0013]

It has been found by recent research that in recent years, user's preference for a hair style having steric and voluminous appearance has further changed. Thus, instead of conventional hair style in which the root portions of the hair are raised in a state in which there are an unnatural bundle feeling and glossy feeling, or simply the volume of a tress is increased, as conventionally done, the user prefers a hair style which has a natural and silky feel after a shampooing as if nothing is applied and in which the hair can be raised from the roots with a moderate bundle feeling during hair styling and which is fluffy and round as a whole after hair styling can be provided, and further the user desires the hair style being maintained for a duration of time.

[0014]

However, in the case of employing the hair styling products of Patent Documents 1 and 2, when the amounts of the polymer and the like blended are reduced to the extent that the feel after finish is good, a sufficient fluffy steric and voluminous appearance cannot be made, and even if the roots can be temporarily raised, the effect cannot be sufficiently maintained after a duration of time. In addition, when a sufficient steric and voluminous appearance, as well as good maintenance of the effect, are provided, the amounts of the polymer and the like blended must be increased,

and as a result, sticky feeling to the hand is strong during hair styling, and the bundle feeling is also strong after hair styling, and an appearance such that a film of the polymer is present on the hair, and a strongly sticky feel are provided. Accordingly, the finished feeling of hair would be far from a natural and silky feeling.

[0015]

In addition, in the case of employing the hair styling product of Patent Document 3, even if steric and voluminous appearance may be provided to the whole hair tress, roundness of hair style as a whole cannot be obtained. In addition, when the amount of the polymer blended is increased to the extent that the hair can be sufficiently raised from the roots, the sticky feeling to the hand is strong during hair styling, and the bundle feeling is strong after hair styling, and an appearance as if a film of the polymer is present on the hair is provided, and the solidity of the hair is too strong, and the feel of the hair is stiff. Accordingly, the finished feeling of hair would be far from a natural and silky feeling. In addition, also in the case of employing the hair styling product of Patent Document 3, when the amounts of the polymer and the like blended are reduced to the extent that the feel after finish is good, a sufficient fluffy steric and voluminous appearance cannot be made, and even if the roots can be temporarily raised, the effect cannot be sufficiently maintained after a duration of time.

[0016]

Therefore, the present invention relates to a hair styling agent composition which can raise the hair from the roots with a moderate bundle feeling during hair styling, which can impart a natural appearance to the hair such that a polymer film is not

present on the hair, which can impart a fluffy steric appearance and roundness after hair styling, and which can maintain the style for a duration of time, even if an amount of a polymer is blended to the extent that a natural appearance and a natural touch are provided after hair styling.

[0017]

The present inventors have found that although a copolymer of a particular (meth)acrylate-based monomer and a (meth)acrylate-based monomer containing ethylene oxide groups and another particular copolymer comprising a hydroxyalkyl (meth)acrylate ester monomer and an alkoxyalkyl (meth)acrylate ester monomer do not exhibit adhesiveness on the hair when each used alone for a hair styling agent, when these copolymers are used in combination at a particular ratio, thus obtained hair styling agent composition can exhibit adhesiveness on the hair upon application, and on the other hand, can form a film which loses adhesiveness on the hair after hair styling, and accordingly can satisfy all the above requirements.

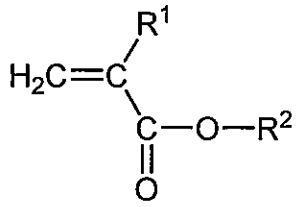
[0018]

[Component (A): Polymer Obtained by Copolymerizing Monomer (a-1) and Monomer (a-2)]

The component (A) is a film-forming polymer exhibiting no adhesiveness on the hair and is a component contributing to hair styling performance.

The monomer (a-1) used in the present invention is a (meth)acrylate-based monomer represented by formula (1).

[0019]



(1)

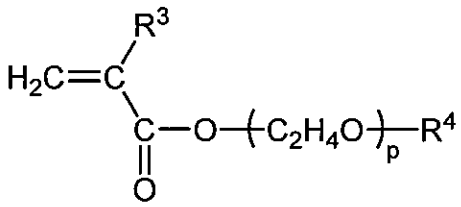
[0020]

wherein R^1 represents a hydrogen atom or a methyl group, and R^2 represents an alkyl group having 1 to 8 carbon atoms. The alkyl group may be either linear or branched. Specific examples thereof include linear alkyl groups such as a methyl group, an ethyl group, a n-propyl group, a n-butyl group, a n-hexyl group, and a n-octyl group, and branched alkyl groups such as an isopropyl group, an isobutyl group, a tert-butyl group, and an isohexyl group. From the viewpoint of the elasticity, keeping ability, and hair restyling properties of the hair, R^2 is more preferably a linear or branched alkyl groups having 1 to 6 carbon atoms, and even more preferably a linear or branched alkyl groups having 1 to 4 carbon atoms. Specific examples of the monomer (a-1) include methyl methacrylate, butyl methacrylate, isobutyl methacrylate, tert-butyl methacrylate, methyl acrylate, and isobutyl acrylate. Methyl methacrylate, butyl methacrylate, tert-butyl methacrylate, and isobutyl methacrylate are preferred. The monomers (a-1) can be used singly or in combinations of two or more.

[0021]

The monomer (a-2) used in the present invention is a (meth)acrylate-based monomer containing ethylene oxide groups represented by formula (2).

[0022]



(2)

[0023]

wherein R^3 represents a hydrogen atom or a methyl group, and R^4 represents an alkyl group having 1 to 4 carbon atoms. Specific examples of the alkyl group include linear alkyl groups such as a methyl group, an ethyl group, and a n-propyl group. Particularly, a methyl group is preferred. p represents the number of moles of ethylene oxide groups added, and is an integer of 20 to 90, preferably an integer of 23 to 90, from the viewpoint of obtaining good setting properties, keeping ability, and hair restyling properties of the hair. Specific examples of the monomer (a-2) include methoxy PEG(23) acrylate, methoxy PEG(23) methacrylate, methoxy PEG(45) methacrylate, and methoxy PEG(90) methacrylate. The monomers (a-2) can be used singly or in combinations of two or more, and methoxy PEG(23) methacrylate is preferred. The monomer (a-2) can be obtained, for example, by reacting acrylic acid chloride or methacrylic acid chloride with polyethylene glycol methyl ether.

[0024]

The polymer of the component (A) used in the present invention is a nonionic polymer obtained by copolymerizing a monomer component containing the monomer (a-1) and the monomer (a-2). The content of the monomer (a-1) in the monomer component is 35 mass% or more, preferably 38 mass% or more, and is 50 mass% or less, preferably 47 mass% or less, based on the total amount of monomers from the viewpoint of obtaining excellent conditioning properties, setting properties, keeping ability, and hair restyling properties of the hair. Similarly, the content of the monomer (a-2) in the

monomer component is 50 mass% or more, preferably 53 mass% or more, and is 65 mass% or less, preferably 62 mass% or less, based on the total amount of the monomers from the viewpoint of obtaining excellent conditioning properties, setting properties, keeping ability, and hair restyling properties of the hair. By setting the content of the monomer (a-1) and the monomer (a-2) in these ranges, the hair styling agent of the present invention in which the obtained polymer is blended can exert excellent effects. Monomers other than the monomer (a-1) and the monomer (a-2) may be appropriately contained in the monomer component to the extent that copolymerization reaction and the effects of the present invention are not impaired. However, in the present invention, the total amount of the monomer (a-1) and the monomer (a-2) is preferably 85 mass% or more and 100 mass% or less of the total amount of the monomers, more preferably 90 mass% or more and 100 mass% or less, and further preferably 95 mass% or more and 100 mass% or less. In addition, the polymer of the component (A) is a nonionic polymer and preferably does not comprise an ionic monomer as the monomer component other than the monomer (a-1) and the monomer (a-2).

[0025]

The copolymerization of the monomer (a-1) and the monomer (a-2) should be performed according to an ordinary method and can be carried out, for example, by heating a monomer solution of the monomer (a-1) and the monomer (a-2) dissolved in an appropriate solvent in the presence of an appropriate polymerization initiator for a polymerization reaction. Examples of the polymerization initiator include 2,2'-azobisisobutyronitrile. In addition, as the component (A), commercially available raw materials can also be used. Examples thereof include Plascize L-188K (manufactured by GOO Chemical Co., Ltd.).

[0026]

The content of the component (A) in the hair styling agent composition of the present invention is preferably 0.1 mass% or more, more preferably 0.5 mass% or more, further preferably 1 mass% or more, and further preferably 1.2 mass% or more from the viewpoint of ability of shaping a bundle during hair styling and maintaining a fluffy and round style in which the roots are raised after hair styling, and is preferably 3 mass% or less, more preferably 2.5 mass% or less, further preferably 2 mass% or less, further preferably 1.8 mass% or less, and further preferably 1.6 mass% or less from the viewpoint of satisfying all of a good feel after hair styling and hair styling properties and lasting properties.

[0027]

[Component (B): Copolymer Selected from Group Consisting of (b-1) and (b-2)]

The component (B) is a film-forming polymer which has no adhesiveness on the hair and forms a soft film.

The component (B) is one or two or more selected from the group consisting of (b-1) a copolymer of a hydroxyalkyl (meth)acrylate ester and an alkoxyalkyl (meth)acrylate ester and (b-2) a copolymer of a hydroxyalkyl (meth)acrylate ester, an alkoxyalkyl (meth)acrylate ester, and a (meth)acrylic acid dialkylamide.

[0028]

As the hydroxyalkyl (meth)acrylate ester which is a monomer of (b-1) or (b-2), compounds in which the alkyl group is an alkyl group having 1 or more and 4 or less carbon atoms are preferred. More specific examples include hydroxyethyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate, 3-hydroxypropyl (meth)acrylate, 2-

hydroxybutyl (meth)acrylate, 3-hydroxybutyl (meth)acrylate, and 4-hydroxybutyl (meth)acrylate. Among them, hydroxyethyl (meth)acrylate, further hydroxyethyl acrylate, is preferred.

[0029]

As the alkoxyalkyl (meth)acrylate ester which is a monomer of (b-1) or (b-2), compounds in which the alkyl group is an alkyl group having 1 or more and 4 or less carbon atoms, and the alkoxy group is an alkoxy group having 1 or more and 4 or less carbon atoms are preferred. Examples of the alkyl group having 1 or more and 4 or less carbon atoms include a methyl group, an ethyl group, a n-propyl group, an isopropyl group, a n-butyl group, a sec-butyl group, an isobutyl group, and a tert-butyl group. Examples of the alkoxy group having 1 or more and 4 or less carbon atoms include a methoxy group, an ethoxy group, a propoxy group, and a butoxy group. More specific examples include methoxyethyl (meth)acrylate, ethoxyethyl (meth)acrylate, propoxyethyl (meth)acrylate, isopropoxyethyl (meth)acrylate, n-butoxyethyl (meth)acrylate, sec-butoxyethyl (meth)acrylate, isobutoxyethyl (meth)acrylate, tert-butoxyethyl (meth)acrylate, methoxypropyl (meth)acrylate, and 3-methoxybutyl (meth)acrylate. Among them, methoxyethyl (meth)acrylate, further methoxyethyl acrylate, is preferred.

[0030]

As the (meth)acrylic acid dialkylamide which is a monomer of (b-2), compounds in which the alkyl group is an alkyl group having 1 or more and 4 or less carbon atoms are preferred. More specific examples include (meth)acrylic acid dimethylamide, (meth)acrylic acid diethylamide, (meth)acrylic acid dipropylamide, (meth)acrylic acid diisopropylamide, (meth)acrylic acid di n-butylamide, and (meth)acrylic acid di tert-butylamide. Among them, (meth)acrylic

acid dimethylamide, further acrylic acid dimethylamide, is preferred.

[0031]

Examples of a preferred copolymer of (b-1) include hydroxyethyl acrylate-methoxyethyl acrylate copolymers. Specific examples of commercial products thereof include Plascize L-222 and Plascize L-2200 (manufactured by GOO Chemical Co., Ltd.). In addition, examples of a preferred copolymer of (b-2) include dimethylacrylamide-hydroxyethyl acrylate-methoxyethyl acrylate copolymers. Specific examples of commercial products thereof include Plascize L-2700 and Plascize L-2714 (manufactured by GOO Chemical Co., Ltd.).

[0032]

Any component (B) can be used alone or two or more components (B) can be used in combination, but the component (B) more preferably comprises both (b-1) and (b-2) from the viewpoint of ability of improving the rise of the roots after hair styling and making a more fluffy and round style.

[0033]

In this case, the mass ratio of (b-2) to (b-1), (b-2)/(b-1), is preferably 0.01 or more, more preferably 0.05 or more, and further preferably 0.1 or more from the viewpoint of achieving both lack of a sticky feeling during hair styling and lack of a feeling of the presence of the film-forming polymer after hair styling, and is preferably 10 or less, more preferably 5 or less, further preferably 1 or less, further preferably 0.5 or less, and further preferably 0.3 or less from the viewpoint of ability of shaping a bundle during hair styling, preventing stickiness during hair styling, and maintaining a fluffy and round style in which the roots are raised after hair styling.

[0034]

The content of the component (B) in the hair styling agent composition of the present invention is preferably 0.05 mass% or more, more preferably 0.1 mass% or more, further preferably 0.2 mass% or more, and further preferably 0.5 mass% or more from the viewpoint of ability of shaping a bundle during hair styling, and is preferably 3 mass% or less, more preferably 2 mass% or less, further preferably 1.5 mass% or less, and further preferably 1 mass% or less from the viewpoint of ability of shaping a bundle during hair styling, lack of a feeling of the presence of the polymer after hair styling, and maintaining a fluffy and round style in which the roots are raised after hair styling.

[0035]

In the present invention, by using the component (A) and the component (B) in combination, a hair styling agent composition which exhibits adhesiveness on the hair during hair styling, and on the other hand does not exhibit adhesiveness on the hair after hair styling is provided. As a result, during hair styling, a tress can be made so that the hair is raised from the roots, and after hair styling, each hair loosens in a state in which the roots of the tress made are raised, and therefore, a hair style which has a natural appearance and a fluffy steric and round appearance can be realized.

[0036]

The mass ratio of the component (B) to the component (A), (B)/(A), in the hair styling agent composition of the present invention is 0.03 or more, preferably 0.05 or more, more preferably 0.1 or more, further preferably 0.2 or more, and further preferably 0.3 or more from the viewpoint of ability of shaping a bundle during hair styling, and is 1 or less, preferably 0.8 or less, more

preferably 0.7 or less, further preferably 0.6 or less, and further preferably 0.5 or less from the viewpoint of ability of shaping a bundle during hair styling, lack of a feeling of the presence of the polymer after hair styling, and maintaining a fluffy and round style in which the roots are raised after hair styling.

[0037]

In addition, the total content of the component (A) and the component (B) in the hair styling agent composition of the present invention is preferably 0.5 mass% or more, more preferably 1 mass% or more, further preferably 1.5 mass% or more, and further preferably 1.7 mass% or more from the viewpoint of ability of improving the rise of the roots after hair styling and making a more fluffy and round style, and is preferably 3.5 mass% or less, more preferably 3 mass% or less, further preferably 2.5 mass% or less, and further preferably 2 mass% or less from the viewpoint of preventing a feeling of the presence of the polymer after hair styling, lack of a bundle feeling after hair styling, and maintaining a fluffy and round style in which the roots are raised after hair styling.

[0038]

[Component (C): Nonionic Surfactant]

A nonionic surfactant is preferably further contained in the hair styling agent composition of the present invention as a component (C).

[0039]

Examples of the nonionic surfactant include polyoxyalkylene alkyl ethers, polyoxyalkylene alkenyl ethers, higher fatty acid sucrose esters, polyglycerin fatty acid esters, higher fatty acid mono- or diethanolamides, polyoxyethylene hydrogenated castor oil, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene

sorbitol fatty acid esters, alkyl saccharide-based surfactants, alkylamine oxides, and alkylamidoamine oxides.

[0040]

Among these, polyoxyalkylene addition type nonionic surfactants are preferred, and polyoxyalkylene alkyl ethers and polyoxyethylene hydrogenated castor oil are more preferred.

[0041]

The components (C) can be used singly or in combinations of two or more. The content of the component (C) in the hair styling agent composition of the present invention is preferably 0.01 mass% or more, more preferably 0.05 mass% or more, and further preferably 0.1 mass% or more and is preferably 2 mass% or less, more preferably 1 mass% or less, further preferably 0.5 mass% or less, and further preferably 0.3 mass% or less from the viewpoint of improving the loose feeling of a tress after hair styling.

[0042]

[Medium]

The hair styling agent composition of the present invention comprises water as a medium. As the medium, in addition to water, an organic solvent other than the above particular organic solvents can also be used as needed. Examples of such an organic solvent include lower alkanols such as ethanol and 2-propanol, polyols such as propylene glycol, 1,3-butanediol, diethylene glycol, dipropylene glycol, and glycerin, cellosolves such as ethyl cellosolve, butyl cellosolve, and benzyl cellosolve, and carbitols such as ethyl carbitol and butyl carbitol.

[0043]

[Other Components]

Various components usually used in a hair styling agent, for example, a chelating agent, vitamins, protein, amino acids, crude

drugs, a cool feeling-providing agent (menthol or the like), a preservative, an ultraviolet absorbing agent, an antioxidant, a colorant, and a perfume, can be blended in the hair styling agent composition of the present invention according to the purpose.

[0044]

[Type of agent]

Type of the hair styling agent composition of the present invention is not limited, and may be selected from, for example, a foam type, a liquid type, a spray type, a gel type, a paste type, and a cream type.

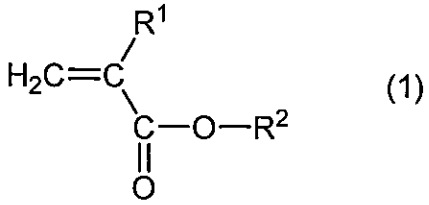
[0045]

<1> A hair styling agent composition comprising the following components (A) and (B), wherein a mass ratio of the component (B) to the component (A), (B)/(A), is 0.03 or more and 1 or less:

(A) a polymer obtained by copolymerizing a monomer component comprising a monomer (a-1) and a monomer (a-2)

(a-1) 35 mass% or more and 50 mass% or less of a (meth)acrylate-based monomer represented by formula (1);

[0046]



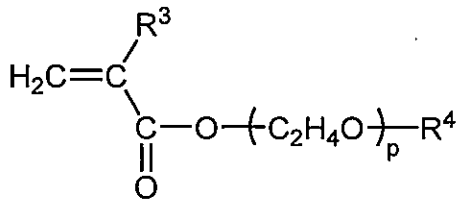
(1)

[0047]

wherein R^1 represents a hydrogen atom or a methyl group, and R^2 represents an alkyl group having 1 to 8 carbon atoms,

(a-2) 50 mass% or more and 65 mass% or less of a (meth)acrylate-based monomer containing ethylene oxide groups represented by formula (2);

[0048]



(2)

[0049]

wherein R^3 represents a hydrogen atom or a methyl group, R^4 represents an alkyl group having 1 to 4 carbon atoms, and p represents an integer of 20 to 90,

(B) one or two or more selected from the group consisting of the following (b-1) and (b-2)

(b-1) a copolymer of a hydroxyalkyl (meth)acrylate ester and an alkoxyalkyl (meth)acrylate ester

(b-2) a copolymer of a hydroxyalkyl (meth)acrylate ester, an alkoxyalkyl (meth)acrylate ester, and a (meth)acrylic acid dialkylamide.

[0050]

<2> The hair styling agent composition according to <1>, wherein a content of the component (A) is preferably 0.1 mass% or more, more preferably 0.5 mass% or more, further preferably 1 mass% or more, and further preferably 1.2 mass% or more and is preferably 3 mass% or less, more preferably 2.5 mass% or less, further preferably 2 mass% or less, further preferably 1.8 mass% or less, and further preferably 1.6 mass% or less.

[0051]

<3> The hair styling agent composition according to <1> or <2>, wherein a content of the component (B) is preferably 0.05 mass% or more, more preferably 0.1 mass% or more, further preferably 0.2 mass% or more, and further preferably 0.5 mass% or more and is preferably 3 mass% or less, more preferably 2 mass% or less,

further preferably 1.5 mass% or less, and further preferably 1 mass% or less.

[0052]

<4> The hair styling agent composition according to any of <1> to <3>, wherein the mass ratio of the component (B) to the component (A), (B)/(A), is preferably 0.05 or more, more preferably 0.1 or more, further preferably 0.2 or more, and further preferably 0.3 or more and is preferably 0.8 or less, more preferably 0.7 or less, further preferably 0.6 or less, and further preferably 0.5 or less.

[0053]

<5> The hair styling agent composition according to any of <1> to <4>, wherein preferably, the component (B) comprises both (b-1) and (b-2).

[0054]

<6> The hair styling agent composition according to <5>, wherein a mass ratio of (b-2) to (b-1), (b-2)/(b-1), is preferably 0.01 or more, more preferably 0.05 or more, and further preferably 0.1 or more and is preferably 10 or less, more preferably 5 or less, further preferably 1 or less, further preferably 0.5 or less, and further preferably 0.3 or less.

[0055]

<7> The hair styling agent composition according to any of <1> to <6>, preferably further comprising a component (C) nonionic surfactant.

[0056]

<8> The hair styling agent composition according to any of <1> to <7>, wherein preferably, the component (C) is a polyoxyalkylene addition type nonionic surfactant.

[0057]

<9> The hair styling agent composition according to any of <1> to <8>, preferably further comprising water.

[0058]

<10> The hair styling agent composition according to any of <1> to <9>, wherein the monomer (a-1) used in the component (A) is preferably one or two or more selected from the group consisting of methyl methacrylate, butyl methacrylate, isobutyl methacrylate, tert-butyl methacrylate, methyl acrylate, and isobutyl acrylate, more preferably one or two selected from the group consisting of methyl methacrylate, butyl methacrylate, tert-butyl methacrylate, and isobutyl methacrylate.

[0059]

<11> The hair styling agent composition according to any of <1> to <10>, wherein the monomer (a-2) used in the component (A) is preferably one or two or more selected from the group consisting of methoxy PEG(23) acrylate, methoxy PEG(23) methacrylate, methoxy PEG(45) methacrylate, and methoxy PEG(90) methacrylate, more preferably methoxy PEG(23) methacrylate.

[0060]

<12> The hair styling agent composition according to any of <1> to <11>, wherein preferably, the component (A) is a nonionic polymer.

[0061]

<13> The hair cosmetic according to any of <1> to <12>, wherein a content of the monomer (a-1) in the monomer component in the component (A) is preferably 38 mass% or more and is preferably 47 mass% or less based on a total amount of monomers.

[0062]

<14> The hair cosmetic according to any of <1> to <13>, wherein a content of the monomer (a-2) in the monomer component in the

component (A) is preferably 53 mass% or more and is preferably 62 mass% or less based on the total amount of the monomers.

[0063]

<15> The hair cosmetic according to any of <1> to <14>, wherein a total amount of the monomer (a-1) and the monomer (a-2) in the monomer component in the component (A) is preferably 85 mass% or more and 100 mass% or less, more preferably 90 mass% or more and 100 mass% or less, and further preferably 95 mass% or more and 100 mass% or less based on the total amount of the monomers.

[0064]

<16> The hair cosmetic according to any of <1> to <15>, wherein a total content of the component (A) and the component (B) is preferably 0.5 mass% or more, more preferably 1 mass% or more, further preferably 1.5 mass% or more, and further preferably 1.7 mass% or more and is preferably 3.5 mass% or less, more preferably 3 mass% or less, further preferably 2.5 mass% or less, and further preferably 2 mass% or less.

[0065]

<17> The hair cosmetic according to any of <1> to <16>, wherein a content of the component (C) is preferably 0.01 mass% or more, more preferably 0.05 mass% or more, and further preferably 0.1 mass% or more and is preferably 2 mass% or less, more preferably 1 mass% or less, further preferably 0.5 mass% or less, and further preferably 0.3 mass% or less.

Examples

[0066]

Examples 1 to 12 and Comparative Examples 1 to 5

Hair styling agent compositions shown in Tables 1 and 2 were each prepared and placed in a mist sprayer (the head portion was

YSR manufactured by Yoshino Seisakusho), and the following evaluation was performed. The results are shown together in Tables 1 and 2.

[0067]

<Evaluation of Stylability around Roots of hair bundle during Hair Styling>

1.0 g of each formulated hair cosmetic was sprayed on the dry hair of a wig of Asian hair and short-cut hair over the entire wig, and the hair was styled in such a manner that a fluffy feeling was created while the fingers were placed at the roots, and the fingers were passed so as to raise the roots, and a steric appearance was further created while the surface hair was grasped. At this time, seven panelists were allowed to alternatively select any of "easy to shape"/"cannot say either"/"difficult to shape" from the viewpoint of stylability around the roots of hair bundle during hair styling. The numbers of panelists who answered "easy to shape"/"cannot say either"/"difficult to shape" are shown in order.

[0068]

<Lack of Sticky Feeling during Hair Styling>

The same operation as the method by which stylability was evaluated was performed. At this time, seven panelists evaluated the feel of the hair from the viewpoint of preventing a sticky feeling. The panelists were allowed to alternatively select any of "I didn't feel sticky"/"cannot say either"/"I felt sticky." The numbers of panelists who answered "I didn't feel sticky"/"cannot say either"/"I felt sticky" are shown in order.

[0069]

<Fluffy Steric appearance and Roundness Immediately after Finish>

The same operation as the method by which stylability was evaluated was performed, and seven panelists were allowed to

alternatively select any of "a style which had a fluffy steric and round appearance was made"/"cannot say either"/"a style which had a fluffy steric and round appearance was not made" from the viewpoint of whether a style having a fluffy feeling immediately after hair styling was made. The numbers of panelists who answered "a style which had a fluffy steric and round appearance was made"/"cannot say either"/"a style which had a fluffy steric and round appearance was not made" are shown in order.

[0070]

<Lack of Feeling of Presence of Polymer Immediately after Finish>

Using a wig after a style having a fluffy feeling was made, seven panelists evaluated the feel of the hair. The panelists were allowed to alternatively select any of "there is no feeling of the presence of the polymer on the hair"/"cannot say either"/"there is a feeling of the presence of the polymer on the hair." The numbers of panelists who answered "there is no feeling of the presence of the polymer on the hair"/"cannot say either"/"there is a feeling of the presence of the polymer on the hair" are shown in order.

[0071]

<Loose Feeling of Tress Immediately after Finish>

When there is a loose feeling in a tress after hair styling, the hair appears to have a natural appearance such that the polymer film is not present on the hair, and therefore evaluation was performed using the loose feeling of a tress. Using a wig after a style having a fluffy feeling was made, seven panelists were allowed to alternatively select any of "there is the loose feeling of the tress"/"cannot say either"/"there is no loose feeling of the tress." The numbers of panelists who answered there is the loose feeling of the tress"/"cannot say either"/"there is no loose feeling of the tress" are shown in order.

[0072]

<Fluffy Feeling after 10 Minutes>

Using a wig after a style having a fluffy feeling was made, seven panelists were allowed to alternatively select any of "the fluffy feeling remains"/"cannot say either"/"the fluffy feeling does not remain" from the viewpoint of whether the style having a fluffy feeling remained when the wig was allowed to stand for 10 minutes. The numbers of panelists who answered "the fluffy feeling remains"/"cannot say either"/"the fluffy feeling does not remain" are shown in order.

[0073]

[Table 1]

Mass% (Each content is active amount)			Examples											
			1	2	3	4	5	6	7	8	9	10	11	12
(A)		(Acrylates/methoxy PEG-23 methacrylate) copolymer (*1)	1.19	1.36	1.70	2.04	1.36	1.36	1.38	1.36	1.40	1.40	1.36	1.36
(B)	(b-1)	Hydroxyethyl acrylate-methoxyethyl acrylate copolymer (*2)	0.70	0.80	1.00	1.20	0.88	-	0.40	0.20	0.06	1.27	0.85	0.50
	(b-2)	Dimethylacrylamide-hydroxyethyl acrylate-methoxyethyl acrylate copolymer (*3)	0.07	0.08	0.10	0.12	-	0.88	0.11	0.07	0.01	0.13	0.03	0.38
(B')		Acrylic resin alkanolamine (*4)	-	-	-	-	-	-	-	-	-	-	-	-
(C)		PEG-60 hydrogenated castor oil (*5)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Others		Ethanol	15	15	15	15	15	15	15	15	15	15	15	15
		Perfume	0.15	0.15	0.15	0.15	0	0	0.15	0.15	0.15	0.15	0.15	0.15
		Water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
(B)/(A)			0.65	0.65	0.65	0.65	0.65	0.65	0.37	0.20	0.05	1.00	0.65	0.65
(B')/(A)			0	0	0	0	0	0	0	0	0	0	0	0
(A)+(B)			1.96	2.24	2.80	3.36	2.24	2.24	1.89	1.63	1.47	2.80	2.24	2.24
(b-1)+(b-2)			0.77	0.88	1.10	1.32	0.88	0.88	0.51	0.27	0.07	1.40	0.88	0.88
(b-2)/(b-1)			0.10	0.10	0.10	0.10	0	-	0.28	0.35	0.16	0.10	0.04	0.76
Evaluation		Stylability around roots of hair bundle during hair styling	3/4/0	6/1/0	5/2/0	5/2/0	5/2/0	5/2/0	7/0/0	3/4/0	3/4/0	5/2/0	3/4/0	3/4/0
		Lack of sticky feeling during hair styling	5/2/0	7/0/0	3/4/0	3/4/0	7/0/0	7/0/0	5/2/0	7/0/0	7/0/0	5/2/0	7/0/0	5/2/0
		Fluffy steric appearance and roundness immediately after finish	5/2/0	6/1/0	6/1/0	6/1/0	5/2/0	5/2/0	6/1/0	6/1/0	5/2/0	5/2/0	5/2/0	5/2/0
		Lack of feeling of presence of polymer immediately after finish	5/2/0	5/2/0	3/4/0	3/4/0	6/1/0	6/1/0	7/0/0	7/0/0	7/0/0	5/2/0	7/0/0	5/2/0
		Loose feeling of tress immediately after finish	5/2/0	5/2/0	3/4/0	3/4/0	5/2/0	5/2/0	5/2/0	5/2/0	5/2/0	5/2/0	5/2/0	5/2/0
		Fluffy feeling after 10 minutes	5/2/0	5/2/0	3/4/0	3/4/0	3/4/0	3/4/0	7/0/0	5/2/0	5/2/0	3/4/0	3/4/0	3/4/0

[0074]

[Table 2]

Mass% (Each content is active amount)			Comparative Examples				
			1	2	3	4	5
(A)		(Acrylates/methoxy PEG-23 methacrylate) copolymer (*1)	1.40	-	1.70	1.36	1.40
(B)	(b-1)	Hydroxyethyl acrylate-methoxyethyl acrylate copolymer (*2)	-	0.80	1.85	-	0.03
	(b-2)	Dimethylacrylamide-hydroxyethyl acrylate-methoxyethyl acrylate copolymer (*3)	-	0.08	0.185	-	-
(B')		Acrylic resin alkanolamine (*4)	-	-	-	0.88	-
(C)		PEG-60 hydrogenated castor oil (*5)	0.2	0.2	0.2	0.2	0.2
Others		Ethanol	15	15	15	15	15
		Perfume	0.15	0.15	0.15	0.15	0.15
		Water	Balance	Balance	Balance	Balance	Balance
(B)/(A)			0	-	1.20	0	0.02
(B')/(A)			0	-	0	0.65	0
(A)+(B)			1.40	0.88	3.74	2.24	1.43
(b-1)+(b-2)			0	0.88	2.04	0.88	0.03
(b-2)/(b-1)			-	0.10	0.10	-	0
Evaluation		Stylability around roots of hair bundle during hair styling	0/1/6	0/1/6	7/0/0	0/1/6	0/2/5
		Lack of sticky feeling during hair styling	7/0/0	7/0/0	0/1/6	0/1/6	0/2/5
		Fluffy steric appearance and roundness immediately after finish	0/1/6	0/1/6	7/0/0	0/4/3	0/4/3
		Lack of feeling of presence of polymer immediately after finish	7/0/0	7/0/0	0/1/6	5/2/0	3/4/0
		Loose feeling of tress immediately after finish	5/2/0	5/2/0	5/2/0	0/1/6	5/2/0
		Fluffy feeling after 10 minutes	0/1/6	0/1/6	0/1/6	0/1/6	0/2/5

[0075]

*1: Plascize L-188K (manufactured by GOO Chemical Co., Ltd.)

*2: Plascize L-2200 (manufactured by GOO Chemical Co., Ltd.)

*3: Plascize L-2714 (manufactured by GOO Chemical Co., Ltd.)

*4: Plascize L-6466 (manufactured by GOO Chemical Co., Ltd.)

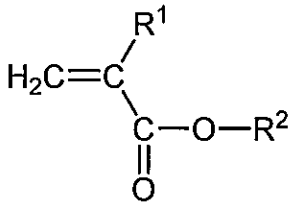
*5: EMANON CH-60 (manufactured by Kao Corporation)

Claims

1. A hair styling agent composition comprising the following components (A) and (B), wherein a mass ratio of the component (B) to the component (A), (B)/(A), is 0.03 or more and 1 or less:

(A) a polymer obtained by copolymerizing a monomer component comprising a monomer (a-1) and a monomer (a-2)

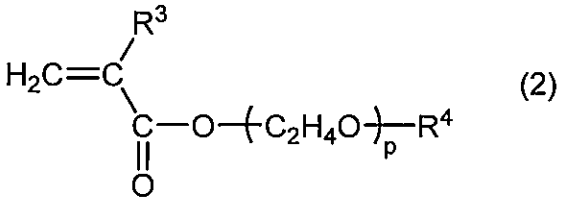
(a-1) 35 mass% or more and 50 mass% or less of a (meth)acrylate-based monomer represented by formula (1);



(1)

wherein R^1 represents a hydrogen atom or a methyl group, and R^2 represents an alkyl group having 1 to 8 carbon atoms,

(a-2) 50 mass% or more and 65 mass% or less of a (meth)acrylate-based monomer containing ethylene oxide groups represented by formula (2);



(2)

wherein R^3 represents a hydrogen atom or a methyl group, R^4 represents an alkyl group having 1 to 4 carbon atoms, and p represents an integer of 20 to 90,

(B) one or two or more selected from the group consisting of the following (b-1) and (b-2)

(b-1) a copolymer of a hydroxyalkyl (meth)acrylate ester and an alkoxyalkyl (meth)acrylate ester

(b-2) a copolymer of a hydroxyalkyl (meth)acrylate ester, an alkoxyalkyl (meth)acrylate ester, and a (meth)acrylic acid dialkylamide.

2. The hair styling agent composition according to claim 1, wherein a content of the component (A) is 0.1 mass% or more and 3 mass% or less.

3. The hair styling agent composition according to claim 1 or 2, wherein a content of the component (B) is 0.05 mass% or more and 3 mass% or less.

4. The hair styling agent composition according to any of claims 1 to 3, wherein the component (B) comprises both (b-1) and (b-2).

5. The hair styling agent composition according to claim 4, wherein a mass ratio of (b-2) to (b-1), (b-2)/(b-1), is 0.01 or more and 10 or less.

6. The hair styling agent composition according to any of claims 1 to 5, further comprising a component (C) nonionic surfactant.

7. The hair styling agent composition according to any of claims 1 to 6, wherein the component (C) is a polyoxyalkylene addition type nonionic surfactant.

8. The hair styling agent composition according to any of claims 1 to 7, further comprising water.