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(54) **Titre** : COMPOSITIONS DE CONDITIONNEUR AYANT UNE TRANSMITTANCE ELEVEE
(54) **Title**: CONDITIONING COMPOSITIONS HAVING HIGH TRANSMITTANCE

(57) **Abrégé/Abstract**:

Disclosed are conditioning compositions comprising by weight: (a) from about 0.1% to about 10% of a thickening polymer system; (b) from about 0.1% to about 8.0% of a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof; (c) from about 0.1% to about 10% of a silicone compound; and (e) an aqueous carrier; wherein the composition has a transmittance of 70% or more. The compositions are especially suitable for hair care products such as hair conditioning products for rinse-off use.

ABSTRACT

Disclosed are conditioning compositions comprising by weight: (a) from about 0.1% to about 10% of a thickening polymer system; (b) from about 0.1% to about 8.0% of a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof; (c) from about 0.1% to about 10% of a silicone compound; and (e) an aqueous carrier; wherein the composition has a transmittance of 70% or more. The compositions are especially suitable for hair care products such as hair conditioning products for rinse-off use.

CONDITIONING COMPOSITIONS HAVING HIGH TRANSMITTANCE

CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application No. 60/604,649, filed on August 26, 2004.

FIELD OF THE INVENTION

The present invention relates to conditioning compositions comprising: (a) a thickening polymer system; (b) a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof; (c) a silicone compound; and (e) an aqueous carrier; wherein the composition has a transmittance of 70% or more. The compositions are especially suitable for hair care products such as hair conditioning products for rinse-off use.

BACKGROUND OF THE INVENTION

A variety of conditioning compositions such as hair conditioning compositions, skin conditioning compositions, and fabric softeners have been used for a variety of substrates such as hair, skin, and fabric. A common method of providing conditioning benefits is through the use of conditioning agents such as cationic surfactants and polymers, high melting point fatty compounds, low melting point oils, silicone compounds, and mixtures thereof. Most of these conditioning agents are known to provide various conditioning benefits. For example, some cationic surfactants, when used together with some high melting point fatty compounds, are believed to form a gel matrix which has a suitable rheology for conditioning compositions and which is suitable for providing a variety of conditioning benefits, especially when used for hair care products, such as slippery feel, softness and reduced tangling on wet hair and softness and moisturized feel on the dry hair.

Most of the above conditioning agents are also known to make the composition opaque. Thus, there is a need for conditioning compositions having a clear product appearance i.e., transparent or translucent product appearance.

Additionally, there exists a need for achieving the suitable rheology for conditioning compositions by other methods than forming the above gel matrix, while maintaining the conditioning benefits of the gel matrix.

Furthermore, most of the above conditioning agents are also known to weigh down the hair when these conditioning agents are included in hair care compositions. For consumers who desire maintaining or increasing hair volume such as consumers having fine hair, weighing down the hair is not desirable. Thus, there is a need for hair conditioning compositions which do not weigh down the hair while providing conditioning benefits.

There also exists a need for conditioning compositions which consumers feel are easy to rinse-off while providing conditioning benefits when the compositions are used in a form of rinse-off products, especially rinse-off hair conditioner products. Conditioner compositions containing the above gel matrix also provide long-lasting slippery feel when rinsing which is not desirable for some consumers who prefer clean feel. Thus, there is a need for conditioning compositions which can easily leave the hair with a clean feel when rinsing the composition from the hair, while still depositing sufficient amount of conditioning agents on the hair.

Based on the foregoing, there remains a need for conditioning compositions which provide a clear product appearance. There also remains a need for such conditioning compositions which provide suitable rheology while providing a clear product appearance. There is also a need for such conditioning compositions which are suitable for providing further benefits such as conditioning benefits, not weighing down the hair, and easy to rinse-off feel, while providing the above a clear product appearance and the suitable rheology.

None of the existing art provides all of the advantages and benefits of the present invention.

SUMMARY OF THE INVENTION

The present invention is directed to conditioning compositions comprising by weight:

(a) from about 0.1% to about 10% of a thickening polymer system;

(b) from about 0.1% to about 8.0% of a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof;

(c) from about 0.1% to about 10% of a silicone compound; and

(d) an aqueous carrier;

wherein the composition has a transmittance of 70% or more.

These and other features, aspects, and advantages of the present invention will become better understood from a reading of the following description, and appended claims.

DETAILED DESCRIPTION OF THE INVENTION

While the specification concludes with claims particularly pointing out and distinctly claiming the invention, it is believed that the present invention will be better understood from the following description.

Herein, "comprising" means that other steps and other ingredients which do not affect the end result can be added. This term encompasses the terms "consisting of" and "consisting essentially of".

All percentages, parts and ratios are based upon the total weight of the compositions of the present invention, unless otherwise specified. All such weights as they pertain to listed ingredients are based on the active level and, therefore, do not include carriers or by-products that may be included in commercially available materials.

Herein, "mixtures" is meant to include a simple combination of materials and any compounds that may result from their combination.

COMPOSITIONS

The conditioner composition of the present invention comprises by weight:

(a) from about 0.1% to about 10% of a thickening polymer system;

(b) from about 0.1% to about 8.0% of a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof;

(c) from about 0.1% to about 10% of a silicone compound; and

(d) an aqueous carrier;

wherein the composition has a transmittance of 70% or more.

The conditioning compositions of the present invention have a clear product appearance. Additionally, the conditioning compositions of the present invention have a suitable rheology for conditioning compositions. Furthermore, the conditioning compositions of the present invention are suitable for providing further benefits such as, conditioning benefits, especially softness and reduced tangling in wet hair when used for hair care products such as hair conditioning products, not weighing down the hair when used for hair care products such as hair conditioning products, and easy to rinse-off feel when used in a form of rinse-off products.

In one highly preferred embodiment, the silicone compounds are substantially soluble silicone copolyols, wherein the substantially soluble silicone copolyols are those being substantially free of hydrophobic substitutions and those having polyethylene oxide substitutions at a level such that the weight ratio of polyethylene oxide substitutions to the silicone portion is at least about 0.8; the composition further comprises a cationic conditioning polymer having a cationic charge density of 0.6meq/g or more and selected from the group consisting of cationic cellulose polymers, copolymers of acrylamide and acrylamidopropyl trimethylammonium chloride, copolymers of acrylamide and dimethyldiallylammonium chloride, and mixtures thereof; and the composition is substantially free of cationic guar polymers. It is believed that, in this highly preferred embodiment, the composition of the present invention provides further improved benefits, such as further clear product appearance and more suitable rheology.

Preferably, the compositions of the present invention are substantially free of water-insoluble oily compound selected from hydrocarbons, fatty compounds, and mixtures thereof. In the present invention, the compositions being "substantially free of water-insoluble oily compound" means that the composition includes 1.0% or less, preferably 0.5% or less, more preferably 0.1% or less, still more preferably 0% of water-insoluble oily compounds. The water-insoluble oily compounds herein are those having a solubility in water at 25°C of less than about 1g/100g water, preferably less than about 0.5g/100g water, more preferably less than about 0.1g/100g water. Such water-insoluble oily compounds are selected from hydrocarbons, fatty compounds, and mixtures thereof. Such hydrocarbons include, for example, poly α-olefin oils, paraffins, waxes, and mixtures thereof. Such fatty compounds include, for example, fatty alcohols such as cetyl alcohol and stearyl alcohol, fatty acids such as stearic acid, fatty alcohol derivatives and fatty acid derivatives such as esters and ethers thereof, and mixtures thereof.

The compositions of the present invention are transparent. In the present invention, the composition being "transparent" means that the composition has a transmittance of about 70% or more, preferably about 75% or more, more preferably about 80% or more. The transmittances are measured at 600nm using UV-1601 which is a UV-visible spectrophotometer available from Shimadzu. In view of the desire for clear product appearance, it is preferred that the composition of the present invention has the above transmittance for at least one month, more preferably for at least three months, still more preferably for at least one year, since the composition is prepared.

Preferably, the compositions of the present invention are substantially free of anionic compounds. Anionic compounds herein include anionic surfactants and anionic polymers. In the present invention, the compositions being “substantially free of anionic compounds” means that the compositions include 1% or less, preferably 0.5% or less, more preferably 0% of anionic compounds.

THICKENING POLYMER SYSTEM

The compositions of the present invention comprise a thickening polymer system. The thickening polymers useful herein are those which can provide appropriate viscosity and rheology properties to the composition, so that the compositions of the present invention have: (i) a suitable viscosity of preferably from about 1,000 cps to about 50,000cps, more preferably from about 5,000cps to about 30,000cps, still more preferably from about 10,000 cps to about 25,000cps; and (ii) suitable rheology properties such that the compositions have a Shear Thinning Index (STI) of preferably about 80 or more, more preferably about 90 or more, still more preferably about 100 or more. The viscosity herein can be suitably measured by Brookfield RVT at a shear rate of $2 \cdot s^{-1}$ at 26.7°C. The Shear Thinning Index (STI) is calculated according to the following equation:

Shear Thinning Index (STI) = a first viscosity / a second viscosity;

wherein the first viscosity is measured at a shear rate of $2 \cdot s^{-1}$, and the second viscosity is measured at a shear rate of $950 \cdot s^{-1}$, both at 26.7°C by shear rate ramp flow measurement using AR 2000 available from TA Instruments.

The composition of the present invention comprises by weight of from about 0.1% to about 10%, preferably from about 0.25% to about 8%, more preferably from about 0.5% to about 5%, still more preferably from about 0.75% to about 4%, even more preferably from about 0.85% to about 3%, highly preferably from about 1.0% to about 2.5%, of total thickening polymers.

A variety of thickening polymers can be used in the compositions of the present invention. Thickening polymers useful herein include, for example, cellulose and its derivatives such as cellulose ethers, hydrophobically modified cellulose ethers, and quaternized celluloses; nonionic guar gums; crosslinked polymers such as nonionic crosslinked polymers and cationic crosslinked polymers; and acrylate polymers such as sodium polyacrylate, polyethylacrylate, and polyacrylamide. The thickening polymers useful herein may include the polymers disclosed below under the title "CATIONIC CONDITIONING POLYMER". Among a variety of thickening polymers, preferred are nonionic guar gums. Preferably, the thickening polymer system is nonionic.

Preferably, in view of product stability in clear product appearance, the thickening polymer system and the composition of the present invention are substantially free of cationic guar polymers. In the present invention, the thickening system and the composition being "substantially free of cationic guar polymers" means that the thickening system and the composition includes 0.1% or less, preferably 0% of cationic guar polymers.

Nonionic guar polymer

In the composition, nonionic guar polymers are preferably used among a variety of thickening polymers.

The nonionic guar polymer useful herein has a molecular weight of preferably from about 500,000 to about 4,000,000, more preferably from about 1,000,000 to about 3,500,000, still more preferably from about 1,600,000 to about 3,000,000, even more preferably from about 1,900,000 to about 2,800,000. Commercially available nonionic guar polymers useful herein include, for example, that having a molecular weight of about 2,000,000 and having a tradename Jaguar HP-105 available from Rhodia, N-hance HP series such as 40 and 40S available from Aqualon.

SURFACTANT SYSTEM

The compositions of the present invention comprise a surfactant system. The surfactant system is included in the compositions at a level by weight of from about 0.1% to about 8.0%, preferably from about 0.2% to about 5.0%, more preferably from about 0.4% to about 4.0%.

Preferably, in view of the desire for a transparent or translucent appearance, the surfactant system is substantially soluble in the compositions at the level used. By "substantially soluble" surfactant system, what is meant is that the compositions has a transmittance of 70% or more, preferably about 75% or more, more preferably about 80% or more at 25°C when containing the surfactant system at the level used.

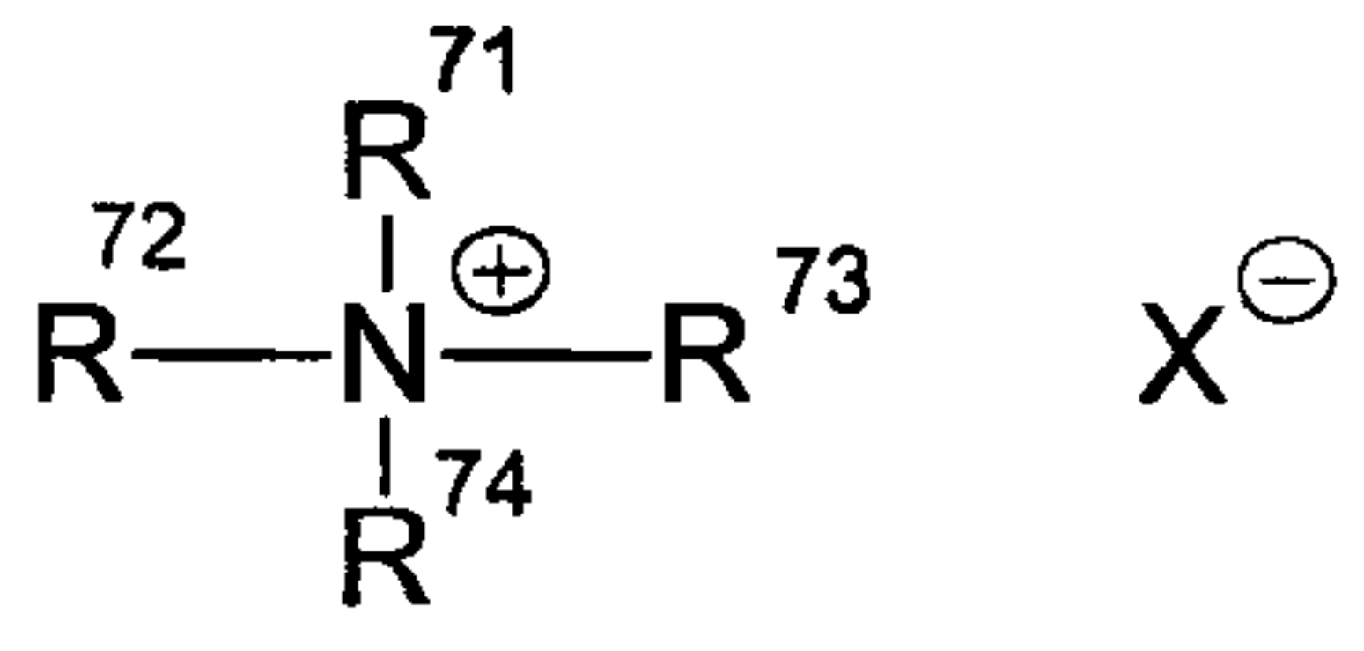
The surfactant system useful herein is selected from the group of consisting of a cationic surfactant, a nonionic surfactant, and mixtures thereof.

Cationic surfactant

Cationic surfactants can be included in the compositions at a level by weight of from about 0.1 to 2.0%, preferably from about 0.2% to about 1.2%.

A variety of cationic surfactants including mono- and di-alkyl chain cationic surfactants can be used in the compositions of the present invention as described below. Among them, preferred are mono-alkyl chain cationic surfactants such as mono-alkyl chain quaternary ammonium salts. The mono-alkyl chain quaternary ammonium salts useful herein are those having mono-long alkyl chain which has from 12 to 20 carbon atoms, preferably from 16 to 18 carbon atoms. Highly preferred mono-alkyl chain quaternary ammonium salts are, for example, cetyl trimethyl ammonium chloride, stearyl trimethyl ammonium chloride. Although the mono-alkyl chain cationic surfactants are preferred, other cationic surfactants such as di-alkyl chain cationic surfactants may also be used alone, or in combination with the mono-alkyl chain cationic surfactants and/or nonionic surfactants.

Cationic surfactants useful herein include, for example, those corresponding to the general formula (I):



$$R^{72}-\overset{\displaystyle R^{71}}{\underset{\displaystyle R^{74}}{\overset{|}{\underset{|}{N^{\oplus}}}}}-R^{73} \qquad X^{\ominus}$$

(I)

wherein at least one of R^{71}, R^{72}, R^{73} and R^{74} is selected from an aliphatic group of from 8 to 30 carbon atoms or an aromatic, alkoxy, polyoxyalkylene, alkylamido, hydroxyalkyl, aryl or alkylaryl group having up to about 22 carbon atoms, the remainder of R^{71}, R^{72}, R^{73} and R^{74} are independently selected from an aliphatic group of from 1 to about 22 carbon atoms or an aromatic, alkoxy, polyoxyalkylene, alkylamido, hydroxyalkyl, aryl or alkylaryl group having up to about 22 carbon atoms; and X is a salt-forming anion such as those selected from halogen, (*e.g.* chloride, bromide), acetate, citrate, lactate, glycolate, phosphate, nitrate, sulfonate, sulfate, alkylsulfate, and alkyl sulfonate radicals. The aliphatic groups can contain, in addition to carbon and hydrogen atoms, ether linkages, and other groups such as amino groups. The longer chain aliphatic groups, *e.g.*, those of about 12 carbons, or higher, can be saturated or unsaturated. Preferred is when R^{71}, R^{72}, R^{73} and R^{74} are independently selected from C_1 to about C_{22} alkyl.

Among the cationic surfactants of general formula (I), preferred are those containing in the molecule at least one alkyl chain having at least 16 carbons. Nonlimiting examples of such preferred cationic surfactants include: behenyl trimethyl ammonium chloride available, for example, with tradename Genamine KDMP from Clariant, with tradename INCROQUAT TMC-80 from Croda, and with tradename ECONOL TM22 from Sanyo Kasei; cetyl trimethyl ammonium chloride available, for example, with tradename CTAC 30KC from KCI, and with tradename CA-2350 from Nikko Chemicals; stearyl trimethyl ammonium chloride available, for example, with tradename Genamine STACP from Clariant; olealkonium chloride available, for example, with tradename Incroquat O-50 from Croda; hydrogenated tallow alkyl trimethyl ammonium chloride, dialkyl (14-18) dimethyl ammonium chloride, ditallow alkyl dimethyl ammonium chloride, dihydrogenated tallow alkyl dimethyl ammonium chloride, distearyl dimethyl ammonium chloride, and dicetyl dimethyl ammonium chloride.

Also preferred are hydrophilically substituted cationic surfactants in which at least one of the substituents contain one or more aromatic, ether, ester, amido, or amino moieties present as substituents or as linkages in the radical chain, wherein at least one of the R^{71}-R^{74} radicals contain one or more hydrophilic moieties selected from alkoxy (preferably C_1-C_3 alkoxy), polyoxyalkylene (preferably C_1-C_3 polyoxyalkylene), alkylamido, hydroxyalkyl, alkylester, and combinations thereof. Preferably, the hydrophilically substituted cationic conditioning surfactant contains from 2 to about 10 nonionic hydrophile moieties located within the above stated ranges. Highly preferred hydrophilically substituted cationic surfactants include dialkylamido ethyl hydroxyethylmonium salt, dialkylamidoethyl dimonium salt, dialkyloyl ethyl hydroxyethylmonium salt, dialkyloyl ethyldimonium salt, and mixtures thereof; for example, commercially available under the following tradenames; VARISOFT 110, VARISOFT 222, VARIQUAT K1215 and VARIQUAT 638 from Witco Chemical, MACKPRO KLP, MACKPRO WLW, MACKPRO MLP, MACKPRO NSP, MACKPRO NLW, MACKPRO WWP, MACKPRO NLP, MACKPRO SLP from McIntyre, ETHOQUAD 18/25, ETHOQUAD O/12PG, ETHOQUAD C/25, ETHOQUAD S/25, and ETHODUOQUAD from Akzo, DEHYQUAT SP from Henkel, and ATLAS G265 from ICI Americas. Babassuamidopropalkonium Chloride available from Croda under the tradename Incroquat BA-85 is also preferably used in the composition.

Amines are suitable as cationic surfactants. Primary, secondary, and tertiary fatty amines are useful. Particularly useful are tertiary amido amines having an alkyl group of from about 12 to about 22 carbons. Exemplary tertiary amido amines include: stearamidopropyldimethylamine, stearamidopropyldiethylamine, stearamidoethyldiethylamine, stearamidoethyldimethylamine, palmitamidopropyldimethylamine, palmitamidopropyldiethylamine, palmitamidoethyldiethylamine, palmitamidoethyldimethylamine, behenamidopropyldimethylamine, behenamidopropyldiethylamine, behenamidoethyldiethylamine, behenamidoethyldimethylamine, arachidamidopropyldimethylamine, arachidamidopropyldiethylamine, arachidamidoethyldiethylamine, arachidamidoethyldimethylamine, diethylaminoethylstearamide. Useful amines in the present invention are disclosed in U.S. Patent 4,275,055, Nachtigal, et al. These amines can also be used in combination with acids such as ℓ-glutamic acid, lactic acid, hydrochloric acid, malic acid, succinic acid, acetic acid, fumaric acid, tartaric acid, citric acid, ℓ-glutamic hydrochloride, maleic acid, and mixtures thereof; more preferably ℓ-glutamic acid, lactic acid, citric acid. The amines herein are preferably partially neutralized with any of the acids at a molar ratio of the amine to the acid of from about 1 : 0.3 to about 1 : 2, more preferably from about 1 : 0.4 to about 1 : 1.

Nonionic surfactant

Nonionic surfactants can be included in the compositions at a level by weight of from about 0.1 to 6.0%, preferably from about 0.4% to about 5.0%, more preferably from about 1.0% to about 4.0%.

A variety of nonionic surfactants can be used in the compositions of the present invention. Non-limiting examples of nonionic surfactants include, for example, the following:

(1) polyethylene oxide condensates of alkyl phenols, e.g., the condensation products of alkyl phenols having an alkyl group containing from about 6 to about 20 carbon atoms in either a straight chain or branched chain configuration, with ethylene oxide, the said ethylene oxide being present in amounts equal to from about 10 to about 60 moles of ethylene oxide per mole of alkyl phenol;

(2) those derived from the condensation of ethylene oxide with the product resulting from the reaction of propylene oxide and ethylene diamine products;

(3) condensation products of aliphatic alcohols having from about 8 to about 18 carbon atoms, in either straight chain or branched chain configurations, with ethylene oxide, e.g., a coconut alcohol ethylene oxide condensate having from about 10 to about 30 moles of ethylene oxide per mole of coconut alcohol, the coconut alcohol fraction having from about 10 to about 14 carbon atoms;

(4) long chain tertiary amine oxides of the formula $[R^1R^2R^3N \rightarrow O]$ where R^1 contains an alkyl, alkenyl or monohydroxy alkyl radical of from about 8 to about 18 carbon atoms, from 0 to about 10 ethylene oxide moieties, and from 0 to about 1 glyceryl moiety, and R^2 and R^3 contain from about 1 to about 3 carbon atoms and from 0 to about 1 hydroxy group, e.g., methyl, ethyl, propyl, hydroxyethyl, or hydroxypropyl radicals;

(5) long chain tertiary phosphine oxides of the formula $[RR'R''P \rightarrow O]$ where R contains an alkyl, alkenyl or monohydroxyalkyl radical ranging from about 8 to about 18 carbon atoms in chain length, from 0 to about 10 ethylene oxide moieties and from 0

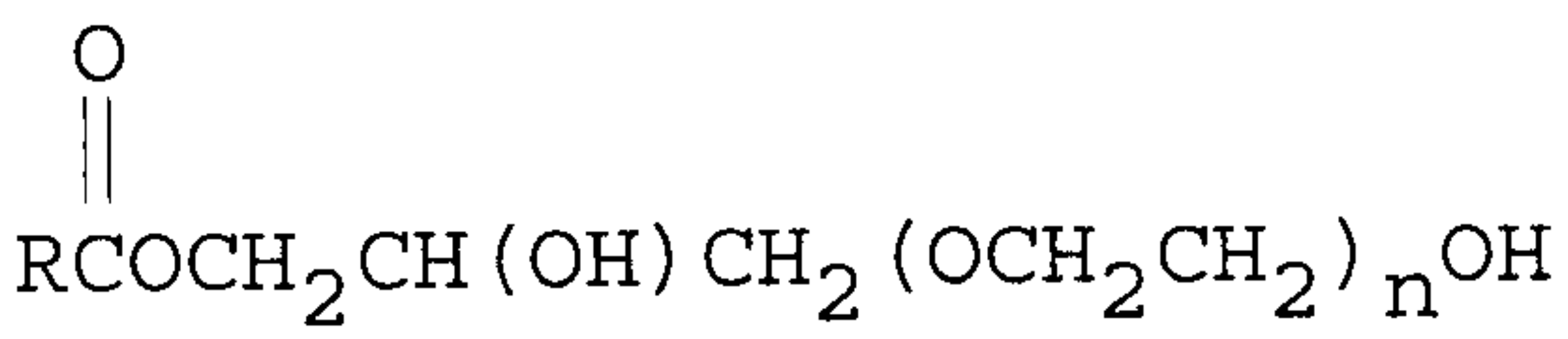
to 1 glyceryl moieties and R' and R" are each alkyl or monohydroxyalkyl groups containing from about 1 to about 3 carbon atoms;

(6) long chain dialkyl sulfoxides containing one short chain alkyl or hydroxy alkyl radical of from 1 to about 3 carbon atoms (usually methyl) and one long hydrophobic chain which include alkyl, alkenyl, hydroxy alkyl, or keto alkyl radicals containing from about 8 to about 20 carbon atoms, from 0 to about 10 ethylene oxide moieties and from 0 to 1 glyceryl moieties;

(7) alkyl polysaccharide (APS) surfactants (e.g. alkyl polyglycosides), examples of which are described in U.S. Patent 4,565,647, which is incorporated herein by reference in its entirety, and which discloses APS surfactants having a hydrophobic group with about 6 to about 30 carbon atoms and a polysaccharide (e.g., polyglycoside) as the hydrophilic group; optionally, there can be a polyalkylene-oxide group joining the hydrophobic and hydrophilic moieties; and the alkyl group (i.e., the hydrophobic moiety) can be saturated or unsaturated, branched or unbranched, and unsubstituted or substituted (e.g., with hydroxy or cyclic rings); a preferred material is alkyl polyglucoside, which is commercially available from Henkel, ICI Americas, and Seppic; and

(8) polyoxyethylene alkyl ethers such as those of the formula $RO(CH_2CH_2O)_nH$ and polyethylene glycol (PEG) glyceryl fatty esters, such as those of the formula $R(O)OCH_2CH(OH)CH_2(OCH_2CH_2)_nOH$, wherein n is from 1 to about 200, preferably from about 20 to about 100, and R is an alkyl having from about 8 to about 22 carbon atoms.

Polyethylene glycol derivatives of glycerides as described in the above (8) useful herein include derivatives of mono-, di- and tri-glycerides and mixtures thereof. One class of polyethylene glycol derivatives of glycerides suitable herein is those which conform to the general formula (I):



$$R\overset{\displaystyle O}{\overset{\|}{C}}OCH_2CH(OH)CH_2(OCH_2CH_2)_nOH$$

wherein n, the degree of ethoxylation, is from about 4 to about 200, preferably from about 5 to about 150, more preferably from about 20 to about 120, and wherein R comprises an aliphatic radical having from about 5 to about 25 carbon atoms, preferably from about 7 to about 20 carbon atoms. Suitable polyethylene glycol derivatives of glycerides can be polyethylene glycol derivatives of hydrogenated castor oil. Such polyethylene glycol derivatives of hydrogenated castor oil include, for example, PEG-20 hydrogenated castor oil, PEG-30 hydrogenated castor oil, PEG-40 hydrogenated castor oil, PEG-45 hydrogenated castor oil, PEG-50 hydrogenated castor oil, PEG-54 hydrogenated castor oil, PEG-55 hydrogenated castor oil, PEG-60 hydrogenated castor oil, PEG-80 hydrogenated castor oil, and PEG-100 hydrogenated castor oil.

Other suitable polyethylene glycol derivatives of glycerides can be polyethylene glycol derivatives of stearic acid. Such polyethylene glycol derivatives of stearic acid include, for example, PEG-30 stearate, PEG-40 stearate, PEG-50 stearate, PEG-75 stearate, PEG-90 stearate, PEG-100 stearate, PEG-120 stearate, and PEG-150 stearate.

Ethylene glycol ethers of fatty alcohols, as described in the above (3) or (8), useful herein include any ethylene glycol ethers of fatty alcohols which are suitable for use in a hair conditioning composition. No limiting examples of the ethylene glycol ethers of fatty alcohols include; the ceteth series of compounds such as ceteth-1 through ceteth-45, preferably ceteth-7 through ceteth-20; the isoceteth series of compounds such as isoceteth-20; the steareth series of compounds such as steareth-1 through 100; ceteareth 1 through ceteareth-50; the laureth series of compounds, preferably laureth-7 through Laureth-12; the pareth series of compounds, preferably pareth-9 through pareth-15; propylene glycol ethers of the above ceteth, steareth, ceteareth, and laureth series of compounds, such propylene glycol ethers of ceteth series of compounds including, for example, PPG-5-Ceteth-20; polyoxyethylene ethers or polyoxyethylene-polyoxypropylene ethers of branched alcohols, such branched alcohols including, for example, octyldodecyl alochol, decyltetradecyl alcohol, dodecylpentadecyl alcohol, hexyldecyl alcohol, and isostearyl alcohol, and such polyoxyethylene-polyoxypropylene ethers of branched alcohols including, for example, POE(20)POP(6) decyltetradecyl ether; and mixtures thereof.

Other nonionic surfactants useful herein include, for example, polysorbates such as polysorbate-20 (POE(20) sorbitan monolaurate) having HLB value of 16.7, polysorbate-

21 (POE(4) sorbitan monolaurate) having HLB value of 13.3, polysorbate-40 (POE(20) sorbitan monopalmitate) having HLB value of 15.6, polysorbate-60 (POE(20) sorbitan monostearate) having HLB value of 14.9, polysorbate-61 (POE(4) sorbitan monostearate) having HLB value of 9.6, polysorbate-80 (POE(20)sorbitan monooleate) having HLB value of 15.0, and polysorbate-81 (POE(4) sorbitan monooleate) having HLB value of 10.0.

Preferably, the nonionic surfactants useful herein have an HLB value of from about 8 to about 22, more preferably from about 11 to about 20, still preferably from about 13 to about 15.

Among a variety of nonionic surfactants described above, highly preferred are those selected from the group consisting of isoceteth-20, PPG-5-Ceteth-20, PEG-40 hydrogenated castor oil, polysorbate-20, laureth-20, ceteth-10, ceteth-20, pareth-9, and mixtures thereof.

SILICONE COMPOUND

The compositions of the present invention comprise a silicone compound. The silicone compound is included in the compositions at levels by weight of from about 0.1% to about 10%, more preferably from about 0.5% to about 8%, still more preferably from about 1% to about 6%, even more preferably from about 2% to about 5%.

Among a variety of silicone compounds, preferred are those selected from the group consisting of (i) silicone nanoemulsion having an average particle size of 300nm or less, preferably 200nm or less, more preferably 100nm or less when contained in the composition, (ii) silicone compound being substantially soluble in the composition, and (iii) mixtures thereof, in view of the desire for a transparent or translucent appearance. By "substantially soluble" silicone compound, what is meant is that the compositions having a transmittance of 70% or more, preferably about 75% or more, more preferably about 80% or more at 25°C when containing the silicone compound at the level used.

Commercially available silicone nanoemulsion useful herein includes, for example, that with a tradename Silicone DC-8177 available from Dow Corning; quaternized silicone nanoemulsion with a tradename DC5-7133 available from Dow Corning; and amodimethicone nanoemulsion with a tradename XS65-B6413 available from General Electric.

With respect to substantially soluble silicone compounds, for example, following materials can be substantially soluble depending on the level of hydrophilic groups in their structure: silicone copolyols; amino silicones such as those having a amine content which is high enough to make the amino silicones substantially soluble; amino silicone copolyols; and quaternized silicones.

Among the substantially soluble silicone compounds, preferred are those being substantially free of hydrophobic substitutions. The hydrophobic substitutions herein are linear or branched, saturated or unsaturated, or functionalized or non-functionalized alkyl group having 6 or more carbon atoms. What meant by being "substantially free of hydrophobic substitutions" is that the silicone compounds contains 1% or less, preferably 0.5% or less, more preferably 0% of hydrophobic substitutions.

Among the above substantially soluble silicone compounds, preferred are silicone copolyols such as dimethicone copolyols. Silicone copolyols are those having silicone portion and at least one polyol substitutions. Among them, preferred are those having polyethylene oxide substitutions, and more preferred are those having polyethylene oxide substitutions at a level such that the weight ratio of polyethylene oxide substitutions to the silicone portion is preferably at least about 0.8, more preferably at least about 1.0. Silicone copolyols having the same INCI name have a variety of the weight ratio, depending on the molecular weight of the silicone portion and the number of the polyethylene oxide substitutions.

Highly preferred commercially available dimethicone copolyols include, for example, those having a tradename Silsoft 475 (INCI name "PEG-23/PPG-6 dimethicone") available from GE Silicone wherein the weight ratio of polyethylene oxide substitutions to the silicone portion is 1.1; those having a tradename Silsoft 870 (INCI name "PEG-12 dimethicone") available from GE Silicone wherein the weight ratio of polyethylene oxide substitutions to the silicone portion is 1.0; those having a tradename Silsoft 810 (INCI name "PEG-8 dimethicone") available from GE Silicone wherein the weight ratio of polyethylene oxide substitutions to the silicone portion is 0.8; those having a tradename DC5330 (INCI name "PEG-15/PPG-15 dimethicone") available from Dow Corning wherein the weight ratio of polyethylene oxide substitutions to the silicone portion is 1.4. Among them, highly preferred are those having a tradename Silsoft 475 (INCI name "PEG-23/PPG-6 dimethicone") available from GE Silicone.

In view of providing improved conditioning benefits, it is preferred for the compositions of the present invention to provide improved silicone deposition, even after rinsing-off the compositions from the hair. For example, it is preferred for the compositions to provide silicone deposition of about 50ppm or more, more preferably about 100ppm or more, still more preferably about 400ppm or more after rinsing-off the hair. The amount of the silicone deposition can be measured by a method consisting of: (i) a preparation of hair switch; and (ii) silicone deposition measurement.

(i) Preparation of hair switch

For the silicone deposition measurement, 2 gram hair switches are used. The hair switches are prepared by following steps:

(a) Providing five cycles of shampoo/conditioning treatments to the hair switch, each cycle of shampoo/conditioning treatment consisting of following steps:

(a-1) Applying a shampoo at a level of 0.2cc and lathering the hair switch; and rinsing the hair switch;

(a-2) Applying a shampoo again at a level of 0.2cc and lathering the hair switch; and rinsing the hair switch; and

(a-3) Then providing conditioner treatment to the hair switch, the conditioner treatment consisting of applying a conditioner at a level of 0.2cc and treating the hair switch; and rinsing the hair switch; and

(b) Then drying the hair switch.

The hair switch is ready for the measurement of its silicone deposition amount.

(ii) Silicone deposition measurement

The deposited silicone on the hair switch is extracted in an appropriate solvent. The extracts are then introduced into an atomic absorption/emission detector instrument and measured at the appropriate wavelength. The absorbance/emission value returned by the instrument is then converted to actual concentration (ppm) of silicone compound deposited on the hair through an external calibration curve obtained with known weights of a well characterized standard of the silicone compound under study.

AQUEOUS CARRIER

The compositions of the present invention comprise an aqueous carrier. The level and species of the carrier are selected according to the compatibility with other components, and other desired characteristic of the product.

Carriers useful in the present invention include water and water solutions of lower alkyl alcohols. Lower alkyl alcohols useful herein are monohydric alcohols having 1 to 6 carbons, more preferably ethanol and isopropanol.

Preferably, the aqueous carrier is substantially water. Deionized water is preferably used. Water from natural sources including mineral cations can also be used, depending on the desired characteristic of the product. Generally, the compositions of the present invention comprise from about 20% to about 99%, preferably from about 40% to about 98%, and more preferably from about 50% to about 98% water.

The pH of the present compositions are preferably from about 2 to about 8, more preferably from about 3 to about 7, still more preferably from 4 to 6. Buffers and other pH adjusting agents can be included to achieve the desirable pH.

CATIONIC CONDITIONING POLYMER

The conditioning compositions of the present invention preferably include cationic conditioning polymers. The cationic conditioning polymers hereof will generally have a weight average molecular weight which is at least about 5,000, typically at least about 10,000, and is less than about 10 million, preferably, the molecular weight is from about 100,000 to about 2 million. The cationic conditioning polymers useful herein have a cationic charge density of preferably about 0.6meq/g or more, more preferably about 0.8meq/g or more, still more preferably about 1.0meq/g or more.

The cationic conditioning polymer can be included in the compositions at a level by weight of preferably from about 0.05% to about 5%, more preferably from about 0.1% to about 3%, still more preferably from about 0.5% to about 2%.

A variety of cationic conditioning polymers can be used. Suitable cationic conditioning polymers herein include cationic cellulose derivatives. Cationic cellulose derivative useful herein include, for example, salts of hydroxyethyl cellulose reacted with trimethyl ammonium substituted epoxide, referred to in the industry (CTFA) as Polyquaternium 10, available from Amerchol Corp. (Edison, NJ, USA) in their Polymer JR® and LR® series, and also available from National Starch & Chemical with a tradename Celquat SC-230M; and Polyquaternium-4 with tradename Celquat H-100 available from National Starch & Chemical.

Also suitable cationic conditioning polymers herein include, for example: copolymers of acrylamide and acrylamidopropyl trimethylammonium chloride such as those commercially available from Ciba under Salcare SC-60 tradename; copolymers of 1-vinyl-2-pyrrolidone and 1-vinyl-3-methylimidazolium salt (*e.g.*, chloride salt) (referred to in the industry by the Cosmetic, Toiletry, and Fragrance Association, "CTFA", as Polyquaternium-16), such as those commercially available from BASF Wyandotte Corp. (Parsippany, NJ, USA) under the LUVIQUAT tradename (*e.g.*, LUVIQUAT FC 370); copolymers of 1-vinyl-2-pyrrolidone and dimethylaminoethyl methacrylate (referred to in the industry by CTFA as Polyquaternium-11) such as those commercially available from Gaf Corporation (Wayne, NJ, USA) under the GAFQUAT tradename (*e.g.*, GAFQUAT 755N); cationic diallyl quaternary ammonium-containing polymers, including, for example, dimethyldiallylammonium chloride homopolymer and copolymers of acrylamide and dimethyldiallylammonium chloride, referred to in the industry (CTFA) as Polyquaternium 6 and Polyquaternium 7, Polyquaternium-7 including that commercially available with a tradenames Merquat 550 and Merquat 2200 from Ondeo Nalco; polymethacrylamidopropyl trimonium chloride such as that commercially available with a tradename Polycare 133 from Rhone-Poulenc; and Polyquaternium-37 available from 3V Sigma with tradenames Synthalen CR, Synthalen CU, and Synthalen CN.

Among them, in view of improved clear product appearance and improved rheology, highly preferred are: polyquaternium-10 especially those commercially available from Amerchol under JR30M tradename having a cationic charge density of 1.25meq/g; copolymers of acrylamide and acrylamidopropyl trimethylammonium chloride, especially those commercially available from Ciba under Salcare SC-60 tradename having a cationic charge density of 4.2meq/g; and copolymers of acrylamide and dimethyldiallylammonium chloride, especially those commercially available from Ondeo Nalco under Merquat 2200 tradename having a cationic charge density of 4.3 meq/g.

OTHER ADDITIONAL COMPONENTS

The compositions of the present invention may include additional components, which may be selected by the artisan according to the desired characteristics of the final product and which are suitable for rendering the compositions more cosmetically or aesthetically acceptable or to provide them with additional usage benefits.

Humectant and/or Co-solvent

The compositions of the present invention may contain a humectant and/or co-solvent to help the surfactant system and/or silicone compound to be substantially soluble in the composition. The humectants and/or co-solvents herein are selected from the group consisting of polyhydric alcohols, water soluble alkoxylated nonionic polymers, and mixtures thereof. The humectants and/or co-solvents herein are preferably used at levels by weight of the compositions of from about 0.1% to about 20%, more preferably from about 0.5% to about 5%.

Polyhydric alcohols useful herein include glycerin, sorbitol, propylene glycol, butylene glycol, hexylene glycol, ethoxylated glucose, 1, 2-hexane diol, hexanetriol, dipropylene glycol, erythritol, trehalose, diglycerin, xylitol, maltitol, maltose, glucose, fructose, sodium chondroitin sultate, sodium hyaluronate, sodium adenosin phosphate, sodium lactate, pyrrolidone carbonate, glucosamine, cyclodextrin, and mixtures thereof. Among them, preferred for the co-solvents are 1,2-hexane diol, hexylene glycol, butylene glycol, glycerine, and mixtures thereof.

Water soluble alkoxylated nonionic polymers useful herein include polyethylene glycols and polypropylene glycols having a molecular weight of up to about 10,000 such as those with CTFA names PEG-4, PEG-8, PEG-12, PEG-20, PEG-150 and mixtures thereof.

Other additional components

The compositions of the present invention may further include other additional components. Other additional components generally are used individually at levels of from about 0.001% to about 10%, preferably up to about 5% by weight of the composition.

A wide variety of other additional components can be formulated into the present compositions. These include: other conditioning agents such as hydrolysed collagen with tradename Peptein 2000 available from Hormel, vitamin E with tradename Emix-d available from Eisai, panthenol available from Roche, panthenyl ethyl ether available from Roche, nonionic surfactants such as glyceryl stearate available from Stepan Chemicals, hydrolysed keratin, proteins, plant extracts, and nutrients; emollients such as PPG-3 myristyl ether with tradename Varonic APM available from Goldschmidt, Trimethyl pentanol hydroxyethyl ether, PPG-11 stearyl ether with tradename Varonic APS available from Goldschmidt, Stearyl heptanoate with tradename Tegosoft SH available from Goldschmidt, Lactil (mixture of Sodium lactate, Sodium PCA, Glycine, Fructose, Urea, Niacinamide, Inositol, Sodium Benzoate, and Lactic acid) available from Goldschmidt, Ethyl hexyl palmitate with tradename Saracos available from Nishin Seiyu and with tradename Tegosoft OP available from Goldschmidt; hair-fixative polymers such as amphoteric fixative polymers, cationic fixative polymers, anionic fixative polymers, nonionic fixative polymers, and silicone grafted copolymers; preservatives such as benzyl alcohol, methyl paraben, propyl paraben and imidazolidinyl urea; pH adjusting agents, such as citric acid, sodium citrate, succinic acid, phosphoric acid, sodium hydroxide, sodium carbonate; salts, in general, such as potassium acetate and sodium chloride; coloring agents, such as any of the FD&C or D&C dyes; hair oxidizing (bleaching) agents, such as hydrogen peroxide, perborate and persulfate salts; hair reducing agents such as the thioglycolates; perfumes; and sequestering agents, such as disodium ethylenediamine tetra-acetate; ultraviolet and infrared screening and absorbing agents such as octyl salicylate; antidandruff agents such as zinc pyrrithione and salicylic acid; visible particles with tradenames Unisphere and Unicerin available from Induchem AG (Switzerland); and anti-foaming agent such as that with a tradename XS63-B8929 available from GE-Toshiba Silicone.

PRODUCT FORMS

The conditioning compositions of the present invention can be in the form of rinse-off products or leave-on products, can be transparent, translucent, or opaque, and can be formulated in a wide variety of product forms, including but not limited to creams, gels, emulsions, mousses and sprays.

The conditioning compositions of the present invention can be used for conditioning a variety of substrates such as hair, skin, and fabric, by applying the compositions to the substrates such as hair, skin, and fabric. The conditioning compositions of the present invention is especially suitable for hair care products such as hair conditioners, skin care products such as skin conditioners, and fabric care products such as fabric softeners.

The conditioning compositions of the present invention are especially suitable for hair conditioners for rinse-off use. Such compositions are preferably used by following steps:

(i) after shampooing hair, applying to the hair an effective amount of the conditioning compositions for conditioning the hair; and

(ii) then rinsing the hair.

EXAMPLES

The following examples further describe and demonstrate embodiments within the scope of the present invention. The examples are given solely for the purpose of illustration and are not to be construed as limitations of the present invention, as many variations thereof are possible without departing from the spirit and scope of the invention. Ingredients are identified by chemical or CTFA name, or otherwise defined below.

Compositions (wt%)

	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex.6	Ex.7
Nonionic guar polymer *1	0.9	1.2	1.2	1.2	1.0	1.0	1.5
Cationic conditioning polymer-1 *2	1.0	0.7	0.7	-	1.0	1.0	-
Cationic conditioning polymer-2 *3	-	-	-	-	-	-	1.0
Cationic conditioning polymer-3 *4	-	-	-	0.7	-	-	-
Cetyltrimethylammonium chloride	1.0	1.0	0.5	1.0	-	0.6	1.0
Stearyltrimethylammonium chloride	-	-	0.5	-	-	-	-
Olealkonium chloride	-	-	-	-	-	0.4	-
C12-14 Pareth-9 *5	-	-	-	-	3.0	-	2.0
Dimethicone copolyol-1 *6	3.0	3.0	-	3.0	-	-	2.0
Dimethicone copolyol-2 *7	-	-	4.0	-	-	-	2.0
Dimethicone copolyol-3 *8	-	-	-	-	2.0	3.0	-

Dimethicone copolyol-4 *9	-	-	-	-	2.0	-	-
PEG-12	-	-	-	-	-	3.0	-
PEG-150	-	-	1.0	-	-	-	-
Methylchloroisothiazolinone/ Methylisothiazolinone *11	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Methyl Paraben	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Disodium EDTA	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Perfume	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Deionized Water	---------- q.s. to 100% ---------						

Compositions (wt%)

	Ex. 8	Ex. 9	Ex.10	Ex.11	Ex.12	Ex.13
Nonionic guar polymer *1	1.5	1.5	1.2	1.4	1.4	1.0
Cationic conditioning polymer-1 *2	-	-	0.4	-	0.5	-
Cationic conditioning polymer-2 *3	-	-	-	0.6	0.5	0.5
Cationic conditioning polymer-3 *4	1.0	0.9	0.4	-	-	0.5
Cetyltrimethylammonium chloride	-	0.5	0.5	-	-	-
Stearyltrimethylammonium chloride	0.5	0.5	0.5	1.0	1.0	1.0
Olealkonium chloride	0.6	-	-	-	-	-
C12-14 Pareth-9 *5	-	2.0	-	-	-	-
Dimethicone copolyol-1 *6	1.0	-	-	-	-	1.0
Dimethicone copolyol-2 *7	-	1.0	-	3.0	2.0	-
Dimethicone copolyol-3 *8	1.0	-	-	-	2.0	-
Dimethicone copolyol-4 *9	-	-	3.0	-	-	1.0
PEG-12	3.0	3.0	3.0	3.0	-	-
PEG-150	0.5	-	-	-	-	-
Anti foaming agent *10	-	-	-	0.1	0.1	0.1
Methylchloroisothiazolinone/ Methylisothiazolinone *11	0.025	0.025	0.025	0.025	0.025	0.025
Methyl Paraben	0.2	0.2	0.2	0.2	0.2	0.2

Disodium EDTA	0.1	0.1	0.1	0.1	0.1	0.1
Perfume	0.5	0.5	0.5	0.5	0.5	0.5
Deionized Water	---------- q.s. to 100% ----------					

Definitions of Components

*1 Nonionic guar polymer: Jaguar HP-105 having a molecular weight of about 2,000,000 available from Rhodia

*2 Cationic conditioning polymer-1: Polyquaternium-10 having a tradename Polymer JR30M available from Amerchol

*3 Cationic conditioning polymer-2: Polyquaternium-7 having a tradename Merquat 2200 available from Ondeo Nalco

*4 Cationic conditioning polymer-3: a copolymer of acrylamide and acrylamidopropyl trimethylammonium chloride having a tradename Salcare SC60 available from Ciba

*5 C12-14 Pareth-9: BT-9 available from Nikkol

*6 Dimethicone copolyol-1: PEG-23/PPG-6 Dimethicone with a tradename Silsoft 475 available from GE Silicone

*7 Dimethicone copolyol-2: PEG-12 Dimethicone with a tradename Silsoft 870 available from GE Silicone

*8 Dimethicone copolyol-3: PEG-8 Dimethicone with a tradename Silsoft 810 available from GE Silicone

*9 Dimethicone copolyol-4: PEG-15/PPG-15 Dimethicone with a tradename DC5330 available from Dow Corning

*10 Anti-foaming agent: XS63-B8929 available from GE-Toshiba Silicone

*11 Methylchloroisothiazolinone/Methylisothiazolinone: Kathon CG available from Rohm&Haas

Method of preparation

The conditioning compositions of “Ex.1” to “Ex.13” as shown above can be prepared by any conventional method well known in the art. They are suitably made as follows:

The polymeric materials are dispersed in water at room temperature, mixed with vigorous agitation, and heated to 50-70°C. Cationic surfactants, and if included, nonionic surfactants, humectants, and other temperature insensitive components are added to the mixture with agitation. Then the mixture is cooled down to below 40°C, and then the remaining components such as silicones, perfumes, preservatives, and anti-foaming agents, if included, are added to the mixture with agitation.

Examples 1 through 13 are conditioning compositions of the present invention which are particularly useful for hair conditioners for rinse-off use. These examples have many advantages. For example, the compositions of "Ex.1" through "Ex.13" have a clear product appearance and a suitable rheology for conditioning compositions. The compositions of "Ex.1" through "Ex.13" can provide conditioning benefits, especially softness and reduced tangling in wet hair when used for hair care products such as hair conditioning products. When used for hair care products, the compositions of "Ex.1" through "Ex.13" can provide the above benefits while not weighing down the hair. When used in a form of rinse-off products, the compositions of "Ex.1" through "Ex.13" can provide easy to rinse-off feel while providing the above benefits.

All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this written document conflicts with any meaning or definition of the term in a document incorporated by reference, the meaning or definition assigned to the term in this written document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed is:

1. A conditioning composition comprising by weight:

(a) from about 0.1% to about 10% of a thickening polymer system;

(b) from about 0.1% to about 8.0% of a surfactant system selected from the group consisting of cationic surfactant, nonionic surfactant, and mixtures thereof;

(c) from about 0.1% to about 10% of a silicone compound; and

(d) an aqueous carrier;

wherein the composition has a transmittance of 70% or more.

2. The conditioning composition of Claim 1 wherein the composition has a transmittance of 75% or more.

3. The conditioning composition of Claim 1 wherein the composition has a transmittance of 80% or more.

4. The conditioning composition of Claim 1 wherein the composition has a transmittance of 70% or more for at least one month since the composition is prepared.

5. The conditioning composition of Claim 1 wherein the composition is substantially free of a water-insoluble oily compound selected from hydrocarbons, fatty compounds, and mixtures thereof.

6. The conditioning composition of Claim 1 wherein the composition is substantially free of cationic guar polymers.

7. The conditioning composition of Claim 1 wherein the thickening system is nonionic.

8. The conditioning composition of Claim 1 wherein the thickening system comprises a nonionic guar polymer.

9. The conditioning composition of Claim 8 wherein the nonionic guar polymer has a molecular weight of from about 500,000 to about 4,000,000.

10. The conditioning composition of Claim 1 wherein the surfactant system is substantially soluble in the composition.

11. The conditioning composition of Claim 1 wherein the cationic surfactant is selected from the group consisting of mono-alkyl quaternary ammonium salts, di-alkyl quaternary ammonium salts, hydrophilically substituted mono-alkyl quaternary ammonium salts, hydrophilically substituted di-alkyl quaternary ammonium salts, mono-alkyl chain amines, di-alkyl chain amines, and mixtures thereof.

12. The conditioning composition of Claim 1 wherein the cationic surfactant is selected from the group consisting of cetyl trimethyl ammonium chloride, stearyl trimethyl ammonium chloride, di-cetyl dimethyl ammonium chloride, and mixtures thereof.

13. The conditioning composition of Claim 1 wherein the nonionic surfactant has an HLB value of from about 8 to about 22.

14. The conditioning composition of Claim 13, wherein the nonionic surfactant is selected from the group consisting of isoceteth-20, PPG-5-Ceteth-20, PEG-40 hydrogenated castor oil, polysorbate-20, laureth-20, ceteth-10, ceteth-20, pareth-9, and mixtures thereof.

15. The conditioning composition of Claim 1 wherein the silicone compound is selected from those having an average particle size of 300nm or less in the composition, those being substantially soluble in the composition, and mixtures thereof.

16. The conditioning composition of Claim 15 wherein the substantially soluble silicone compound is selected from those being substantially free of hydrophobic substitutions.

17. The conditioning composition of Claim 15 wherein the substantially soluble silicone compound is selected from the group consisting of silicone copolyols, amino silicones, amino silicone copolyols, and mixtures thereof.

18. The conditioning composition of Claim 17 wherein the substantially soluble silicone compound is a silicone copolyol.

19. The conditioning composition of Claim 18 wherein the silicone copolyol is selected from those having polyethylene oxide substitutions.

20. The conditioning composition of Claim 19 wherein the silicone copolyol is selected from those having polyethylene oxide substitutions at a level such that the weight ratio of polyethylene oxide substitutions to the silicone portion is at least about 0.8.

21. The conditioning composition of Claim 20 wherein the weight ratio of polyethylene oxide substitutions to the silicone portion is at least about 1.0.

22. The conditioning composition of Claim 1 further comprising from about 0.05% to about 5.0% of a cationic conditioning polymer.

23. The conditioning composition of Claim 22 wherein the cationic conditioning polymer is selected from the group consisting of cationic cellulose polymers, copolymers of acrylamide and acrylamidopropyl trimethylammonium chloride, copolymers of acrylamide and dimethyldiallylammonium chloride, and mixtures thereof.

24. The conditioning composition of Claim 22 wherein the cationic conditioning polymer has a cationic charge density of 0.6meq/g or more.

25. The conditioning composition of any of Claim 1 comprising by weight:

(a) from about 0.5% to about 5.0% of the thickening polymer system;

(b) from about 0.2% to about 5.0% of the surfactant system;

(c) from about 0.5% to about 8.0% of the silicone compound selected from substantially soluble silicone copolyols;

(d) an aqueous carrier; and

(e) from about 0.1% to about 3.0% of a cationic conditioning polymer;

wherein the composition is substantially free of cationic guar polymers, and wherein the composition has a transmittance of 75% or more.

26. The conditioning composition of Claim 1 comprising by weight:

(a) from about 0.3% to about 4.0% of the thickening polymer system;

(b) from about 0.4% to about 4.0% of the surfactant system;

(c) from about 1.0% to about 6.0% of the silicone compound selected from substantially soluble silicone copolyols, wherein the substantially soluble silicone copolyols are those being substantially free of hydrophobic substitutions and those having polyethylene oxide substitutions at a level such that the weight ratio of polyethylene oxide substitutions to the silicone portion is at least about 0.8;

(d) an aqueous carrier; and

(e) from about 0.1% to about 3.0% of a cationic conditioning polymer having a cationic charge density of 0.6meq/g or more and selected from the group consisting of cationic cellulose polymers, copolymers of acrylamide and acrylamidopropyl trimethylammonium chloride, copolymers of acrylamide and dimethyldiallylammonium chloride, and mixtures thereof;

wherein the composition is substantially free of cationic guar polymers, and wherein the composition has a transmittance of 80% or more.

27. The conditioning composition of Claim 1 wherein the composition has a viscosity of from about 1,000cps to about 50,000cps and Shear Thinning Index of 80 or more.

28. The conditioning composition of Claim 27 wherein the composition has a viscosity of from about 5,000cps to about 30,000cps and Shear Thinning Index of 90 or more.

29. The conditioning composition of Claim 28 wherein the composition has a viscosity of from about 10,000cps to about 25,000cps and Shear Thinning Index of 100 or more.

30. The conditioning composition of Claim 1 which is a hair conditioning composition.

31. The conditioning composition of Claim 1 which is for rinse-off use.

32. The conditioning composition of Claim 1 which provides silicone deposition of about 50ppm or more after rinsed off from the hair.

33. The conditioning composition of Claim 32 which provides silicone deposition of about 100ppm or more after rinsed off from the hair.

34. The conditioning composition of Claim 33 which provides silicone deposition of about 400ppm or more after rinsed off from the hair.

35. A method of conditioning hair, the method comprising following steps:

(i) after shampooing hair, applying to the hair an effective amount of the conditioning composition of Claim 1 for conditioning the hair; and

(ii) then rinsing the hair.