【DESCRIPTION】

【Invention Title】

FINE DUST-PROOF COMPOSITION

【Technical Field】

This disclosure relates to a fine-dust dust-proof composition.

【Background Art】

Fine dusts are accumulated inside a human body and thus may deteriorate human immunity and cause various diseases such as a heart disease or a respiratory disease. Even a bronchial stenosis may be caused, and when inhaled for a long time, asthma or lung disease prevalence and premature mortality are increased.

A skin directly contacts dusts at the outermost of the human body and plays a role of a barrier between organism and environment, and when frequently exposed directly to pollutants, this barrier function is deteriorated. Particularly, the fine dusts are 20 times as small as pores and thus may be easily permeated into the skin. As a matter of facts, air pollutants such as the fine dusts are known to have a serious influence on skin health. In the short term, the fine dusts increase premature aging, a moisture shortage, and fine lines and wrinkles, and in the long term, the skin may lose a protection function of the body from environmental factors due to irreversible skin damage and thus bring about a serious disease such as a skin cancer.

Accordingly, required is research on cosmetics which separate the skin from the dusts, a harmful material to the skin and sometimes even bringing

about disability.

Particularly, as the fine dusts stick to hairs due to frequent outings and flow into the skin or the human body, an effort to deteriorate adhesion of the fine dusts to the hair is continuously made.

【Disclosure】

【Technical Problem】

A dust-proof composition according to an example is to provide hair cosmetics having an excellent dust-proof function of preventing the fine dusts from sticking to the hair in order to block the fine dusts from being permeated into or absorbed in the skin or the human body after stuck to the hair.

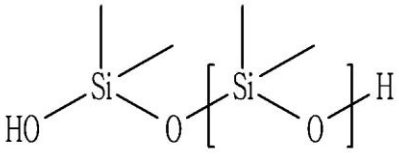
【Technical Solution】

According to an example, a dust-proof composition includes, as active ingredients, a non-volatile silicone oil having weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol and silicone acrylic polymer, wherein the dust-proof composition has a viscosity of 300 cs to 800 cs.

In one aspect, the present disclosure refers to a dust-proof composition, comprising as active ingredients a nonvolatile silicone oil having weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol, and a silicone acrylic polymer, wherein the dust-proof composition has a viscosity of 300 cs to 800 cs.

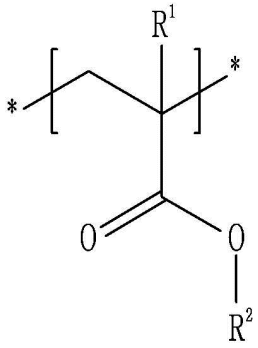
The nonvolatile silicone oil may have a structure of Chemical Formula 1.

[Chemical Formula 1]



The silicone acrylic polymer may include a repeating unit represented by Chemical Formula 2.

[Chemical Formula 2]

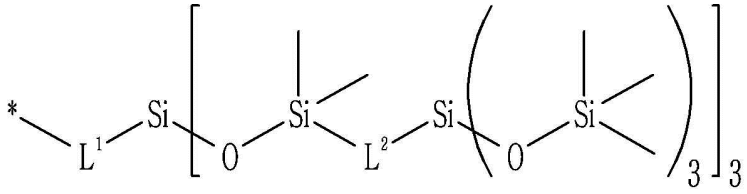


In Chemical Formula 2,

R^1 is hydrogen or a substituted or unsubstituted C1 to C10 alkyl group, and

R^2 is represented by Chemical Formula 3,

[Chemical Formula 3]



wherein, in Chemical Formula 3,

L^1 and L^2 are independently a substituted or unsubstituted C1 to C10 alkylene group.

The non-volatile silicone oil and the silicone acrylic polymer may be included in a weight ratio of 10: 1 to 10: 3.

The dust-proof composition may further include a silicone-free oil.

The silicone-free oil may have 12 to 16 carbon atoms.

The silicone-free oil may have a weight average molecular weight of 170 g/mol to 350 g/mol.

The silicone-free oil may include coconut alkanes, dicaprylyl ethers,

benzoates substituted with alkyl groups having 12 to 15 carbon atoms(C12-15 alkyl benzoate), or a combination thereof.

The dust-proof composition may be a hair cosmetic composition.

The hair cosmetic composition may be a shampoo, a treatment, or an essence.

The hair cosmetic composition may have a leave on type.

【Advantageous Effects】

According to an example, the dust-proof composition of the present disclosure may minimize a phenomenon that dusts, particularly, fine dusts stick to hair. Specifically, the fine dust adsorption of the hair may be greatly deteriorated by limiting a chemical structure and a molecular weight of non-volatile silicone oil included in the dust-proof composition as an active ingredient and reducing viscosity of a final composition.

【Mode for Invention】

Hereinafter, example embodiments of the present disclosure will be described in detail, and may be easily performed by a person having ordinary skill in the related art. However, this disclosure may be embodied in many different forms and is not construed as limited to the example embodiments set forth herein.

In the present specification, a dust-proof is to prevent or minimize dusts from sticking to skin or hair or the dusts temporarily stuck to the hair from being removed from the hair and thus permeated into the skin or the human body. In other words, when the dust-proof composition of the present specification is applied to the hair, the dusts are minimized from being stuck to the hair, and

even though the dusts are stuck to the hair, the dusts may be easily removed by a physical force such as wind and like, and furthermore, even though the dusts are mingled into the cosmetic composition applied on the skin, the dusts may float in the cosmetic composition and thus be prevented from permeation into the skin.

In the present specification, the dusts all include particulates mingled in the air and in general, a floating material having a particle diameter of 0.1 μm to 10 μm. Particularly, when the particle diameter is less than or equal to 10 μm, they are called to be fine dusts, and when less than or equal to 0.1 μm, they are called to be ultrafine dusts. Herein, the particle diameter may be an average of all the particle diameters. The dusts include a natural material, for example, sand, soil, and pollen or a material derived from an industry process, for example, carbon, carbon combustion products, metal salts, and heavy metals. The dusts may be present as fume, mist, smoke, vapor, or smog.

In the present specification, it will be understood that when an element such as a layer, film, region, or substrate is referred to as being "on" another element, it may be directly on the other element or intervening elements may also be present. In contrast, when an element is referred to as being "directly on" another element, there are no intervening elements present.

In the present specification, when specific definition is not otherwise provided, "substituted" refers to replacement of at least one hydrogen of a functional group of the present invention by at least one substituent selected from a halogen atom (F, Br, Cl, or I), a hydroxy group, a nitro group, a cyano group, an amino group (NH_2, $NH(R^{200})$ or $N(R^{201})(R^{202})$, wherein R^{200}, R^{201}, and

R^{202} are the same or different, and are independently a C1 to C10 alkyl group), an amidino group, a hydrazine group, a hydrazone group, a carboxyl group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted alkynyl group, a substituted or unsubstituted alicyclic organic group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heterocyclic group.

In the present specification, when specific definition is not otherwise provided, "alkyl group" refers to a C1 to C20 alkyl group, and specifically a C1 to C15 alkyl group, "cycloalkyl group" refers to a C3 to C20 cycloalkyl group, and specifically a C3 to C18 cycloalkyl group, "alkoxy group" refers to a C1 to C20 alkoxy group, and specifically a C1 to C18 alkoxy group, "aryl group" refers to a C6 to C20 aryl group, and specifically a C6 to C18 aryl group, "alkenyl group" refers to a C2 to C20 alkenyl group, and specifically a C2 to C18 alkenyl group, "alkylene group" refers to a C1 to C20 alkylene group, and specifically a C1 to C18 alkylene group, and "arylene group" refers to a C6 to C20 arylene group, and specifically a C6 to C16 arylene group.

In the present specification, when specific definition is not otherwise provided, "(meth)acrylate" means both "acrylate" and "methacrylate," and "(meth)acrylic acid" means both "acrylic acid" and "methacrylic acid."

In the present specification, when a definition is not otherwise provided, the term "combination" refers to mixing or copolymerization. Also, "copolymerization" refers to block copolymerization or random copolymerization, and "copolymer" refers to a block copolymer or a random copolymer.

In the present specification, when a definition is not otherwise provided,

hydrogen is bonded at the position when a chemical bond in chemical formulae is not drawn where supposed to be given.

In the present specification, when a definition is not otherwise provided, " * "refers to a linking portion between the same or different atoms, or chemical formulae.

Hereinafter, a dust-proof composition according to an embodiment is described.

The dust-proof composition according to an embodiment includes a non-volatile silicone oil having a weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol and a silicone acrylic polymer as an active ingredient, and has a viscosity of 300cs to 800cs.

When the dust-proof composition according to an embodiment includes a nonvolatile silicone oil having a weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol along with the silicone acrylic polymer, coating properties of the dust-proof composition are reinforced, and adsorption of the fine dusts in the hair may be greatly decreased.

When the non-volatile silicone oil has a weight average molecular weight of less than 800,000 g/mol, the coating properties of the dust-proof composition in the hair may be deteriorated and thus make the composition sticky, and accordingly, the adsorption of fine dusts in the hair is increased. In addition, a negative effect of decreasing brightness is also accompanied.

When the weight average molecular weight of the non-volatile silicone oil is greater than 1,100,000 g/mol, it becomes an ultra-high molecular material and may be hardly formulated into a composition and thus not be manufactured

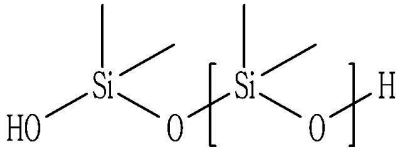
into a shampoo, a treatment, or an essence, which turns out inappropriate as a hair cosmetic composition.

Furthermore, when the weight average molecular weight of the non-volatile silicone oil is limited to be 800,000 g/mol to 1,100,000 g/mol and simultaneously, and viscosity of a final dust-proof composition is limited to be 300 cs (centi stock) to 800 cs, the coating properties of the dust-proof composition on the hair may be further improved, and accordingly, the adsorption of the fine dusts in the hair may be very greatly decreased.

When the dust-proof composition has viscosity of less than 300 cs, the coating properties of the dust-proof composition may be deteriorated, but when the viscosity of the dust-proof composition is greater than 800 cs, the composition may hardly be formulated and thus not appropriate as a hair cosmetic composition.

Specifically, the non-volatile silicone oil may have a structure of Chemical Formula 1.

[Chemical Formula 1]



When the weight average molecular weight of the compound having the above structure of Chemical Formula 1 (non-volatile silicone oil) is limited as above, the coating properties of the dust-proof composition on the hair become very excellent.

Specifically, the non-volatile silicone oil having a weight average

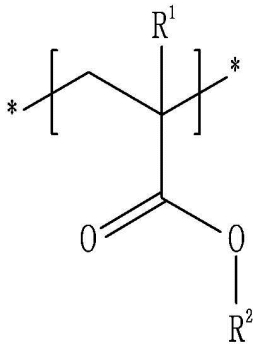
molecular weight of 800,000 g/mol to 1,100,000 g/mol may be used in an amount of 1 wt% to 20 wt% and specifically, 5 wt% to 15 wt% based on a total amount of the composition. When the non-volatile silicone oil having a weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol is included in an amount of less than 1 wt% based on the total amount of the composition, a small fine dust-blocking effect is obtained, and the composition may not function as a dust-proof composition, but when the non-volatile silicone oil having a weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol is included in an amount of greater than 20 wt% based on the total amount of the composition, wet and sticky feeling appears, and the fine dust-blocking effect is almost saturated and thus not economical.

The silicone acrylic polymer forms a protective layer on the hair to block adsorption of a harmful material and the fine dust in the hair and is included to secure light and neat feeling when applied to the hair.

For example, the silicone acrylic polymer may include at least one of an acrylate/dimethicone copolymer, an acrylate/dimethicone methacrylate copolymer, and an acrylate/polytrimethylsiloxymethacrylate copolymer. When the silicone acrylic polymer is included, a protective layer is formed on a surface of a hair, thereby preventing fine dust and the like from adsorbing to the hair. For example, the silicone acrylic polymer may include an acrylate/polytrimethylsiloxymethacrylate copolymer.

The acrylate/polytrimethylsiloxymethacrylate copolymer may include a repeating unit represented by Chemical Formula 2.

[Chemical Formula 2]

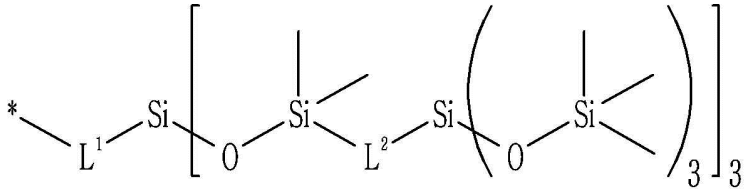


In Chemical Formula 2,

R^1 is hydrogen or a substituted or unsubstituted C1 to C10 alkyl group, and

R^2 is represented by Chemical Formula 3,

[Chemical Formula 3]



wherein, in Chemical Formula 3,

L^1 and L^2 are independently a substituted or unsubstituted C1 to C10 alkylene group.

As shown in Chemical Formula 2, the acrylate/polytrimethylsiloxy methacrylate copolymer has a dendrimer structure of a plurality of trimethyl siloxy groups by using acrylate as a backbone and blocks permeation and deposition of fine dusts in the air and harmful materials on the hair.

For example, the silicone acrylic polymer may be included in an amount of 0.1 wt% to 20 wt%, for example, 0.1 wt% to 15 wt%, or for example, 0.1 wt% to 10 wt% based on a total amount of the dust-proof composition. When

included within the range, excellent feeling and chemical formulation stability and in addition, an excellent effect of forming a hair protective layer may be obtained.

The non-volatile silicone oil and the silicone acrylic polymer may be included in a weight ratio of 10: 1 to 10: 3.

The dust-proof composition may further include a silicone-free oil.

The silicone-free oil may have 12 to 16 carbon atoms and a weight average molecular weight of 170 g/mol to 350 g/mol. When the carbon number and the weight average molecular weight of silicone-free oil are out of the ranges, a final dust-proof composition may hardly be formulated (components are not well agglomerated) and thus not formed into a coating layer on the hair and thus not uniformly formed.

For example, the silicone-free oil may include coconut alkanes, dicaprylyl ethers, benzoates substituted with alkyl groups having 12 to 15 carbon atoms (C12-15 alkyl benzoate), or a combination thereof.

The dust-proof composition of an embodiment may block fine dusts having a particle diameter of less than or equal to 10 μm. The particle diameter size is not limited thereto but may be less than or equal to 100 μm, less than or equal to 90 μm, less than or equal to 70 μm, less than or equal to 50 μm, less than or equal to 30 μm, less than or equal to 20 μm, less than or equal to 15 μm, or less than or equal to 10 μm.

The dust-proof composition may use linear polysiloxane oil or cyclic polysiloxane oil having 0.5 cs to 5 cs as a solvent but is not limited thereto. For example, the solvent may be cyclomethicone (3.9 cs), which is the cyclic

polysiloxane.

In terms of the above, the dust-proof composition may be a hair cosmetic composition, and the hair cosmetic composition may be a shampoo, a treatment, or an essence.

In the present specification "cosmetic" may refer to any material that may have a medical function in addition to the cosmetic function, in addition to the cosmetic function.

A formulation of the hair cosmetic composition is not particularly limited and may be appropriately selected as desired.

For example, the hair cosmetic composition may be formulated into chemical formulations such as solutions, suspend liquid, emulsions, pastes, gels, creams, lotions, powders, soaps, surfactant-containing cleansings, oils, powder foundations, emulsion foundations, wax foundations, and sprays, but is not limited thereto. More specifically, it may be formulated into a hair cosmetic composition selected from a conditioner such as shampoo or rinse, a hair conditioner such as hair tonic, gel or mousse, hair nourishing cosmetics, hair essence, hair serum, hair treatment, a hair conditioner, hair shampoo, hair lotion, wool, hair dye, etc., and may be formulated into basic cosmetics such as oil-in-water (O/W) type, water-in-oil (W/O), and the like. In addition, in the composition, in addition to the above-mentioned essential components in each chemical formulation, other components may be appropriately selected and formulated without difficulty by a person of an ordinary skill in the art according to types or use purposes of other external preparations. For example, ultraviolet (UV) blocking agents, hair conditioning agents, fragrances, and the

like may be further included.

The cosmetic composition may include a cosmetically acceptable medium or base. These are all chemical formulations suitable for topical applications. The cosmetic composition may be provided in the forms of emulsions obtained by dispersing an oil phase in an aqueous phase, suspensions, microemulsions, microa capsules, microgranules, or ion-type (liposome) and/or non-ionized vesicle dispersing agents or in the forms of creams, skins, lotions, powders, ointments, sprays, or concealed sticks. These compositions may be prepared according to conventional methods in the art.

When the chemical formulation of the present invention is a solution or emulsion, a solvent, a solubilizer, or an emulsifier may be used as carrier components. For example, water, ethanol, isopropanol, ethyl carbonate, ethyl acetate, benzyl alcohol, benzyl benzoate, propylene glycol, 1,3-butylglycol oil, glycerol aliphatic ester, polyethylene glycol, or fatty acid ester of sorbitan may be used.

If the chemical formulation of the present invention is a suspension, the carrier component may be a diluent of a liquid such as water, ethanol or propylene glycol, a suspending agent such as ethoxylated isostearyl alcohol, polyoxyethylene sorbitol ester, and polyoxyethylene sorbitan ester, microcrystalline cellulose, aluminum metahydroxide, bentonite, agar, or tracant and the like.

If the chemical formulation of the present invention is pastes, creams, or gels, the carrier component may be animal oil, vegetable oil, wax, paraffin, starch, tracant, cellulose derivatives, polyethylene glycol, silicone, bentonite,

silica, talc or zinc oxide.

If the chemical formulation of the present invention is powders or sprays, the carrier component may be lactose, talc, silica, aluminum hydroxide, calcium silicate or polyamide powders may be used and particularly, in the case of sprays, a propellant such as chlorofluorohydrocarbon, propane/butane, or dimethyl ether may be additionally included.

In an embodiment of the present invention, it may include thickeners in addition to the cosmetic composition. The thickeners included in the cosmetic composition of the present invention may be methyl cellulose, carboxyl methyl cellulose, carboxyl methyl hydroxy guanine, hydroxy methyl cellulose, hydroxyethyl cellulose, carboxyl vinyl polymer, polyquaternium, cetearyl alcohol, stearic acid, and carrageenan. Preferably one or more of carboxyl methyl cellulose, carboxyl vinyl polymer, polyquaternium may be used, and most preferably a carboxyl vinyl polymer may be used.

In an embodiment of the present invention, the cosmetic composition may include a variety of suitable bases and additives as needed, and the types and amounts of these components may be easily selected by the inventor. If necessary, it may include an acceptable additive, and may further include for example, conventional ingredients such as antiseptics, pigments, additives, and the like.

The antiseptics may be specifically phenoxyethanol or 1,2-hexanediol, and the fragrances may be artificial flavors.

In an embodiment of the present invention, the cosmetic composition may include a composition selected from water-soluble vitamin, oil-soluble

vitamin, polymeric peptide, polymeric polysaccharide, sphingolipid, and seaweed extract. Other ingredients that may be added include fats and oils, humectants, emollients, surfactants, organic and inorganic pigments, organic powders, ultraviolet (UV) absorbers, antiseptics, fungicides, antioxidants, plant extracts, pH adjusters, alcohols, pigments, fragrances, blood circulation accelerators, coolants, anhidrotics, purified water, and the like.

In addition, the compounding components which may be added other than these are not limited thereto. Moreover, any component may be blended in the range which does not damage the purpose and effect of the invention.

Hereinafter, the present disclosure is illustrated in more detail with reference to examples. However, these examples are exemplary, and the present disclosure is not limited thereto.

Preparation of Dust-proof Composition

Dust-proof compositions according to Examples 1 to 10 and Comparative Examples 1 to 3 are prepared to have each composition shown in Table 1. Raw materials are sequentially input through dispersion and then, stirred until uniform, wherein the methods of examples and comparative examples are a commonly used method in the related art.

(Table 1)

(unit: wt%)

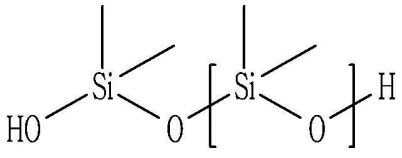
	Examples										Comparative Examples		
	1	2	3	4	5	6	7	8	9	10	1	2	3

(A)	(A-1)	10	-	-	-	10	10	10	10	10	10	10	-	-
	(A-2)	-	10	-	-	-	-	-	-	-	-	-	-	-
	(A-3)	-	-	10	-	-	-	-	-	-	-	-	-	-
	(A-4)	-	-	-	10	-	-	-	-	-	-	-	-	-
	(A-5)	-	-	-	-	-	-	-	-	-	-	-	10	-
	(A-6)	-	-	-	-	-	-	-	-	-	-	-	-	10
(B)		1	1	1	1	2	3	4	0.8	1	1	-	1	1
(C)	(C-1)	1	1	1	1	1	1	1	1	-	-	1	1	1
	(C-2)	-	-	-	-	-	-	-	-	-	1	-	-	-
(D)		88	88	88	88	87	86	85	88.2	89	88	89	88	88
Viscosity of composition (cs)		300	600	500	800	360	450	510	300	300	330	200	240	900

(A) Non-volatile Silicone Oil

(A-1) Compound represented by Chemical Formula 1 (800,000 g/mol)

[Chemical Formula 1]



(A-2) Compound represented by Chemical Formula 1 (1,000,000 g/mol)

(A-3) Compound represented by Chemical Formula 1 (900,000 g/mol)

(A-4) Compound represented by Chemical Formula 1 (1,100,000 g/mol)

(A-5) Compound represented by Chemical Formula 1 (700,000 g/mol)

(A-6) Compound represented by Chemical Formula 1 (1,200,000 g/mol)

(B) Silicone Acrylic Polymer

Acrylate/polytrimethylsiloxymethacrylate copolymer

(C) Silicone-free Oil

(C-1) Dicaprylyl ether (BASF Corp.) (M_w: 242 g/mol)

(C-2) Caprylic capryl triglyceride (BASF Corp.) (M_w: 500 g / mol)

(D) Solvent

Cyclomethicone (3.9 cs)

Selection of Fine Dust Substitute Material

In general, fine dusts consist of 22% of organic carbon compounds, 8% of carbon elements, 22% of nitrate, 15% of sulfate, 15% of soil crust components, and 18% of others (National Institute of Environmental Research), and accordingly, in the present invention, carbon black taking about 30% (organic carbon compounds and carbon elements) of the fine dusts and having a similar zeta potential to that of the fine dusts is selected as a substitute material.

Evaluation: Measurement of Dust-proof Effect

A hair tress is shampooed by using a standard shampoo purchased on the market and rinsed, respectively treated with the compositions according to Examples 1 to 10 and Comparative Examples 1 to 3, hung in a carbon black convection device (an air circulation system, a vacuum pump, a fine dust meter, a 1 m-wide, 1 m-long, and 1.5 m-high transparent acrylic box having a powder inlet), and exposed for 10 minutes to carbon black (a condition of 400 μg/m^3 to

600 μg/m^3; about 5 times worse than a little bad level (PM10 = 81 μg/m^3 to 120 μg/m^3) in the fine dust forecast class from Ministry of Environment).

The hair tress exposed to the carbon black is taken out and then, hair image-analyzed to measure a carbon black adsorption degree, and the measurement results are verified with respect to data significance by using a T-test of an Excel program made by Microsoft. The measurement results are shown in Table 2.

(Table 2)

	Examples										Comparative Examples		
	1	2	3	4	5	6	7	8	9	10	1	2	3
Fine dust area (%)	1.94	1.92	1.91	1.92	1.96	1.99	2.56	2.33	2.53	2.61	3.65	3.50	3.44

Referring to Table 2, when a dust-proof composition according to an embodiment is limited with respect to a molecular weight of a non-volatile silicone oil represented by Chemical Formula 1 and viscosity of a final dust-proof composition within particular ranges, there may be an effect of reducing a fine dust adsorption amount. In addition, when the dust-proof composition includes silicone-free oil, and the silicone-free oil is limited with respect to a carbon number or molecular weight, coating properties of the dust-proof composition on hair may be improved.

While this invention has been described in connection with what is

presently considered to be practical example embodiments, it is to be understood that the invention is not limited to the disclosed embodiments. On the contrary, it is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

【CLAIMS】

【Claim 1】

A dust-proof composition, comprising,

as active ingredients

a nonvolatile silicone oil having weight average molecular weight of 800,000 g/mol to 1,100,000 g/mol, and

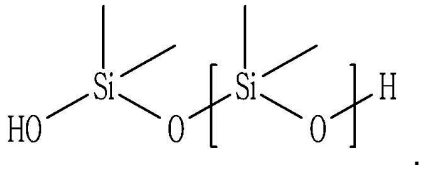
a silicone acrylic polymer,

wherein the dust-proof composition has a viscosity of 300cs to 800cs.

【Claim 2】

The dust-proof composition of claim 1, wherein the non-volatile silicone oil has a structure of Chemical Formula 1:

[Chemical Formula 1]

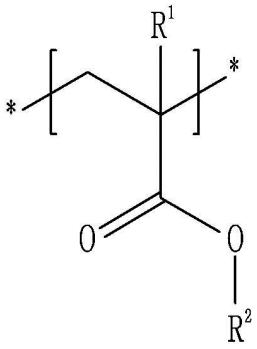


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【Claim 3】

The dust-proof composition of claim 1, wherein the silicone acrylic polymer comprises a repeating unit represented by Chemical Formula 2:

[Chemical Formula 2]

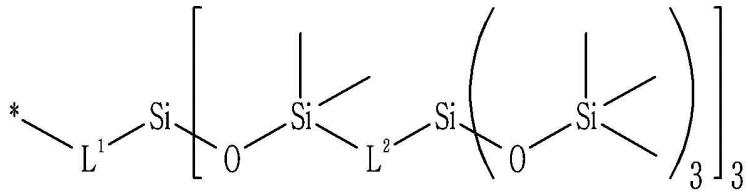


wherein, in Chemical Formula 2,

R^1 is hydrogen or a substituted or unsubstituted C1 to C10 alkyl group, and

R^2 is represented by Chemical Formula 3,

[Chemical Formula 3]



wherein, in Chemical Formula 3,

L^1 and L^2 are independently a substituted or unsubstituted C1 to C10 alkylene group.

【Claim 4】

The dust-proof composition of claim 1, wherein the non-volatile silicone oil and silicone acrylic polymer are included in a weight ratio of 10: 1 to 10: 3.

【Claim 5】

The dust-proof composition of claim 1, wherein the dust-proof

composition further comprises a silicone-free oil.

【Claim 6】

The dust-proof composition of claim 5, wherein the silicone-free oil has 12 to 16 carbon atoms.

【Claim 7】

The dust-proof composition of claim 5, wherein the silicone-free oil has a weight average molecular weight of 170 g/mol to 350 g/mol.

【Claim 8】

The dust-proof composition of claim 5, wherein the silicone-free oil comprises coconut alkanes, dicaprylyl ethers, benzoates substituted with alkyl groups having 12 to 15 carbon atoms (C12-15 alkyl benzoate), or a combination thereof.

【Claim 9】

The dust-proof composition of any one of claim 1 to claim 8, wherein the dust-proof composition is a hair cosmetic composition.

【Claim 10】

The dust-proof composition of claim 9, wherein the hair cosmetic composition is a shampoo, treatment, or essence.

【Claim 11】

The dust-proof composition of claim 9, wherein the hair cosmetic composition has a leave on type.