

【DESCRIPTION】

【Invention Title】

HIGH INTERNAL PHASE WATER-IN-OIL TYPE COSMETIC
COMPOSITION

【Technical Field】

The present application claims the benefit of priority based on Korean Patent Application No. 10-2017-0122366 filed on September 22, 2017, the entire contents of which are incorporated herein by reference.

The present invention relates to a high internal phase water-in-oil type cosmetic composition, more particularly to a high internal phase water-in-oil type cosmetic composition with a low viscosity which comprises an emulsifier comprising a cross-linked polymer linked by a hydrophilic coupler and a branched polymer linked by a hydrophilic coupler, and is easy to impregnate into a carrier.

【Background Art】

In general, when the emulsion is used in cosmetic products, medical substances and foods, it is divided into two types, one of which is oil-in-water type (O/W, oil-in-water type) in which oil is dispersed in water as small particles, and the other of which is a water-in-oil type (W/O, water-in-oil type) emulsion in which water is dispersed in oil.

Among them, the water-in-oil type cosmetic composition in cosmetic products used for the purpose of skin protection, etc. forms a strong oil film on the skin as compared with oil-in-water type cosmetic composition, and thus suppresses

evaporation of water from the skin, and delivers moisture and skin active substances continuously for a long time, thereby providing excellent skin protection effect. In addition, the water-in-oil type cosmetic composition has excellent water resistance compared to oil-in-water type, thereby having a very wide application range such as sunscreen products to protect the skin from ultraviolet rays in summer, baby creams to prevent diaper rash in infants, and hand creams to prevent excessive loss of sebum.

However, while the water-in-oil type emulsified cosmetic composition has a lot of advantages in terms of water resistance, makeup persistence, and protective effect of the skin because the external phase is oil, it has a heavy usage feeling and has a thicker makeup film than the oil-in-water type emulsified cosmetic composition, and thus it has been pointed out a disadvantage of damaging the skin by blocking the breathing of skin due to the poor breathability of the skin. In addition, it has disadvantages even in terms of economics, such as poor emulsification stability and high manufacturing cost or difficulty in manufacturing.

In general, if the volume ratio of the internal phase in the emulsion exceeds 74%, the droplets become polyhedrons without maintaining the spherical shape. The action of the droplets is limited in the case of this physical structure, as a result of which the emulsion exhibits a high viscosity cream phase. Such emulsion is called a high internal phase emulsion. The high internal phase emulsion is useful as a formulation of cosmetic products and medical substances by being able to dissolve various substances in the large internal phase.

However, since the existing high internal phase emulsion exhibits a creamy phase with high viscosity, it is not suitable for a carrying formulation where the emulsion

is absorbed in a sponge or the like, which has recently been in the spotlight. In addition, in order to prepare a high internal phase emulsion, it is possible to use a method of making an emulsion while slowly adding a large amount of aqueous phase to a small amount of oil phase, which is a problem that takes a lot of time and effort.

In order to solve these problems, Korean Patent No. 10-1428474 discloses a method of dividing the emulsification process into two steps to manufacture a high internal phase water-in-oil type emulsified cosmetic composition. In the case of preparing the emulsion composition by the above method, while there is an advantage in reducing the time and effort in the manufacturing process, there is a problem that the manufactured high internal phase emulsion composition does not have a low viscosity enough to be supported on a sponge

[Prior Art Documents]

[Patent Documents]

(Patent Document 1) Korean Laid-open Patent Publication No. 2017-0027666, "HIGH INTERNAL PHASE WATER-IN-OIL TYPE COSMETIC COMPOSITION"

(Patent Document 2) Korean Laid-open Patent Publication No. 2015-0022617, "COSMETIC COMPOSITION IN THE FORM OF HIGH INTERNAL PHASE WATER-IN-SILICONE FORMULATION WITH EXCELLENT STABILITY"

【Disclosure】

【Technical Problem】

Thus, in order to solve the above problems, the inventors of the present invention have found that when using a specific emulsifier, the cosmetic composition exhibits low viscosity so that it can be impregnated into a sponge or the like, while preparing a high internal phase

water-in-oil type cosmetic composition for high moisturizing, and thus have completed the present invention.

Therefore, it is an object of the present invention to provide a high internal phase water-in-oil type cosmetic composition with low viscosity comprising an aqueous phase part, an oil phase part and a powder part, wherein the oil phase part contains an emulsifier having a silicone oil and a hydrophilic coupler, and the emulsifier contains a cross-linked polymer linked by a hydrophilic coupler; and a branched polymer linked by a hydrophilic coupler.

It is another object of the present invention to provide a cosmetic product comprising a high internal phase water-in-oil type cosmetic composition with low viscosity and a carrier into which the cosmetic composition is impregnated.

【Technical Solution】

In order to achieve the above objects, the present invention provides a high internal phase water-in-oil type low viscosity cosmetic composition comprising an aqueous phase part, an oil phase part and a powder part, wherein the oil phase part comprises an emulsifier having a silicone oil and a hydrophilic coupler, and the emulsifier comprises a cross-linked polymer linked by a hydrophilic coupler, and a branched polymer linked by a hydrophilic coupler.

In one embodiment of the invention, the composition comprises 50 to 80% by weight of the aqueous phase part, 10 to 40% by weight of the oil phase part, and 1 to 20% by weight of the powder part, based on 100% by weight of the composition.

In one embodiment of the invention, the cross-linked polymer linked by the hydrophilic coupler is at least one selected from the group consisting of dimethicone/polyglyceryl-3 crosspolymer, lauryl

dimethicone/polyglycerin-3 crosspolymer and polyglyceryl-3/lauryl polydimethylsiloxyethyl dimethicone crosspolymer.

In one embodiment of the invention, the branched polymer linked by the hydrophilic coupler is at least one selected from the group consisting of polyglyceryl-3 disiloxane dimethicone, polyglyceryl-3 polydimethyldisiloxyethyl dimethicone, and laurylpolyglyceryl-3 polydimethylsiloxyethyl dimethicone.

In one embodiment of the invention, the cross-linked polymer linked by the hydrophilic coupler is characterized by being contained in an amount of 1 to 10% by weight based on the total weight of the composition.

In one embodiment of the invention, the branched polymer linked by the hydrophilic coupler is characterized by being contained in an amount of 0.1 to 1 % by weight based on the total weight of the composition.

In one embodiment of the invention, the silicone oil is characterized by being at least one selected from the group consisting of dimethicone, trisiloxane, disiloxane, cyclopentasiloxane, cyclohexasiloxane, methyl trimethicone, caprylyl methicone, phenyl trimethicone, diphenyl dimethicone, diphenylsiloxyphenyl trimethicone and dimethiconol.

In one embodiment of the invention, the silicone oil is characterized by being contained in an amount of 10 to 40 % by weight based on the total weight of the composition.

In one embodiment of the invention, the aqueous phase part is characterized by being at least one selected from the group consisting of purified water, moisturizer, sequestrant, emulsion stabilizer, preservative and fragrance.

In one embodiment of the invention, the powder part includes at least one selected from the group consisting of titanium dioxide, zinc oxide, talc, iron oxide, methylmethacrylate crosspolymer, mica, kaolin, sericite,

alumina, barium sulfate, polymethylmethacrylate, organic coloring agent and natural coloring agent.

In one embodiment of the invention, the cosmetic composition is characterized by having a viscosity of 10,000 to 30,000 cps (centipoise).

Also, in order to achieve the above objects, the present invention provides a cosmetic product comprising the high internal phase water-in-oil type low viscosity cosmetic composition, and a carrier into which the cosmetic composition is impregnated.

In one embodiment of the invention, the cosmetic products further comprise an application tool taking the cosmetic composition from a carrier impregnated with a high internal phase water-in-oil type cosmetic composition with low viscosity.

【Advantageous Effects】

The high internal phase water-in-oil type low viscosity cosmetic composition according to the present invention has an advantage of maximizing moist feeling due to the high content of the internal phase which is an aqueous phase part, while having a physical property of low viscosity by using an emulsifier comprising the cross-linked polymer linked by the hydrophilic coupler and the branched polymer linked by the hydrophilic coupler so that it can be impregnated into the carrier.

【Description of Drawings】

FIG. 1 is an image of an emulsion formed using a dimethicone/polyglycerin-3 crosspolymer that is a cross-linked polymer linked by a hydrophilic coupler as an emulsifier.

FIG. 2 is an image of an emulsion formed using a

dimethicone/PEG-10/15 crosspolymer, which is a cross-linked polymer linked by a hydrophilic coupler, as an emulsifier.

FIG. 3 is an image showing the results of improved powder dispersibility by using laurylpolyglyceryl-3 polydimethylsiloxylethyl dimethicone, which is a branched polymer linked by a hydrophilic coupler, as an emulsifier.

FIG. 4 is an image showing whether or the water drop is formed depending on the water content of the aqueous phase part.

【Best Mode】

Hereinafter, the present invention will be described in more detail.

The terms and words used in the present specification and claims should not be construed as limited to ordinary or dictionary terms, and should be construed in a sense and concept consistent with the technical idea of the present invention, based on the principle that the inventor can properly define the concept of a term to describe his invention in the best way possible.

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the present invention. The singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. It is to be understood that the terms "comprise", or "have", etc., as used in the present specification, are intended to designate the presence of stated features, numbers, steps, operations, components, parts or combinations thereof, but not to preclude the possibility of the presence or addition of one or more other features, numbers, steps, operations, components, parts, or combinations thereof.

The present invention provides a high internal phase water-in-oil type cosmetic composition having a physical

property of low viscosity by using an emulsifier comprising a cross-linked polymer linked by a hydrophilic coupler and a branched polymer linked by a hydrophilic coupler.

The water-in-oil type cosmetic composition with the high internal phase has a large ratio of the internal phase of the water-in-oil type emulsion to 60 to 90% and increases the size of the emulsion particles, and thus has a property that when an external stimulus such as a hand rubbing force is applied, the aqueous phase components that make up the internal phase come out and merge into one. The composition is also called a 'water burst' formulation because it looks to the naked eye as if water droplets burst and form, and is a formulation that can enhance psychological and aesthetic satisfaction for the user.

The term 'high internal phase' used in the present invention refers to a case where the water value measured after applying the cosmetics according to the present invention to the skin is sufficiently high and water drops may be formed.

In addition, it is an object of the present invention to provide a cosmetic composition that can be impregnated in a sponge or the like by including a powder phase in the internal phase of the high internal phase water-in-oil type cosmetic composition and stabilizing it, and exhibiting a physical property of low viscosity.

However, from this, it is not intended to limit the cosmetic composition of the present invention to only a specific range, and it is to be understood that the specific range of cosmetic composition is one embodiment for carrying out the present invention more broadly.

The present invention provides a high internal phase water-in-oil type low viscosity cosmetic composition comprising an aqueous phase part, an oil phase part and a powder part, wherein the oil phase part comprises an

emulsifier having a silicone oil and a hydrophilic coupler, and the emulsifier comprises a cross-linked polymer linked by a hydrophilic coupler, and a branched polymer linked by a hydrophilic coupler.

In addition, the cosmetic composition according to an embodiment of the present invention is not particularly limited in terms of composition and content, but the composition may be a high internal phase water-in-oil type low viscosity cosmetic composition characterized by comprising 50 to 80% by weight of the aqueous phase part, 10 to 40% by weight of the oil phase part and 1 to 20% by weight of the powder part, based on 100% by weight of the total weight of the composition.

Hereinafter, each of the key components illustrated in the manufacture of the present invention will be described in more detail.

Oil phase part

In one embodiment according to the invention, the cosmetic composition may comprise an oil phase part in an amount of 10 to 40% by weight, preferably 25 to 35% by weight based on 100% by weight of the total weight of the cosmetic composition.

In addition, the oil phase part according to the present invention may contain a silicone oil and an emulsifier, and the emulsifier may be contained in an amount of 3 to 10% by weight based on the total weight of the cosmetic composition. If the content of the emulsifier is less than 3% by weight, it is not possible to prepare a composition having excellent stability. If the content of the emulsifier is more than 10% by weight, there is a problem of inhibiting the usage feeling of the cosmetic products. Therefore, the content of the emulsifier is appropriately adjusted in the above range.

The emulsifier according to the present invention may include a main emulsifier comprising a cross-linked polymer linked by a hydrophilic coupler, and an auxiliary emulsifier comprising a branched polymer linked by a hydrophilic coupler.

In the case of the existing high internal phase water-in-oil type cosmetic composition, the emulsifier including the crosslinked polymer and the emulsifier including the branched polymer were used without distinction. However, in the present invention, by differentiating them thus using a cross-linked polymer linked by a hydrophilic coupler as the main emulsifier, it is possible to prepare a cosmetic product composition exhibiting a physical property of low viscosity while making the cosmetic droplets of water of the high internal phase more stable.

Therefore, in one embodiment according to the invention, the main emulsifier may be at least any one selected from the group consisting of dimethicone/polyglyceryl-3 crosspolymer, lauryl dimethicone/polyglycerin-3 crosspolymer and polyglyceryl-3/lauryl polydimethylsiloxylethyl dimethicone crosspolymer, preferably dimethicone/polyglyceryl-3 crosspolymer.

The cross-linked polymer linked by the hydrophilic coupler included in the main emulsifier is preferably contained in an amount of 1 to 10% by weight in the total composition. If the content of the cross-linked polymer is less than 1% by weight, the particles are not stable. If the content of the cross-linked polymer exceeds 10% by weight, the hardness may increase, causing usage feeling to be stiff and damp. Therefore, the content of the cross-linked polymer is appropriately adjusted within the above range.

In principle, in the case of the high internal phase type, since the particles themselves exhibit swelling properties, their movement is reduced, thereby exhibiting a

physical property of a high viscosity. However, in one embodiment according to the present invention, in the case of dimethicone/polyglyceryl-3 crosspolymer, which is the main emulsifier containing the cross-linked polymer linked by the hydrophilic coupler, unlike dimethicone/PEG-10/15 crosspolymer, since polyglyceryl which is a hydrophilic coupler is bulky compared to polyethylene glycol, when used it as an emulsifier, unstable emulsification results in large and uneven droplets. Therefore, the particles are not uniform, and thus their stability is reduced, resulting in a physical property of low viscosity.

As can be seen in FIG. 1, when dimethicone/polyglycerin-3 crosspolymer was used as a main emulsifier, a larger water drop emulsion was formed, indicating that the usage feeling of water bursting was excellent. In contrast, when dimethicone/PEG-10/15 crosspolymer was used as an emulsifier, small and uniform water drops were formed, indicating that the feeling of water bursting was less.

The auxiliary emulsifier according to one embodiment of the present invention may include a branched polymer linked by a hydrophilic coupler, and may be at least any one selected from the group consisting of polyglyceryl-3 disiloxane dimethicone, polyglyceryl-3 polydimethyldisiloxyethyl dimethicone and laurylpolyglyceryl-3 polydimethylsiloxyethyl dimethicone, preferably laurylpolyglyceryl-3 polydimethylsiloxyethyl dimethicone.

The branched polymer linked by the hydrophilic coupler included in the auxiliary emulsifier is preferably contained in an amount of 0.1 to 1% by weight in the total composition. If the content of the branched polymer is less than 0.1% by weight, the effect is insufficient. If the content of the branched polymer exceeds 1% by weight, the so-called 'water

bursting' effect of the high internal phase cosmetic composition is reduced, the auxiliary emulsifier itself has an emulsifying power so that the particles are small and uniform, and thus the physical property of 'low viscosity' desired in the present invention cannot be implemented. Therefore, the content of the branched polymer is appropriately adjusted within the above range.

The oil phase part according to the present invention may additionally include a silicone oil.

The silicone oil may be used in a conventional water-in-silicone emulsified cosmetic composition, and includes both volatile and nonvolatile oils. For example, dimethicone, trisiloxane, disiloxane, cyclopentasiloxane, cyclohexasiloxane, methyl trimethicone, caprylylmethicone, phenyl trimethicone, diphenyl dimethicone, diphenylsiloxymethyl trimethicone and dimethiconol may be used, but is not limited thereto.

If oily non-volatile hydrocarbon-based oils or heavy ester-based oils are mainly used, it may be heavy and sticky. However, the volatile silicone-based oil is rapidly volatilized when the cosmetic composition is applied to the skin, and thus the usage feeling is very light, and an advantage of usability such as excellent applicability and spreadability can be provided. In addition, safety, excellent water resistance and moisture shielding effects can be provided.

The silicone oil may be contained in an amount of 10 to 40% by weight based on the total weight of the composition, preferably in an amount of 25 to 35% by weight. If the content of the silicone oil is less than 10% by weight, the formulation is not stable. If the content of the silicone oil exceeds 40% by weight, the amount of oil is too high to feel the unique water bursting of the high internal phase water-in-silicone formulation, and when applied to the skin,

it may give an oily slippery usage feeling, stuffiness and a feeling of delayed absorption into the skin. Therefore, the content of the silicone oil is appropriately adjusted within the above range.

The oil phase part according to the present invention may additionally contain a UV-blocking agent.

The UV-blocking agent used in the cosmetic composition of the present invention may be any one conventionally used in cosmetics, and is not particularly limited. For example, glyceryl PABA, drometrizole trisiloxane, drometrizole, digalloyl trioleate, disodiumphenyl dibenzimidazole tetraselenate, DEA-methoxycinnamate, a mixture of Lawsone and dihydroxyacetone, 4-methylbenzylidene camphor, menthyl anthranilate, benzophenone-3, benzophenone-4, benzophenone-8, butyl methoxydibenzoylmethane, bis-ethylhexyloxyphenol methoxyphenyl triazine, cinoxate, ethyldihydroxypropyl PABA, octocrylene, ethylhexyldimethyl PABA, ethylhexyl methoxycinnamate, ethylhexyl salicylate, ethylhexyltriazone, isoamyl p-methoxycinnamate, TEA-salicylate, para-aminobenzoic acid(PABA), phenylbenzimidazole sulfonic acid, homosalate, diethylhexyl butamido triazone, methylene bis-benzotriazolyl tetramethylbutylphenol, terephthalylidene dicamphorsulfonic acid and its salts, polysilicone-15, benzophenone-1, benzophenone-2, benzophenone-5, benzophenone-6, benzophenone-9, 3-benzylidenecamphor, benzylidenecamphor sulfonic acid, butyl para-aminobenzoic acid, camphor benzalkonium methosulfate, diethylhexyl butamidotriazone, diisopropyl methylcinnamate, ethyldiisopropyl cinnamate, 2-ethylhexyl dimethoxybenzylidene dioxoimidazolidine propionate, ethyl para-aminobenzoic acid, ferulic acid, glyceryl ethylhexanoate dimethoxycinnamate, isopentyl trimethoxycinnamate trisiloxane, isopropyl methoxycinnamate, isopropylbenzylsalicylate, PEG-25 PABA, polyacrylamidomethyl

benzylidyne camphor, potassium phenylbenzimidazole sulfonate, sodium phenylbenzimidazole sulfonate and TEA-phenylbenzimidazole sulfonate and the like can be used, and these can be used alone or in combination of two or more.

The content of the UV-blocking agent is preferably 5 to 10% by weight based on the total weight of the composition. If the content of the UV-blocking agent is less than 5% by weight, the UV blocking effect is insignificant. If the content of the UV-blocking agent exceeds 10% by weight, the stability of the emulsion is lowered, and it adversely affects the usage feeling, for example, it becomes sticky, and the UV blocking effect is not large considering the amount of use, which is uneconomical.

The oil phase part according to the present invention may additionally contain a dispersing agent.

The dispersing agent used in the cosmetic composition of the present invention improves the stability of the largely formed high internal phase particles and is to have a role of evening the powder phase to be described later, and it may be any one conventionally used in cosmetics and is not particularly limited.

For example, any one or more selected from polyhydroxystearic acid, acrylate/ethylhexyl acrylate/dimethicone methacrylate copolymer and vinylpyrrolidone/hexadecene copolymer, and preferably acrylate/ethylhexyl acrylate/dimethicone methacrylate copolymer may be used.

The content of the dispersing agent is preferably 1 to 5% by weight based on the total weight of the composition, but is not limited thereto.

Powder part

One embodiment according to the present invention may contain the powder in an amount of 1 to 20% by weight,

preferably 5 to 15% by weight, based on 100% by weight of the total weight of the cosmetic composition.

If the powder part is less than 1% by weight, it is difficult to expect a makeup effect such as the desired UV blocking function or cover power. If the powder part exceeds 20% by weight, there is a problem that it is not dispersed in the oil phase part or the usage feeling is impaired. Therefore, the content of the powder part is appropriately adjusted within the above range.

The powder according to an embodiment of the present invention means a collection of solid materials having a particle size of 1 mm or less. The powder usable in the present invention includes extender coloring agent, white coloring agent, colored coloring agent, pearlescent coloring agent, metal powders, organic powders and the like which are commonly used in the field of cosmetic products. The powder usable in the present invention includes extender pigments, white pigments, colored pigments, pearlescent pigments, metal powders, organic powders and the like which are commonly used in the field of cosmetic products.

The powder component is applied to the skin, and, for example, preferably is one that may have functions such as color (hue) expression, brightness, three-dimensional effect, moisturizing effect, whitening improvement, anti-wrinkle, UV-blocking effect, anti-aging and pearl feeling. Specifically, the powder component is preferably one that may have functions such as an uneven cover, a wrinkle cover, a makeup film lasting, and brightness.

In addition, a raw material coated with alkyl silane, silica, mica, etc. may also be used to improve water resistance and dispersibility. For example, the powder used in the present invention may be, for example, one that includes at least one selected from the group consisting of extender pigments such as talc, mica, kaolin, sericite,

calcium carbonate, alumina, magnesium carbonate, silicic anhydride and barium sulfate; white pigments such as titanium dioxide, and zinc oxide; colored pigments such as red iron oxide, yellow iron oxide, black iron oxide, deep blue, navy blue, chromium oxide and carbon black; organic pigments such as polymethylmethacrylate, polyurethane, Nylon-6 and Nylon-12; and pearlescent pigments, and at least one selected from the group consisting of dimethicone/vinyl dimethicone crosspolymer, vinyl dimethicone/methicone silsesquioxane crosspolymer, dimethicone/phenylvinyl dimethicone crosspolymer; silicone modified powder such as lauryl dimethicone/vinyl dimethicone crosspolymer and methylmethacrylate crosspolymer, and organic coloring agents and natural coloring agents.

Aqueous phase part

One embodiment of the present invention may contain the aqueous phase part in an amount of 50 to 80% by weight, preferably 60 to 70% by weight, based on 100% by weight of the total weight of the cosmetic composition.

If the content of the aqueous phase part is less than 50% by weight, there is no unique usage feeling that seems to form water droplets. If the content of aqueous phase part exceeds 80% by weight, an emulsified formulation cannot be made or a very unstable phenomenon occurs.

The aqueous phase part according to the present invention may, if necessary, contain solvents, stabilizers, foaming agents, flavoring agents, surfactants, purified water, moisturizers, ionic or nonionic emulsion stabilizers, fillers, sequestrants, chelating agents, preservatives, vitamins, blockers, wetting agents, essential oils, dyes, pigments, fragrances, hydrophilic or lipophilic active agents, or lipid vesicles known in the art or auxiliary agents commonly used in the field of cosmetics or

dermatology such as any other ingredients commonly used in cosmetic products.

The auxiliary agent is introduced in an amount generally used in cosmetics or dermatology. The cosmetic composition according to embodiments of the present invention may further contain a substance for promoting absorption into the skin in order to increase the skin improving effect. At this time, other components out of the composition may be arbitrarily selected and blended depending on the formulation or purpose of use of other cosmetics.

The solvent may be distilled water, preferably deionized distilled water, and may be used in an amount satisfying 55 to 75% by weight based on 100% by weight of the total weight of the composition.

In addition, in one embodiment of the present invention, the aqueous phase part may further include a moisturizer. The moisturizer can be used without limitation as long as it has a moisturizing function to supply or maintain moisture to the skin. For example, vegetable oils, animal oils and oils as described in Korean Laid-open Patent Publication No. 10-2014-0118504 may be used. In addition, the moisturizer may include a polyol, and specifically may include one or more polyols selected from the group consisting of butylene glycol, propanediol, dipropylene glycol and pentyleneglycol. The moisturizer may be composed of polyol or a mixture of polyol with other moisturizing ingredients (oils, etc.). If the polyol is used as a moisturizer, an excellent moisturizing effect such as moistness is exhibited, and compatibility with powder components included in the cosmetic composition is good, thereby improving formulation stability of the emulsion.

In addition, the high internal phase water-in-oil type cosmetic composition having a low viscosity according to the

present invention may further contain one or more polyols selected from the group consisting of glycerin, butylene glycol, propylene glycol, dipropylene glycol, pentyleneglycol, hexylene glycol, polyethylene glycol and sorbitol as a moisturizer. The moisturizer may be contained in the range of 0.1 to 20.0% by weight, preferably 0.5 to 10.0% by weight in the total composition. If the content of the moisturizer is less than 0.1% by weight, satisfactory moisturizing sustainability cannot be obtained. If the content of the moisturizer exceeds 20% by weight, the usage feeling, when using, worsens because it feels sticky and damp.

In addition, the sequestrant is a kind of masking agent, and means a material that combines with the metal ions in an aqueous solution to form a soluble complex salt, and thus exhibits the action of preventing the precipitation of the metal ions by other reagents. The sequestrant usable in the present invention may be disodium ethylenediaminetetraacetate, tetrasodium ethylenediaminetetraacetate, disodium EDTA, and the like, but is not limited thereto.

In addition, the preservative refers to a material that serves to protect the cosmetic product from bacterial or microbial contamination when using the cosmetic product by inhibiting and reducing the growth of microorganisms in the cosmetic product. The preservative usable in the present invention may be benzoic acid, paraoxybenzoic acid ester, a mixture of methylchloroisothiazolinones, phenoxyethanol, DMDM Hydantoin and the like, but is not limited thereto.

Viscosity of high internal phase water-in-oil type cosmetic composition

Recently, a cushion cosmetic product containing cosmetics carried in a sponge, which is easy to carry and also easy to modify makeup with light usage feeling, is

gaining popularity. In order for the sponge to absorb the cosmetics smoothly, the cosmetics must have a physical property of at least 25,000 cps or less.

The cosmetic composition according to the embodiment of the present invention described above may exhibit a physical property of low viscosity by using a main emulsifier including a cross-linked polymer linked by a hydrophilic coupler.

Therefore, the cosmetic composition according to the present invention may have a viscosity of 10,000 to 30,000 cps (centipoise), preferably 15,000 to 25,000 cps. If the viscosity is lower than 10,000 cps, even if the impregnating material such as air cushion to be described later is applied, the composition can flow out and thus it is difficult to secure physical stability. If the viscosity is higher than 30,000 cps, it is not possible to carry cosmetics in a carrier such as a sponge. Therefore, the viscosity is appropriately adjusted within the above range.

Cosmetic product comprising high internal phase water-in-oil type cosmetic composition having low viscosity

Since the cosmetic product according to an embodiment of the present invention carries the high internal phase water-in-oil type cosmetic composition having a low viscosity in a carrier such as a sponge, thus the cosmetic composition is well-filled, and the cosmetic composition can be uniformly loaded for a long time, and when taking the cosmetic composition, an appropriate amount of cosmetic composition is discharged, and excellent durability can be maintained for a long time.

In addition, the cosmetic product according to the embodiment of the present invention may further include an application tool for taking the high internal phase water-in-oil type cosmetic composition with low viscosity from the

sponge carrier impregnated with the cosmetic composition. In addition, the cosmetic product may further include a container including a lower portion that can accommodate the carrier for the cosmetic composition, and a mirror and the like and further an upper portion of the lid, that is, a container for cosmetic product generally called a pact, but is not limited thereto.

As used herein, the term "carrier" refers to a material capable of supporting any material, such as a composition, or any ingredient, and is used interchangeably with "support", "impregnation material" or "medium". In addition, the "carrier" may be used to discharge the material supported on it to a separate application tool. The composition impregnated in the carrier may be delivered to the skin through application means (also referred to as an application tool or an applicator), including a hand, a puff, a tip, a brush, etc.

In addition, the term "foam carrier" as used herein refers to a material capable of supporting any material or component, which is made of rubber, fiber or resin like sponge and can carry and discharge the cosmetic composition.

Specifically, the foam is not particularly limited, but may be a natural foam or a synthetic foam. For example, the natural foam may be one made of a material such as sponge, natural rubber, or the like, and the material of the synthetic foam may include synthetic resin, poly urethane, latex, acrylonitrile-butadiene rubber (NBR), butadiene rubber (BR), styrene-butadiene rubber (SBR), natural rubber (NR), chloroprene rubber (CR), butyl rubber (isoprene-isobutylene rubber: IIR), isoprene rubber (IR), vulcanized ethylene-propylene rubber (EPR), polysulfide rubber, silicone rubber, fluororubber, urethane rubber, acrylic rubber, ethylene propylene diene monomer (EPDM) rubber, polyvinyl alcohol (PVA) and ethylene vinyl acetate (EVA),

nitrile rubber(NR) and the like.

The polyurethane foam which is a kind of the foam in the present invention is not particularly limited, but may include polyether-based foamed urethane (wherein ether polyol is a main base), polyester-based foamed urethane and polycarbonate-based foamed urethane, specifically polyether-based foamed urethane.

In addition, the polyether-based foamed urethane may include polyether-based dry foamed urethane and polyether-based wet foamed urethane, the polyester-based foamed urethane may include polyester-based dry foamed urethane and polyester-based wet foamed urethane, and the polycarbonate-based foamed urethane may include polycarbonate-based dry foamed urethane and polycarbonate-based wet foamed urethane.

Hereinafter, the present invention will be described in more detail with reference to examples. These examples are only for illustrating the present invention, and it will be apparent to those skilled in the art that the scope of the present invention is not interpreted to be limited by these examples.

Example 1

A high internal phase water-in-oil type cosmetics with low viscosity according to the present invention was prepared in accordance with the raw materials and the composition ratios shown in Table 1 below. First, the powder phase was put in an oil phase part including a main emulsifier and an auxiliary emulsifier at room temperature, and the powder phase was evenly dispersed by stirring at high speed with a homo-mixer using a T.K HOMOMIXER MARK II (manufactured by TOKUSHU KIKA company). Thereafter, a moisturizer, a sequestrant, an emulsion stabilizer, and a preservative are dissolved in purified water, which is a solvent, to prepare an aqueous phase part, and the prepared

aqueous phase part was put in the oil phase part in which the powder phase was mixed, and stirred at low speed using the homo-mixer to prepare a high internal phase water-in-oil type cosmetic.

An example for the high internal phase water-in-oil type low viscosity cosmetic composition according to the present invention is shown in Table 1 below.

Table 1:

Item	Function	Name of raw material	Example 1
Oil phase	emollient (silicone oil 1)	cyclopentasiloxane, cyclohexasiloxane	remainder
	emollient (silicone oil 2)	phenyltrimethicone	7
	UV-blocking agent	ethylhexylmethoxycinnamate	7
	main emulsifier	dimethicone/polyglycerin-3 crosspolymer	5
	auxiliary emulsifier	laurylpolyglyceryl-3 polydimethylsiloxylethyl dimethicone	0.5
	dispersing agent	acrylate/ethylhexylacrylate /dimethiconemethacrylate copolymer	5
Powder phase	coloring agent	titanium dioxide/zinc oxide/iron oxide/methylmethacrylate crosspolymer	10
Aqueous phase	solvent	purified water	58
	moisturizer	glycerin	5
	sequestrant	disodium EDTA	0.05
	emulsion stabilizer	sodium chloride	0.8
	preservative	phenoxyethanol	0.3

Comparative Example 1

A cosmetic was prepared using the same composition as in Example 1, except that dimethicone/PEG-10/15 crosspolymer instead of methicone/polyglycerin-3 crosspolymer was used as the main emulsifier.

Table 2:

Item	Function	Name of raw material	Comparative Example 1
Oil phase	emollient (silicone oil 1)	cyclopentasiloxane/cyclohexasiloxane	remainder
	emollient (silicone oil 2)	phenyltrimethicone	7
	UV-blocking agent	ethylhexyl methoxycinnamate	7
	main emulsifier	dimethicone/PEG-10/15 crosspolymer	5
	auxiliary emulsifier	laurylpolyglyceryl-3 polydimethylsiloxyethyl dimethicone	0.5
	dispersing agent	acrylate/ethylhexylacrylate/dimethicone methacrylate copolymer	5
Powder phase	coloring agent	titanium dioxide/zinc oxide/iron oxide/methylmethacrylate crosspolymer	10
Aqueous phase	solvent	purified water	58
	moisturizer	glycerin	5
	sequestrant	disodium EDTA	0.05
	emulsion stabilizer	sodium chloride	0.8
	preservative	phenoxyethanol	0.3

Comparative Example 2

A cosmetic was prepared in the same composition as in Example 1, except that laurylpolyglyceryl-3 polydimethylsiloxylethyl dimethicone was not used as an auxiliary emulsifier.

Table 3:

Item	Function	Name of raw material	Comparative Example 2
Oil phase	emollient (silicone oil 1)	cyclopentasiloxane/cyclohexasiloxane	remainder
	emollient (silicone oil 2)	phenyltrimethicone	7
	UV-blocking agent	ethylhexyl methoxycinnamate	7
	main emulsifier	dimethicone/polyglycerin-3 crosspolymer	5
	auxiliary emulsifier	laurylpolyglyceryl-3 polydimethylsiloxylethyl dimethicone	0
	dispersing agent	acrylate/ethylhexylacrylate/dimethicone methacrylate copolymer	5
Powder phase	coloring agent	titanium dioxide/zinc oxide/iron oxide/methylmethacrylate crosspolymer	10
Aqueous phase	solvent	purified water	58
	moisturizer	glycerin	5
	sequestrant	disodium EDTA	0.05
	emulsion stabilizer	sodium chloride	0.8
	preservative	phenoxyethanol	0.3

Experimental Example 1: Confirmation of water drop formation depending on the type of main emulsifier

Images of the water drops of the cosmetics prepared by the compositions of Example 1 and Comparative Example 1 were confirmed with the naked eye. Dimethicone crosspolymers combined with a polyglycerin-based emulsifier (Example 1) and a polyethylene glycol-based emulsifier (Comparative Example 1) as main emulsifiers were compared. As a result, as can be seen from Figure 1, it was confirmed that when using the polyglycerin-based emulsifier, since an emulsion containing a larger water drop was formed, usage feeling of water bursting was excellent, and since the viscosity is 20,000 ~ 25,000cps which is more than half lower than the viscosity of 45,000 ~ 50,000cps when using the polyethylene glycol emulsifier, it is more suitable for the high internal phase water-in-oil type cosmetic composition which has low viscosity property.

Experimental Example 2: Confirmation of water drop formation and dispersibility depending on the content of auxiliary emulsifier

In Experimental Example 2, the viscosity, water drop formation and dispersibility of the cosmetic composition depending on the content of 'laurylpolyglyceryl-3 polydimethylsiloxylethyldimethicone' (trade name KF-6105 of ShinEtsu company, Japan) which is an auxiliary emulsifier containing a branched polymer linked by a hydrophilic coupler were confirmed. Viscosity in the case of the present invention was measured under conditions of # 4 spindle, 12 rpm at 30°C using a DV-2 + PRO viscometer from BROOKFIELD company. Also, it was confirmed whether or not water drops were formed by applying the cosmetics according to the

present invention on the skin and then observing the formation phenomenon of water droplets with the naked eye, and the dispersibility was also evaluated by relative visual assessment of whether or not pigment bands were formed by the cosmetics.

Table 4:

Content	0%	0.30%	0.50%	0.70%	1%
Viscosity	25150	25350	25750	30000	29650
Drop formation	O	O	O	X	X
Dispersibility	insufficient	moderate	excellent	excellent	excellent

As shown in Table 4, it was found that as the content of 'laurylpolyglyceryl-3 polydimethylsiloxylethyl dimethicone' containing polyglycerin-based branched polymer as an auxiliary emulsifier is increased, the dispersibility of the powder phase is improved. FIG. 3 shows a difference in dispersibility between Comparative Example 2, in which an auxiliary emulsifier was not used, and Experimental Example 1, in which an auxiliary emulsifier was used by 0.5% by weight, and it was confirmed with the naked eye that in the case of Comparative Example 2, white bands are produced due to poor dispersibility.

However, when the content of the auxiliary emulsifier exceeded 0.5% by weight, since the water drop was not formed and the viscosity was increased, it was found that such content is not suitable for the cosmetics according to the present invention.

Experimental Example 3: Confirmation of the effect of viscosity, water value and water drop formation depending on the content of internal phase

In Experimental Example 3, the viscosity of the cosmetic composition depending on the content of purified water in the aqueous phase part (internal phase) and whether or not water drop was formed were confirmed. As the content of purified water in the aqueous phase part is increased, the content of the aqueous phase part and the oil phase part is controlled by reducing the content of silicone oil 1.

The viscosity according to the present invention was measured under the same conditions as in Experimental Example 2, and whether or not water drops were formed was also confirmed by observing the formation phenomenon of water droplets with the naked in the same manner as in Experimental Example 2.

The water value according to the present invention was measured immediately after application of the cosmetics having the controlled content of purified water in the internal phase to the skin by using 'skin touch' of AMOREPACIFIC Corporation, which is a moisture measuring device.

Table 5:

Water content	38%	43%	48%	53%	58%
Viscosity	1700	2950	4650	9050	25150
Water value	63	88	96	99	99
Drop formation	X	X	X	O	O

As shown in Table 4, when the cosmetics contains purified water in an amount of 43% or less, the water value was low, thereby making it unsuitable for the cosmetics according to the invention, and when the amount of purified water was contained in an amount of 48%, the water value was

excellent, but water drops were not generated as shown in FIG. 4. It was confirmed that when the content of purified water is 53% or more, both the water value and the formation of water drops are excellent, but when the content of purified water in the internal phase is 58% or more, the viscosity increases significantly.

【CLAIMS】

【Claim 1】

A high internal phase water-in-oil type cosmetic composition with low viscosity comprising an aqueous phase part, an oil phase part and a powder part, wherein the oil phase part contains an emulsifier having a silicone oil and a hydrophilic coupler, and the emulsifier contains a cross-linked polymer linked by a hydrophilic coupler; and a branched polymer linked by a hydrophilic coupler.

【Claim 2】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the composition contains 50 to 80% by weight of the aqueous phase part, 10 to 40% by weight of the oil phase part, and 1 to 20% by weight of the powder part, based on 100% by weight of the total weight of the composition.

【Claim 3】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the cross-linked polymer linked by the hydrophilic coupler is at least any one selected from the group consisting of dimethicone/polyglyceryl-3 crosspolymer, lauryl dimethicone/polyglycerin-3 crosspolymer and polyglyceryl-3/lauryl polydimethylsiloxylethyl dimethicone crosspolymer.

【Claim 4】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the branched polymer linked by the hydrophilic coupler is at

least any one selected from the group consisting of polyglyceryl-3 disiloxane dimethicone, polyglyceryl-3 polydimethyldisiloxyethyl dimethicone and laurylpolyglyceryl-3 polydimethylsiloxyethyl dimethicone.

【Claim 5】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the cross-linked polymer linked by the hydrophilic coupler is contained in an amount of 1 to 10% by weight based on the total weight of the composition.

【Claim 6】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the branched polymer linked by the hydrophilic coupler is contained in an amount of 0.1 to 1 % by weight based on the total weight of the composition.

【Claim 7】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the silicone oil is at least any one selected from the group consisting of dimethicone, trisiloxane, disiloxane, cyclopentasiloxane, cyclohexasiloxane, methyltrimethicone, caprylylmethicone, phenyl trimethicone, diphenyl dimethicone, diphenylsiloxyphenyl trimethicone and dimethiconol.

【Claim 8】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein

the silicone oil is contained in an amount of 10 to 40% by weight based on the total weight of the composition.

【Claim 9】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the aqueous phase part contains at least any one selected from the group consisting of purified water, moisturizer, sequestrant, emulsion stabilizer, preservative and fragrance.

【Claim 10】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the powder part contains at least any one selected from the group consisting of titanium dioxide, zinc oxide, talc, iron oxide, methylmethacrylate crosspolymer, mica, kaolin, sericite, alumina, barium sulfate, polymethylmethacrylate, organic coloring agent and natural coloring agent.

【Claim 11】

The high internal phase water-in-oil type cosmetic composition with low viscosity according to claim 1, wherein the cosmetic composition has a viscosity of 10,000 to 30,000 cps (centipoise).

【Claim 12】

A cosmetic product comprising the high internal phase water-in-oil type low viscosity cosmetic composition according to any one of claims 1 to 11; and a carrier into which the cosmetic composition is impregnated.

【Claim 13】

The cosmetic product according to claim 12, wherein the cosmetic product further comprises an application tool taking the high internal phase water-in-oil type cosmetic composition with low viscosity from the carrier impregnated with the cosmetic composition.