

SPECIFICATION

TITLE OF THE INVENTION

ANTIPERSPIRANT OR DEODORANT COSMETIC

TECHNICAL FIELD

- [0001] The present invention relates to a powder-free antiperspirant or deodorant cosmetic that does not need to be shaken before use. More specifically, the present invention relates to a cosmetic consisting of an oil-in-alcohol/water emulsified composition in which an oil component containing a highly polymerized silicone is emulsified with a specific polyether-modified silicone, the cosmetic having good antiperspirant and deodorant effects even without containing powder ingredients

BACKGROUND ART

- [0002] Antiperspirant deodorants are used as cosmetics for reducing stickiness of the skin due to perspiration, and for reducing discomfort caused by such stickiness. These antiperspirant cosmetics contain antiperspirant ingredients and are expected to have perspiration suppression and astringent effects, and there is also a strong demand, among users, for a chilling and cooling sensation or a refreshing sensation at the time of application to the skin, and a sense of silkiness after application.
- [0003] As conventional antiperspirant cosmetics, many products containing powder ingredients for the purpose of suppressing stickiness and obtaining a sense of silkiness have been marketed. However, in powder-containing antiperspirants, the powder settles inside the container when placed at rest, so the powder must be redispersed by shaking well at the time of use. If this redispersion is insufficient, not only is it not possible to obtain a good sensation of use due to the powder ingredient, but there is also a problem in that clogging can occur in mist-type or spray-type antiperspirants that are sprayed in the form of a mist. Additionally, there was the concern that the powder ingredient causes the skin to become white after application.
- [0004] Patent Document 1 discloses an antiperspirant composition containing an antiperspirant ingredient (powder ingredient), at least one of a crosslinked methyl polysiloxane and a crosslinked methyl phenyl polysiloxane, a crosslinked polyether-modified silicone, and a lower alcohol, wherein the sensation of use (appearance) after drying is said to be improved by preventing the crystallization of powder ingredients by improving the powder dispersion properties. However, the composition still contains powder ingredients, and therefore requires the powder to be redispersed by shaking before

use, and though the appearance is improved, there is still a tendency for the skin to appear unnaturally white after application.

[0005] Therefore, there is a strong demand for a powder-free antiperspirant or deodorant cosmetic that is not sticky at the time of application, and that can provide an adequate cooling sensation and a sense of silkiness.

[0006] However, in the field of hair cosmetics, oil-in-alcohol emulsified compositions that are obtained by stably emulsifying an oil component containing a hair treatment ingredient such as a highly polymerized silicone in alcohol by adding a polyether-modified silicone as an emulsifier are known, and such oil-in-alcohol emulsified compositions have been used in hair treatments, hairstyling agents and the like (Patent Document 2). However, no examples in which such oil-in-alcohol emulsified compositions have been used in antiperspirant or deodorant cosmetics are known.

RELATED ART DOCUMENTS

PATENT DOCUMENTS

[0007] Patent Document 1: JP H5-229925 A
Patent Document 2: JP 3417567 B

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0008] The present invention addresses the problem of obtaining a powder-free cosmetic that provides a cooling sensation at the time of use and a sense of silkiness after application, which are properties that are sought in antiperspirant or deodorant cosmetics, even without containing powder ingredients.

MEANS FOR SOLVING THE PROBLEMS

[0009] The present inventors diligently studied how to solve the aforementioned problem, as a result of which they discovered that a sense of silkiness when applied to the skin can be imparted, without adding any conventional powder ingredients, by setting the blended amount of the highly polymerized silicone to 1 mass% or less in an oil-in-alcohol emulsified composition that was conventionally used in hair treatments or hairstyling agents, thereby completing the present invention.

[0010] In other words, the present invention provides an antiperspirant or deodorant cosmetic consisting of an oil-in-alcohol/water emulsified composition comprising: (a) an oil component containing 1 mass% or less of a highly polymerized silicone; (b) an emulsifier consisting of a polyether-modified silicone having a specific structure; (c) 50 mass% or more

of a lower alcohol; and (d) water.

EFFECTS OF THE INVENTION

[0011] The present invention contains substantially no powder ingredients, so there is no need to redisperse a powder ingredient by shaking before use, and the skin does not become unnaturally white after application. Additionally, due to the above-mentioned features, there is no stickiness when applied to the skin, and a cooling sensation and a sense of silkiness are obtained at the time of application and after drying. Additionally, the oil component can be stably emulsified in the alcohol by blending in, as an emulsifier, a polyether-modified silicone having a specific structure, so the composition has excellent stability over time and the blended ingredients will not precipitate and clog the spray container.

MODES FOR CARRYING OUT THE INVENTION

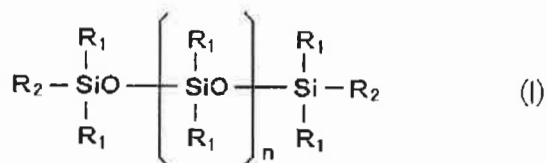
[0012] Next, the ingredients constituting the cosmetic in the present invention will be explained in detail.

<(a) Oil Component Containing Highly Polymerized Silicone>

The (a) oil component containing a highly polymerized silicone (hereinafter sometimes referred to simply as “ingredient (a)”) used in the present invention is an oil component containing one or more compounds chosen from among gum-type (for example, having a viscosity of approximately 1,000,000 mPa·s or more at 30°C) highly polymerized silicones and amino-modified or ammonium-modified highly polymerized silicones (sometimes referred to as “silicone gum”).

[0013] The highly polymerized silicones in the present invention are exemplified by the highly polymerized polysiloxanes or highly polymerized dimethiconols represented by the following general formula (I).

[Chemical Formula 1]

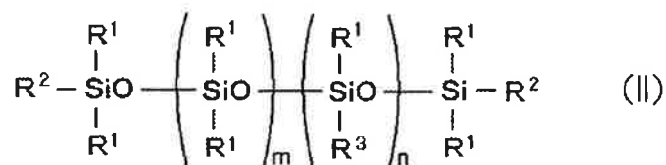


In the formula, R₁ represents a methyl group or a phenyl group (with the proviso that it is never the case that all of the R₁ groups are phenyl groups), and R₂ represents a methyl group or a hydroxyl group. Additionally, n represents an integer from 3,000 to 20,000.

[0014] The amino-modified or ammonium-modified highly polymerized silicones

(sometimes referred to simply as amino-modified silicones) in the present invention are exemplified by those represented by the following general formula (II).

[Chemical Formula 2]



In the formula, R^1 represents a methyl group or sometimes a phenyl group, and R^2 is the same as R^3 or represents a methyl group or a hydroxyl group. R^3 represents a substituent group having an amino group or an ammonium group represented by R^4Z (R^4 represents a divalent alkylene group having 3 to 6 carbon atoms, and Z represents a monovalent group chosen from the group consisting of $-\text{NR}^5$, $-\text{N}^+\text{R}^5_3\text{A}^-$, $-\text{NR}^5(\text{CH}_2)_a\text{NR}^5_2$, $-\text{NR}^5(\text{CH}_2)_a\text{N}^+\text{R}^5_3\text{A}^-$ and $-\text{NR}^5(\text{CH}_2)_a\text{N}(\text{R}^5)\text{C}=\text{O}(\text{R}^6)$ (R^5 represents hydrogen or an alkyl group having 1 to 4 carbon atoms, R^6 represents an alkyl group having 1 to 4 carbon atoms, A represents Cl , Br or I , and a represents an integer from 2 to 6)), m and n are both positive integers, such that $m + n$ represents an integer from 3,000 to 20,000, and n/m is 1/500 to 1/10,000.

Among the above, an aminopropylmethylsiloxane-dimethylsiloxane copolymer (aminopropyl dimethicone) is preferred.

[0015] The amount of the highly polymerized silicone (silicone gum) that is blended in the cosmetic of the present invention must be 1.0 mass% or less in terms of the solid content relative to the total amount of the cosmetic. If the blended amount exceeds 1.0 mass%, then there is stickiness at the time of application and a cooling sensation cannot be obtained after drying. The lower limit of the blended amount of the highly polymerized silicone is not particularly limited, but it should normally be 0.01 mass% or more, preferably 0.05 mass% or more, and more preferably 0.1 mass% or more relative to the total amount of the cosmetic. In other words, the blended amount of the highly polymerized silicone (silicone gum) should be 1.0 mass% or less, preferably 0.01 to 1.0 mass%, more preferably 0.05 to 1.0 mass%, and most preferably 0.1 to 1.0 mass% in terms of the solid content relative to the total amount of the cosmetic.

[0016] As ingredient (a) in the present invention, it is possible to use a commercially available product containing the aforementioned highly polymerized silicone and an oil component.

[0017] Commercially available products containing the highly polymerized silicone represented by the above-indicated general formula (I) and an oil component include, for example, dimethylsilicone oil blends manufactured by Shin-etsu Chemical, such as KF-9008

(mixture of 20% highly polymerized dimethicone and 80% cyclopentasiloxane), KF-9011 (mixture of 10% highly polymerized dimethicone and 90% cyclopentasiloxane), KF-9013 (mixture of 15% highly polymerized dimethicone and 85% low-viscosity dimethicone), KF-9014 (mixture of 15% highly polymerized dimethicone and 85% cyclopentasiloxane), MK-15H (mixture of 20% highly polymerized dimethicone and 80% low-viscosity dimethicone), X-21-5495 (mixture of 15% highly polymerized dimethicone and 85% cyclopentasiloxane), KF-9028 (mixture of 20% highly polymerized dimethicone and 80% cyclopentasiloxane) and KF-9030 (mixture of 20% highly polymerized dimethicone and 80% low-viscosity dimethicone); highly polymerized dimethiconols such as X-21-5613 (mixture of 20% highly polymerized dimethiconol and 80% low-viscosity dimethicone), X-21-5666 (mixture of 30% highly polymerized dimethiconol and 70% cyclopentasiloxane), X-21-5847 (highly polymerized dimethiconol) and X-21-5849 (highly polymerized dimethiconol); and highly polymerized dimethylsilicones manufactured by Dow Corning Toray, such as BY11-007 (mixture of 10% highly polymerized dimethicone and 90% dimethicone), BY11-014 (mixture of 15% highly polymerized dimethicone and 85% dimethicone) and BY11-026 (mixture of 30% highly polymerized dimethicone and 70% dimethicone).

[0018] Commercially available products containing the amino-modified highly polymerized silicone represented by the above-indicated general formula (II) and an oil component include, for example, highly polymerized amino oil blends (amino gums) manufactured by Shin-etsu Chemical such as KF-8017 (mixture of 10% aminopropyl dimethicone and 90% dimethicone), KF-8018 (mixture of 10% aminopropyl dimethicone and 90% cyclopentasiloxane) and KF-8020 (mixture of 20% aminopropyl dimethicone and 80% dimethicone).

[0019] The oil components other than the highly polymerized silicone in ingredient (a) in the present invention are chosen from among oil components that can normally be used in skin cosmetics including antiperspirant or deodorant cosmetics, in addition to the various oil components contained in the aforementioned commercially available products. Examples include hydrocarbon oils such as liquid paraffin and squalane, ester oils, vegetable oils such as avocado oil, palm oil and jojoba oil, and silicone oils.

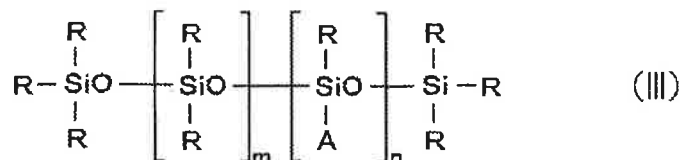
[0020] Although the amount of ingredient (a) blended into the cosmetic of the present invention is not particularly limited, it should normally be 0.1 to 30 mass%, preferably 0.5 to 25 mass%, and more preferably 0.5 to 20 mass% relative to the total amount of the cosmetic. If the blended amount of ingredient (a) exceeds 30 mass%, the stability of the emulsion may become lower.

[0021] <(b) Polyether-modified Silicone>

The present invention is characterized by blending an emulsifier (hereinafter sometimes referred to as “ingredient (b)”) consisting of one or more types of a polyether-modified silicone having a specific structure.

The polyether-modified silicone (ingredient (b)) used in the present invention is of one or more types chosen from among the polyether-modified silicones represented by the following general formula (III).

[0022] [Chemical Formula 3]



In the formula, R is a methyl group or a phenyl group. A is a polyoxyalkylene group represented by the general formula: $-\text{C}_3\text{H}_6\text{O}(\text{C}_2\text{H}_4\text{O})_a(\text{C}_3\text{H}_6\text{O})_b-\text{R}'$ (where R' is chosen from the group consisting of hydrogen atoms, an acyl group and an alkyl group having 1 to 4 carbon atoms, a is an integer from 5 to 50, and b is an integer from 5 to 50). Examples of the acyl group in R' include, specifically, a formyl group, an acetyl group, a propionyl group, a butyryl group, an acryloyl group, a benzoyl group, a toluoyl group and the like, and examples of the alkyl group having 1 to 4 carbon atoms include, specifically, a methyl group, an ethyl group, an i-propyl group, an n-propyl group, a t-butyl group, an n-butyl group and the like.

[0023] In the aforementioned polyoxyalkylene group, when a or b is less than 5, the polyether-modified silicone does not exhibit sufficient surfactant effects, and if a or b exceeds 50, the resulting composition has a sense of stickiness.

Although the amount of polyoxyalkylene groups contained in the molecule is not particularly limited, the polyoxyalkylene group content should preferably exceed 20 mass% relative to the total molecular weight. This is because, when the polyoxyalkylene group content is 20 mass% or less relative to the total molecular weight, the thickening effect of the polyether-modified silicone is significantly reduced.

Additionally, m is an integer from 50 to 1,000, and n is an integer from 1 to 40. This is because, if m is less than 50 and n is less than 1, the emulsion stability is poor, whereas if m exceeds 1,000 and n exceeds 40, the resulting composition has a sense of stickiness. Additionally, it is preferable for $m : n$ to be 200 : 1 to 5 : 1, and in particular, 60 : 1 to 15 : 1.

[0024] The molecular weight of the polyether-modified silicone used in the present invention is not particularly limited, and the viscosity is not particularly limited. However, in order to form an emulsion that is particularly stable and that has a sense of silkiness, when

a 50 mass% solution of the polyether-modified silicone in octamethyltetrasiloxane or isoparaffin is formed, it is preferable for the viscosity at 25°C to be within the range from 1,000 to 100,000 mPa·s.

[0025] It is possible to use a commercially available product as the polyether-modified silicone used in the present invention. Commercially available products include, for example, BY11-030 (containing 50 mass% of PEG/PPG-19/19-dimethicone and 50 mass% of cyclopentasiloxane; PEG/PPG-19/19-dimethicone is a polyether-modified silicone having a molecular weight of 55,000, corresponding to the above-indicated general formula where $m = 400$, $n = 10$, $a = 19$ and $b = 19$; HLB (Si) = 7) and BY25-337 (containing 50 mass% of PEG/PPG-19/19-dimethicone and 50 mass% of light liquid isoparaffin (hydrogenated polyisobutene) manufactured by Dow Corning Toray.

[0026] The amount of the polyether-modified silicone blended in the present invention is not particularly limited, but should be 0.1 to 5.0 mass%, preferably 0.3 to 4.0 mass%, more preferably 0.4 to 3.0 mass% and most preferably 0.5 to 2.5 mass% in terms of the solid content relative to the total amount of the cosmetic. In the composition of the present invention, it is difficult to obtain a stable emulsion if the blended amount of the polyether-modified silicone is less than 0.1 mass% in terms of the solid content, and the composition may have a sense of stickiness if the blended amount exceeds 5.0 mass%.

[0027] <(c) Lower Alcohol>

The (c) lower alcohol (hereinafter sometimes referred to simply as “ingredient (c)”) used in the present invention refers to an alcohol having 1 to 6 carbon atoms, preferably 1 to 4 carbon atoms, that can be generally used in the pharmaceutical and cosmetic fields or the like. Specific examples include methanol, ethanol, propanol, butanol, pentanol, hexanol and the like, among which ethanol is particularly preferred.

Furthermore, i-propanol, n-propanol, t-butanol, s-butanol and the like are too strongly hydrophobic and are difficult to emulsify, and thus should preferably be used in combination with ethanol.

The amount of the lower alcohol (ingredient (c)) blended in the present invention should be 50 mass% or more, preferably 60 mass% or more relative to the total weight of the cosmetic. Additionally, the blended amount of the lower alcohol should preferably be at least three times (by mass ratio) the blended amount of the water in the composition. If the amount of the lower alcohol is less than three times that of water, it is difficult to obtain a sufficient cooling sensation and sense of silkiness after application.

[0028] <(d) Water>

The amount of the (d) water (hereinafter sometimes referred to simply as “ingredient (d)”) blended in the present invention should preferably be 15 mass% or less,

more preferably 12 mass% or less relative to the total amount of the cosmetic. If the blended amount of water exceeds 15 mass%, there is a sense of stickiness at the time of application, and a sense of silkiness is not obtained.

[0029] Due to the blending of the ingredients (a) to (d) mentioned above, the antiperspirant cosmetic of the present invention forms a highly stable oil-in-alcohol/water emulsified composition, and obtains a cooling sensation and a sense of silkiness at the time of use even without blending in conventional antiperspirant ingredients (powder ingredients). This effect is a surprising effect that cannot be predicted from the conventional art. However, this fact does not preclude the possibility of further blending, into the cosmetic of the present invention, antiperspirant ingredients, antimicrobial agents and deodorant ingredients that have been conventionally blended into antiperspirant cosmetics. However, the blended amounts thereof should be limited to being within the range not compromising the effects of the present invention.

[0030] The antiperspirant ingredients that can be blended include, for example, astringents and antiperspirants such as zinc para-phenolsulfonate (zinc sulfocarbolate), citric acid and various aluminum compounds; antimicrobial agents such as triclosan, benzalkonium chloride, benzethonium chloride, chlorhexidine hydrochloride, chlorhexidine gluconate and halocarbon; deodorants such as zinc oxide, flavonoids and chlorophyll; cooling agents such as menthol and menthyl lactate; and various types of masking agents.

[0031] In addition to the above-mentioned antiperspirant ingredients, the antiperspirant or deodorant cosmetic of the present invention may include other ingredients that can normally be blended into cosmetics. For example, it is possible to blend in humectants, preservatives, fragrances, chelating agents, antioxidants, UV absorbing agents, gelling agents and thickeners, within a range not compromising the effects of the present invention.

[0032] The product form of the antiperspirant or deodorant cosmetic of the present invention is not particularly restricted. It may, for example, be in the form of an antiperspirant, a body lotion, a skin lotion, an essence or the like. The cosmetic in the present invention does not require the blending of a powdered antiperspirant ingredient, and thus is particularly suitable for being provided in the form of a spray in which it is housed, together with a misting agent or a propellant, inside a spray container such as a dispenser, in which case the nozzle will not be clogged.

EXAMPLES

[0033] The present invention will be explained in further detail by providing examples below. However, the present invention is not to be construed as being limited thereby. In the absence of any particular statements otherwise, the blended amounts represent the

mass% relative to the total amount.

- [0034] Antiperspirant/deodorant cosmetics according to the present invention were prepared, and the sensations when they were used were evaluated.
(Examples 1-16 and Comparative Examples 1-3)

The cosmetics indicated in Examples 1-16 and Comparative Examples 1-3 were prepared by homogeneously dissolving together the ingredients indicated in the following tables 1-3, with the exception of ion-exchanged water and benzalkonium chloride solution, emulsifying the solution by stirring, then adding the ion-exchanged water and the benzalkonium chloride solution.

- [0035] (Comparative Examples 4-6)

The cosmetics indicated in Examples 4-6 were prepared by mixing the water phase ingredients including lower alcohol with the powder ingredients, then emulsifying, by stirring, the oil phase ingredients in which a surfactant was dissolved.

- [0036] The cosmetic samples prepared by the above-mentioned method were applied to ten expert panelists, and the lack of stickiness after application, the cooling sensation at the time of application, the cooling sensation after application and drying, and the sense of silkiness were judged on the basis of the following evaluation scores and evaluation criteria.

- [0037] +3 points: strongly agree
+2 points: agree
+1 point: slightly agree
0 points: can't say either way
-1 point: slightly disagree
-2 points: disagree
-3 points: strongly disagree

- [0038] The judgment was made in accordance with the following evaluation criteria on the basis of the average score of the above-given evaluation scores.

- A: average score of at least +2 points
B: average score of at least +1 point and less than +2 points
C: average score of at least 0 points and less than +1 point
D: average score of at least -1 point and less than 0 points
E: average score of at least -2 points and less than -1 point
F: average score of less than -2 points

[0039] [Table 1]

Raw Material	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7	Example 8	Example 9	Example 10	Example 11	Example 12
Dimethylpolysiloxane (6 mPa·s)	10	5	4	3	2	1	10	5	4	3	2	1
15% Highly polymerized dimethylpolysiloxane / 85% dimethylpolysiloxane (20 mPa·s) mixture (product name: KF-9013, Shin-Etsu Chemical)	1 (silicone gum solid content: 0.15%)	6.67 (silicone gum solid content: 1%)	5 (silicone gum solid content: 0.75%)	3.33 (silicone gum solid content: 0.5%)	1.67 (silicone gum solid content: 0.25%)	0.67 (silicone gum solid content: 0.1%)	1 (silicone gum solid content: 0.15%)	-	-	-	-	-
20% Amino-modified highly polymerized dimethylpolysiloxane / 80% dimethylpolysiloxane (20 mPa·s) mixture (product name: KF-8020, Shin-Etsu Chemical)	0.5 (amino-modified silicone gum solid content: 0.1%)	-	-	-	-	-	1.5 (amino-modified silicone gum solid content: 0.3%)	5 (amino-modified silicone gum solid content: 1%)	3.75 (amino-modified silicone gum solid content: 0.75%)	2.5 (amino-modified silicone gum solid content: 0.5%)	1.25 (amino-modified silicone gum solid content: 0.25%)	0.5 (amino-modified silicone gum solid content: 0.1%)
50% Polyether-modified silicone / 50% hydrogenated polyisobutene mixture (product name: BY25-337, Dow Corning Toray)	10 (polyether-modified silicone solid content: 5%)	5 (polyether-modified silicone solid content: 2.5%)	4 (polyether-modified silicone solid content: 2%)	3 (polyether-modified silicone solid content: 0.5%)	2 (polyether-modified silicone solid content: 1%)	1 (polyether-modified silicone solid content: 0.5%)	5 (polyether-modified silicone solid content: 2.5%)	5 (polyether-modified silicone solid content: 2.5%)	4 (polyether-modified silicone solid content: 2%)	3 (polyether-modified silicone solid content: 0.5%)	2 (polyether-modified silicone solid content: 1%)	1 (polyether-modified silicone solid content: 0.5%)
Isododecane	9	-	-	-	-	-	9	-	-	-	-	-
Ethanol	63.8	78.63	81.2	86.92	91.63	95.43	67.8	79.3	82.45	87.75	92.05	95.6
Polyoxyethylene (60 EO) hydrogenated castor oil	-	-	0.1	0.05	-	0.2	-	-	0.1	0.05	-	0.2
Menthol	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Zinc sulfocarbolate	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Fragrance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ion-exchanged water	5	4	5	3	2	1	5	5	5	3	2	1
Benzalkonium chloride solution	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
No stickiness at time of application	B	A	A	A	A	A	B	B	A	A	A	A
Cooling sensation at time of application	B	A	A	A	B	A	A	A	A	A	A	A
Cooling sensation after application and drying	B	A	B	A	A	A	A	A	A	A	B	A
Sense of silkiness	A	A	A	A	A	A	A	A	A	A	A	B

[0040] [Table 2]

Raw Material	Example 13	Example 14	Example 15	Example 16
Dimethylpolysiloxane (3 mPa·s)	5	-	-	-
Dimethylpolysiloxane (5 mPa·s)	-	4	-	-
Dimethylpolysiloxane (1.5 mPa·s)	-	-	5	5
20% Dimethiconol / 80% dimethylpolysiloxane (20 mPa·s) mixture (product name: X-21-5613, Shin-Etsu Chemical)	3 (silicone gum solid content: 0.6%)	-	-	-
10% Highly polymerized dimethylpolysiloxane / 90% cyclopentasiloxane mixture (product name: KF-9011, Shin-Etsu Chemical)	-	7 (silicone gum solid content: 0.7%)	-	-
10% Highly polymerized dimethylpolysiloxane / 90% dimethylpolysiloxane (10 mPa·s) mixture (product name: BY11-007, Dow Corning Toray)	-	-	3 (silicone gum solid content: 0.3%)	-
20% Highly polymerized dimethylpolysiloxane / 80% isoparaffin mixture	-	-	-	4.5 (silicone gum solid content: 0.9%)
50% polyether-modified silicone / 50% cyclopentasiloxane mixture (product name: BY11-030, Dow Corning Toray)	5 (polyether-modified silicone solid content: 2.5%)	-	5 (polyether-modified silicone solid content: 2.5%)	5 (polyether-modified silicone solid content: 2.5%)
50% polyether-modified silicone / 50% hydrogenated polyisobutene mixture (product name: BY25-337, Dow Corning Toray)	-	3 (polyether-modified silicone solid content: 1.5%)	-	-
Isoparaffin	-	2	-	-
Isodecane	5	-	5	-
Isododecane	-	-	-	3
Ethanol	69.8	71.15	69.8	70.3
Polyoxyethylene (60 EO) hydrogenated castor oil	0.05	0.05	0.05	0.05
Menthol	0.2	0.45	0.2	0.2
Menthyl lactate	-	0.4	-	-
Fragrance	0.5	0.5	0.5	0.5
Zinc sulfocarbolate	0.35	0.35	0.35	0.35
Ion-exchanged water	11	11	11	11
Benzalkonium chloride solution	0.1	0.1	0.1	0.1
No stickiness at time of application	A	A	A	A
Cooling sensation at time of application	A	A	A	A
Cooling sensation after application and drying	A	A	A	A

[0041] [Table 3]

*Comp.Ex.: Comparative Example

Raw Material	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4	Comp. Ex. 5	Comp. Ex. 6
Dimethylpolysiloxane (6 mPa·s)	2	10	3	-	-	-
15% Highly polymerized dimethylpolysiloxane / 85% dimethylpolysiloxane (20 mPa·s) mixture (product name: KF-9013, Shin-Etsu Chemical)	13.33 (silicone gum solid content: 2.0%)	6 (silicone gum solid content: 0.9%)	3.33 (silicone gum solid content: 0.5%)	-	-	-
20% Amino-modified highly polymerized dimethylpolysiloxane / 80% dimethylpolysiloxane (20 mPa·s) mixture (product name: KF-8020, Shin-Etsu Chemical)	-	3 (amino-modified silicone gum solid content: 0.6%)	-	-	-	-
50% polyether-modified silicone / 50% hydrogenated polyisobutene mixture (product name: BY25-337, Dow Corning Toray)	2 (polyether-modified silicone solid content: 1%)	5 (polyether-modified silicone solid content: 2.5%)	3 (polyether-modified silicone solid content: 0.5%)	-	-	-
Isododecane	-	9	-	-	-	-
Ethanol	79.97	56.3	44.92	50	80.1	88.47
Polyoxyethylene (60 EO) hydrogenated castor oil	-	-	0.05	-	-	-
PPG-20 decyltetradeceth	-	-	-	0.03	0.03	0.03
Nylon powder	-	-	-	0.3	0.3	0.3
Menthyl lactate	-	-	-	0.4	0.4	0.4
Menthol	0.1	0.1	0.1	0.3	0.2	0.1
Caustic potash	-	-	-	-	-	0.05
Chlorhydroxy aluminum	-	-	-	-	-	0.05
Bentonite	-	-	-	0.05	0.05	-
Lactic acid	-	-	-	0.04	0.04	-
Sodium lactate	-	-	-	0.15	0.15	-
Fragrance	0.1	0.1	0.1	0.1	0.1	0.1
Zinc sulfocarbolate	0.4	0.4	0.4	0.4	0.4	0.4
Ion-exchanged water	2	10	45	48.13	18.13	10
Benzalkonium chloride solution	0.1	0.1	0.1	0.1	0.1	0.1
No stickiness at time of application	E	D	E	D	D	D
Cooling sensation at time of application	E	D	B	B	B	D
Cooling sensation after application and drying	E	D	D	D	D	B
Sense of silkiness	B	B	E	B	D	E

[0042] Based on the results in Tables 1 and 2, the antiperspirant cosmetic in the present invention lacks stickiness at the time of application and provides a cooling sensation and a sense of silkiness even after drying, even without containing powder ingredients that are normally blended into antiperspirants in order to obtain a cooling sensation and a sense of silkiness.

[0043] On the other hand, as indicated by the results in Table 3, when a highly polymerized silicone was blended in excess of 1 mass% in terms of the solid content of the silicone gum (Comparative Example 1 and Comparative Example 2), there was stickiness at the time of application and a sufficient cooling sensation was not obtained. Additionally, when the blended amount of lower alcohols was less than 50 mass% (Comparative Example 3), there was stickiness at the time of application and a sense of silkiness was not obtained.

Additionally, as indicated in Table 1 and Table 2, in the present invention, a cooling sensation and a sense of silkiness are obtained as a result of ingredient (a) and ingredient (b). When powder ingredients that are conventionally blended in order to obtain a cooling sensation and a sense of silkiness were blended instead of the ingredients (a) and (b) in the present invention (Comparative Examples 4 to 6), a good sensation of use as an antiperspirant could not be obtained, even if the ethanol content was raised from 50 mass% to 80 mass%. Additionally, even if an antiperspirant ingredient (chlorhydroxy aluminum) was combined with the powder ingredients (Comparative Example 6), there was stickiness at the time of application and a sense of silkiness was not obtained.

[0044] Next, emulsions according to the present invention were prepared, and the stability thereof over time was evaluated in environments at different temperatures.

Specifically, emulsions having the compositions shown in Table 4 below were prepared by methods similar to those in the examples above, each of the prepared emulsions was left for four weeks at 0 °C, room temperature and 50 °C, after which the stability was evaluated by visual observation based on the following criteria. The results are shown in Table 4.

<Evaluation Criteria>

- A: no change
- B: slight creaming occurred
- C: prominent creaming occurred
- D: separation

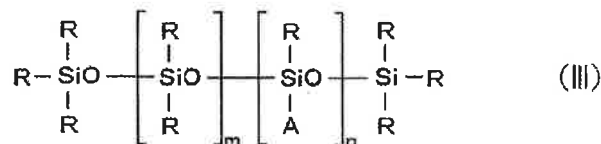
[0045] [Table 4]

Raw Material	Base 1	Base 2	Base 3
Dimethylpolysiloxane (6 mPa·s)	10	10	10
20% Highly polymerized dimethylpolysiloxane / 80% isoparaffin mixture	5 (silicone gum solid content: 1.0%)	5 (silicone gum solid content: 1.0%)	4 (silicone gum solid content: 0.8%)
50% polyether-modified silicone / 50% hydrogenated polyisobutene mixture (product name: BY25-337, Dow Corning Toray)	5 (polyether-modified silicone solid content: 2.5%)	5 (polyether-modified silicone solid content: 2.5%)	5 (polyether-modified silicone solid content: 2.5%)
Isododecane	9	9	9
General-purpose alcohol 95%	60.55	59.75	60.75
Zinc sulfocarbolate	0.35	0.35	0.35
Fragrance	-	0.8	0.8
Ion-exchanged water	10	10	10
Benzalkonium chloride solution	0.1	0.1	0.1
0 °C	A	A	A
Room temperature	A	A	A
50 °C	B	B	A

[0046] As indicated by the results in Table 4, all of the emulsions had good emulsion stability.

CLAIMS

- [Claim 1] An antiperspirant or deodorant cosmetic characterized by consisting of an oil-in-alcohol/water emulsified composition comprising:
- (a) an oil component containing 1 mass% or less of a highly polymerized silicone;
 - (b) an emulsifier consisting of one or more polyether-modified silicones represented by the following general formula (III):



where A is a polyoxyalkylene group represented by the general formula $-\text{C}_3\text{H}_6\text{O}(\text{C}_2\text{H}_4\text{O})_a(\text{C}_3\text{H}_6\text{O})_b-\text{R}'$ (where R' is chosen from the group consisting of a hydrogen atom, an acyl group and an alkyl group having 1 to 4 carbon atoms, a is an integer from 5 to 50, and b is an integer from 5 to 50), R is a methyl group or a phenyl group, m is an integer from 50 to 1,000, and n is an integer from 1 to 40;

- (c) 50 mass% or more of a lower alcohol; and
 - (d) water.
- [Claim 2] The antiperspirant or deodorant cosmetic according to claim 1, characterized in that the blended amount of the (c) lower alcohol is at least three times the blended amount of the (d) water.
- [Claim 3] The antiperspirant or deodorant cosmetic according to claim 1 or 2, characterized by further comprising an antiperspirant ingredient.
- [Claim 4] A spray-type antiperspirant or deodorant cosmetic characterized by being formed by filling a dispenser-type container with the cosmetic according to claim 1.