



(86) Date de dépôt PCT/PCT Filing Date: 2006/03/01
(87) Date publication PCT/PCT Publication Date: 2007/03/15
(45) Date de délivrance/Issue Date: 2011/11/22
(85) Entrée phase nationale/National Entry: 2007/08/29
(86) N° demande PCT/PCT Application No.: US 2006/007488
(87) N° publication PCT/PCT Publication No.: 2007/030139
(30) Priorité/Priority: 2005/03/17 (US11/082,295)

(51) Cl.Int./Int.Cl. *A61K 8/92* (2006.01),
A61K 8/37 (2006.01), *A61K 8/893* (2006.01),
A61Q 15/00 (2006.01)
(72) Inventeurs/Inventors:
GALANTE, CHERYL LYNN, US;
ELLIOTT, DAVID L., US
(73) Propriétaire/Owner:
THE GILLETTE COMPANY, US
(74) Agent: GOWLING LAFLEUR HENDERSON LLP

(54) Titre : COMPOSITION ANHYDRE ANTITRANSPIRATION CONTENANT DES LOTIONS ADOUCISSANTES
(54) Title: ANHYDROUS ANTIPERSPIRANT COMPOSITION CONTAINING SKIN SOFTENERS

(57) **Abrégé/Abstract:**

Disclosed is an anhydrous topical antiperspirant composition comprising a dermatologically acceptable carrier and a perspiration reducing effective amount of a particulate antiperspirant salt suspended in the carrier. In addition, the composition includes behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil. Such a composition provides improved skin feel (i.e. softer skin), good moisturization and softer, less noticeable hair (or hair stubble). Also disclosed is a method of reducing perspiration from human skin by applying the aforementioned antiperspirant composition.



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 March 2007 (15.03.2007)

PCT

(10) International Publication Number
WO 2007/030139 A1

(51) International Patent Classification:

A61Q 15/00 (2006.01) A61K 8/893 (2006.01)

(21) International Application Number:

PCT/US2006/007488

(22) International Filing Date: 1 March 2006 (01.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/082,295 17 March 2005 (17.03.2005) US

(71) Applicant (for all designated States except US): **THE GILLETTE COMPANY** [US/US]; Prudential Tower Building, Boston, MA 02199 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GALANTE, Cheryl, Lynn** [US/US]; 870 Summer Street, Marshfield, MA 02050 (US). **ELLIOTT, David, L.** [US/US]; 7 Rudon Court, North Attleboro, MA 02760 (US).

(74) Agents: **RICHARDS, John** et al.; LADAS & PARRY LLP, 26 West 61st Street, New York, NY 10023 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANHYDROUS ANTIPERSPIRANT COMPOSITION CONTAINING SKIN SOFTENERS

(57) Abstract: Disclosed is an anhydrous topical antiperspirant composition comprising a dermatologically acceptable carrier and a perspiration reducing effective amount of a particulate antiperspirant salt suspended in the carrier. In addition, the composition includes behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil. Such a composition provides improved skin feel (i.e. softer skin), good moisturization and softer, less noticeable hair (or hair stubble). Also disclosed is a method of reducing perspiration from human skin by applying the aforementioned antiperspirant composition.

WO 2007/030139 A1

- 1 -

ANHYDROUS ANTIPERSPIRANT COMPOSITION CONTAINING SKIN SOFTENERS

The present invention relates to anhydrous antiperspirant compositions comprising skin and/or hair softeners.

5 It is important in the formulation of antiperspirant compositions for women that such compositions have desirable aesthetic attributes as well as excellent antiperspirant efficacy. In particular, it is highly desirable to formulate such products to have improved skin feel (i.e. soft skin), good moisturization, and softer, less noticeable hair.

10 It has now been discovered that antiperspirant compositions with improved skin and hair feel can be made by including behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil.

The present invention embraces an anhydrous topical antiperspirant composition comprising a dermatologically acceptable carrier and a perspiration reducing effective amount of a particulate antiperspirant salt suspended in the carrier. In addition, 15 the composition will include behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil. Such a composition provides improved skin feel (i.e. softer skin), good moisturization and softer, less noticeable hair (or hair stubble). The present invention also embraces a method of reducing perspiration from human skin by applying the 20 aforementioned antiperspirant composition.

The anhydrous topical antiperspirant composition of the present invention comprises a dermatologically acceptable anhydrous carrier, a perspiration reducing effective amount of a particulate antiperspirant salt suspended in the carrier, behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil. The term "anhydrous" as 25 used herein means that the composition is substantially free (that is, contains less than about 2%, preferably less than 1%, and most preferably less than 0.1% by weight) of free water (excluding any water of hydration associated with the antiperspirant salt or other components of the composition).

The particulate antiperspirant salt may be selected from any of the known

- 2 -

aluminum and aluminum-zirconium antiperspirant salts, particularly the enhanced efficacy antiperspirant salts. Preferred salts are the aluminum-zirconium chlorohydrates, including the tri-, tetra-, penta- and octa-chlorohydrate forms, with aluminum-zirconium pentachlorohydrate being most preferred. Most preferred are the enhanced efficacy forms of such salts, particularly those salts with HPLC peak 4 to peak 3 area ratios greater than 0.5, as well as those salts with HPLC peak 5 area greater than 30%.

The particulate antiperspirant salt is suspended in an anhydrous, dermatologically acceptable carrier, particularly a carrier comprising a silicone (e.g., cyclomethicone, dimethicone, etc.), typically at a concentration of about 3% to about 25% (USP) active by weight, more typically at about 6% to about 22% (USP) active by weight.

The antiperspirant composition of the present invention also includes, behenoxy dimethicone, preferably at a concentration of about 0.3% to about 3% by weight of the composition, more preferably at about 0.5% to about 2.5% by weight, most preferably at about 1% to about 2% by weight.

The antiperspirant composition further includes a non-polar, non-volatile liquid emollient oil. The emollient oil may be selected from any of those emollient oils currently known for use in antiperspirant compositions, such as, for example, those emollient oils described in U.S. 5,733,534.

The emollient oil preferably may be included in an amount of about 3% to about 30% by weight of the composition, more preferably about 5% to about 25% by weight, most preferably about 10% to about 20% by weight. Without being limited thereto, examples of typical emollient oils include silicone oils, hydrocarbon oils, esters of mono and dibasic carboxylic acids with mono- and polyhydric alcohols, esters of fatty alcohols and benzoic acid, polyethoxylated and/or polypropoxylated ethers of fatty alcohols, etc., and mixtures of such emollient oils. A preferred emollient oil is a fatty alkyl benzoate, such as C₁₂₋₁₅ alcohols benzoate (C₁₂₋₁₅ alkyl benzoate).

The antiperspirant composition optionally, but preferably, includes a surfactant, preferably in an amount of about 0.5% to about 5% by weight, more preferably in an amount of about 1% to about 3% by weight. It has been found that the surfactant improves the antiperspirant efficacy of the composition. This is particularly desirable

- 3 -

with the present compositions because the behenoxy dimethicone and emollient oil can diminish antiperspirant efficacy. The inclusion of surfactant in the composition appears to prevent any diminishment in overall antiperspirant efficacy. A preferred surfactant will have an HLB greater than 5, typically 9 to 16. A particularly preferred surfactant is C₂₀₋₄₀ Pareth-10.

The antiperspirant composition further includes a dermatologically acceptable anhydrous carrier. The anhydrous carrier may comprise any of the ingredients commonly utilized in the formulation of topical antiperspirant compositions. Advantageously, the carrier vehicle will comprise one or more volatile silicones, which evaporate quickly and provide a dry feel. The volatile silicones include the cyclic polydimethylsiloxanes, also known as cyclomethicones, which have from about three to about seven silicon atoms, and the linear polydimethylsiloxanes, also known as dimethicones, which have from about 2 to about 8 silicon atoms. The linear volatile silicones generally have viscosities of less than 5 cst, while the cyclic volatile silicones have viscosities under 10 cst. Mixtures of volatile silicones may be advantageously employed. When included in the carrier, the volatile silicones are typically present in an amount of about 10% to 90%, more typically about 20% to 60%, by weight.

The carrier may also optionally include waxes such as fatty alcohols, for example, stearyl alcohol, cetyl alcohol, and myristyl alcohol, fatty amides, for example, Stearamide MEA and Lauramide DEA, hydrogenated castor oil (castor wax) and polyethylene homopolymer, gelling agents such as 12-hydroxystearic acid (including esters and amides thereof) and glyceryl tribehenate, N-acyl amino acid amides such as N lauroyl-L-glutamic acid-di-n-butyl amide and alkyl amides such as 2-dodecyl-N,N'-dibutylsuccinamide, suspending agents such as clays (e.g. quaternium-18 hectorite) and silicas, and fillers such as talc, polyolefins and modified corn starch. Naturally, of course, the antiperspirant composition will also ideally include a fragrance.

The foregoing list of materials is by way of example only and is not intended to be a comprehensive list of all potential materials that may be useful in an antiperspirant composition. Obviously, the skilled worker may select materials which provide the desired application and aesthetic characteristics of the particular form of

- 4 -

antiperspirant composition to be produced.

The topical antiperspirant composition of the present invention may be formulated as a lotion, cream, gel, soft-solid, solid stick, etc. A cream, soft-solid or solid stick is preferred, with a solid stick being more preferred.

5 The present invention also embraces a method of inhibiting or reducing perspiration by topically applying an effective amount of an anhydrous antiperspirant composition as described herein to the skin of a human, preferably to the axilla, where such reduction in perspiration is desired. An effective amount is that amount which provides at least a 20% sweat reduction, preferably at least a 40% sweat reduction, when
10 tested in accordance with a standard hot room thermal efficacy protocol, and most preferably that amount which reduces perspiration to a degree that is noticeable by the user. Typically, the amount of antiperspirant composition applied will range from about 0.1 gram to about 1.0 gram per axilla depending on the formulation or such amount as will deliver about 0.01 to about 0.25 gram of antiperspirant active per axilla.

15 The present invention may be further illustrated by the following example in which the parts and percentages are by weight. EAZCH, when used in the example, means an enhanced efficacy aluminum-zirconium chloro-hydrate-glycine having an HPLC peak 4 to peak 3 area ratio greater than 0.5.

EXAMPLE

20 Solid Stick Antiperspirant

A solid stick antiperspirant composition is prepared having the ingredients and the amounts set out below. The composition is prepared by mixing all of the ingredients (except the fragrance) with the cyclomethicone, heating the mixture to melt the gelling agents, and cooling the mixture to form a solid stick, with the fragrance being
25 added during the cooling step and prior to solidification.

- 5 -

	Ingredient	Weight Percent
	Cyclomethicone (DC 245)	27.5
	EAZCH	21.8*
	Stearyl alcohol	24.0
5	C ₁₂₋₁₅ alkyl benzoate	18.0
	Hydrogenated castor oil	2.8
	Behenoxy dimethicone	2.0
	C ₂₀₋₄₀ Pareth-10	1.0
	Silica	0.8
10	Fragrance/extracts	2.1

* Approximately 18% USP active

The above composition has good antiperspirant efficacy with excellent skin feel, moisturization and softer, less noticeable hair (or hair stubble).

Claims:

1. An anhydrous topical antiperspirant composition comprising a dermatologically acceptable anhydrous carrier, a perspiration reducing effective amount of a particulate antiperspirant salt suspended in the carrier, a surfactant, behenoxy dimethicone and a non-polar, non-volatile liquid emollient oil.
2. The antiperspirant composition of claim 1, wherein the antiperspirant salt is present in an amount, by weight, about 3% to 25%; wherein the behenoxy dimethicone is present in an amount, by weight, about 0.3% to about 3%; and wherein the emollient oil is present in an amount, by weight, about 3% to about 30%.
3. The antiperspirant composition of claim 1, wherein the antiperspirant salt is present in an amount, by weight, about 6% to 22%; wherein the behenoxy dimethicone is present in an amount, by weight, about 0.5% to about 2.5%; and wherein the emollient oil is present in an amount, by weight, about 5% to about 25%.
4. The antiperspirant composition of claim 2, wherein the surfactant is present in an amount, by weight, about 0.5% to 5%.
5. The antiperspirant composition of claim 3, wherein the surfactant is present in an amount, by weight, about 1% to 3%.
6. The antiperspirant composition of any one of claims 1, 4 and 5, wherein the carrier comprises volatile silicone.
7. The antiperspirant composition of claim 6, wherein the emollient oil comprises a fatty alkyl benzoate.
8. The antiperspirant composition of claim 3, wherein the emollient oil comprises C₁₂₋₁₅ alkyl benzoate.
9. The antiperspirant composition of claim 5, wherein the emollient oil comprises C₁₂₋₁₅ alkyl benzoate.

-7-

10. The antiperspirant composition of claim 9, wherein the surfactant comprises C₂₀₋₄₀ Pareth-10.

11. The antiperspirant composition of any one of claims 3, 5 and 10, in the form of a cream, soft-solid, or solid stick.

12. A method of reducing perspiration from human skin comprising applying to human skin a topical antiperspirant composition according to any one of claims 1, 3, 4, 5 and 9.