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(54) Title: ANHYDROUS ANTIPERSPIRANT COMPOSITION IN THE FORM OF A POWDER

(57) Abstract: The present invention is directed to an anhydrous composition in the form of a powder comprising (a) one or more antiperspirant ingredient; (b) one or more powdered filler; (c) one or more metal salt of a fatty acid; (d) one or more fatty acid ester; (e) one or more non-volatile silicone oil; and (f) optionally one or more deodorant ingredient. The compositions are particularly useful for controlling perspiration and body odor from localized areas of the body such as the underarm.



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## **ANHYDROUS ANTIPERSPIRANT COMPOSITON IN THE FORM OF A POWDER**

### **FIELD OF THE INVENTION**

The present invention is directed to an anhydrous antiperspirant composition in the form of a powder comprising (a) one or more antiperspirant  
5 ingredient; (b) one or more powdered filler; (c) one or more metal salt of a fatty acid;  
(d) one or more fatty acid ester; (e) one or more non-volatile silicone oil; and (f)  
optionally one or more deodorant ingredient. The compositions are particularly useful  
for controlling perspiration and body odor from localized areas of the body such as  
the underarm.

### **BACKGROUND OF THE INVENTION**

10 Sweating, though a natural bodily function, results in the formation of  
wet patches on human skin and/or clothing. Moreover, the sweat secreted from  
sweat glands has a tendency to form a malodorous odor due to its interaction with  
the many microorganisms which reside on the skin surface, particularly the skin of  
15 the underarm. These two phenomena are deemed to be undesirable in many  
societies.

Products are commonly available which help to address both phenomena.  
More particularly, antiperspirant products possess ingredients which inhibit/suppress  
sweating, whereas deodorant products possess ingredients that mask the malodors  
20 caused by sweat.

In general, currently available commercial antiperspirant and/or  
deodorant products fall into three dispensing category types: sprays, solids, and roll-  
ons. These products possess several drawbacks. First, they may have a tendency to  
impart an unpleasant sticky sensation onto skin when applied thereon. Secondly,  
25 they oftentimes take too long to dry after application. Lastly, the tactile properties  
associated with the product as it is being applied, i.e. the way it "feels" during  
application, is typically unpleasant to end users.

Antiperspirant compositions in the form of a compressed powder are  
disclosed, for example, in US 3,324,004, US 3,300,367, and US 4,605,553. The  
30 disclosed compositions suffer from reduced efficacy of the aluminum salt  
antiperspirant ingredients because of the manner in which they are formulated. In US  
3,324,004, water is added during manufacture which reduces the effectiveness of the  
aluminum salt antiperspirant ingredient compared to an anhydrous composition. In  
US 3,300,367, the aluminum salt antiperspirant ingredients are coated with an inert,

waxy material. The efficacy of these compositions depends upon disintegration of the coating to release the aluminum salt antiperspirant ingredient which is not always uniform or complete. In US 4,605,553, the composition contains an alkaline metal carbonate as a binder, but aluminum salt antiperspirant ingredients are less efficacious in alkaline environments. In addition, when aluminum salt antiperspirant ingredients are used in compressed powders, they tend to absorb moisture which causes the compressed powder to swell, crack, and/or break.

It is an object of the present invention to provide an anhydrous antiperspirant composition in the form of a powder which avoids the above-described drawbacks. In particular, the compositions of the invention comprising an antiperspirant ingredient, a powdered filler, a metal salt of a fatty acid, a fatty acid ester, a non-volatile silicone oil, and, optionally, a deodorant ingredient yield a stable compressed powder which does not crack or break.

### **SUMMARY OF THE INVENTION**

The present invention is directed to an anhydrous composition in the form of a powder comprising:

- a) from 1% to 40% by weight of one or more antiperspirant actives;
- b) from 45% to 90% by weight of one or more powdered fillers;
- c) from 0.01% to 15% by weight of metal salt of a fatty acid;
- d) from about 0,1% to 10% by weight of fatty acid esters;
- e) from about 0,1 to 10% by weight of one or more non-volatile silicone oils;
- and
- f) optionally from about 1% to 40% by weight of one or more deodorant actives.

The present invention is also directed to a process for suppressing sweat and odor from forming on human skin involving applying the above-disclosed composition onto a surface of the human skin.

The compositions according to the invention may be in the form of a loose powder or a compressed powder. The compositions of the present invention may be applied to the body with a sponge, brush, powder puff, cotton ball, pad, tissue, cloth, and the like. The compositions of the present invention may also be applied with the fingers. The compositions of the present invention may be placed in a dispensing means and applied by spraying, sprinkling, shaking, or rubbing the

composition onto the skin.

Applicants have unexpectedly discovered that the above-described anhydrous composition in the form of a powder provides a unique texture and imparts a dry feel and soft touch on the skin which is positively perceived by the end user, as compared to conventional roll-on, spray, or stick products.

### **DETAILED DESCRIPTION OF THE INVENTION**

The compositions of the present invention control perspiration and optionally also body odor from localized areas of the body such as the underarm.

"One or more" as used herein means at least one and thus includes individual components as well as mixtures/combinations.

"Anhydrous" as used herein means that water is preferably not deliberately added to the compositions, but may be present in trace amounts in the various compounds used in the compositions. The term anhydrous means that the composition contains no appreciable amount of water, for example, no more than 5% by weight, or no more than 2% by weight, or no more than 1% by weight, based on the weight of the composition.

"Substituted," as used herein, means comprising one or more substituents. Non-limiting examples of substituents include atoms, such as oxygen atoms and nitrogen atoms, as well as functional groups, such as hydroxyl groups, ether groups, alkoxy groups, acyloxyalkyl groups, oxyalkylene groups, polyoxyalkylene groups, carboxylic acid groups, amine groups, acylamino groups, amide groups, halogen containing groups, ester groups, thiol groups, sulphonate groups, thiosulphate groups, siloxane groups, and polysiloxane groups. The substituent(s) may be further substituted.

"Polymers," as defined herein, include homopolymers and copolymers formed from at least two different types of monomers.

"INCI" is an abbreviation of International Nomenclature of Cosmetic Ingredients, which is a system of names provided by the International Nomenclature Committee of the Personal Care Products Council to describe personal care ingredients.

"Cosmetically acceptable" means that the item in question is compatible with any keratinous substrate. For example, "cosmetically acceptable carrier" means a carrier that is compatible with any keratinous substrate.

The compositions and methods of the present invention can comprise,

consist of, or consist essentially of the essential elements and limitations of the invention described herein, as well as any additional or optional ingredients, components, or limitations described herein or otherwise useful.

Other than in the operating examples, or where otherwise indicated, all numbers expressing quantities of ingredients and/or reaction conditions are to be understood as being modified in all instances by the term "about."

All percentages, parts and ratios herein are based upon the total weight of the compositions of the present invention, unless otherwise indicated.

As used herein, all ranges provided are meant to include every specific range within, and combination of subranges between, the given ranges. Thus, a range from 1-5, includes specifically 1, 2, 3, 4 and 5, as well as subranges such as 2-5, 3-5, 2-3, 2-4, 1-4, etc.

As used herein a range of ratios is meant to include every specific ratio within, and combination of subranges between, the given ranges.

In an embodiment, the present invention is directed to an anhydrous composition comprising:

- a) from 1% to 40% by weight of one or more antiperspirant actives;
- b) from 45% to 90% by weight of one or more powdered fillers;
- c) from 0.01% to 15% by weight of metal salt of a fatty acid;
- d) from about 0,1% to 10% by weight of fatty acid esters;
- e) from about 0,1 to 10% by weight of one or more non-volatile silicone oils; and
- f) optionally from about 1% to 40% by weight of one or more deodorant actives;

wherein the composition is in the form of a powder.

In another embodiment, the present invention is directed to an anhydrous composition comprising:

- a) from 1% to 40% by weight of one or more antiperspirant actives;
- b) from 45% to 90% by weight of one or more powdered fillers;
- c) from 0.01% to 15% by weight of metal salt of a fatty acid;
- d) from about 0,1% to 10% by weight of fatty acid esters;
- e) from about 0,1 to 10% by weight of one or more non-volatile silicone oils; and
- f) optionally from about 1% to 40% by weight of one or more

deodorant actives;

wherein the powder is in the form of a compressed powder.

The compositions according to the invention have a dry feel and soft touch on the skin while controlling perspiration and body odor.

5 The present invention also is directed to a process for controlling perspiration and body odor comprising applying the composition according to the invention to localized areas of the body such as the underarm.

The invention also relates to a process for making the composition according to the invention, comprising combining (a) one or more antiperspirant  
10 ingredients; (b) one or more deodorant ingredients; (c) one or more powdered fillers; (d) one or more metal salts of a fatty acid; (e) one or more fatty acid esters; and (f) one or more non-volatile silicone oils.

Other subjects and characteristics, aspects and advantages of the invention will emerge even more clearly on reading the description and the example  
15 that follows.

### **ANTIPERSPIRANT INGREDIENT**

The term "antiperspirant ingredient" means any substance capable of reducing the flow of sweat. The antiperspirant ingredients which can be used according to the invention are preferably chosen from aluminium and/or zirconium  
20 salts, complexes of zirconium chlorohydrate and of aluminium chlorohydrate with an amino acid, and mixtures thereof.

Non-limiting examples of aluminum salts useful in the invention include, for example, aluminium chlorohydrate in the activated or nonactivated form, aluminium chlorohydrate, the aluminium chlorohydrate polyethylene glycol complex,  
25 the aluminium chlorohydrate propylene glycol complex, aluminium dichlorohydrate, the aluminium dichlorohydrate polyethylene glycol complex, the aluminium dichlorohydrate propylene glycol complex, aluminium sesquichlorohydrate, the aluminium sesquichlorohydrate polyethylene glycol complex, the aluminium sesquichlorohydrate propylene glycol complex, aluminium sulphate buffered by  
30 sodium aluminium lactate, and mixtures thereof.

Non-limiting examples of complexes of zirconium chlorohydrate and aluminium chlorohydrate with an amino include, for example, aluminium zirconium octachlorohydrate, aluminium zirconium pentachlorohydrate, aluminium zirconium tetrachlorohydrate, aluminium zirconium trichlorohydrate, and mixtures thereof.

Complexes of zirconium chlorohydrate and of aluminium chlorohydrate with an amino acid are generally known under the name ZAG (when the amino acid is glycine). They are disclosed, for example, in patent US-3 792 068. The ZAG complexes usually exhibit an Al/Zr quotient ranging from about 1.67 to 12.5 and a Metal/Cl quotient ranging from about 0.73 to 1.93. Non-limiting examples of these complexes include, for example, aluminium zirconium octachlorohydrate glycine, aluminium zirconium pentachlorohydrate glycine, aluminium zirconium tetrachlorohydrate glycine, aluminium zirconium trichlorohydrate glycine complexes, and mixtures thereof.

Preferably, the antiperspirant ingredient is aluminium chlorohydrate, in particular the product sold by SummitReheis under the name REACH 103, aluminium sesquichlorohydrate, in particular the product sold by SummitReheis under the name REACH 301, aluminium zirconium tetrachlorohydrate GLY (INCI name), in particular the product sold by SummitReheis under the name REACH AZP-908, and mixtures thereof.

The antiperspirant ingredients are preferably present in the composition according to the invention in an amount of from about 1% to 40% by weight, preferably in an amount of from about 5% to 30% by weight, and most preferably 15% to 25% by weight, based on the total weight of the composition.

#### **POWDERED FILLER**

The term "powdered filler" means any colorless or white solid particles of any form that are insoluble and dispersed in the medium of the composition.

Non-limiting examples powdered fillers useful in the invention include, for example, talc, mica, silica, magnesium aluminium silicate, kaolin, bentone, calcium carbonate, magnesium hydrogen carbonate, hydroxyapatite, boron nitride, perlite powders, fluorophlogopite, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, lauroyl lysine, metal soap, bismuth oxychloride, barium sulfate, magnesium carbonate, and mixtures thereof. Powdered fillers do not include powdered pigments.

Preferably, the powdered filler will be chosen from talc, perlite, kaolin, and mixtures thereof. More preferably, the powdered filler contains 70% of talc and 30% Perlite by weight. The ratio/proportions of perlite to talc can be determined by a person skilled in the art according to the desirable water absorbing properties.

The powdered fillers are preferably present in the composition

according to the invention in an amount of from about 45% to 90% by weight, preferably in an amount of from about 55% to 80% by weight, and most preferably 60% to 70% by weight, based on the total weight of the composition.

### **METAL SALT OF A FATTY ACID**

5 According to the present invention, the anhydrous antiperspirant powder composition comprises metal salt of a fatty acid as a powder agglutinating agent to ensure the use of the powder as a loose powder. The term "metal salt of a fatty acid" means any metal salt derived from organic carboxylic acids having from 8 to 22 carbon atoms. The metal salt of fatty acid that may be used according to the  
10 invention is preferably chosen from zinc stearate, magnesium stearate, lithium stearate, zinc laurate, magnesium myristate, and mixtures thereof.

Preferably, the metal salt of a fatty acid is magnesium stearate.

The metal salt of a fatty acid is preferably present in the composition according to the invention in an amount of from about 0,1% to 15% by weight,  
15 preferably in an amount of from about 0,5% to 10% by weight, and most preferably 2% to 6% by weight, based on the total weight of the composition.

### **FATTY ACID ESTER**

The term "fatty acid ester" means any esters having the formula  $R_1COOR_2$ , wherein  $R_1$  represents a linear or branched fatty acid residue containing  
20 from 1 to 40 carbon atoms and  $R_2$  represents a linear or branched hydrocarbon-based chain containing from 1 to 40 carbon atoms, on condition that the sum of the number of carbon atoms is greater than or equal to 12. The fatty acid esters according to the present invention should be in the liquid form at room temperature. Non-limiting examples of fatty acid esters useful in the invention include, for example,  
25 isopropyl myristate, isopropyl palmitate, isocetyl stearate, 2-ethylhexyl caprate/caprylate (or octyl caprate/caprylate), 2-ethylhexyl palmitate, isostearyl neopentanoate, isononyl isononanoate, hexyl laurate, and the mixtures thereof.

Preferably, the fatty acid ester is isononyl isononanoate.

The fatty acid ester is preferably present in the composition according  
30 to the invention in an amount of from about 0,1% to 10% by weight, preferably in an amount of from about 1% to 8% by weight, and most preferably 3% to 5% by weight, based on the total weight of the composition.

### **NON-VOLATILE SILICONE OIL**

The term "non-volatile oil" means an oil that remains on the skin or the



keratin fiber at room temperature and atmospheric pressure for at least several hours, and that especially has a vapor pressure of less than  $10^{-3}$  mmHg (0.13 Pa). The term "silicone oil" means an oil comprising in its structure carbon atoms and at least one silicon atom.

5 Non-limiting examples of non-volatile silicone oils useful in the invention include, for example, polydimethylsiloxanes (PDMS), polydimethylsiloxanes comprising alkyl or alkoxy groups that are pendent and/or at the end of a silicone chain, these groups each containing from 2 to 24 carbon atoms, phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyl trimethylsiloxy  
10 diphenylsiloxanes, diphenyl dimethicones, diphenyl methyldiphenyl trisiloxanes and 2-phenylethyl trimethylsiloxysilicates, dimethicones or phenyltrimethicones with a viscosity range of 25 to 350 cSt, and mixtures thereof.

Preferably, the non-volatile silicone oil is dimethicone (INCI name) having a viscosity of 100 cSt sold by Wacker under the name BELSIL® DM 100.

15 The non-volatile silicone oils are typically present in the composition according to the invention in an amount of from about 0,1 to 10%, such as from about 1 to 8%, and preferably from about 3 to 5% by weight, based on the total weight of the composition.

#### **DEODORANT INGREDIENT (OPTIONAL)**

20 The compositions according to the invention optionally may comprise one or more deodorant ingredient. The term "deodorant ingredient" means any substance capable of reducing, masking, or absorbing human body odors, in particular underarm odors.

The deodorant ingredient agents which may be used according to the  
25 invention are preferably chosen from:

- bacteriostatic agents or other bactericidal agents such as 2,4,4'-trichloro-2'-hydroxydiphenylether (Triclosan®), 2,4-dichloro-2'-hydroxydiphenylether, 3',4',5'-trichlorosalicylanilide, 1-(3',4'-dichlorophenyl)-3-(4'chlorophenyl) urea (Triclocarban®) or 3,7,11 -trimethyldodeca-2, 5.10-trienol (Farnesol®); quaternary  
30 ammonium salts such as cetyltrimethylammonium salts, cetylpyridinium salts; chlorhexidine and salts; monocaprates, diglycerol monolaurate, diglycerol monolaurate of glycerol; polyhexamethylene biguanide salts;

- zinc salts such as zinc salicylate, zinc phenolsulfonate, zinc pyrrolidonecarboxylate (more commonly called zinc pidolate), zinc sulfate, zinc

chloride, zinc lactate, zinc gluconate, zinc ricinoleate, zinc glycinate, zinc carbonate, zinc citrate, zinc chloride, zinc laurate, zinc oleate, zinc orthophosphate, zinc stearate, zinc tartrate, acetate zinc or mixtures thereof;

- odor absorbers such as zeolites, cyclodextrins, metal oxide silicates, such as those described in the application US2005/063928; metal oxide particles modified by a metal such as described in the applications US2005084464 and US2005084474, aluminosilicates such as those described in application EP1658863, chitosan derived particles such as those described in the patent US6916465;

- substances blocking the enzymatic reactions responsible for the formation of odorous compounds such as inhibitors of arylsulfatase, 5-lipoxygenase, aminocyclase, beta -glucuronidase; and mixtures thereof.

Preferably, the deodorant ingredient is zinc gluconate.

The deodorant ingredients are preferably present in the composition according to the invention in an amount of from about 0,05% to 5% by weight, preferably in an amount of from about 0,15% to 3,5% by weight, and most preferably 0.25% to 1.5% by weight, based on the total weight of the composition.

#### **POWDERED PIGMENT (OPTIONAL)**

The composition according to the invention optionally may comprise one or more powdered pigment. The term "pigment" means any colored and/or iridescent mineral or organic particles that are insoluble in the liquid hydrophilic phase, which are intended to color and/or add iridescence to the composition.

Non-limiting examples of pigments useful for providing color in the invention include, for example, iron oxides, including red and yellow iron oxides, titanium dioxide, optionally surface-treated, zirconium oxide, zinc oxide, cerium oxide chromium oxide, manganese violet, ultramarine blue, chromium hydrate and ferric blue ultramarine, chromium hydroxide colors, and mixtures thereof.

The pigments may be interference pigments. Non-limiting examples of interference pigments useful in the invention include, for example, mica substrates, bismuth oxychloride substrates, and silica substrates, for instance mica/bismuth oxychloride/iron oxide pigments commercially available as Chroma-Lite® pigments (BASF), titanium dioxide and/or iron oxides coated onto mica such as commercially available Flamenco® pigments (BASF), mica/titanium dioxide/iron oxide pigments including commercially available KTZ® pigments (Kobo products), Cellini® pearl pigments (BASF), borosilicate-containing pigments such as Reflecks™ pigments

(BASF), and mixtures thereof.

The pigments may be mother-of-pearl pigments. Non-limiting examples of mother-of-pearl pigments useful in the invention include, for example, may be selected from white mother-of-pearl pigments such as mica covered with titanium or bismuth oxychloride, colored mother-of-pearl pigments such as titanium mica with iron oxides, titanium mica with ferric blue or chromium oxides, titanium mica with an organic pigment, mother-of-pearl pigments based on bismuth oxychloride, and mixtures thereof.

The powdery coloring materials are preferably present in the composition according to the invention in an amount of from about 45% to 90% by weight, preferably in an amount of from about 55% to 80% by weight, and most preferably 60% to 70% by weight, based on the total weight of the composition.

The compositions according to the invention may additionally comprise cosmetic adjuvants chosen from fragrances, pigments, chelating agents, softeners, antioxidants, opacifiers, stabilizers, moisturizing agents, vitamins, bactericides, preservatives, polymers, thickening agents, or any other ingredient commonly used in cosmetics for this type of application.

Of course, a person skilled in the art will take care to choose this or these optional additional compounds so that the advantageous properties intrinsically attached to the composition in accordance with the invention are not, or not substantially, detrimentally affected by the envisaged addition or additions.

The amounts of these various constituents which can be present in the composition according to the invention are those conventionally used in the art.

The following examples serve to illustrate the invention without however exhibiting a limiting character. In these examples the amounts of the composition ingredients are given as weight percentages relative to the total weight of the composition.

### **EXAMPLES**

**TABLE 1: INVENTIVE EXAMPLES**

US INCI NAME	Ex. 1	Ex. 2	Ex. 3	Ex. 4
ALUMINUM ZIRCONIUM TETRACHLOROXYDREX GLY	20	20	20	20
ZINC GLUCONATE	0.5	0.5	0.5	0.5
PERLITE	25	1	1	1

US INCI NAME	Ex. 1	Ex. 2	Ex. 3	Ex. 4
TALC	40.5	64.5	62.5	60.5
MAGNESIUM STEARATE	3	3	3	3
ISONONYL ISONONANOATE	4	4	6	6
DIMETHICONE	4	4	4	4
FRAGRANCE	1	1	1	1
MICA (and) TITANIUM DIOXIDE	2	2	2	2
<b>TOTAL (%)</b>	100	100	100	100

**TABLE 2: INVENTIVE EXAMPLES**

US INCI NAME	Ex. 5	Ex. 6	Ex. 7
ALUMINUM ZIRCONIUM TETRACHLOROHYDREX GLY	20	0	20
ALUMINUM CHLOROHYDRATE	0	20	5
ALUMINUM SESQUICHLOROXYDRATE	0	5	0
ZINC GLUCONATE	1	0.5	0
PERLITE	1	1	1
TALC	43	59.5	62
KAOLIN	20	0	0
MAGNESIUM STEARATE	3	3	4
ISONONYL ISONONANOATE	4	4	4
DIMETHICONE	4	4	4
FRAGRANCE	1	1	1
MICA (and) TITANIUM DIOXIDE	3	2	0
<b>TOTAL (%)</b>	100	100	100

The Inventive formula in Tables 1 and 2 in the form of a powder were prepared by mixing one or more antiperspirant, one or more deodorant actives, one or more powdered fillers; one or more metal salt of a fatty acid, one or more fatty acids, one or more non-volatile silicone oils together. Specifically, to produce the formulas, it was necessary to mix well the powder phase on a mill, to assure a good dispersion of the actives and fillers. After the oil phase was poured slowly over the powder phase under continuous mixing to assure the oils are well dispersed and not accumulated in different parts. The mixture was then placed on an aluminum plate, and compressed. The compressing strength must be adapted to the size and depth of the support. Different sizes and shapes of plate support

can be used.

**TABLE 3: COMPARATIVE EXAMPLES**

US INCI NAME	Ex. 8	Ex. 9
ALUMINUM ZIRCONIUM TETRACHLOROXYDREX GLY	20	0
ALUMINUM CHLOROXYDRATE	5	20
ALUMINUM SESQUICHLOROXYDRATE	0	5
ZINC GLUCONATE	0	1
PERLITE	1	1
TALC	62	58
MAGNESIUM STEARATE	4	3
ISONONYL ISONONANOATE	4	8
DIMETHICONE	0	0
MINERAL OIL	4	0
MICA (and) TITANIUM DIOXIDE	0	3
FRAGRANCE	1	1
<b>TOTAL (%)</b>	100	100

Test Results:

Compared to the comparative Examples in Table 3, the inventive examples had optimized sensorial through the use of silicon oils. The formula had unique dry sensorial, which was very appreciated by consumers. The formula also showed a very good adherence to the skin which helped to enhance the contact of the active to the skin. Additionally, the formula of the all the inventive Examples had improved the stability while reducing the water absorption of the antiperspirant actives.

**SET OF CLAIMS**

1. An anhydrous antiperspirant composition in the form of a powder comprising:

5 a) from 1% to 40% by weight of one or more antiperspirant actives;  
b) from 45% to 90% by weight of one or more powdered fillers;  
c) from 0.01% to 15% by weight of a metal salt of a fatty acid;  
d) from about 0.1% to 10% by weight of one or more fatty acid esters;

10 e) from about 0.1 to 10% by weight of one or more non-volatile silicone oils; and

f) optionally from about 1% to 40% by weight of one or more deodorant actives.

2. The anhydrous antiperspirant composition according to Claim 1, wherein the antiperspirant actives are selected from the group consisting of  
15 aluminium and/or zirconium salts, complexes of zirconium chlorohydrate and of aluminium chlorohydrate with an amino acid, and the mixtures thereof.

3. The anhydrous antiperspirant composition according to Claim 2, wherein the antiperspirant actives are selected from the group consisting of aluminium chlorohydrate, aluminum sesquichlorohydrate, aluminum zirconium  
20 tetrachlorohydrate GLY and the mixtures thereof.

4. The anhydrous antiperspirant composition according to Claim 1, wherein the antiperspirant actives are in an total amount of from about 5% to 30% by weight of the total weight of the composition.

5. The anhydrous antiperspirant composition according to Claim 4,  
25 wherein the antiperspirant actives are in an total amount of from about 15% to 25% by weight of the total weight of the composition.

6. The anhydrous antiperspirant composition according to Claim 1, wherein the powdered fillers are selected from the group consisting of talc, mica, silica, magnesium aluminum silicate, kaolin, bentone, calcium carbonate, magnesium  
30 hydrogen carbonate, hydroxyapatite, boron nitride, perlite powders, fluorophlogopite, sericite, calcinated talc, calcinated mica, calcinated sericite, synthetic mica, lauroyl lysine, metal soap, bismuth oxychloride, barium sulfate, magnesium carbonate, and the mixtures thereof.

7. The anhydrous antiperspirant composition according to Claim 6,

wherein the powdered fillers are 70% of talc and 30% Perlite by weight.

8. The anhydrous antiperspirant composition according to Claim 1, wherein the powdered fillers are from about 55% to 80% by weight of the total composition.

5 9. The anhydrous antiperspirant composition according to Claim 8, wherein the powdered fillers are from about 60% to 70% by weight of the total composition.

10 10. The anhydrous antiperspirant composition according to Claim 1, wherein the metal salt of a fatty acid is selected from the group consisting of zinc stearate, magnesium stearate, lithium stearate, zinc laurate, magnesium myristate, and the mixtures thereof.

11. The anhydrous antiperspirant composition according to Claim 10, wherein the metal salt of a fatty acid is magnesium stearate.

12. The anhydrous antiperspirant composition according to Claim 1,  
15 wherein the metal salt of a fatty acid is from about 0.5% to 10% by weight of the total composition.

13. The anhydrous antiperspirant composition according to Claim 12, wherein the metal salt of a fatty acid is from about 2% to 6% by weight of the total composition.

20 14. The anhydrous antiperspirant composition according to Claim 1, wherein the fatty acid esters are selected from the group consisting of isopropyl myristate, isopropyl palmitate, isocetyl stearate, 2-ethylhexyl caprate/caprylate (or octyl caprate/caprylate), 2-ethylhexyl palmitate, isostearyl neopentanoate, isononyl isononanoate, hexyl laurate, and the mixtures thereof.

25 15. The anhydrous antiperspirant composition according to Claim 14, wherein the fatty acid ester is isononyl isononanoate.

16. The anhydrous antiperspirant composition according to Claim 1, wherein the fatty acid ester is from about 1% to 8% by weight of the total composition.

30 17. The anhydrous antiperspirant composition according to Claim 16, wherein the fatty acid ester is from about 3% to 5% by weight of the total composition.

18. The anhydrous antiperspirant composition according to Claim 1, wherein the non-volatile silicone oils is dimethicone.

19. The anhydrous antiperspirant composition according to Claim 18, wherein the non-volatile silicone oils is from about 1% to 8% by weight of the total

composition.

20. The anhydrous antiperspirant composition according to Claim 19, wherein the non-volatile silicone oils is from about 3% to 5% by weight of the total composition.



## INTERNATIONAL SEARCH REPORT

International application No  
PCT/BR2015/050265

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. A61K8/37 A61K8/36 A61K8/891 A61Q15/00 A61K8/02 ADD.																	
According to International Patent Classification (IPC) or to both national classification and IPC																	
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) A61K A61Q Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, CHEM ABS Data, WPI Data																	
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>WO 98/18439 A1 (PROCTER &amp; GAMBLE [US]) 7 May 1998 (1998-05-07)</td> <td>1-6, 8-10, 12-14, 16-20</td> </tr> <tr> <td>Y</td> <td>page 2, line 22 - page 7, line 28; examples II,III,VII,VIII,IX,X,XIV</td> <td>7,11,15</td> </tr> <tr> <td>Y</td> <td>WO 99/44566 A1 (PROCTER &amp; GAMBLE [US]) 10 September 1999 (1999-09-10) page 7, line 36 - page 8, line 6</td> <td>11</td> </tr> <tr> <td>Y</td> <td>WO 2010/109545 A1 (OREAL [FR]; MATSUFUJI SHINICHI [JP]; KAWAMOTO MAKOTO [JP]) 30 September 2010 (2010-09-30) paragraph [0040] - paragraph [0043] paragraph [0021] - paragraph [0024] ----- -/-</td> <td>7,15</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	WO 98/18439 A1 (PROCTER & GAMBLE [US]) 7 May 1998 (1998-05-07)	1-6, 8-10, 12-14, 16-20	Y	page 2, line 22 - page 7, line 28; examples II,III,VII,VIII,IX,X,XIV	7,11,15	Y	WO 99/44566 A1 (PROCTER & GAMBLE [US]) 10 September 1999 (1999-09-10) page 7, line 36 - page 8, line 6	11	Y	WO 2010/109545 A1 (OREAL [FR]; MATSUFUJI SHINICHI [JP]; KAWAMOTO MAKOTO [JP]) 30 September 2010 (2010-09-30) paragraph [0040] - paragraph [0043] paragraph [0021] - paragraph [0024] ----- -/-	7,15
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Y	page 2, line 22 - page 7, line 28; examples II,III,VII,VIII,IX,X,XIV	7,11,15															
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.																	
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Date of the actual completion of the international search		Date of mailing of the international search report															
9 May 2016		17/05/2016															
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer  Loloiu, Teodora															

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