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(54) Title: BODY POWDER IN LIQUID FORM, BODY POWDER CONTAINING ACTIVE INGREDIENTS AND METHOD OF PREPARING THEREOF

(57) Abstract

A liquid powder composition comprising per 400 lbs. of composition 40-150 lbs. potato starch; 1-12 lbs. veegum; 3.6-12 lbs. cetyl alcohol; 2-10 lbs. stearic acid; 3-10 lbs. glycerin; 0.5 lbs. Peg-8 oleate and the remainder water. This liquid powder composition can be used as a carrier, for prostheses and orthoptics and in general as an oil-free wet lubricant which leaves no excess residue as do talcum powders and oil-based lubricants. This composition is prepared by a process comprising in the following order the steps of adding together the veegum, the cetyl alcohol, the stearic acid, the glycerin and the Peg-8 oleate and raising the temperature first to 145°F and then to 175°F; adding the heated ingredients to the water preheated to 130 to 200°F, mixing the ingredients and the water while allowing to cool to a temperature of 145°F-150°F, admixing thereto 10-50 lbs. potato starch, homogenizing the admixture while allowing to cool to a temperature below 135°F, admixing thereto 30-100 lbs. potato starch while allowing to cool to ambient temperature, and homogenizing the admixture to obtain the liquid powder in the form of a lotion, a gel or a cream. The liquid powder composition may further comprise an active ingredient and/or a fragrance.

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BODY POWDER IN LIQUID FORM, BODY POWDER CONTAINING ACTIVE INGREDIENTS AND METHOD OF PREPARING THEREOF

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to body powders. More specifically, this invention relates to a body powder in liquid form which can be used by itself or as a carrier for active ingredients intended for topical and mucous tissue application to animals, including humans. This invention also relates to a method of preparing a liquid body powder having optimal characteristics for applying to the skin in terms of its smoothness, adherence, consistency and rate of evaporation after application. The liquid powders of this invention are useful for many purposes including to improve the smoothness of the skin, prevent irritation, absorb perspiration and deliver active ingredients to the human and animal body.

Description of the Background

Typically, products intended for the above uses are manufactured and sold in powder form. This medium is known to have certain disadvantages, particularly that during each application a certain quantity of the powder is dispersed into the air in a wasteful manner and also produces a detrimental inhalation thereof.

Accordingly, there still is a need for an improved body powder having excellent dispersion, adherence and smoothness while lacking the drawbacks accounted by the prior art products.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an oil-free wet lubricant lacking the excess residue deposited by talcum powders or oil-based lubricants.

It is another object of the present invention to provide a product which is packaged and applied in liquid form, the liquid components evaporating rapidly after application leaving a layer of material in powder form at a desired location on the skin or mucous tissues of an animal, including humans.

It is also an object of the present invention to provide a process for preparing an oil-free wet lubricant in the form of a heavy lotion which can be used by itself or as a carrier for active agents to be applied topically to the skin or to mucous tissues of animals, including humans.

The above and other objects of the invention are attained by forming an aqueous solution or suspension of ingredients comprising a substantial quantity of potato starch in accordance with a specific procedure and temperature regime. The product obtained is a stable liquid

product having a desirable thickness for easy application and general stability which assures a long shelf life.

Other objects, advantages and features of the present invention will become apparent to those skilled in the art from the following discussion.

DESCRIPTION OF THE INVENTION

Applicant has further discovered that in order for the product to be given an appropriate thickness and stability, various other components can be added to the potato starch. Preferred components are veegum, cetyl alcohol, stearic acid, glycerin, and optionally Peg-8-oleate. The variation of the amounts of these components in the liquid powder composition results in a final product which may be in the form of a liquid lotion, of heavy lotion, a gel-like preparation, a light cream or a heavy cream, among others. The amount of water contained in the composition also contributes to and helps determine the final consistency of the liquid powder product.

This liquid powder composition finds a remarkable use as an oil-free wet lubricant which leaves no excess residues encountered in talcum powders or oil-based lubricants used by the prior art. This composition is also useful for its skin soothing characteristics and for use in prostheses and orthotics. As a water-based composition, it will not clog valves, makes no mess on clothing articles, is ideal for attaining complete contact with suction sockets and helping control sweating and can be washed off easily at the end of the day.

In one embodiment of this invention, it is provided a liquid powder composition comprising per 400 lbs. of composition

about 40-150 lbs.,	potato starch;
about 1-12 lbs.;	veegum;
about 3.6-12 lbs.,	cetyl alcohol;
about 2-10 lbs.,	stearic acid;
about 3-10 lbs.,	glycerin;
about 0.5 lbs.,	Peg-8 oleate; and
the remainder,	water.

In yet another preferred embodiment of the invention, the above-described liquid powder composition further comprises an agent selected from

about .0.005-100 parts of an active agent; and

about 0.005-1 parts of a fragrance

per 100 parts of the carrier composition.

An even more preferred embodiment of the above-described composition comprises

about 1-10 parts of an active ingredient, or

about 0.1-0.3 parts of a fragrance

per 100 parts of the carrier composition.

In another aspect of this invention, it is provided a process for obtaining a liquid powder composition comprising

(1) adding together about 1-12 lbs. veegum, about 3.6-12 lbs. cetyl alcohol, about 2-10 lbs. stearic acid, about 3-10

lbs. glycerine, and about 0-5 lbs. Peg-8-Oleate while raising the temperature from about 145 °F up to about 175 °F,

(2) adding the heated ingredients to about 350.4 to 201 lbs. of water preheated to between about 130 °F to 200 °F,

(3) mixing the ingredients and the water for a period of time sufficient to allow cooling to a temperature between about 145 °F and 150 °F,

(4) admixing thereto about 10-50 lbs. potato starch,

(5) homogenizing the admixture for a period of time sufficient to allow cooling to a temperature below about 135 °F,

(6) admixing thereto about 30-100 lbs. potato starch for a period of time sufficient to allow cooling to ambient temperature, and

(7) homogenizing the admixture to obtain the liquid powder in the form of a lotion, a gel or a cream.

A more preferred way of conducting the above process involves adding a first portion of between about 12 and 48 lbs. of potato starch and a second portion of between about 40 and 52 lbs. of potato starch.

In still another aspect of the process, an agent selected from an active ingredient and a fragrance can be added to the liquid powder composition. These ingredients are added to the composition preferably subsequent to step (5) of the above process at a temperature at which they remain stable.

Other objects, advantages and features of the present invention will become apparent to those skilled in the art from the following detailed discussion.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As noted above, a principal ingredient of the liquid powder composition according to the present invention is potato starch. In effect, applicant has discovered that the use of potato starch makes possible the manufacture of a product having the above-described properties.

In a preferred aspect of the invention, the liquid powder composition comprises per 400 lbs. of composition

about 52-100 lbs. of potato starch,

about 2-6 lbs. of veegum,

about 4-6 lbs. of cetyl alcohol,

about 2-6 lbs. of stearic acid,

about 7-9 lbs. of glycerin,

about 1.6-4 lbs. of Peg-8-oleate; and

the remainder water.

In another aspect of the invention the liquid powder composition may additionally contain a fragrance which can be selected from any fragrances known in the art, such as perfumes, essences, and the like.

While a variety of fragrances can be employed, a preferred fragrance which is utilized to prepare the

exemplary formulation is of the type known as baby powder

The fragrance is preferably added to the liquid powder composition in an amount of about 0.005 to 1 parts per 100 parts of the composition. A still more preferred amount of fragrance is between about 0.1 and 0.3 parts per 100 parts of the composition. By means of example, Emeressence^{R} 1160 (Emery Chemicals, Cincinnati, OH) can be used in the composition of the invention.

In still another aspect of the present invention, the composition may additionally contain an active ingredient. In this case, the basic liquid powder composition acts as a carrier for the active ingredient. A variety of active ingredients are contemplated within the confines of this invention. For all practical matters, any ingredient which would be applied to the skin of humans or animals or to mucous tissues thereof can be utilized with the present composition.

Suitable active ingredients for the liquid powder composition of this invention are anti-itch, anti-inflammatory, antimicrobial, antiviral, antibacterial, antifungal, antiperspirant, analgesic, wound-healing, antihistiminic, antiemetic and skin improving agents, herbs, plant parts, extracts thereof and mixtures thereof, among others. These active ingredients can be added to the liquid powder composition in amounts known in the art and can be administered to animals, including humans in a preventative

manner or as a means for treating a condition requiring the administration of the ingredient thereof.

In yet another aspect of the invention, various of the active ingredients and/or fragrances may be combined in a single composition. The components are added in amounts known in the art and within the ranges disclosed herein.

Preferred amounts for the addition of the active ingredients are about 0.005 to 100 parts of the active ingredient per 100 parts of the composition. A more preferred range is between about 1 and 10 parts of the active ingredient per 100 parts of the composition.

The liquid powder composition containing an active ingredient is intended for cutaneous, intravaginal, intranasal, intrauterine and intralesional use, among others in animals including humans, and for intramammary use in animals.

Any compounds, plant parts, herbs, extracts thereof and mixtures thereof known in the art for having a medicinal or pharmaceutical use, among others, are suitable for use in the present composition. As examples of active agents can be cited: cortical steroids as an anti-inflammatory, amirozglycosides as an antibiotic, corticosteroids as an anti-itch, Emercide^{TM} 1199 (Emery Industries, Mauldin, SC), Wickenol 340 and Germeben^{R} II (Sutton Labs, Inc., Chatham, NJ) as antimicrobials, preservatives, germicides and antifungals, sodium aluminum lactate as an antiperspirant,

acetyl salicylic as an analgesic, teramicin as a wound-healing agent, and certain herbs as a skin improving agent, among others.

Examples of herbs and plant part that can be utilized are as follows: aloe, comfrey, calendula and other herbal preparations with properties known to give specific beneficial results to the user of the product.

The extracts of the herbs and plant parts are prepared as is known in the art and the extracted preparations are then added to the liquid powder carrier of the invention.

A most preferred composition for the liquid powder composition of the invention is described in Example 1 hereinbelow.

In another aspect of the invention, the process for obtaining the liquid powder composition the Cetyl alcohol and the stearic acid can be melted together by heating these ingredients to their melting points or approximately 140°F. The glycerin and the Peg-8 Oleate are then added at room temperature to the melted ingredients, then raising the temperature first up to about 145°F and then up to about 175°F. All the ingredients are then added to the water including the Veegum, which was preheated to between about 130°F and 200°F and the ingredients and the water are mixed for a period of time sufficient to allow cooling to a temperature between about 145°F and 150°F. The first portion

of the potato starch is added at this point and the admixture is homogenized until the preparation cools to below about 135°F.

The remaining amount of potato starch is added at this point while the preparation cools to about room temperature and the composition is then homogenized to obtain a product in the form of a lotion, a gel or a cream. At this point the liquid powder composition is in condition for packaging.

In yet another aspect of the process, the veegum can be added at the time of the second addition of potato starch instead of being incorporated with the Cetyl alcohol, stearic acid, glycerin Peg-8 oleate and water.

In yet another aspect of the inventive process, the agent selected from the active ingredient and the fragrance can be added to the composition as soon as the temperature is lowered to below about 135°F. In a preferred form of the process, the active ingredient and/or the fragrance are added prior to the last addition of potato starch to the composition in amounts between about 0.005 and 100 parts of the active ingredient and about 0.005 and 1 parts of the fragrance per 100 parts of the composition.

Typically, the mixing of the veegum, Cetyl alcohol, stearic acid, glycerin and Peg-8 oleate with the water is conducted at about 145°-150°F for between about 15 minutes and 75 minutes, preferably between 30 minutes and 60 minutes.

Once the first addition of the potato starch to the veegum, Cetyl alcohol, stearic acid, glycerin, Peg-8 oleate and water has occurred, the admixture is homogenized at a temperature of below about 135°F, typically for a period of between about 1 hour to 3 hours, preferably between 1.5 and 2.5 hours.

The admixing of the last portion of the potato starch to the rest of the ingredients and cooling of the composition to ambient temperature is typically conducted for about 1 hour to 4 hours, preferably 1.5 hours to 3.5 hours.

Homogenization subsequent to the addition of the potato starch to the mixture is typically conducted at about room temperature for between about 0.5 hours and 1.5 hours. However, the above-described steps can be conducted for different periods of time as suitable for various purposes, such as attaining a specific consistency of the product.

In another aspect of the process, when the liquid powder composition is prepared by adding an active ingredient and/or a fragrance, the composition can be homogenized immediately after such addition and prior to the subsequent addition of the last portion of the potato starch. This homogenization is typically conducted for between about 0.5 hours and 3 hours, preferably between about 0.5 hours and 1.5 hours.

In another aspect of this process, the cooling of the preparation occurring during steps (5) and (6) can be aided and accelerated by conducting the process in a cooling tank provided with a refrigerating system.

Having now generally described this invention, the same will be better understood by reference to certain specific examples, which are included herein for purposes of illustration only and are not intended to be limiting of the invention or any embodiment thereof, unless so specified.

EXAMPLES

Example 1

The following description while provided by way of example relates to a formulation which has been perfected and which is presently considered to be the preferred formulation. The composition of this exemplary formulation is as follows.

Table 1: Composition of Example 1

Ingredient	Source & Type Designation	Initial Form	Quantity
Water		Liquid	559 lb.
Magnebrite brand			
Veegum	AC-590A-03	Powder	6.6 lb.
Germeben II™	GB7 120	Liquid	8 lb.
Glycerin	Emery 912-1601	Liquid	8 lb.
Stearic acid	Emery	Powder	4 lb.
Cetyl Alcohol	Pg 33120 G73C95	Powder	7.2 lb.
Peg-8 oleate	Witro 09-H-2555	Liquid	3.2 lb.
Fragrance	Global j223	Liquid	0.4 lb.
Potato starch	Simplot	Powder	203.6 lb.

To produce the liquid product, the cetyl alcohol and stearic acid were melted together by heating them to approximately 170°F which is approximately the melting point of these ingredients. The glycerin and Peg-8 oleate, both initially at room temperature were then added to, and mixed with, the melted ingredients, and the resulting mixture was then reheated to 170°F. Then all the water, preheated to 150°F, was added to the initial mixture and, with the temperature maintained at 150°F, the Germeben II and the fragrance, both of which were initially at room temperature, were added to the aqueous mixture.

The mixture is then permitted to cool to 145°F, and 24 lbs. of the potato starch, initially at room temperature, were added. The mixture was then permitted to cool while mixing and homogenizing, and it thickened. After the temperature of the resulting mixture dropped below 120°F, the remaining starch and the veegum which were initially at room temperature, were added and the entire mixture was then stirred in order to attain complete homogenization. This latter step can take place at a temperature between 120°F and room temperature, although a temperature close to 120°F facilitates the homogenization.

The product was then permitted to cool to room temperature, at which time it is ready to be packaged.

Example 2

A liquid powder composition of this exemplary formulation is as follows.

Table 2: Composition of Example 2

Ingredient	Source & Type Designation	Initial Form	Quantity
Water		Liquid	remainder up to 800 lbs.
Magnebrite brand			
Veegum	AC-590A-03	Powder	8 lbs.
Glycerin	Emery 912-1601	Liquid	8 lbs.
Stearic acid	Emery	Powder	4 lbs.
Cetyl Alcohol	Pg 33120 G73C95	Powder	7.2 lbs.
Peg-8 oleate	Witro 09-H-2555	Liquid	3.2 lbs.
Fragrance	Global j223	Liquid	0.4 lbs.
Potato starch	Simplot	Powder	203.6 lbs.

To this composition the following three active ingredients were added.

(a) Emercide 1199 produced by Emery Chemical 8 lbs.

(b) Wickenol 340 Sodium Aluminum Lactate by Wickhen Products 8 lbs.

(c) Germeben II by Sutton Labs 8 lbs.

All three antibacterial agents were effective when tested. Germeben II gave the best results due to its high compatibility with the lotion and the fact that it has a broad spectrum of preservative characteristics.

Example 3

A composition as that described in Example 2 was prepared and 8 lbs. of Germeben II™ were added thereto. Various amounts of Magnabrite brand veegum were added as follows.

(a) 0.5% (4 lbs.)

(b) 0.75% (6 lbs.)

(c) 1.0% (8 lbs.)

Although there were some signs of separation, all three proportions of veegum were satisfactory. In general, the best results were attained with the 1.0% veegum as the carrier.

Example 4

Three samples were prepared according to the formulation of Example 2, also containing Germeben II™ 8 lbs. The amount of glycerin was varied to contain 7, 8 and 9 lbs. of glycerin. All three yielded satisfactory results with the preparation containing 8 lbs. of glycerin being the best.

Example 5

The amounts of stearic acid and Cetyl alcohol were varied in the composition of Example 2 also containing 8 lbs. of Germeben II™ . The best results were attained with 7.2 lbs. of stearic acid and 9.0 lbs. of Cetyl alcohol.

Example 6

When the amount Peg-8 oleate was varied in the composition of Example 2 also containing 8 lbs. of Germeben II™, added in amounts of 0, 2.0 and 3.2 lbs. gave satisfactory results. The best results were obtained with 3.2 lbs. of Peg-8 oleate.

Example 7

The initial amount of starch was varied in the composition described in Example 2 also containing 8 lbs. of Germeben II™. Potato starch was added in amounts of 12, 24, 28 and 32 lbs. at a temperature of 145-150°F. All four samples gave satisfactory results, with the one having a first addition of 28 lbs. of potato starch yielding the best consistency to hold the remaining starch to the skin.

It will be understood that the above description of the present invention is susceptible to various modifications, changes, and adaptations, and the same are intended to be comprehended within the meaning and range of equivalents of the appended claims.

WHAT IS CLAIMED IS:

1. A liquid powder composition comprising per 400 lbs. of the mixture

about 40-150 lbs. potato starch;

about 1-12 lbs. veegum;

about 3.6-12 lbs. cetyl alcohol;

about 2-10 lbs. stearic acid;

about 3-10 lbs. glycerin;

about 0.5 lbs. Peg-8 oleate

the remainder water.

2. The liquid powder composition of claim 1 comprising per 400 lbs. of composition

about 52-100 lbs. potato starch;

about 2-6 lbs. veegum;

about 4-6 lbs. Cetyl alcohol;

about 2-6 lbs. stearic acid;

about 7-9 lbs. glycerin;

about 1.6-4 lbs. Peg-8 oleate; and

the remainder water.

3. The liquid powder composition of claim 2, further comprising an agent selected from the group consisting of about 0.005-100 parts of an active ingredient and about 0.005-1 part fragrance per 100 parts of the composition or mixtures thereof.

4. The liquid powder composition of claim 3, wherein the active ingredient is present in an amount between about 1 and 10 parts.

5. The liquid powder composition of claim 3, wherein the fragrance is present in an amount between about 0.1 and 0.3 parts.

6. The liquid powder composition of claim 3, wherein the active ingredient is selected from the group consisting of anti-itch, anti-inflammatory, antimicrobial, antibacterial, antifungal, antiperspirant, analgesic, wound-healing, antihistaminic, antiemetic and skin improving agents, herbs, plant parts, extracts thereof and mixtures thereof.

7. The liquid powder composition of claim 1 in the form of a lotion, a gel or a cream.

8. The liquid powder composition of claim 7 for cutaneous, intravaginal, intrauterine, intranasal, intralesional or intramammary use.

9. A process for obtaining a liquid powder composition, comprising in the following order the steps of

(1) adding together

about 1-12 lbs. veegum;

about 3.6-12 lbs. cetyl alcohol;

about 2-10 lbs. stearic acid;

about 3-10 lbs. glycerin; and

about 0-5 lbs. Peg-8 oleate;

and raising the temperature first up to about 145°F and then up to about to 175°F,

(2) adding the heated ingredients to about 350.4 to 201 lbs. of water preheated to between about 130°F to 200°F,

(3) mixing the ingredients and the water for a period of time sufficient to allow cooling to a temperature between about 145°F and 150°F,

(4) admixing thereto about 10-50 lbs. potato starch,

(5) homogenizing the admixture for a period of time sufficient to allow cooling to a temperature below about 135°F,

(6) admixing thereto about 30-100 lbs. potato starch for a period of time sufficient to allow cooling to ambient temperature, and

(7) homogenizing the admixture to obtain the liquid powder in the form of a lotion, a gel or a cream.

10. The process of claim 9, wherein between about 12 and 48 lbs. of potato starch are added in Step (4) and between about 25 and 52 lbs. of potato starch are added in Step (6).

11. The process of claim 9, wherein step (1) comprises

melting together the cetyl alcohol and stearic acid, and

adding thereto the veegum, the glycerin and the Peg-8 oleate while raising the temperature first up to about 145°F and then up to about 175°F.

12. The process of claim 9 further comprising between steps (5) and (6)

admixing an agent selected from the group consisting of about 0.005-100 parts of an active ingredient, about 0.005-1 part of a fragrance per 100 parts of the composition and mixtures thereof; and

homogenizing the admixture.

13. The process of claim 9 wherein the veegum is added in step (6).

14. The process of claim 9, wherein step (3) is conducted for between about 15 minutes to 75 minutes.

15. The process of claim 9, wherein step (5) is conducted for between about 1 hour and 3 hours.

16. The process of claim 9, wherein step (6) is conducted for between about 1 hour to 4 hours.

17. The process of claim 9, wherein steps (5) and (6) are conducted in a cooling tank.

INTERNATIONAL SEARCH REPORT

International Application No PCT/US87/01288

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC(4): A61K 7/035 A61K 31/715 A61K 47/00

US. CL: 424/69; 514/60,778

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
U.S.	424/69; 514/60,778

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
Y	US, A, 4,568,539 (ASHTON ET AL) 4 Feb 1986 see (columns 1-2).	1-17
Y	US, A, 4,302,443 (DENAVARRE ET AL) 24 November 1981, see (columns 2-4).	1-17
Y	US, A, 4,137,302 (HUMBERT ET AL.) 30 January 1979, see entire document.	1-17
Y	US, A, 2,838,440 (FRANCIS M. THURMON) 10 June 1958, see entire document.	1-17

* Special categories of cited documents: [15]

"A" document defining the general state of the art which is not considered to be of particular relevance

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
2 July 1987	24 AUG 1987
International Searching Authority [1]	**Signature of Authorized Officer [20]**
ISA/US	Wendy B. Davis

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