



(11) **EP 4 397 740 A1**

(12) **EUROPEAN PATENT APPLICATION**

- (43) Date of publication:
10.07.2024 Bulletin 2024/28

(21) Application number: **24150276.4**

(22) Date of filing: **03.01.2024**
- (51) International Patent Classification (IPC):
C11D 9/00 (2006.01) C11D 9/10 (2006.01)
C11D 9/12 (2006.01) C11D 9/26 (2006.01)
C11D 9/30 (2006.01) C11D 9/40 (2006.01)
C11D 13/20 (2006.01) C11D 13/26 (2006.01)

(52) Cooperative Patent Classification (CPC):
C11D 13/26; C11D 9/00; C11D 9/10; C11D 9/12;
C11D 9/26; C11D 9/262; C11D 9/265; C11D 9/30;
C11D 9/40; C11D 13/20

(84) Designated Contracting States: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR Designated Extension States: BA Designated Validation States: KH MA MD TN (30) Priority: 03.01.2023 PT 2023118451	(71) Applicant: Longlife . Saboaria Artesanal Portuguesa, Lda 2350-083 Torres Novas (PT) (72) Inventor: PIRES DUARTE, VASCO ANTÓNIO 2330-103 ENTRONCAMENTO (PT) (74) Representative: Patentree Edifício Net Rua de Salazares, 842 4149-002 Porto (PT)
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(54) **POWDER SOAP FOR PERSONAL HYGIENE AND RESPECTIVE METHOD OF OBTENTION**

- (57) The present description refers to a powder soap for personal hygiene and the respective method of obtention.

The powder soap for personal hygiene now disclosed comprises saponified fatty acids selected from a list consisting of animal or vegetable fats, a salt, an emol-
- lient, hydrating components and additives with a particle size of 50 to 500 μm , wherein said powder soap is obtained in a one-step drying process, not producing agglomerates with a diameter greater than 1 mm, until the humidity is less than 5% by weight.

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Description

TECHNICAL FIELD

[0001] The present description refers to a powder soap for personal hygiene and the respective method of obtention.

BACKGROUND

[0002] Document EP1798280B1 discloses a composition of powder soap that contains a powder soap made from an alkali metal salt of a fatty acid. The fatty acid alkali metal salt of the composition contains an alkali metal salt of a saturated fatty acid with 12 to 16 carbon atoms as main component, the average particle size of the powder soap is 50 to 500 μm and the composition's water content is 3% by weight or less, while the present description presents a powder soap for personal hygiene obtained in a one-step drying process, not producing agglomerates with a diameter greater than 1mm after drying process in a dry environment or by dry air current which enables the powder soap to be obtained quickly, without jeopardizing its cleaning power and storage conditions over time.

[0003] Document US10421934B2 discloses methods for making powder soap using a double boiler system wherein the direct heating and boiling of the mixture were avoided. The result is a method for making powder soap at ambient temperature. The soap powders of the present invention present an initial preferred composition of 49 g of sodium hydroxide, 250 ml of vegetable oil and 220 g of water, while the present description presents a powder soap for personal hygiene obtained in a one-step drying process, not producing agglomerates with a diameter greater than 1mm, after drying process in a dry environment or by dry air current until the humidity is less than 5% by weight which enables the powder soap to be obtained quickly, without jeopardizing its cleaning power and storage conditions over time. These facts are described in order to illustrate the technical problem solved by the embodiments of the present document.

GENERAL DESCRIPTION

[0004] The present description refers to a powder soap for personal hygiene and the respective method of obtention.

[0005] It is an objective of the present embodiments to provide an environmentally sustainable solution for personal hygiene, by providing a powder soap produced with a one-step drying process which does not produce agglomerates with a diameter greater than 1mm, wherein after said one-step drying process, it is carried out in a dry environment or by dry air current until the humidity is less than 5% by weight. This solution thus prevents degradation of the soap's sanitizing power over time.

[0006] The application of a drying process according

to the prior art for obtaining a powder soap may lead to the production of a fine powder with a large quantity of floating dust, and, consequently, a large volume of waste and a low sanitizing power. In this sense, the processes known in the prior art do not allow a structure with a high sanitizing and degreasing power to be obtained in a one-step. The present embodiment is useful for storing and providing powder soap for use in public places, such as, for example, shopping malls and hotels, where significant doses of this type of product are usually necessary and where storage thereof for a long time may jeopardize its cleaning and disinfecting capacity.

[0007] The solution presented in the present description is particularly based on the fact that the powder soap comprises saponified fatty acids selected from a list comprised of animal or vegetable fats, a salt, an emollient, hydrating components and additives with a particle size of 50 to 500 μm , wherein said powder soap is obtained in a one-step drying process until the humidity is less than 5% by weight. These characteristics guarantee that the sanitizing power of the powder soap does not degrade over time, especially in situations where storage for long periods of time is necessary.

[0008] During the course of this application, it is considered that the drying process is intended to remove a liquid aggregated to a solid for a gaseous phase through thermal vaporization. It is therefore a simultaneous process of transferring heat between the product and the drying air. It is also defined as a one-step process, as it is carried out quickly and without the need of secondary drying processes to achieve the desired humidity values.

[0009] In an embodiment, the quantity of saponified fatty acids in the total composition of the powder soap for personal hygiene ranges from 80 to 90% by weight.

[0010] In an embodiment, the powder soap for personal hygiene comprises 80 - 90% (w/w) saponified fatty acids, 1-5% (w/w) of a salt, 0.5 - 2.5% of an emollient, 0.1- 5% of hydrating agents and additives.

[0011] In an embodiment, the saponified fatty acids used in the powder soap for personal hygiene are selected from a list consisting of: oils, saturated fats, fatty acids, or mixtures thereof.

[0012] In an embodiment, the particle size of the powder soap for personal hygiene ranges from 100 to 400 μm , preferably from 150 to 375 μm and even more preferably from 200 to 350 μm .

[0013] In an embodiment, the powder soap for personal hygiene further comprises essential oils.

[0014] In an embodiment, the formulation of the powder soap for personal hygiene does not comprise any petrochemical product or derivatives thereof.

[0015] In an embodiment, the hydrating component of the powder soap for personal hygiene is selected from a list consisting of: glycerin, urea, hyaluronic acid, ammonium lactate, collagen and mixtures thereof.

[0016] In an embodiment, the emollient used in the powder soap for personal hygiene is selected from a list consisting of: olive oil, glyceryl stearate, butters, cera-

mides, oils, lanolin, and mixtures thereof.

[0017] In an embodiment, the additives of the powder soap for personal hygiene are selected from a list consisting of: dyes, perfumes, chelating agents and mixtures thereof.

[0018] In an embodiment, the salt used in the powder soap for personal hygiene is selected from a list consisting of: sodium chloride, sodium hydroxide, sodium carbonate, sodium bicarbonate and mixtures thereof.

[0019] Another aspect of the invention discloses a method of obtaining the powder soap for personal hygiene comprising the raw material drying steps; mixture and fusion of the raw materials; mechanical pulverization with drying of the mixture obtained in the previous step so as to obtain a powder with a particle size of 50 - 500 μm and a relative humidity less than 5%.

[0020] In an embodiment, the step of drying the raw material in the method of obtaining the powder soap is carried out at a temperature below 50°C, preferably from 15°C to 40°C, more preferably from 20°C to 35°C.

[0021] In an embodiment, the drying step of the method of obtaining the powder soap is carried out in a dry environment, in a cyclone, by dry air current or by sprinkling.

[0022] In an embodiment, the mechanical pulverization step of the method of obtaining the powder soap includes the passage of the raw material through an equipment comprising a blade mill on a rotating vessel in a solidary direction and counter-current relative to the rotation of the blade mill.

[0023] In an embodiment, the method of obtaining the powder soap further comprises a humidity measurement and analysis step.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] For an easier understanding, figures are appended hereto, representing preferred embodiments that are not intended to limit the object of the present description.

Figure 1: Schematic representation of an embodiment of the powder soap with a particle size not greater than 500 μm (a) and with the initial particle size of the raw material mixture (b).

DETAILED DESCRIPTION

[0025] The present description refers to a powder soap for personal hygiene and the respective method of obtaining.

[0026] The solution presented in the present description is based on a powder soap comprising saponified fatty acids selected from a list comprised of animal or vegetable fats, a salt, an emollient, hydrating components and additives with a particle size of 50 to 500 μm , wherein said powder soap does not produce agglomerates with a diameter greater than 1 mm, after drying process in a dry environment or by dry air current until the humidity is less than 5% by weight. Said particle size is

determinant for obtaining a stable sanitizing power over time, which is especially important in cases where there are large quantities of powder soap stored, as is the case of public places, such as, for example, hotels, shopping malls and restaurants. In this sense, and in an alternative embodiment, the particle size of the powder soap for personal hygiene ranges from 100 to 400 μm , preferably from 150 to 375 μm and even more preferably from 200 to 350 μm .

[0027] The quantity of saponified fatty acids used in the total composition of the powder soap ranges from 80 to 90% by weight, oils or saturated fats being preferred.

[0028] Another technical advantage presented by the powder soap disclosed in this description is that its formulation does not comprise any petrochemical product or derivatives thereof, thus making it an ecological and environmentally-friendly product.

[0029] In some specific embodiments, specific materials can be chosen that might improve the sanitizing power and the hydration of the user's skin, for example glycerin could be used as hydrating component and/or olive oil as emollient. Specifically, the olive oil may also play a role of conditioner of the user's skin, providing a sensation to the user of hydration and hygiene for longer.

[0030] In another embodiments, which may further be combined with the embodiments described previously, additives may also be added such as dyes or perfumes, which act as elements that increment the sensation of cleanliness. The powder soap may also additionally comprise essential oils that increase the user's hydration.

[0031] The salt used in the powder soap composition depends on the use for which said soap is intended. In cases of a more personal use, such as public or private places, the salt chosen may be sodium chloride or sodium hydroxide that allow for a good relationship between hygiene capacity and skin hydration. In more professional cases, where greater degreasing capacity is required, the salt used could be sodium carbonate.

[0032] In order to obtain the powder soap with these characteristics, a specific method has been developed comprising the raw material drying steps which may be carried out at a temperature below 50°C, preferably from 15°C to 40°C, more preferably from 20°C to 35°C. The drying carried out in this set of temperatures enables the commitment to be maximized between the humidity of the powder and maintenance of the fat in a quantity necessary for a correct and effective skin hydration. To achieve this level of drying, a drying process in a dry environment or by dry air current can be used.

[0033] After this drying step, mixture and fusion of the raw materials follows in the production line and subsequent mechanical pulverization with drying of the mixture so as to obtain a powder with a particle size of 50 - 500 μm and a relative humidity less than 5%. This mechanical pulverization may be carried out by using an equipment comprising a blade mill on a rotating vessel in a solidary direction and/or counter-current relative to the rotation of the blade mill. After mechanical pulverization, an optional

step of analyzing the quantity of humidity of the powder may occur, which by this phase should already be less than 5% by weight. Subsequently, the powder soap is optionally packed.

[0034] When used in this document, the term "comprises" or "comprising" is meant to indicate the presence of features, elements, integers, steps and components mentioned, but not to preclude the presence or the addition of one or more other features, elements, integers, steps and components, or groups thereof.

[0035] Naturally, the present invention is not in any way restricted to the embodiments described in this document and a person with average knowledge in the field may foresee many possibilities of modifying thereof and of substituting technical features for other equivalents, depending on the requirements of each situation, as defined in the appended claims.

[0036] The following claims define additional embodiments of the present description.

Claims

1. Powder soap for personal hygiene comprising
 - saponified fatty acids selected from a list consisting of animal or vegetable fats,
 - a salt,
 - an emollient,
 - hydrating agents and additives;
 - with a particle size of 50-500 μm , wherein said powder soap is obtained in a one-step drying process until the humidity is less than 5% (w/w).
2. Powder soap for personal hygiene according to the previous claim, wherein the quantity of saponified fatty acids in the total composition ranges from 80 to 90% (w/w).
3. Powder soap for personal hygiene according to any one of the previous claims, comprising
 - 80 - 90% (w/w) saponified fatty acids,
 - 1- 5% (w/w) of a salt,
 - 0.5 - 2.5% of an emollient,
 - 1- 5% of hydrating agents and additives.
4. Powder soap for personal hygiene according to any one of the previous claims wherein the saponified fatty acids are selected from a list consisting of: oils, saturated fats, fatty acids, or mixtures thereof.
5. Powder soap for personal hygiene according to any one of the previous claims, wherein the particle size ranges from 100 to 400 μm , preferably from 150 to 375 μm and even more preferably from 200 to 350 μm .
6. Powder soap for personal hygiene according to any one of the previous claims further comprising essential oils.
7. Powder soap for personal hygiene according to any one of the previous claims wherein the hydrating agent is selected from a list consisting of: glycerin, urea, hyaluronic acid, ammonium lactate, collagen and mixtures thereof.
8. Powder soap for personal hygiene according to any one of the previous claims wherein the emollient is selected from a list consisting of: olive oil, glyceryl stearate, butters, ceramides, oils, lanolin and mixtures thereof.
9. Powder soap for personal hygiene according to any one of the previous claims wherein the additives are selected from a list consisting of: dyes, perfumes, chelating agents and mixtures thereof.
10. Powder soap for personal hygiene according to any one of the previous claims wherein the salt is selected from a list consisting of: sodium chloride, sodium hydroxide, sodium carbonate, sodium bicarbonate and mixtures thereof.
11. Method of obtaining the powder soap for personal hygiene described in any one of claims 1 to 10, comprising the following steps:
 - drying the raw material;
 - mixture and fusion of the raw materials;
 - mechanical pulverization with drying of the mixture obtained in the previous step so as to obtain a powder with a particle size of 50 - 500 μm and a relative humidity less than 5%.
12. Method of obtaining the powder soap according to the previous claim, wherein the mixing step is carried out at a temperature less than 50°C, preferably from 15°C to 40°C, more preferably from 20°C to 35°C.
13. Method of obtaining the powder soap according to claims 11 and 12, wherein the drying step is carried out in a dry environment, in cyclone, by dry air current or by sprinkling.
14. Method of obtaining the powder soap according to claims 11 to 13, wherein the mechanical pulverization step includes the passage of the raw material through an equipment comprising a blade mill on a rotating vessel in a solidary direction and counter-current relative to the rotation of the blades of the blade mill.
15. Method of obtaining the powder soap according to claims 11 to 14, further comprising a humidity meas-

urement and analysis step.

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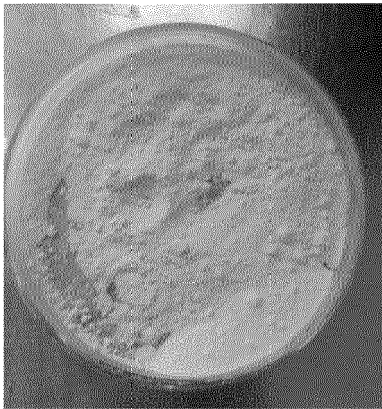
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(a)



(b)

Fig. 1



EUROPEAN SEARCH REPORT

Application Number

EP 24 15 0276

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Place of search The Hague		Date of completion of the search 30 April 2024	Examiner Marttin, Emmeline
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X : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			
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