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(54) **NON-TOBACCO, NICOTINE-CONTAINING COMPOSITION, METHOD FOR PREPARING THE SAME AND A NON-TOBACCO, NICOTINE-CONTAINING PRODUCT COMPRISING THE SAME**

(57) The present invention relates to a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol; less than 15 wt% water; 0.1 to 4 wt% nicotine; and optionally 0.1 to 10 wt% of a release agent; with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol; less than 15 wt% water; 0.1 to 4 wt% nicotine; and 0.1 to 10 wt% of a release agent; with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; a method for preparing the same and a pouch type non-tobacco, nicotine-containing product comprising the same.

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Description

TECHNICAL FIELD

[0001] The present invention relates to a non-tobacco, nicotine-containing composition, to a method for preparing the same and to a non-tobacco, nicotine-containing product comprising the same.

BACKGROUND ART

[0002] Moist snuff for oral use is available in loose form or portion-packed in a saliva- permeable, porous wrapper material forming a pouch. Pouched moist snuff is typically used by the user by placing the pouch between the upper or lower gum and the lip or cheek and retaining it there for a limited period of time. The pouch material holds the tobacco in place while allowing saliva to pass into the interior of the pouched product and allowing flavors and nicotine to diffuse from the tobacco material into the user's mouth.

[0003] However, the use of tobacco material in such products limits the organoleptic properties of these products. The tobacco material has a typical color, texture, smell and taste which may not always be attractive to the consumer. Further, tobacco material comprises constituents which may not be desirable in a pouched smokeless snus product.

[0004] A variety of non-tobacco, nicotine containing products for oral use is known in the art. For example, WO 2018/197454 A1 discloses an oral pouched nicotine product comprising a moist filling material including a particulate non-tobacco material, such as microcrystalline cellulose, a flavouring agent, nicotine and a pH adjusting agent.

[0005] WO 2019/115778 A1 discloses an oral pouched nicotine product comprising a moist filling material including a particulate non-tobacco material, such as microcrystalline cellulose, a non-encapsulated non-particulate flavouring agent, nicotine, a pH adjusting agent, and a monoglyceride. The oral pouched nicotine product may be free from tobacco or contain a small amount of tobacco.

[0006] However, non-tobacco, nicotine-containing compositions known in the art have the problem that a control of the release of nicotine from the compositions is insufficient. In particular, the nicotine is released from known compositions to fast leading to an unpleasant nicotine effect during administration including harshness, bitter taste, throat irradiation and hiccup.

[0007] Likewise, known compositions suffer from the problem that nicotine is already released in the composition causing oxidation of the nicotine base and an unpleasant brown-yellow-coloration.

[0008] A further drawback of compositions of the prior art is an unsatisfying shelf life particularly caused by moulding.

[0009] There is, however, still a need of improved non-tobacco, nicotine-containing compositions, in particular with respect to the taste (sweetness), nicotine release properties and shelf life thereof.

[0010] It is, therefore, an object of the present invention to provide a non-tobacco, nicotine-containing composition overcoming drawbacks of the prior art, in particular a non-tobacco, nicotine-containing compositions having improved sweetness, improved nicotine release properties and shelf life.

DISCLOSURE

Non-tobacco, nicotine-containing composition

[0011] This object is, firstly, achieved by a non-tobacco, nicotine-containing composition comprising

- 10 to 15 wt% glycerol;
- less than 15 wt% water;
- 0.1 to 4 wt% nicotine; and
- optionally 0.1 to 10 wt% of a release agent;

with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively;
or

- more than 15 to 45 wt% glycerol;
- less than 15 wt% water;

- 0.1 to 4 wt% nicotine; and

- 0.1 to 10 wt% of a release agent;

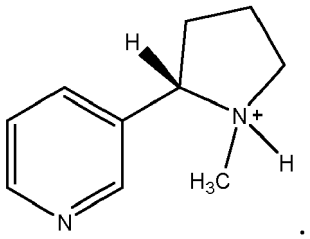
with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0012] The term "non-tobacco" as referred to herein means that the composition is free of tobacco constituents. By "tobacco" as used herein is meant any part, e.g., leaves, stems, and stalks, of any member of the genus *Nicotiana* as a whole, shredded, threshed, cut, ground, cured, aged, fermented, or treated otherwise, e.g., granulated or encapsulated.

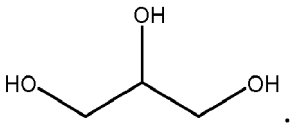
[0013] The term "nicotine-containing" as used herein means that the inventive composition comprises nicotine. As used herein, the term "nicotine" refers to nicotine in any form.

[0014] The nicotine may be liquid nicotine. The nicotine may be a nicotine salt, preferably nicotine hydrochloride, nicotine dihydrochloride, nicotine monotartrate, nicotine bitartrate, nicotine bitartrate dihydrate, nicotine sulphate, nicotine zinc chloride monohydrate, nicotine malate, nicotine tartrate, nicotine lactate, nicotine salicylate, or a mixture thereof. The nicotine may be ion-exchange bound nicotine, preferably amberlite-bound nicotine such as nicotine polacrilex. Likewise, a nicotine may be used which is a mixture of two or more of the before mentioned forms of nicotine.

[0015] The non-tobacco, nicotine-containing composition may comprise the nicotine in an amount from 0.1 to 3.8 wt%, alternatively 0.2 to 3.5 wt%, alternatively 0.3 to 3.0 wt%, alternatively 0.4 to 2.5 wt%, alternatively 0.5 to 2.0 wt%, alternatively 0.6 to 1.9 wt%, alternatively 0.8 to 1.8 wt%, alternatively 0.9 to 1.7 wt%, alternatively 1.0 to 1.6 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition. The amount of nicotine in the non-tobacco, nicotine-containing composition is calculated based on the protonated form of nicotine



[0016] Glycerol is represented by the following formula



[0017] The water contained in the non-tobacco, nicotine-containing composition may be tap water, demineralized and/or sterilized.

[0018] The non-tobacco, nicotine-containing composition may be for use in oral administration.

[0019] The total amount of all constituents of the non-tobacco, nicotine-containing composition, that is the different materials (for example, plant materials, chemical compounds etc.) forming the non-tobacco, nicotine-containing composition adds up to 100 wt%. The non-tobacco, nicotine-containing composition may comprise one or more further constituent. The non-tobacco, nicotine-containing composition may comprise two or further constituents. The non-tobacco, nicotine-containing composition may comprise at least one further solid constituent. In this regard, the term "solid constituent" refers to a constituent which is in the solid state under standard conditions, that is, normal pressure and room temperature (= 23 °C).

[0020] A "release agent" in terms of the present disclosure is a compound or material used to prevent or at least lower bonding of the constituents of the non-tobacco, nicotine-containing composition to surfaces of the equipment used for preparing the non-tobacco, nicotine-containing composition during preparation thereof.

[0021] The one or more further constituent(s) which may be further comprised in the non-tobacco, nicotine-containing composition are independently selected from the "further constituents" listed below.

[0022] In a first alternative, the non-tobacco, nicotine-containing composition comprises

- 10 to 15 wt% glycerol;

- less than 15 wt% water;

- 0.1 to 4 wt% nicotine; and

- optionally 0.1 to 10 wt% of a release agent;

with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively. In this first alternative in which rather low amounts (10 to 15 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition) of glycerol are used, the presence of a release agent in the composition is optional.

[0023] In this first alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 10.5 to 14.5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this embodiment, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 11 to 14 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0024] In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.001 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.01 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.1 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 1 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 2 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 3 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 4 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 6 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 7 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 8 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 9 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 10 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0025] In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14.9 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14.8 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14.5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14.3 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0026] In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 0.01 to 14.9 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 1 to 14.5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 5 to 14.3 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 8 to 14.2 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this first alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 10 to 14 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0027] In a second alternative, the non-tobacco, nicotine-containing composition comprises

- more than 15 wt% glycerol;
- less than 15 wt% water;
- 0.1 to 4 wt% nicotine; and
- 0.1 to 10 wt% of a release agent;

with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively. In this second alternative in which rather high amounts (more than 15 to 45 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition) of glycerol are used, the presence of a release agent in the composition is mandatory.

[0028] In this second alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount at least 15.1 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 15.1 to 45 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 15.1 to 35 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 20 to 35 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the glycerol in an amount from 25 to 35 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0029] In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.001 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.01 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.1 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 0.5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of at least 1 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0030] In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 14 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 12 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 10 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount of not more than 2 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0031] In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 0.001 to 14 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 0.01 to 10 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 0.1 to 5 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 0.5 to 3 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition. In this second alternative, the non-tobacco, nicotine-containing composition may comprise the water in an amount from 1 to 2 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0032] The release agent is selected from the group consisting of silica, silicates, magnesium carbonate, calcium carbonate, and magnesium stearate, especially is silica. The non-tobacco, nicotine-containing composition may comprise the release agent in an amount from 0.2 to 8 wt%, alternatively 0.5 to 6 wt%, alternatively 1 to 5 wt%, alternatively 2 to 4 wt %, alternatively about 3 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

Further constituents

[0033] The non-tobacco, nicotine-containing composition may further comprise isomaltulose (6-*O*-α-D-Glucopyranosyl-D-fructose). The non-tobacco, nicotine-containing composition may comprise isomaltulose in an amount of 0.1 to 20 wt%, alternatively 0.5 to 18 wt%, alternatively 1 to 17 wt%, alternatively 5 to 15 wt%, alternatively 7.5 to 13 wt%, alternatively 8 to 11 wt%, alternatively 10 to 11 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0034] The non-tobacco, nicotine-containing composition may further comprise a food dye, especially a synthetic food dye and/or a natural food dye. The food dye is a food additive that provides a characteristic color to the product comprising the same. The food dye may be selected from the group consisting of riboflavin (E101), riboflavin-5'-phosphat (E101ii), natural red 4 (E120), food blue 2 (E133), food brown 3 (E155) and mixtures thereof. The non-tobacco, nicotine-containing composition may comprise the food dye in an amount of 0.01 -1 wt%, alternatively 0,05-0.9 wt%, alternatively 0.08-0.8 wt%, alternatively 0.1-0.7 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0035] The non-tobacco, nicotine-containing composition may further comprise a fiber-type and/or particulate plant material. The plant material may be water-insoluble.

[0036] The fiber-type and/or particulate plant material may be selected from the group consisting of bamboo fiber, cocoa fiber, cane sugar fiber, hemp fiber, cereal fiber, preferably wheat fiber or oat fiber, potato fiber, vegetable fiber, preferably pea fiber or carrot fiber, fruit fiber, preferably lemon fiber or orange fiber, cellulose fiber, microcrystalline cellulose and mixtures thereof. The fiber-type and/or particulate plant material may be bamboo fiber. Especially, the fiber-type and/or particulate plant material maybe microcrystalline cellulose.

[0037] The non-tobacco, nicotine-containing composition may comprise the fiber-type and/or particulate plant material in an amount of o.i to 60 wt%, alternatively 1 to 55 wt%, alternatively 5 to 50 wt%, alternatively 10 to 50 wt%, alternatively 20 to 50 wt%, alternatively 25 to 50 wt%, alternatively 35 to 50 wt%, alternatively 40 to 47 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0038] The non-tobacco, nicotine-containing composition may further comprise a sweetener. A "sweetener" is a food additive that provides a sweet taste like that of sugar while containing significantly less food energy than sugar-based sweeteners, making it a zero-calorie or lowcalorie sweetener. The sweetener may be selected from the group consisting of saccharin, sucralose, neotame and neohesperidine.

[0039] The non-tobacco, nicotine-containing composition may comprise the sweetener in an amount of 0.01 to 5 wt%, alternatively 0.05 to 2 wt%, alternatively 0.1 to 1.5 wt%, alternatively 0.2 to 1 wt%, alternatively 0.25 to 0.55 wt%, 0.3 to 0.5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0040] The non-tobacco, nicotine-containing composition may further comprise an acidity regulator (pH regulator, pH adjusting agent etc.). Acidity regulators, or pH control agents, are food additives used to change or maintain pH (acidity or basicity). They can be organic or mineral acids, bases, neutralizing agents, or buffering agents. The acidity regulator may be selected from the group consisting of sodium carbonate, potassium carbonate, calcium carbonate, sodium hydrogen carbonate, potassium hydrogen carbonate, calcium hydrogen carbonate, sodium hydroxide, potassium hydroxide, calcium hydroxide and mixtures thereof. The acidity regulator may be sodium carbonate.

[0041] The non-tobacco, nicotine-containing composition may comprise the acidity regulator in an amount of 0.1 to 10 wt%, alternatively 0.5 to 7 wt%, alternatively 1 to 6 wt%, alternatively 2 to 5 wt%, alternatively 2 to 4.5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0042] The non-tobacco, nicotine-containing composition may further comprise an acidulant, preferably fumaric acid, succinic acid, adipic acid, lactic acid, ascorbic acid, tartaric acid, magnesium fumarate, magnesium succinate, magnesium adipate, magnesium ascorbate, magnesium tartrate, calcium fumarate, calcium succinate, calcium adipate, calcium ascorbate, calcium tartrate, and mixtures thereof.

[0043] The non-tobacco, nicotine-containing composition may comprise the acidulant in an amount of in an amount of 0.1 to 10 wt%, alternatively 0.5 to 5 wt%, alternatively 1 to 4 wt%, alternatively 1.5 to 3.5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0044] The non-tobacco, nicotine-containing composition further comprises an inorganic filler. The inorganic filler may be selected from the group consisting of calcium silicate, magnesium silicate, aluminium silicate, magnesium oxide, calcium carbonate, magnesium carbonate, silicon dioxide.

[0045] The non-tobacco, nicotine-containing composition may comprise the inorganic filler in an amount of 1 to 20 wt%, alternatively 2 to 10 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0046] The non-tobacco, nicotine-containing composition further comprises a stabilizer. The stabilizer may be a poly(meth)acrylic resin. The stabilizer may be, for example, Amberlite IRP64, Purolite C115HMR oder Doshion P551. The non-tobacco, nicotine-containing composition may comprise the stabilizer in an amount of 1 to 10 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0047] The non-tobacco, nicotine-containing composition further comprises polyethylene glycol. The non-tobacco, nicotine-containing composition may comprise the polyethylene glycol in an amount of 0.1 to 10 wt%, alternatively 1 to

5 wt, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0048] The non-tobacco, nicotine-containing composition may further comprise a sugar substitute. The sugar substitute may be selected from sorbitol, maltitol, xylitol and a mixture thereof.

[0049] The non-tobacco, nicotine-containing composition may comprise the sugar substitute in an amount of 0.01 to 5 wt%, alternatively 0.05 to 2 wt%, alternatively 0.1 to 1.5 wt%, alternatively 0.2 to 1 wt%, alternatively 0.3 to 0.7 wt%, about 0.5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0050] The non-tobacco, nicotine-containing composition may further comprise a flavouring agent. "Flavouring agent" is used herein for a substance used to influence the aroma and/or taste of the non-tobacco, nicotine-containing composition, including, but not limited to, essential oils, single flavour compounds, compounded flavourings, and extracts. The flavouring agent may be selected from the group of nature-identical and synthetic flavouring agents. In particular, the flavouring agent may be selected from the group consisting of menthol and all derivatives thereof, cooling agents, especially cooling agents derived from menthol (WS3, WS5, WS12) and not derived from menthol (WS23), wherein WS3 refers to N-Ethyl-5-Methyl-2-(1-Methylethyl)-Cyclohexanecarboxamide; WS5 refers to N-(Ethoxycarbonylmethyl)-3-p-menthanecarboxamide; WS12 refers to (1R,2S,5R)-N-(4-Methoxyphenyl)-5-methyl-2-(1-methylethyl)cyclohexanecarboxamide; and WS23 refers to N,2,3-trimethyl-2-(1-methylethyl)-Butanamide, vanillin, ethylvanillin, peppermint oils, eucalyptus oil, citrus oil, fruit aromas, preferably apple, blueberry, strawberry, raspberry, cherry, coconut, mango, melon, peach, coffee (in all variations from cappuccino to latte), spirits, preferably whisky or rum, sweet-creamy flavours, preferably toffee, popcorn, caramel, chocolate or cream, and spicy flavours, preferably pepper, chili, ginger, cinnamon, cocoa bean, coffee bean and a mixture thereof.

[0051] The non-tobacco, nicotine-containing composition may comprise the flavouring agent in an 0.01 to 10 wt%, alternatively 0.05 to 8 wt%, alternatively 0.1 to 7 wt%, alternatively 1 to 6.5 wt%, alternatively 3 to 6 wt%, alternatively 4 to 5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

[0052] The non-tobacco, nicotine-containing composition may further comprise a taste improving agent. The taste improving agent may be selected from the group consisting of glycyrrhizinic acid, a salt of glycyrrhizinic acid, sodium chloride, ammonium chloride and a mixture thereof.

[0053] The non-tobacco, nicotine-containing composition may comprise the taste improving agent in an 0.01 to 7.5 wt%, alternatively 0.1 to 5 wt%, alternatively 0.5 to 4 wt%, alternatively 1 to 3.5 wt%, with respect to the total weight of the non-tobacco, nicotine-containing composition.

Exemplary embodiments

[0054] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent and a 0.1 to 50 wt% fiber-type and/or particulate plant material, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent, and a 0.1 to 50 wt% fiber-type and/or particulate plant material, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0055] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent 0.1 to 50 wt% fiber-type and/or particulate plant material, and 0.1 to 10 wt% acidity regulator (pH regulator), with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent 0.1 to 50 wt% fiber-type and/or particulate plant material, and 0.1 to 10 wt% acidity regulator (pH regulator), with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0056] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent, 0.1 to 50 wt% fiber-type and/or particulate plant material, 0.1 to 10 wt% acidity regulator (pH regulator), and 0.001 to 10 wt% flavouring agent, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent, 0.1 to 50 wt% fiber-type and/or particulate plant material, 0.1 to 10 wt% acidity regulator (pH regulator), and 0.001 to 10 wt% flavouring agent, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0057] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, and a 0.1 to 50 wt% fiber-type and/or particulate plant material with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, and a 0.1 to 50 wt% fiber-type and/or particulate plant material with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0058] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt%

glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, 0.1 to 50 wt% fiber-type and/or particulate plant material, and 0.1 to 10 wt% acidity regulator (pH regulator), with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, 0.1 to 50 wt% fiber-type and/or particulate plant material, and 0.1 to 10 wt% acidity regulator (pH regulator), with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0059] In one embodiment, there is provided a non-tobacco, nicotine-containing composition comprising 10 to 15 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, optionally 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, 0.1 to 50 wt% fiber-type and/or particulate plant material, 0.1 to 10 wt% acidity regulator (pH regulator), and 0.001 to 10 wt% flavouring agent, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively; or more than 15 to 45 wt% glycerol, less than 15 wt% water, 0.1 to 4 wt% nicotine, 0.1 to 10 wt% of a release agent, 0.1 to 20 wt% isomaltulose, 0.1 to 50 wt% fiber-type and/or particulate plant material, 0.1 to 10 wt% acidity regulator (pH regulator), and 0.001 to 10 wt% flavouring agent, with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

[0060] The object is further achieved by a method for preparing the non-tobacco, nicotine-containing composition as defined herein, the method comprising the steps:

a) providing a mixture of the nicotine and at least one further solid constituent of the non-tobacco, nicotine-containing composition in a mixer having at least one cutter head;

b) spraying of water or an aqueous solution onto the mixture provided in the mixer having at least one cutter head and mixing with a rotational speed of the mixer having at least one cutter head of 10 to 500 rpm for 10 seconds to 30 minutes;

c) heating glycerol to a temperature from 30 to 45 °C; and

d) spraying the heated glycerol onto the mixture obtained in step b) and mixing with a rotational speed of the mixer having at least one cutter head of 10 to 500 rpm for 10 seconds to 30 minutes at a temperature from 25 to 35 °C.

[0061] The further solid constituent (respectively the further solid constituents) which may be used in step a) may be selected from a fiber-type and/or particulate plant material, isomaltulose, a sweetener, a solid flavouring agent, a solid taste improving agent, an inorganic filler or a mixture thereof. The further solid constituent (respectively the further solid constituents) which may be used in step a may be a mixture comprising a fiber-type and/or particulate plant material, isomaltulose and a sweetener. The further solid constituents may be a mixture of plant fiber, sodium chloride, isomaltulose and sweetener.

[0062] The mixer having at least one cutter head may comprise a cylindrical drum, a shaft arranged horizontally in the center of the cylindrical drum. The at least one cutter head may be arranged on the shaft allowing the outermost end thereof to rotate close to the wall of the cylindrical drum.

[0063] The mixer having at least one cutter head may be a ploughshare mixer. The ploughshare shovels of the ploughshare mixer maybe arranged on a mixing shaft in a horizontal, cylindrical drum rotate closely to the wall. Their peripheral speed and geometric form may selected in such a way to move out a product contained the product bed of the ploughshare mixer against the centrifugal force and in axial direction at the same time. In addition, the shape of the shovels may be selected to allow lifting the product from the drum wall. The mixing elements may have a shape and an arrangement on the shaft to ensure not only a reliable product conveyance but also a sufficient back-mixing of the product. The so-called "mechanical" fluid bed generated in this way, whereby the product is constantly involved in the process, ensures a maximum mixing intensity at even high throughputs and short residence times until the product is discharged out of the mixer via an outlet. Suitable plowshare mixers are well known in the art and commercially available, for example from the supplier Gebrüder Lödige Maschinenbau GmbH, ploughshare® mixers for batch operation.

[0064] The aqueous solution which may be sprayed onto the mixture provided in the mixer having at least one cutter head may comprise (besides the water as a solvent) any water-soluble constituent of the non-tobacco, nicotine-containing composition. The aqueous solution may comprise the sweetener. The aqueous solution may be an aqueous sucralose solution.

[0065] The aqueous solution may be sprayed onto the mixture using conventional spraying methods, for example, providing the aqueous solution in a pressure resistant container, the pressure resistant container being arranged above the mixer, and spraying the aqueous solution using compressed air with the pressure of at least 3 bar.

[0066] The mixing in step b) may be for 10 seconds to 30 minutes, alternatively 15 seconds to 20 minutes, alternatively 20 seconds to 15 minutes, alternatively 30 seconds to 5 minutes. ,

[0067] The mixing in step b) may be 10 to 400, alternatively 20 to 300 rpm, alternatively 30 to 200 rpm, alternatively

50 to 160 rpm, with respect to the rotational speed of the rotational shaft.

[0068] The glycerol may be heated to a temperature from 30 to 45 °C outside the mixer, for example in a climatic chamber, a climatic room, a water bath etc. The glycerol may be heated to a temperature from 31 to 44 °C, alternatively 32 to 42 °C, alternatively 33 to 41 °C, alternatively 34 to 40 °C, alternatively about 35 °C.

[0069] The mixing in step d) may be for 10 seconds to 30 minutes, alternatively 15 seconds to 20 minutes, alternatively 20 seconds to 15 minutes, alternatively 30 seconds to 5 minutes.

[0070] The mixing in step d) may be 10 to 400, alternatively 20 to 300 rpm, alternatively 30 to 200 rpm, alternatively 50 to 160 rpm, with respect to the rotational speed of the rotational shaft. In step b) and/or step d), the rotational speed of the cutter head may be 1,000 to 5,000 rpm, alternatively 2,000 to 4,000 rpm, alternatively about 3,000 rpm.

[0071] The method may further comprise a step d') after the step d), wherein step d') comprises spraying a flavoring agent, a solution containing the flavoring agent or a mixture thereof onto the composition obtained in step d).

[0072] The method may further comprise a step e) after the step d) or after step d'), wherein step e) comprises providing one or more release agent onto the composition obtained in step d) or in step d').

Pouched product

[0073] Finally, the object is achieved by a non-tobacco, nicotine-containing product comprising a pouch-type package and a non-tobacco, nicotine-containing composition as defined herein arranged in the pouch-type package ("pouched product" of the non-tobacco, nicotine-containing composition).

[0074] The non-tobacco, nicotine-containing product may be for oral use. The pouch-type package may be a saliva-permeable pouch material. The pouch of the non-tobacco, nicotine-containing product may be made of any suitable saliva-permeable (and preferably non-dissolvable) pouch material, such as non-woven. A binder may be included in the packaging material to facilitate sealing of the material by ultrasonic welding. The pouch material may be a nonwoven material comprising staple fibers of regenerated cellulose, such as viscose rayon staple fibers, and a binder, such as a polyacrylate.

[0075] The oral use of the non-tobacco, nicotine-containing product may comprise placing the non-tobacco, nicotine-containing product into the oral cavity, most commonly between the lower gum and lip or upper gum and lip. By contact with the saliva, constituents of the non-tobacco, nicotine-containing composition may elute from the pouch-type package and are consumed by the consumer. The use may further comprise easy chewing of the non-tobacco, nicotine-containing product, in particular at the beginning of the use.

ADVANTAGEOUS EFFECTS

[0076] A crucial aspect of the present invention is to provide a non-tobacco, nicotine-containing composition having a low water content and having a (relatively) high glycerol content. By the high amount of glycerol and the low amount of water (in particular below 15 wt%, especially far below 15%) in the inventive non-tobacco, nicotine-containing composition slow release of nicotine can be achieved. In this regard, "slow release" refers to both the release during administration of a product comprising the composition in the oral cavity as well as release before administration in the composition. This slow release of nicotine can be further supported by an pH regulator providing a suitable pH value, preferably between 7 and 8 .

[0077] The high amount of glycerol were further found to be helpful to provide a usual (natural) "wet mouth feeling" despite the missing water content.

[0078] Furthermore, the low, especially very low water content is avoids moulding of the composition comprising the same.

[0079] In addition, the use of high amounts of glycerol (having a slightly sweet taste) supports the overall sweetness of the product. Moreover, the consume of glycerol is safe even in large amounts. Finally, glycerol supports the reception and distribution of flavoring agents.

[0080] The further use of isomaltulose in the non-tobacco, nicotine-containing composition can be used as a density-enhancing filler which facilitates filling the composition into small pouches.

[0081] In addition the use of isomaltulose in the non-tobacco, nicotine-containing composition has a positive effect on the sweet taste of the composition without a cariogenic effect.

[0082] In the inventive method, the combination of the mixer having at least one cutter head, the spraying of heated glycerol and the use of a release agent allows surprisingly to achieve a particularly homogeneous non-tobacco, nicotine-containing composition. The use of the at least one cutter head, in particular with the specific rotational speed, is helpful to prevent clumping of the constituents (including the glycerol) during preparation of the non-tobacco, nicotine-containing composition and supports a homogeneous distribution of the water (respectively the aqueous solution) and/or the flavouring agents.

[0083] The use of release agents especially above an amount of 15% glycerol is helpful to prevent clumping of the

constituents and to support the flow of the non-tobacco, nicotine containing composition during the pouch making process.

[0084] Reference will now be made in detail to the exemplary embodiments of the present invention. The exemplary embodiments are described below, in order to explain the aspects of the present invention without, however, necessarily limiting the invention thereto. Nevertheless, specific aspects thereof may, together with general aspects described herein for the disclosure of the invention, be material for realizing embodiments of the invention.

General preparation route

[0085] A mixture comprising nicotine polacrilex as a nicotine, bamboo fiber, sodium chloride, and optionally further solid ingredients as listed in below Tables 1 to 7 was provided in a ploughshare mixer (Gebrüder Lödige Maschinenbau GmbH, ploughshare® mixer for batch operation) and slowly mixed with a rotational speed of 50 rpm for 1 minute without using the cutter head of the mixer.

[0086] Tap water (sterilized) or demineralized water (sterilized) was sprayed onto the obtained mixture followed by vigorous mixing using the cutter head of the ploughshare mixer at a rotational speed of 160 rpm for 2 minutes.

[0087] Glycerol was heated in a climatic room to 40 °C. The heated glycerol was sprayed onto the mixture obtained in the ploughshare mixer mixture followed by vigorous mixing using the cutter head of the ploughshare mixer at a rotational speed 160 rpm of for 5 minutes.

[0088] A mixture of menthol/eucalyptus and spearmint was heated in a climatic chamber to 40 °C. The heated menthol/eucalyptus and spearmint mixture was sprayed onto the mixture obtained in the ploughshare mixer mixture followed by vigorous mixing using the cutter head of the ploughshare mixer at a rotational speed of 160 rpm for 2 minutes.

[0089] During all of the process steps, the temperature within the ploughshare mixer was controlled below 35°C.

[0090] The amounts of the different ingredients were selected for different compositions as set forth below in Tables 1 to 7.

[0091] The finished product was packed into small pouches using a common packaging machine.

Example 1

[0092] A non-tobacco, nicotine-containing composition with high sodium carbonate content, pH 8.2 and 1.6 wt% nicotine was prepared in accordance with Table 1.

Table 1:

	Amount [kg]	Amount (wt%)
Glycerol	5.50	11.00
Water	7.00	14.00
Microcrystalline cellulose	22.60	45.20
Isomaltulose	5.00	10.00
Sodium chloride	1.25	2.50
Sucralose	0.15	0.30
Sodium carbonate	2.00	4.00
Nicotine polacrilex (20%)	4.00	8.00
Flavouring agent	2.50	5.00

[0093] A strong nicotine-induced effect was observed for oral administration of the composition of Example 1.

Example 2

[0094] A non-tobacco, nicotine-containing composition with low sodium carbonate content, pH 7.0 and 1.2 wt% nicotine was prepared in accordance with Table 2.

Table 2:

	Amount [kg]	Amount (wt%)
Glycerol	7.00	14.00

(continued)

	Amount [kg]	Amount (wt%)
Water	7.00	14.00
Microcrystalline cellulose	23.50	47.00
Isomaltulose	5.00	10.00
Sodium chloride	0.75	1.50
Sucralose	0.25	0.50
Sodium carbonate	1.00	2.00
Nicotine polacrilex (20%)	3.00	6.00
Flavouring agent	2.50	5.00

[0095] A moderate nicotine-induced effect was observed for oral administration of the composition of Example 2. An intense sweet taste was observed for oral administration of the composition of Example 2.

Example 3

[0096] A non-tobacco, nicotine-containing composition with high sodium carbonate content, pH 8.0 and 1.2 wt% nicotine was prepared in accordance with Table 3.

Table 3:

	Amount [kg]	Amount (wt%)
Glycerol	7.00	14.00
Water	7.00	14.00
Microcrystalline cellulose	22.00	44.00
Isomaltulose	5.00	10.00
Sodium chloride	1.75	3.50
Sodium carbonate	1.75	3.50
Nicotine polacrilex (20%)	3.00	6.00
Flavouring agent	2.50	5.00

[0097] A strong nicotine-induced effect was observed for oral administration of the composition of Example 3. The taste is more "traditional" because of the use of a higher amount sodium chloride, the higher amount of sodium carbonate and the absence of a sweetener.

Example 4

[0098] A non-tobacco, nicotine-containing composition with low sodium carbonate content, pH 7.0 and 1.2 wt% nicotine was prepared in accordance with Table 4.

Table 4:

	Amount [kg]	Amount (wt%)
Glycerol	7.00	15.00
Water	7.00	10.00
Microcrystalline cellulose	22.75	45.50
Isomaltulose	5.00	11.00
Sodium chloride	1.75	1.00

(continued)

	Amount [kg]	Amount (wt%)
Sucralose	0.25	0.50
Sodium carbonate	1.00	2.00
Nicotine polacrilex (20%)	2.50	5.00
Flavouring agent Mint	2.00	4.00
Food dye Food blue 2	0.05	0.10

[0099] A moderate nicotine-induced effect was observed for oral administration of the composition of Example 4. An intense sweet and minty taste was observed for oral administration of the composition of Example 4. The blue color of the composition visualize the fresh, minty taste.

Example 5

[0100] A non-tobacco, nicotine-containing composition with high amount of glycerol, very low amount of water, high sodium carbonate content, pH 8.5 and 1.6 wt% nicotine was prepared in accordance with Table 5.

Table 5:

	Amount [kg]	Amount (wt%)
Glycerol	10.50	21.00
Water	2.50	5.00
Microcrystalline cellulose	20.00	40.00
Release agent Silica	1.50	3.00
Isomaltulose	5.00	10.00
Sodium chloride	1.75	3.50
Sodium carbonate	2.25	4.50
Nicotine polacrilex (20%)	4.00	8.00
Flavouring agent	2.50	5.00

[0101] A very strong nicotine-induced effect was observed for oral administration of the composition of Example 5. The taste of Example 5 is more "traditional" because of the use of a higher amount sodium chloride, the high amount of sodium carbonate and the absence of a sweetener. The use of a release agent is necessary in this example using a high amount of glycerin to prevent clumping and to get a flowable composition.

Comparative Example 1

[0102] A non-tobacco, nicotine-containing composition was prepared as described for Example 1 with the only exceptions that a high water content and a lower glycerin content was used in accordance with Table 6.

Table 6:

	Amount [kg]	Amount (wt%)
Glycerol	2.50	5.00
Water	15.00	30.00
Microcrystalline cellulose	17.60	35.20
Isomaltulose	5.00	10.00
Sodium chloride	1.25	2.50

(continued)

	Amount [kg]	Amount (wt%)
Sucralose	0.15	0.30
Sodium carbonate	2.00	4.00
Nicotine polacrilex (20%)	4.00	8.00
Flavouring agent	2.50	5.00

[0103] An unpleasantly high nicotine-induced effect was observed at the beginning of the oral administration of the composition of Comparative Example 1 which may be traced back to an unwanted fast release of high amounts of nicotine immediately after the start of oral administration.

[0104] In addition, the taste of the product was unpleasantly due to a perceptible nicotine taste (which might be traced back to an insufficient sweetness for masking of the nicotine taste). Furthermore, it was found that the composition of Comparative Example 1 showed a lowered shelf life with respect to moulding during storage in comparison to the composition of Example 1. Furthermore, it was found that the composition of Comparative Example 1 showed a fast change (within 4-8 weeks) in its colour from white to yellow/slightly brown.

Comparative Example 2

[0105] A non-tobacco, nicotine-containing composition was prepared as described for Example 1 with the only exceptions that a lower water content and a higher glycerin content was used in accordance with Table 7.

Table 7:

	Amount [kg]	Amount (wt%)
Glycerol	15.00	30.00
Water	12.50	5.00
Microcrystalline cellulose	17.60	35.20
Isomaltulose	5.00	10.00
Sodium chloride	1.25	2.50
Sucralose	0.15	0.30
Sodium carbonate	2.00	4.00
Nicotine polacrilex (20%)	4.00	8.00
Flavouring agent	2.50	5.00

[0106] In the absence of a release agent it was not possible to manufacture a product suitably for oral administration from a respective composition due to its stickiness and caking during the mixing and in the manufacturing of the pouch.

Comparative Example 3

[0107] A mixture comprising nicotine polacrilex containing nicotine, microcystalline cellulose, sodium chloride, and optionally further solid ingredients as listed in below Tables 1 to 3 was provided in a vat and slowly mixed by shaking the vat. Tap water (sterilized) was sprayed onto the obtained mixture followed by shaking. Glycerol was heated in a climatic room to 40 °C. The heated glycerol was sprayed onto the mixture obtained in the ploughshare mixer mixture followed by shaking. A mixture of menthol and eucalyptus was heated in a climatic chamber to 40 °C. The heated menthol/eucalyptus was sprayed onto the mixture obtained in the ploughshare mixer mixture followed by shaking.

[0108] During all of the process steps, the temperature within the vat was controlled below 35°C. The amounts of the different ingredients were selected for different compositions as set forth above in Table 1.

[0109] The obtained product exhibited a high degree of clumping as well as low homogeneity and was inappropriate for preparing a pouch- type product.

[0110] The features disclosed in the foregoing description and in the dependent claims may, both separately and in any combination thereof, be material for realizing the aspects of the disclosure made in the independent claims, in

diverse forms thereof.

Claims

1. Non-tobacco, nicotine-containing composition comprising

   - 10 to 15 wt% glycerol;
   - less than 15 wt% water;
   - 0.1 to 4 wt% nicotine; and
   - optionally 0.1 to 10 wt% of a release agent;

   with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively;
   or
   - more than 15 to 45 wt% glycerol;
   - less than 15 wt% water;
   - 0.1 to 4 wt% nicotine; and
   - 0.1 to 10 wt% of a release agent;

   with respect to the total weight of the non-tobacco, nicotine-containing composition, respectively.

2. Non-tobacco, nicotine-containing composition according to claim 1, wherein the non-tobacco, nicotine-containing composition further comprises isomaltulose in an amount of 0.1 to 15 wt% with respect to the total weight of the non-tobacco, nicotine-containing composition.

3. Non-tobacco, nicotine-containing composition according to claim 1 or 2, wherein the release agent is selected from the group consisting of silica, silicates, magnesium carbonate, calcium carbonate, and magnesium stearate.

4. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises a food dye.

5. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises a fiber-type and/or particulate plant material, preferably selected from the group consisting of bamboo fiber, cocoa fiber, cane sugar fiber, hemp fiber, cereal fiber, particularly preferred wheat fiber or oat fiber, potato fibres, vegetable fibres, particularly preferred pea fibres or carrot fibres, fruit fibres, particularly preferred lemon fibres or orange fibres, cellulose fibres, microcrystalline cellulose and mixtures thereof.

6. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the nicotine is in a form selected from the group consisting of liquid nicotine, a nicotine salt, preferably nicotine malate, nicotine tartrate, nicotine nitrate, nicotine lactate or nicotine salicylate, ion-exchange bound nicotine or a mixture thereof.

7. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises a sweetener, preferably selected from the group consisting of saccharin, sucralose, neotame and neohesperidine.

8. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises an acidity regulator, preferably selected from the group consisting of sodium carbonate, potassium carbonate, calcium carbonate, sodium hydrogen carbonate, potassium hydrogen carbonate, calcium hydrogen carbonate, sodium hydroxide, potassium hydroxide, calcium hydroxide and mixtures thereof.

9. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises an acidulant, preferably fumaric acid, succinic acid, adipic acid, lactic acid, ascorbic acid, tartaric acid, magnesium fumarate, magnesium succinate, magnesium adipate, magnesium ascorbate, magnesium tartrate, calcium fumarate, calcium succinate, calcium adipate, calcium ascorbate, calcium tartrate, and mixtures thereof.

10. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises a sugar substitute, preferably selected from sorbitol, maltitol,

xylitol and a mixture thereof.

11. Non-tobacco, nicotine-containing composition according to any of the preceding claims, wherein the non-tobacco, nicotine-containing composition further comprises a flavouring agent, preferably selected from the group consisting of menthol and derivatives thereof, cooling agents, vanillin, ethylvanillin, peppermint oils, eucalyptus oil, citrus oil, fruit aromas, preferably apple, blueberry, strawberry, raspberry, cherry, coconut, mango, melon, peach, coffee (in all variations from cappuccino to latte), spirits, preferably whisky or rum, sweet-creamy flavours, preferably toffee, popcorn, caramel, chocolate or cream, and spicy flavours, preferably pepper, chili, ginger, cinnamon, cocoa bean, coffee bean and a mixture thereof.

12. A method for preparing the non-tobacco, nicotine-containing composition according to any of the preceding claims, the method comprising the steps:

a) providing a mixture of the nicotine and at least one further solid constituent of the non-tobacco, nicotine-containing composition in a mixer having at least one cutter head;
b) spraying of water or an aqueous solution onto the mixture provided in the mixer having at least one cutter head and mixing with a rotational speed of the mixer having at least one cutter head of 10 to 500 rpm for 10 seconds to 30 minutes;
c) heating glycerol to a temperature from 30 to 45 °C; and
d) spraying the heated glycerol onto the mixture obtained in step b) and mixing with a rotational speed of the mixer having at least one cutter head of 10 to 500 rpm for 10 seconds to 30 minutes at a temperature from 25 to 35 °C; and

13. Method according to claim 12, wherein the mixer having at least one cutter head is a ploughshare mixer.

14. Method according to claim 12 or 13, wherein the method comprises a further step e) after the step d), wherein step e) comprises providing a release agent onto the composition obtained in step d)

15. Non-tobacco, nicotine-containing product comprising a pouch-type package and a non-tobacco, nicotine-containing composition according to any one of the claims 1 to 11 arranged in the pouch-type package.

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EUROPEAN SEARCH REPORT

Application Number
EP 21 21 5190

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23 May 2022	Piret-Viprey, E

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 21 21 5190

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REFERENCES CITED IN THE DESCRIPTION

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