



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.05.2026 Bulletin 2026/20

(51) International Patent Classification (IPC):
A24B 13/00 ^(2006.01) **A24B 15/16** ^(2020.01)
A24B 15/30 ^(2006.01)

(21) Application number: **24212201.8**

(52) Cooperative Patent Classification (CPC):
A24B 13/00; A24B 15/16; A24B 15/302;
A24B 15/303

(22) Date of filing: **11.11.2024**

(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:
GE KH MA MD TN

(72) Inventors:
• **HALL, Steven**
Bristol, BS3 2LL (GB)
• **JONES, Haydn**
Bristol, BS3 2LL (GB)
• **GRIFFITHS, Catherine**
Bristol, BS3 2LL (GB)

(71) Applicant: **Imperial Tobacco Limited**
Bristol BS3 2LL (GB)

(74) Representative: **Elkington and Fife LLP**
Prospect House
8 Pembroke Road
Sevenoaks, Kent TN13 1XR (GB)

(54) **SMOKELESS ARTICLE**

(57) A smokeless article for oral delivery comprising a pouch enclosing a content comprising a cellulosic material, wherein the cellulosic material is or comprises one or more selected from the group consisting of: of coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination

of star anise and one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder, a method of manufacturing the smokeless article, a use of the smokeless article, a kit comprising one or more of the smokeless articles, and a use of cellulosic material.

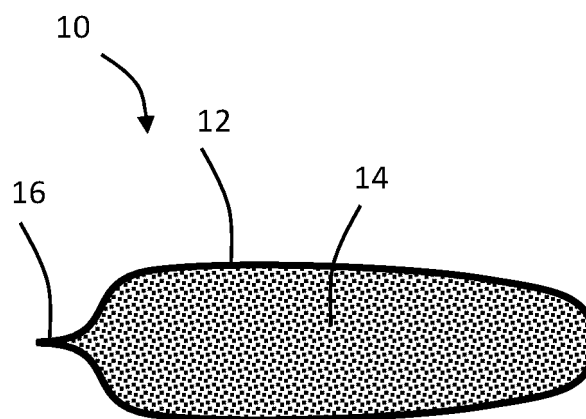


Fig. 1

Description**FIELD**

5 **[0001]** The present disclosure relates to a smokeless article. This disclosure also relates to a method of manufacturing the smokeless article, a use of the smokeless article for oral delivery, a kit comprising the smokeless article, and related uses.

BACKGROUND

10 **[0002]** Smokeless articles are placed in the mouth where saliva extracts the soluble element from the content contained within. Typically, the smokeless article is placed in the oral cavity, sublingually or in the oral vestibule (between the teeth and lips/cheeks). The user may assist extraction by oral manipulation, such as by chewing and/or sucking or pressing on the outside of the mouth to squeeze the pouch.

15 **[0003]** One example of a smokeless article is a snus pouch, which contains a content (snus) comprising tobacco.

[0004] Snus and snus pouches may have appealing appearances to some users. Other users may prefer tobacco-free alternatives.

[0005] The present invention has been devised in the light of the above considerations.

SUMMARY

20 **[0006]** In a **first aspect**, the present disclosure provides to a smokeless article for oral use. In some examples, the smokeless article may be an oral nicotine delivery (OND) article.

25 **[0007]** In some examples, the smokeless article may comprise a pouch enclosing a content. In some examples, the content may comprise a cellulosic material, wherein the cellulosic material comprises one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder.

30 **[0008]** In some examples, the content may comprise a cellulosic material, wherein the cellulosic material is one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder.

35 **[0009]** A content comprising the cellulosic material defined herein may, through the perception of a user, resemble the snus of a snus pouch. A pouch enclosing a content comprising the cellulosic material defined herein may, through the perception of a user, resemble a snus pouch i.e. may resemble a pouch containing a content wherein the content is snus. References herein to the resemblance of a pouch to a snus pouch should be considered to encompass resemblance of the content to snus. For example, the pouch of the present disclosure may have at least one sensory characteristic which resembles a snus pouch, such as its appearance, texture, odour and/or taste, and the content of the present disclosure may have at least one sensory characteristic which resembles snus, such as its appearance, texture, odour and/or taste.

40 **[0010]** In some examples, the pouch described herein has at least two sensory characteristics which resemble a snus pouch, such as two or more of appearance, texture, odour and taste. For example, the pouch may resemble a snus pouch in terms of at least its appearance and texture, or its appearance and odour, or its appearance and taste, or its texture and odour, or its texture and taste, or its odour and taste. In some examples, the pouch may resemble a snus pouch in terms of at least its appearance and texture, or in terms of its odour and taste.

45 **[0011]** In some examples, the pouch described herein has at least three sensory characteristics which resemble a snus pouch, such as three or more of appearance, texture, odour and taste. For example, the pouch may resemble a snus pouch in terms of at least its appearance, texture and odour, or its appearance, texture and taste, or its appearance, odour and taste, or its texture, odour and taste.

50 **[0012]** In some examples, the pouch described herein has at least four sensory characteristics which resemble a snus pouch, such as in terms of its appearance, texture, odour and taste.

[0013] In some examples, the pouch has as many sensory characteristics resembling a snus pouch as possible.

55 **[0014]** In some examples the pouch herein may have sensory characteristics resembling a snus pouch because the cellulosic material of the content has sensory characteristics resembling snus. For example, the cellulosic material may resemble at least one, at least two, at least three or at least four sensory characteristics of snus (e.g., at least one, two three or four of the appearance, texture, odour and taste of snus).

[0015] "Snus" will be familiar to the skilled person in this technical field and is a smokeless, powdered form of tobacco intended for oral delivery. Snus may be provided in loose form or in a pouch, e.g., a conventional snus pouch. Snus is typically made from ground tobacco and additives such as water and salt. "Snus pouch" is used herein to refer to a pouch

containing snus.

[0016] The resemblance of a pouch of the present smokeless article to different sensory characteristics of snus pouches may be measured qualitatively. For example, a user, or preferably a group of users, such as at least two users (e.g., from two to five users), will score the sensory characteristics of a smokeless article herein in terms of how well it resembles a smokeless article comprising a snus pouch based on observation with the naked eye (i.e., appearance), hand-feel and/or mouthfeel (i.e., texture), smell (i.e., odour) and flavour (i.e., taste). In a group sample, an average score can be taken for each sensory characteristic to determine the resemblance of the pouch of the smokeless article to a snus pouch.

[0017] The resemblance of a pouch herein to different sensory characteristics of a snus pouch may also be measured quantitatively. For example, the resemblance of a pouch herein to a snus pouch may be determined based on the similarity of their RGB values determined using a colourimeter, such as using a colourimeter model PCE XXM20. Measurements may be taken in different colour spaces (such as CIE LAB, XYZ, LCh, and LUV) and converted to RGB values using standard conversions and commonly available online tools.

[0018] In some examples, the smokeless article comprises a pouch enclosing a content. In some examples, the pouch of the smokeless article defines an internal volume in which the content resides. In some examples, the pouch is sealed, and in this way completely encloses the content. Such enclosing may mean that the content cannot leave the pouch when the smokeless article is not in use, for example when the smokeless article is in storage or transit. Such enclosing may mean that the content cannot leave the pouch when the smokeless article is in use, for example all or part of the content of the smokeless article does not transfer into or scatter in the oral cavity. Such enclosing may mean that the content cannot leave the pouch when the smokeless article is, and is not, in use.

[0019] In some examples, the pouch may be formed from one or more materials. In some examples, the pouch may be formed from one or more materials chosen from fibre, paper, cloth and fabric. In some examples, the pouch may be formed from one or more polymeric materials. In some examples, the polymeric material may be selected from one or more of hydroxypropyl cellulose (HPC), hydroxypropyl methylcellulose (HPMC), polyvinyl alcohol (PVOH), polyvinylpyrrolidone (PVP), polyethylene oxide (PEO) hydroxyethyl cellulose (HEC), polyethylene glycol (PEG), pullulan, sodium alginate, xanthan gum, tragacanth gum, guar gum, acacia gum, arabic gum, polyacrylic acid, maltodextrin, methylmethacrylate copolymer, carboxyvinyl copolymers, starch and gelatin.

[0020] In some examples, the pouch may be formed by folding a single sheet on itself, or by bringing two or more sheets together and sealing the edges. In some examples, the edges may first be partially sealed to provide an open pouch in which the content may be placed, before later completely sealing the pouch closed after the content is placed in the pouch.

The sheets may be the same thickness or different thicknesses.

[0021] In some examples, the pouch is porous. In some examples, at least 50% of the pores have a diameter of at least 50 μm , such as at least 75 μm , at least 100 μm or at least 125 μm , based on the total number of the pores (wherein the total number of pores is 100%). In some examples, at least 50% of the pores have a diameter of up to 200 μm , such as up to 175 μm , up to 150 μm or up to 125 μm , based on the total number of the pores (wherein the total number of pores is 100%). In some examples, any combination of the foregoing may be combined to form a suitable range for the diameter of at least 50% of the pores, such as between 50 μm and 200 μm , between 100 μm to 175 μm , or 125 μm or 150 μm . In some examples, at least 50% of the pores have a diameter of at least 100 μm . In some examples at least 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95% or 100% of the pores have such diameters, based on the total number of pores.

[0022] Methods of measuring pore diameter will be known to the skilled person and include, for example, using electron microscopy techniques. Pore diameter here may refer to a mean average pore diameter based on the average pore diameter selected from a sample of pores in the water-permeable layer. The skilled person will be aware of a suitable sample size required to obtain a reliable mean average, which may, for example, 50, 100 or 200 randomly chosen pores.

[0023] In some examples, the material from which the pouch is comprised may be coloured. In some examples, the material from which the pouch is comprised is partially or completely coloured by a colourant. In some examples, the pouch may additionally or alternatively include markings such as brand logos and text. Such colour or markings may affect identifiability.

[0024] In some examples, the cellulosic material comprises one or more of coffee grinds, corn silk, and cocoa nibs. In some examples, the cellulosic material is one or more of coffee grinds, corn silk, and cocoa nibs. Use of these cellulosic materials may increase the perception by users that the pouch resembles at least one sensory characteristic of a snus pouch, or at least two sensory characteristics of a snus pouch.

[0025] In some examples, the cellulosic material comprises one or more of coffee grinds and corn silk. In some examples, the cellulosic material is one or more of coffee grinds and corn silk. Use of these cellulosic materials may increase the perception by users that the pouch resembles at least one sensory characteristic of a snus pouch, such as at least two sensory characteristics of a snus pouch. In some examples, the at least two sensory characteristics include appearance and texture.

[0026] In some examples, the cellulosic material comprises coffee grinds. In some examples, the cellulosic material is coffee grinds. Use of this cellulosic materials may increase the perception by users that the pouch resembles at least one sensory characteristic of a snus pouch, such as at least two, three or four sensory characteristics of a snus pouch. In some

examples, the at least four sensory characteristics of a snus pouch include appearance, texture, odour and taste.

[0027] In some examples, the cellulosic material comprises one or more selected from the group consisting of: corn silk, seaweed and carob powder. In some examples, the cellulosic material is one or more selected from the group consisting of: corn silk, seaweed and carob powder. Use of these cellulosic materials may increase the perception by users that the pouch resembles at least one sensory characteristic of a snus pouch.

[0028] In some examples, the cellulosic material is or comprises one or more selected from the group consisting of: corn silk and carob powder. Use of these cellulosic materials may increase the perception by users that the pouch resembles at least one sensory characteristic of a snus pouch, such as at least two sensory characteristics.

[0029] In some examples, the seaweed in the content comprises at least one of dulse seaweed and kombu seaweed. In some examples, the seaweed in the content is at least one of dulse seaweed and kombu seaweed. Suitable dulse and kombu seaweeds may include MARA seaweed dulse and MARA seaweed kombu.

[0030] In some examples, the cellulosic material content is at least 10 wt%, at least 20 wt%, at least 30 wt%, at least 40 wt%, at least 50 wt%, at least 60 wt%, at least 70 wt%, at least 80 wt%, at least 90 wt%, at least 95 wt%, or at least 97 wt% of the total weight of the content (wherein the total weight of the content is 100 wt%).

[0031] In some examples, the cellulosic material content is no more than 99 wt%, 95 wt%, 90 wt%, 80 wt%, 70 wt%, 60 wt%, 50 wt%, 40 wt%, 30 wt%, 20 wt%, or 10 wt% of the total weight of the content.

[0032] In some examples, any suitable combination of the above may be applied to obtain an appropriate range. For example, the cellulosic material may be between 10 wt% to 99 wt%, 20 wt% to 90 wt%, 30 wt% to 70 wt%, 40 wt% to 60 wt%, or 50 wt% to 99 wt%.

[0033] In some examples, the content comprises a combination of cellulosic materials, for example a combination of two or more of coffee grinds, lapsang tea, vanilla rooibos tea, seaweed, corn silk, cocoa nibs, carob powder, and star anise. Combining more than one cellulosic material may affect the perception of the pouch to a user. For example, combining more than one cellulosic material may alter (for example, may improve) the resemblance of the pouch to a snus pouch perceived by a user in terms of at least one sensory characteristic, and typically more than one sensory characteristic. By choosing an appropriate combination of cellulosic materials, it may be possible to adjust the content of the pouch to achieve a desired combination of sensory characteristics resembling those of a snus pouch.

[0034] In some examples, the content comprises nicotine. The content may comprise nicotine in the form of nicotine freebase, a nicotine salt(s), a nicotine complex(es), and a nicotine solvate(s), or mixtures thereof. In some examples, nicotine salt is selected from the group consisting of nicotine hydrochloride, nicotine dihydrochloride, nicotine monotartrate, nicotine ditartrate, nicotine ditartrate dihydrate, nicotine sulfate, nicotine zinc chloride monohydrate, nicotine salicylate and mixtures thereof.

[0035] In some examples, the content comprises nicotine in an amount of from 0.3 wt% to 2 wt%, from 0.4 wt% to 2 wt%, from 0.5 wt% to 2 wt%, from 0.5 wt% to 1.9 wt%, from 0.8 wt% to 1.8 wt%, from 1 wt% to 1.6 wt%, from 1.2 wt% to 1.6 wt%, or from 1.3 wt% to 1.5 wt%, based on the total weight of the content.

[0036] In some examples, the total nicotine content per pouch is at least 1 mg, at least 2 mg, at least 3 mg, at least 4 mg, at least 5 mg, at least 6 mg, at least 7 mg, at least 8 mg, at least 9 mg, at least 10 mg, at least 11 mg, at least 12 mg, at least 13 mg, at least 14 mg, at least 15 mg, at least 16 mg, at least 17 mg, at least 18 mg, at least 19 mg, or at least 20 mg.

[0037] In some examples, the total nicotine content per pouch is no more than 20 mg, no more than 19 mg, no more than 18 mg, no more than 17 mg, no more than 16 mg, no more than 15 mg, no more than 14 mg, no more than 13 mg, no more than 12 mg, no more than 11 mg, no more than 10 mg, no more than 9 mg, no more than 8 mg, no more than 7 mg, no more than 6 mg, no more than 5 mg, no more than 4 mg, no more than 3 mg, no more than 2 mg, or no more than 1 mg.

[0038] In some examples, any suitable combination of the above may be applied to obtain an appropriate range. In some examples, the total nicotine content per pouch is between 4 to 15 mg. In some examples, the nicotine content per pouch is between 7 and 10 mg. In some examples the nicotine content per pouch is about 8 mg.

[0039] In some examples, the content is free of nicotine (i.e., the content contains 0 wt% of nicotine or nicotinic components).

[0040] In some examples, the content is free of cannabinoid compounds (i.e., the content contains 0 wt% of cannabinoid compounds). For example, the content may be free of cannabidiol (CBD) and its derivatives/homologues (e.g. cannabidiol mono(m)ethyl ether, cannabidiolvarin (CBDV), cannabidiolcol, cannabidiolic acid, cannabidiolvarinic acid); cannabinodiol (CBND) and its derivatives/homologues (e.g. carrabinodiolvarin); cannabigerol (CBG) and its derivatives/homologues (e.g. cannabigerol mono(m)ethyl ether, cannabigerolic acid A, cannabigerovaric acid, cannabigerolic acid A, cannabigerolic acid A mono(m)ethyl ether, cannabigerovaric acid A); cannabinol (CBN) and its derivatives/homologues (e.g. cannabivaric acid, cannabivarol (CBV), cannabiorcol, cannabiorcolic acid, cannabiorcol (m)ethyl ester); tetrahydrocannabinol (THC) and its derivatives/homologues (e.g. tetrahydrocannabivaric acid, tetrahydrocannabiorcol, tetrahydrocannabiorcolic acid A/B, tetrahydrocannabivaric acid A, tetrahydrocannabiorcolic acid A/B, isotetrahydrocannabinol, isotetrahydrocannabivaric acid); cannabicyclol (CBL) and its derivatives/homologues (e.g. cannabicyclolcolic acid, cannabicyclolvarin); cannabichromene (CBC) and its derivatives/homologues (e.g. cannabichromenic acid A, cannabichromenvarin (CBCV), cannabichromenvaric acid A); cannabielsoin (CBE) and its derivatives/homologues (e.g. cannabielsoic acid A/B, cannabielglendol,

dehydrocannabifuran, cannabifuran); cannabicitran (CBT) and its derivatives/homologues; cannabitol and its derivatives/homologues (e.g. ethyl cannabitol, dihydroxy-tetrahydrocannabinol, cannabidiolic acid A cannabitol ester, dihydroxy-hexahydrocannabinol (cannabiripsol), cannabitol, oxo-tetrahydrocannabinol); and cannabichromanone (CBCN) and its derivatives/homologues (e.g. cannabichromanone).

[0041] The content may comprise water.

[0042] In some examples, the amount of water in the content is at least 1 wt%, at least 5 wt%, at least 10 wt%, at least 15 wt%, at least 20 wt%, at least 25 wt%, at least 30 wt%, at least 35 wt%, at least 40 wt%, at least 45 wt%, at least 50 wt%, at least 55 wt%, at least 60 wt%, at least 65 wt%, or at least 70 wt%.

[0043] In some examples, the amount of water in the content is no more than 70 wt%, no more than 65 wt%, no more than 60 wt%, no more than 55 wt%, no more than 50 wt%, no more than 45 wt%, no more than 40 wt%, no more than 35 wt%, no more than 30 wt%, no more than 25 wt%, no more than 20 wt%, no more than 15 wt%, no more than 10 wt%, no more than 5 wt%, or no more than 1 wt%.

[0044] In some examples, any suitable combination of the above may be applied to obtain an appropriate range. In some examples, the amount of water in the content is from 30 wt% to 60 wt%, from 30 wt% to 55 wt%, from 35 wt% to 60 wt%, from 35 wt% to 55 wt%, from 30 wt% to 50 wt%, or from 30 wt% to 45 wt% based on the total weight of the content.

[0045] In some examples, the content may comprise a pH regulator. In some examples, some components such as flavourants included in the content may cause the content to become more acidic. In examples where the flavourant has a greater impact on the pH of the content, the use of a combination of pH regulators may be particularly useful to control the pH to within a desired range. In some examples, the pH regulator may be one or more selected from the list of sodium carbonate, sodium hydroxide, calcium lactate, sodium phosphate dibasic, sodium citrate, meglumine, ammonia, ammonium carbonate, ammonium chloride, and calcium carbonate.

[0046] In some examples, the content has a shelf-life of at least 4 months, at least 5 months, at least 6 months, at least 7 months, or at least 8 months. In some examples the shelf-life of the content is measured as no noticeable change in user perception and/or safety.

[0047] In some examples, the smokeless article may have a mass of at least 0.01 g, at least 0.1 g, at least 0.25 g, at least 0.5 g, at least 1.0 g, at least 1.5 g, at least 2.0 g, at least 2.5 g, at least 3.0 g, at least 3.5 g, at least 4.0 g, at least 4.5 g, at least 5.0 g, at least 6.0 g, at least 7.0 g, at least 8.0 g, at least 9.0 g, at least 10.0 g, at least 15.0 g, or at least 20.0 g.

[0048] In some examples, the smokeless article may have a mass no more than 20.0 g, no more than 15.0 g, no more than 10.0 g, no more than 9.0 g, no more than 8.0 g, no more than 7.0 g, no more than 6.0 g, no more than 5.0 g, no more than 4.5 g, no more than 4.0 g, no more than 3.5 g, no more than 3.0 g, no more than 2.5 g, no more than 2.0 g, no more than 1.5 g, no more than 1.0 g, no more than 0.5 g, no more than 0.25 g, no more than 0.1 g, or no more than 0.01 g.

[0049] In some examples, any suitable combination of the above may be applied to obtain an appropriate range. In some examples, the smokeless article may have a mass of between 0.1 g to 5.0 g. In some examples the smokeless article has a mass of between 0.5 g to about 4.0 g. In some examples the smokeless article has a mass of between 1.0 g to about 3.0 g.

[0050] In some examples, the smokeless article has a length of at least 10 mm, at least 20 mm, at least 30 mm, at least 40 mm, at least 50 mm, at least 60 mm, at least 70 mm, at least 80 mm, at least 90 mm, or at least 100 mm.

[0051] In some examples, the smokeless article has a length no more than 100 mm, no more than 90 mm, no more than 80 mm, no more than 70 mm, no more than 60 mm, no more than 50 mm, no more than 40 mm, no more than 30 mm, no more than 20 mm, or no more than 10 mm.

[0052] In some examples, the smokeless article has a width of at least 10 mm, at least 11 mm, at least 12 mm, at least 13 mm, at least 14 mm, at least 15 mm, at least 20 mm, at least 30 mm, at least 40 mm, or at least 50 mm.

[0053] In some examples, the smokeless article has a width no more than 50 mm, no more than 40 mm, no more than 30 mm, no more than 20 mm, no more than 15 mm, no more than 14 mm, no more than 13 mm, no more than 12 mm, no more than 11 mm, or no more than 10 mm.

[0054] In some examples, the smokeless article has a depth of at least 5 mm, at least 6 mm, at least 7 mm, at least 8 mm, at least 9 mm, at least 10 mm, at least 11 mm, at least 12 mm, at least 13 mm, at least 14 mm, at least 15 mm, or at least 20 mm.

[0055] In some examples, the smokeless article has a depth of no more than 20 mm, no more than 15 mm, no more than 14 mm, no more than 13 mm, no more than 12 mm, no more than 11 mm, or no more than 10 mm.

[0056] In some examples, the smokeless article has a length of about 30 mm. In some examples the smokeless article has a length of about 28 mm. In some examples, the smokeless article has a length of about 26 mm. In some examples the smokeless article has a width of about 12 mm. In some examples the smokeless article has a width of about 10 mm. In some examples the smokeless article has a width of about 8 mm. In some examples the smokeless article has a depth of about 5 mm. In some examples the smokeless article has a dept of about 4 mm. In some examples the smokeless article has a depth of about 3 mm. Dimensions may be measured using any suitable optical measurement method.

[0057] In some examples, the smokeless article may have an active lifetime of about 20 minutes to about 60 minutes after being placed in the mouth. In some examples, the smokeless article has an active lifetime of about 25 minutes to 50 minutes after being placed in the mouth. In some examples, the smokeless article has an active lifetime of about 30

minutes to about 45 minutes after being placed in the mouth. As used herein, the term "active lifetime" is intended to refer to the amount of time after being placed in the mouth that the smokeless article provides the user with a perceptible taste and/or physiological experience. In examples where the smokeless article comprises nicotine, the active lifetime may be defined as the in-use period of time within which 90 wt% of the available nicotine is released. In other words, the active lifetime may be the duration of time from insertion into the oral cavity for 90 wt% of the total amount of nicotine that is capable of being released during normal use to dissolve into the user's saliva and /or enter the user's bloodstream. It will therefore be appreciated that the active lifetime of a product may vary from user to user and for a user based on oral conditions, in particular extent of salivation. Nonetheless, the skilled person is able to mimic oral conditions to determine the active lifetime in one instance, which can be used as a comparison or analysis point.

[0058] In some examples, the content further comprises a filler.

[0059] In some examples, the filler comprises one or more natural fibres. In some examples, the natural fibres comprise or are one or more of micro-crystalline cellulose, wheat fibre, bamboo fibre, apple fibre, citrus fibre, sugar cane fibre, rice fibre, psyllium fibre, potato fibre, pea fibre, and oat fibre.

[0060] Fillers may be provided to increase the volume of the smokeless article. In some examples, increasing the volume contained within the pouch may strengthen the content.

[0061] In general, suitable fillers may include calcium carbonate, calcium phosphate, corn starch, grains, lactose, polysaccharides (e.g. maltodextrin), polyols, sugars (e.g. dextrose, manitol, xylitol, sorbitol), natural fibres (e.g. non-tobacco fibres), microcrystalline cellulose, cellulose and cellulose derivatives (e.g. finely divided cellulose), lignocellulose fibres (e.g. wood fibres), jute fibres and combinations thereof. In some cases, the filler is or comprises wheat fibres. In some cases, the filler is or comprises bamboo fibres. The use of a filler is able to improve the overall mouth-feel of the smokeless article.

[0062] In some cases, the filler is or comprises micro-crystalline cellulose and one of wheat fibres or bamboo fibres.

[0063] In some cases, the filler content is no more than 70wt%, no more than 60wt%, no more than 50wt%, no more than 40wt%, no more than 30wt%, no more than 20wt%, no more than 10wt%, no more than 5wt%, or no more than 1wt% of the content, based on the total weight of the content which is 100 wt%. In some examples, the content is free of any filler (i.e., the content comprises 0 wt% filler). In these examples, the only natural fibres in the content may be those present in the cellulosic material.

[0064] Cellulosic material may improve physical integrity and may function as a natural source of substances such as, for example, biologically/pharmacologically active compounds, flavourants, pH stabilisers etc. In some examples, the cellulosic material further comprises caffeine.

[0065] The form in which the cellulosic material is provided may affect its characteristics, which may affect the perception of the smokeless article to a user. For example, the form of the cellulosic material may affect how similar a user perceives the pouch of the smokeless article to be in comparison to a snus pouch, such as in terms of at least one of the appearance, texture, odour and taste.

[0066] For example, coffee grinds are a form of coffee that may be used to provide the pouch of the smokeless article with a particularly close resemblance to a snus pouch, such as in terms of at least one of its appearance, texture, odour and taste, for example in terms of all of its appearance, texture, odour and taste. Coffee grinds are ground coffee beans and may be provided as fine, medium and coarse grinds. Coarse grinds may have larger particle sizes than medium grinds, which in turn may have larger particle sizes than fine grinds.

[0067] In some examples, particle size may be measured by sieve analysis. For example, particles having the desired particle size may be obtained by passing a population of fibres through a sieve of corresponding mesh size. For example, to obtain fibres of particle size 300 μm (i.e. an average maximum fibre length of 300 μm), a population of fibres are passed through a sieve with 300 μm diameter apertures in the mesh. In this way, fibres with a length of 300 μm or less pass through the mesh and fibres longer than 300 μm are retained by the mesh. The fibres which pass through the mesh may then be used in the smokeless article of the invention, having a particle size of 300 μm . This method may be applied, for example, to measure the particle sizes of cellulosic material and filler.

[0068] In some examples, the coffee grinds have a particle size of at least 10 μm , at least 25 μm , at least 50 μm , at least 100 μm , at least 200 μm , at least 500 μm , at least 1,000 μm , or at least 1,500 μm .

[0069] In some examples, the coffee grinds have a particle size of no more than 2,000 μm , no more than 1,750 μm , no more than 1,500 μm , no more than 1,250 μm , no more than 1,000 μm , no more than 750 μm , no more than 500 μm , no more than 250 μm , no more than 100 μm , or no more than 50 μm .

[0070] In some examples, fine coffee grinds have a particle size of 10-800 μm , 100-750 μm , or 200-700 μm .

[0071] In some examples, medium coffee grinds have a particle size of 800-1400 μm , 900-1350 μm , or 1,000-1300 μm .

[0072] In some examples, coarse coffee grinds have a particle size of at least 1,300 μm , at least 1,400 μm , at least 1,500 μm , or at least 1,600 μm . For example, coarse coffee grinds may have a particle size of 1,300-2,000 μm , 1,350-1,750 μm , or 1,400-1,600 μm .

[0073] In some examples, the filler may have a particle size of 10-500 μm , 10-450 μm , 10-400 μm , 10-350 μm , 10-300 μm , 10-250 μm , 10-200 μm , 10-150 μm , 10-100 μm , 10-50 μm , 15-50 μm , 10-450 μm , 15-45 μm , 20-50 μm , 20-45 μm ,

20-40 μm , or 25-35 μm .

[0074] In some examples, the filler may have a particle size of 15-500 μm , 20-500 μm , 50-500 μm , 100-500 μm , 150-500 μm , 200-500 μm , 250-500 μm , 250-450 μm , 250-400 μm , 250-350 μm , 260-340 μm , 270-330 μm , 280-320 μm , 290-310 μm , or 295-305 μm .

[0075] In some examples, the effect of the form of the cellulosic material on a user's perception of the smokeless article may apply to any cellulosic material and is not limited to coffee. For example, providing cocoa in the form of "nibs", carob as "powder" and so on may also improve the user's perception of the pouch of the smokeless article as resembling a snus pouch in terms of at least one of the appearance, texture, odour and taste.

[0076] Cocoa "nibs" are used herein to refer to crushed cocoa beans.

[0077] In some examples the content comprises a colourant.

[0078] Colourants may be provided to modify the user impression of the smokeless article. Colourants include whitening agents. Colourants may be selected from one or more of common colourants such as curcumin (E100), turmeric (E100(ii)), riboflavin (E101), riboflavin-5'-phosphate (E101(ii)), tartrazine (E102), quinoline yellow (E104), riboflavin-5-sodium phosphate (E106), yellow 2G (E107), sunset yellow FCF (E110), carmine, cochineal (E120), azorubine (E122), amaranth (E123), ponceau 4R (E124), erythrosine (E127), red 2G (E128), allura red AC (E129), patent blue V (E131), indigotine (E132), brilliant blue FCF (E133) chlorophylls (E140), copper complexes of chlorophyll (E141), green S (E142), caramel (E150a-d), brilliant black BN (E151), carbon (E153), brown FK (E154), brown HT (E155), alfa-, beta- and gamma- carotene (E160a), annatto, bixin, norbixin (E160b), bell pepper (Paprika) extract (E160c), lycopene (E160d), beta- apo-8'-carotenal (E160e), ethyl ester of beta-apo-8'-carotenic acid (E160f), flavoxanthin (E161a), lutein (E161b), cryptoxanthin (E161c), rubixanthin (E161d), violaxanthin (E161e), rhodoxanthin (E161f), canthaxanthin (E1619), citranaxanthin (E161h), beet-root extract (E162), anthocyanins (E163), calcium carbonate (E170), titanium dioxide (E171), iron oxides (E172), aluminium (E173), silver (E174), gold (E175), lithol rubine BK (E180), tannins (E181). The amount of colourant may be up to about 3% by weight of the smokeless article, such as about 0.5% to about 2.5% or about 1% to about 2%.

[0079] Biologically/pharmacologically active compounds may be provided to produce a pharmacological effect in the user. Suitable biologically/pharmacologically active compounds include the group consisting of: nicotine, cocaine, caffeine, opiates and opioids, cathine and cathinone, kavalactones, mysticin, beta-carboline alkaloids, salvinorin A, together with any combinations, functional equivalents to, and/or synthetic alternatives of the foregoing. Biologically-/pharmacologically active compounds may also have additive properties.

[0080] In some embodiments the content includes an active compound comprising nicotine and wherein the form of nicotine is selected from the group consisting of nicotine salts, nicotine base, stabilized nicotine and mixtures thereof. For example, the content may include at least one nicotine salt selected from the group consisting of nicotine hydrochloride, nicotine dihydrochloride, nicotine monotartrate, nicotine ditartrate, nicotine ditartrate dihydrate, nicotine sulfate, nicotine zinc chloride monohydrate, nicotine salicylate and mixtures thereof.

[0081] Solvents may be provided in the content to improve the mouthfeel of the smokeless article and reduce the amount of saliva wetting required before the user experience begins. The addition of solvents to the precursor blend can also assist with the mixing of the components and ensure that a homogeneous coating of the bulking agent is achieved. Suitable solvents may be any solvent approved for use in food products in the UK and Europe, such as water, saline or water alcohol mixtures. Preferably the solvent is water.

[0082] pH stabilisers or adjusters may be provided to adjust the user experience and/or modify the bioavailability of a pharmacologically active compound. For instance, under acidic conditions, nicotine is protonated and does not readily cross mucous membranes. Examples of suitable pH stabilisers include ammonia, ammonium carbonate, sodium carbonate and calcium carbonate. The overall pH of the smokeless article is preferably pH 7 to pH 9, such as pH 7.25 to pH 8.75 or pH 7.5 to pH 8.5.

[0083] The overall pH of a smokeless article may be determined by, for example, (i) placing the smokeless article in 10 mL of distilled water (ii) agitating the mixture for at least 5 minutes and (iii) measuring the pH of the solution with a pH probe.

[0084] Salts may be provided to maintain the osmolarity of the content within the smokeless article/pouch. Salts contribute to the overall positive user experience of the smokeless article, such as pleasant mouth feel. Examples of salts which may be used include sodium chloride, potassium chloride, magnesium chloride and calcium chloride.

[0085] Flavourants may be provided in solid or liquid form. Suitable flavourants include coffee, eucalyptus, menthol, liquorice, peppermint, spearmint, chocolate, fruit flavour (including e.g. citrus, cherry etc.), vanilla, spice (e.g. ginger, cinnamon) and tobacco flavour. The flavourant may be evenly dispersed throughout the contents or may be provided in isolated locations and/or varying concentrations throughout the contents.

[0086] As used herein, the term "flavourant" denotes a compound having a desirable taste, aroma or both.

[0087] In some examples, the content comprises one or more flavourants (e.g. peppermint flavour) in an amount of from above 0 wt% to 10 wt%, for example from 1 wt% to 10 wt%, from 1 wt% to 8 wt%, from 1 wt% to 6 wt%, from 2 wt% to 8 wt%, from 2 wt% to 7 wt%, or from 3 wt% to 7 wt% based on the total weight of the content.

[0088] In some examples, the content comprises less than 5 wt% tobacco. "Tobacco" as used herein refers to tobacco, or any tobacco derived product.

[0089] In some examples the content is free of tobacco i.e. comprises 0 wt% tobacco. In this way, the user may experience a similar or enhanced recreational/pharmaceutical effect as compared to conventional tobacco-containing products without the presence of tobacco and, e.g. without tobacco flavour.

[0090] Humectants may be provided to control moisture content thereby preventing the smokeless article from drying out during storage and reducing the amount of saliva wetting required before the user experience begins. Suitable humectants include polyhydric alcohols (e.g. propylene glycol (PG), triethylene glycol, 1,2-butane diol and glycerol such as vegetable glycerine (VG)) and their esters (e.g. glycerol mono-, di- or tri-acetate). The humectant component may consist of a single humectant compound or may consist of two or more different humectant compounds.

[0091] The humectant may have a lower limit of at least 1 % by weight of the contents such as at least 2 wt%, such as at least 5 wt%, such as at least 10 wt%, such as at least 20 wt%, such as at least 30 wt%, or such as least 40 wt%.

[0092] The humectant may have an upper limit of at most 70% by weight of the contents, such as at most 65 wt%, such as at most 60 wt%, or such as at most 20 wt%, such as at most 10 wt%, such as at most 5 wt%, such as at most 2 wt%.

[0093] In some examples, the amount of humectant is 1 to 70 wt% of the contents, such as 10 to 60 wt% or 50 to 60 wt%.

[0094] In some examples, the content has an overall amount of water of between 5 and 60 wt% based on the weight of the contents such as between 40 and 60 wt%, or between 50 and 60 wt%, for example between 52 and 60 wt%.

[0095] Smokeless articles having a total moisture content of 10% or less are generally considered to be 'dry'. Smokeless articles having a total moisture content of 40% or more are generally considered to be 'wet'.

[0096] The humectant in the content (e.g. OND formulation) may comprise or consist of water and one or more polyhydric alcohols, for example water and glycerol. In some examples, the humectant may comprise propylene glycol.

[0097] Sweeteners may be provided to modify the user taste perception and, in particular, overcome bitter flavours that result from other substances. Suitable sweeteners include honey, sugar, brown sugar, glucose, fructose, sucrose, aspartame, xylitol, maltitol, saccharin sodium, glycyrrhizin tripotassium liquorice, jujube, or a mixture thereof.

[0098] In some examples, the content comprises a sweetener (e.g. acesulfame K) in an amount of from 0 wt% to 1 wt%, for example from 0.01 wt% to 1 wt%, from 0.01 wt% to 0.5 wt%, from 0.01 wt% to 0.2 wt%, from 0.01 wt% to 0.1 wt%, from 0.05 wt% to 0.2 wt%, or from 0.05 wt% to 0.15 wt% based on the total weight of the content.

[0099] The amount of sweetener may have a lower limit of at least 0.01 % by weight of the content such as at least 0.02 wt%, such as at least 0.03 wt%, such as at least 0.04 wt%, such as at least 0.05 wt%, or such as least 0.06 wt%.

[0100] Stabilisers may be provided to prevent decomposition or degradation over time during storage by, for example, retarding oxidation or unwanted biological activity. Stabilisers may be selected from the group consisting of antioxidants including vitamin E, such as tocopherole, ascorbic acid, sodium pyrosulfite, butylhydroxytoluene, butylated hydroxyanisole, edetic acid and salts thereof; and preservatives including citric acid, tartaric acid, lactic acid, malic acid, acetic acid, benzoic acid, sorbic acid and salts thereof.

[0101] Binders may be provided. Suitable binders include starches and/or cellulosic binders such as methyl cellulose, ethyl cellulose, hydroxypropyl cellulose, hydroxyethyl cellulose and carboxymethyl cellulose, gums such as xanthan, guar, arabic and/or locust bean gum, organic acids and their salts such as alginic acid (sodium alginate), agar and pectins. In some embodiments the binder content is 5 to 10 wt% of the contents, e.g. around 6 to 9 wt% or 7 to 8 wt%.

[0102] In a second aspect the present disclosure provides a method of manufacturing the smokeless article according to the first aspect. In some examples, the method comprises (a) providing a content comprising the cellulosic material as defined in relation to the first aspect; and (b) enclosing the content within the pouch.

[0103] In some examples, the step of providing the content comprises a step of weighing all materials which make up the content into one or more vessels.

[0104] In some examples, the method further comprises a step of blending. The step of blending may comprise blending a combination of two or more of the cellulosic materials together. Alternatively or additionally, in some examples the step of blending may comprise blending one or more of the cellulosic materials with additional components of the content, for example one or more of flavourants, salts, humectants, biologically and/or pharmaceutically active compounds, sweeteners, stabilisers, binders, colourants, and fillers.

[0105] In some examples, the blending step comprises blending cellulosic material with other solid components. In some examples, the blending step comprises blending cellulosic material with one or more components selected from a filler, a salt, a sweetener, a flavourant, a binder, a stabiliser, and a biologically/pharmaceutically active compound.

[0106] In some examples, whilst the blending step is on-going, liquid components, such as water and/or one or more humectants, are added. In some examples, the liquid components include nicotine in water and/or one or more flavourants.

[0107] In some examples, the content produced following the blending step is filled into open or partially unformed pouches. In some examples, the pouches are then sealed.

[0108] In a **third aspect**, the present disclosure provides a use of the smokeless article according to the first aspect in oral delivery. A user may perceive that the pouch of the smokeless article resembles a snus pouch, such as in terms of at least one sensory characteristic selected from appearance, texture, odour and taste. Alternatively or additionally, a user may perceive that the content of the pouch of the smokeless article resembles snus of a snus pouch, such as in terms of at

least one sensory characteristic selected from appearance, texture, odour and taste. In some examples, the resemblance is in terms of at least two, at least three, or at least four sensory characteristics as discussed for the first aspect.

[0109] In a **fourth aspect**, the present disclosure provides a kit comprising one or more smokeless articles according to the first aspect and a container. In some examples, the kit comprises 2 to 20 smokeless articles.

[0110] In a **fifth aspect**, the present disclosure provides a use of cellulosic material in a pouch to mimic at least one of the appearance, texture, odour and taste of a snus pouch, wherein the cellulosic material is or comprises one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder.

[0111] In some examples, the use comprises mimicking at least two of the appearance, texture, odour and taste of a snus pouch, for example mimicking the appearance and texture, the appearance and odour, the appearance and taste, the texture and odour, the texture and taste, or the odour and taste of a snus pouch.

[0112] In some examples, the use comprises mimicking at least three of the appearance, texture, odour and taste of a snus pouch, for example mimicking the appearance, texture, and odour, the appearance, texture and taste, or the texture, odour and taste of a snus pouch.

[0113] In some examples, the use comprises mimicking each of the appearance, texture, odour and taste of a snus pouch.

[0114] In some examples, the use is use of the cellulosic material to mimic snus. The sensory characteristics which may be mimicked correspond with those outlined elsewhere herein.

[0115] Also disclosed is a smokeless article for oral delivery comprising a pouch enclosing a content consisting essentially of cellulosic material and optionally at least one of nicotine and caffeine.

[0116] "Consisting essentially of" is used here to mean that the content does not contain any additional components that may affect the object of the invention. In some examples, the content may further comprise some components including, for example, salts, sweeteners, pH regulators, water, flavourants, colourants, humectants and stabilisers, which do not affect the object of the invention. In these examples, the content may be free of tobacco and/or cannabinoids (i.e., the content may comprise 0 wt% of tobacco and/or cannabinoids).

[0117] In any of the examples of the aspects disclosed herein, the content may also be free of additional components which alter its sensory characteristics, for example its appearance, texture, odour and taste. In some examples, the content may be free of at least one of sweeteners, flavourants, and colourants. It may be desirable that the pouch of the smokeless article resembles a snus pouch without at least one of these sensory characteristic modifiers.

[0118] The preceding summary is provided for purposes of summarizing some examples to provide a basic understanding of aspects of the subject matter described herein. Accordingly, the above-described features should not be construed to narrow the scope or spirit of the subject matter described herein in any way. Moreover, the above and/or proceeding examples may be combined in any suitable combination to provide further examples, except where such a combination is clearly impermissible or expressly avoided. Other features, aspects, and advantages of the subject matter described herein will become apparent from the following text and the accompanying drawings.

BRIEF DESCRIPTION OF THE FIGURES

[0119] Aspects, features and advantages of the present disclosure will become apparent from the following description of examples in reference to the appended drawings in which like numerals denote like elements.

Fig. 1 shows a cross sectional view of a first embodiment of a smokeless article.

Fig. 2 shows a cross sectional view of a second embodiment of a smokeless article.

Fig. 3 shows a cross sectional view of a third embodiment of a smokeless article.

Fig. 4 shows a cross sectional view of a fourth embodiment of a smokeless article.

Fig. 5 shows a photograph of a container containing snus pouches.

Fig. 6 shows a photograph of a container containing a smokeless article of the invention comprising lapsang tea leaves.

Fig. 7 shows a photograph of a container containing a smokeless article of the invention comprising dulse seaweed.

Fig. 8 shows a photograph of a container containing a smokeless article of the invention comprising lapsang tea

leaves and coffee grinds.

DETAILED DESCRIPTION OF EMBODIMENTS

[0120] Before describing several examples implementing the present disclosure, it is to be understood that the present disclosure is not limited by specific construction details or process steps set forth in the following description and accompanying drawings. Rather, it will be apparent to those skilled in the art having the benefit of the present disclosure that the systems, apparatuses and/or methods described herein could be embodied differently and/or be practiced or carried out in various alternative ways.

[0121] Unless otherwise defined herein, scientific and technical terms used in connection with the presently disclosed inventive concept(s) shall have the meanings that are commonly understood by those of ordinary skill in the art, and known techniques and procedures may be performed according to conventional methods well known in the art and as described in various general and more specific references that may be cited and discussed in the present specification.

[0122] Any patents, published patent applications, and non-patent publications mentioned in the specification are hereby incorporated by reference in their entirety.

[0123] All examples implementing the present disclosure can be made and executed without undue experimentation in light of the present disclosure. While particular examples have been described, it will be apparent to those of skill in the art that variations may be applied to the systems, apparatus, and/or methods and in the steps or in the sequence of steps of the methods described herein without departing from the concept, spirit, and scope of the inventive concept(s). All such similar substitutions and modifications apparent to those skilled in the art are deemed to be within the spirit, scope, and concept of the inventive concept(s) as defined by the appended claims.

[0124] The use of the term "**a**" or "**an**" in the claims and/or the specification may mean "one," as well as "one or more," "at least one," and "one or more than one." As such, the terms "a," "an," and "the," as well as all singular terms, include plural referents unless the context clearly indicates otherwise. Likewise, plural terms shall include the singular unless otherwise required by context.

[0125] The use of the term "**or**" in the present disclosure (including the claims) is used to mean an inclusive "**and/or**" unless explicitly indicated to refer to alternatives only or unless the alternatives are mutually exclusive. For example, a condition "A or B" is satisfied by any of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

[0126] As used in this specification and claim(s), the words "**comprising**", "**having**", "**including**," or "**containing**" (and any forms thereof, such as "comprise" and "comprises," "have" and "has," "includes" and "include," or "contains" and "contain," respectively) are inclusive or open-ended and do not exclude additional, unrecited elements or method steps.

[0127] As used herein, a "**smokeless article for oral delivery**" is an article that does not need to be heated or burned in order to function. The smokeless article is for oral delivery, as used herein, the term "oral delivery" is intended to refer to any oral administration route achieved by placing the smokeless article into the oral cavity (mouth). This includes, but is not limited to, buccal, sub-lingual, periodontal, gingival and ingestion.

[0128] As used herein, references to "**resemblance to snus**" and similar terms, refer to a resemblance of the content to the contents of a conventional snus pouch. It follows that a smokeless article comprising contents which resemble snus may resemble a conventional pouch containing snus.

[0129] As used herein, "**wt%**" refers to relative weight percentage (i.e., the weight proportion).

[0130] As used herein, "**pH regulator**" refers to compounds that have the capacity to resist pH change to some extent so providing some ability to maintain pH in a specific buffer range.

[0131] As used herein, the term "**particle size**" may indicate the average (mean) of the longest dimension of the fibres. For example, a particle size of 50 μm indicates that in the population of fibres, the maximum fibre length is, on average, 50 μm .

[0132] As used herein, the term "**flavourant**" denotes a compound having a desirable taste, aroma or both.

[0133] Unless otherwise explicitly stated as incompatible, or the physics or otherwise of the embodiments, examples, or claims prevent such a combination, the features of examples disclosed herein, and of the claims, may be integrated together in any suitable arrangement, especially ones where there is a beneficial effect in doing so. This is not limited to only any specified benefit, and instead may arise from an "ex post facto" benefit. This is to say that the combination of features is not limited by the described forms, particularly the form (e.g. numbering) of example(s), embodiment(s), or dependency of claim(s). Moreover, this also applies to the phrase "in one embodiment," "according to an embodiment," and the like, which are merely a stylistic form of wording and are not to be construed as limiting the following features to a separate embodiment to all other instances of the same or similar wording. This is to say, a reference to 'an,' 'one,' or 'some' embodiment(s) may be a reference to any one or more, and/or all embodiments, or combination(s) thereof, disclosed. Also, similarly, the reference to "the" embodiment may not be limited to the immediately preceding embodiment. Further, all references to one or more embodiments or examples are to be construed as non-limiting to the claims.

[0134] As shown in Fig. 1 there is provided a first embodiment of a smokeless article 10 having a pouch 12 containing a

content 14. The pouch 12 is substantially rectangular. The pouch 12 is formed from a single sheet of material and is substantially filled by the content 14. The pouch 12 has a seal 16 along each of the three edges where the inner face of the single sheet meets itself to seal the content 14 in the pouch 12.

[0135] Fig. 2 shows a second embodiment of a smokeless article 10' having a pouch 12 containing a content 14. The pouch 12 is substantially circular. The pouch 12 is formed from two opposing sheets of material and is substantially filled by the content 14. The pouch has a circumferential seal 16 along the edges where the two opposing sheets of material meet to seal the content 14 in the pouch 12.

[0136] Fig. 3 shows a third embodiment of a smokeless article 10" that, like the first embodiment, has a pouch 12 made from a single sheet of material. However, one of the three seals 16' is formed by an overlap of the inner face and the outer face of the single sheet meet to seal the content 14 in the pouch 12. The remaining two seals at opposing ends of the pouch 12 are formed where the inner face of the single sheet meets itself.

[0137] Figure 4 shows a fourth embodiment of a smokeless article 10''' that comprises the second embodiment enclosed by outer pouch 12" having an outer content 14" positioned in the space between the inner pouch 12' and the outer pouch 12". The outer pouch 12" also has a circumferential seal 16''' to seal the outer content 14" and inner pouch 12' in the outer pouch 12".

[0138] Use of the fourth embodiment begins when the smokeless article 10''' is placed in the user's mouth where it is exposed to saliva. Saliva first permeates outer pouch 12" and dissolves and extracts the saliva soluble substances of outer content 14". Upon leaving the outer pouch 12", the saliva soluble substances of outer content 14" therefore provide the user with a first experience. Saliva subsequently further permeates the inner pouch 12' where it dissolves and extracts the saliva soluble substances of inner content 14'. The saliva soluble substances of inner content 14' therefore provide the user with a complimentary and secondary experience. When the extractable amount of saliva soluble substances in the inner content 14' and outer content 14" drops below perceivable levels the active lifetime of the smokeless article 10''' has ended.

EXAMPLES

Preparation of contents

[0139] The example contents were prepared according to the following method at the lab scale using a food processor.

1. All materials were dispensed into appropriately sized beakers using a 2 d.p. balance to determine weights.
2. Cellulosic material (coffee grinds), salt, sweeteners, and pH regulator are added to the food processor and mixed at full speed for 5 minutes.
3. Whilst mixing, the nicotine in water and flavourant is added over the course of 2-3 minutes.
4. The blend is mixed for a further 5 minutes, resulting in a final OND content.

[0140] The smokeless articles are then prepared by the following subsequent steps, making use of the content prepared as described above.

5. The content is filled into open or partially unformed pouches.
6. The open or partially unformed pouches are sealed and sprayed with water "water (sprayed)".

[0141] In this way, the following OND content (OND content 1) was prepared and inserted into pouches to form smokeless articles. Further OND contents were prepared by substituting the coffee grinds for the same w/w% amount (i.e., about 51.08 w/w%) of either lapsang tea leaves (OND content 2), vanilla rooibos tea (OND content 3), dulse seaweed (OND content 4), MARA seaweed dulse (OND content 5), MARA seaweed Kombu (OND content 6), corn silk (OND content 7), cocoa nibs (OND content 8), star anise (OND content 9), carob powder (OND content 10), and lapsang tea leaves and coffee grinds (OND content 11), which were each formed into smokeless articles.

[0142] Figure 5 shows a photograph of a container containing a plurality of snus pouches. Figure 6 shows a photograph of a container containing a plurality of smokeless articles filled with OND content 2. Figure 7 shows a photograph of a container containing a plurality of smokeless articles filled with OND content 4. Figure 8 shows a photograph of a container containing a plurality of smokeless articles filled with OND content 11.

OND content 1

Material	% w/w	mg/pouch
Nicotine	1.44	9.10
Water	7.12	45.00
Flavouring	3.95	25.00
Coffee grinds	51.08	323.00
Salt	1.90	12.00
Sweetener	2.62	16.60
pH Regulator	2.62	16.60
Water (Sprayed)	29.26	185.00
Total	100.0	632.30

[0143] The inventors performed qualitative experiments to compare the appearance, texture, odour and taste characteristics of each of OND contents 1-10 with a snus pouch. As shown below, the OND contents were scored in each of these sensory characteristic categories as either being a good match to a snus pouch (good), a medium match to a snus pouch (medium), or a poor match to a snus pouch (poor). Each of OND contents displayed at least one characteristic having at least a medium match to a snus pouch.

OND Content	Appearance	Texture	Odour	Taste
1	Good	Good	Good	Good
2	Good	Good	Poor	Poor
3	Good	Good	Poor	Poor
4	Good	Medium	Poor	Poor
5	Good	Medium	Poor	Poor
6	Medium	Medium	Poor	Poor
7	Good	Good	Medium	Medium
8	Medium	Medium	Good	Good
9	Medium	Medium	Good	Good
10	Medium	Medium	Good	Good

Claims

1. A smokeless article for oral delivery comprising a pouch enclosing a content comprising a cellulosic material, wherein the cellulosic material is or comprises one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder.
2. The smokeless article according to claim 1, wherein the cellulosic material is or comprises one or more of coffee grinds, corn silk, and cocoa nibs.
3. The smokeless article according to any one of claims 1 to 2, wherein the cellulosic material is or comprises one or more of coffee grinds and corn silk.

4. The smokeless article according to any one of claims 1 to 3, wherein the cellulosic material is or comprises coffee grinds.
5. The smokeless article according to any one of claims 1 to 4, wherein the cellulosic material is or comprises one or more selected from the group consisting of: corn silk, seaweed and carob powder.
6. The smokeless article according to any one of claims 1 to 5, wherein the seaweed is or comprises at least one of dulce seaweed and kombu seaweed.
7. The smokeless article according to any one of claims 1 to 6, wherein the content comprises nicotine.
8. The smokeless article according to any one of claim 1 to 7, wherein the content comprises a colourant.
9. The smokeless article according to any one of claims 1 to 8, wherein the content is free of cannabinoid compounds.
10. The smokeless article according to any one of claims 1 to 9, wherein the content is free of tobacco.
11. A method of manufacturing the smokeless article according to any one of claims 1 to 10, comprising:
- (a) providing a content comprising the cellulosic material wherein the cellulosic material is or comprises one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder; and
- (b) enclosing the content within the pouch.
12. A use of the smokeless article according to any one of claims 1 to 10 in oral delivery.
13. A kit comprising one or more smokeless articles according to any one of claims 1 to 10 and a container.
14. Use of cellulosic material in a pouch, to mimic at least one of the appearance, texture, odour and taste of a snus pouch, wherein the cellulosic material is or comprises one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, carob powder, and a combination of star anise with one or more selected from the group consisting of: coffee grinds, corn silk, cocoa nibs, lapsang tea, vanilla rooibos tea, seaweed, and carob powder.
15. Use according to claim 14, to mimic each of the appearance, texture, odour and taste of a snus pouch.

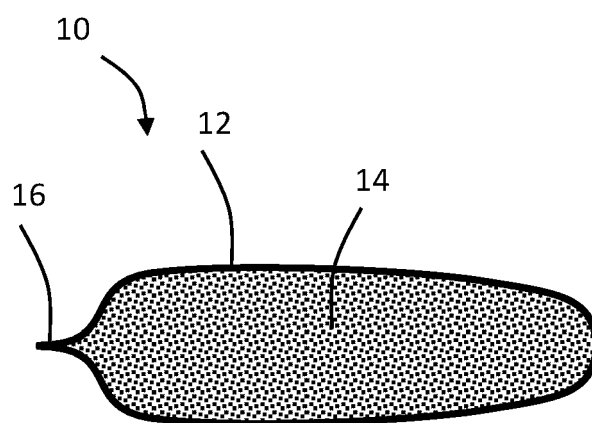


Fig. 1

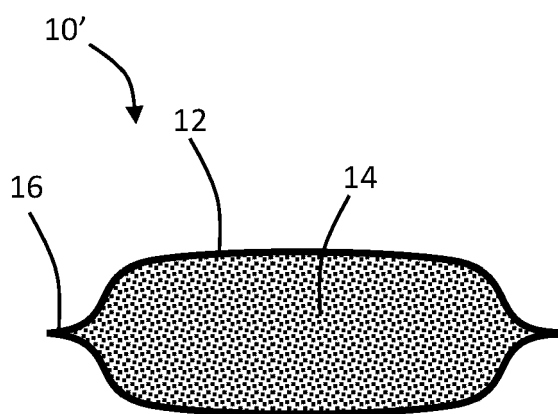


Fig. 2

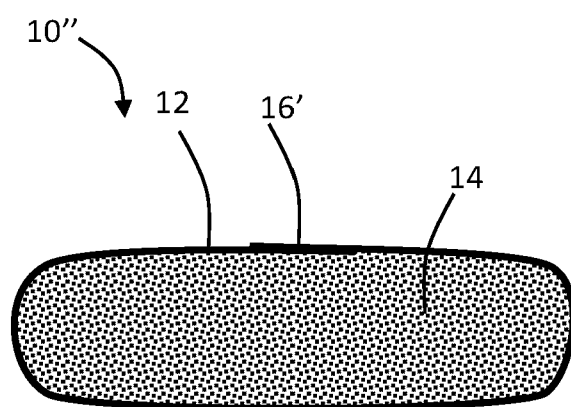


Fig. 3

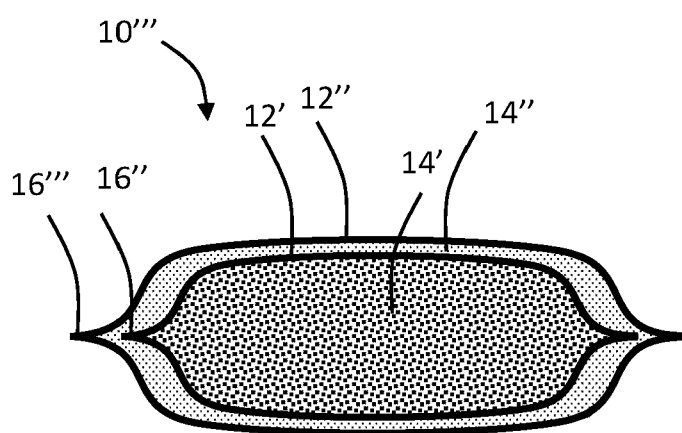


Fig. 4

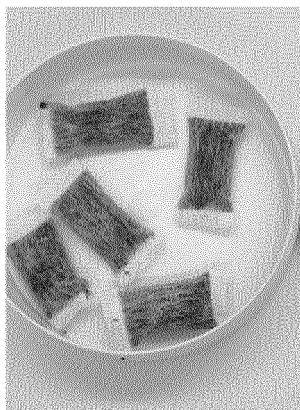


Fig. 5

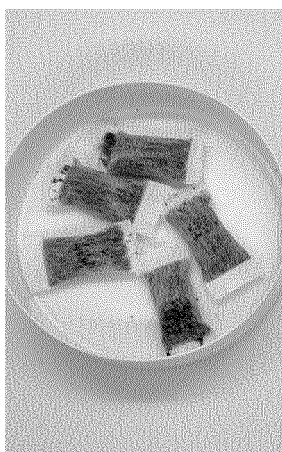


Fig. 6



Fig. 7



Fig. 8



EUROPEAN SEARCH REPORT

Application Number

EP 24 21 2201

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2023/143690 A1 (MAC BAREN TOBACCO COMPANY AS [DK]) 3 August 2023 (2023-08-03) * page 13, line 31 - page 14, line 2; claims 1, 2, 6, 12, 13, 15, 16; table I (F3) *	1,5-7, 9-15	INV. A24B13/00 A24B15/16 A24B15/30
X	WO 2023/143687 A1 (MAC BAREN TOBACCO COMPANY AS [DK]) 3 August 2023 (2023-08-03) * page 13, line 20 - line 24; claims 1,2,4,12,13; table I (F3) *	1,5-7, 9-15	
X	WO 2023/143689 A1 (MAC BAREN TOBACCO COMPANY AS [DK]) 3 August 2023 (2023-08-03) * page 16, line 7 - line 11; claims 1, 10,11,15,16; table I (F3) *	1,5-7, 9-15	
X	WO 2023/143688 A1 (MAC BAREN TOBACCO COMPANY AS [DK]) 3 August 2023 (2023-08-03) * page 14, line 12 - line 16; claims 1,3,5,6,7,12,13; table I (F3) *	1,5-15	TECHNICAL FIELDS SEARCHED (IPC) A24B
X	US 2023/320407 A1 (CARROLL ANDREW NATHAN [US] ET AL) 12 October 2023 (2023-10-12) * paragraph [0006]; claims 2,3,5,21 * * paragraph [0064] *	1,3,5,7, 9-14	
X	WO 2013/185060 A2 (FOUNDATION BRANDS LLC [US]) 12 December 2013 (2013-12-12) * paragraph [0023] - paragraph [0032]; claims 1,4,9,10,26 * * paragraph [0040] *	1,2,5, 7-15	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 April 2025	Examiner Munteanu, I
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : 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	



EUROPEAN SEARCH REPORT

Application Number

EP 24 21 2201

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2007/031539 A1 (CALTON JIM S JR [US]) 8 February 2007 (2007-02-08) * paragraph [0019] * * paragraph [0034] * -----	1-4,9-14	TECHNICAL FIELDS SEARCHED (IPC)
X	US 2017/210550 A1 (SIU SERGIO [US]) 27 July 2017 (2017-07-27) * claims 1-5 * * paragraph [0011] - paragraph [0014] * -----	1-4,9-14	
X	EP 2 552 228 B1 (PHILIP MORRIS PRODUCTS SA [CH]) 28 June 2017 (2017-06-28) * paragraph [0023] - paragraph [0027] * * paragraph [0079] * -----	1,7,9-14	
X	US 2013/236605 A1 (CRAWFORD DANIELLE R [US] ET AL) 12 September 2013 (2013-09-12) * claims 1-2,19-20 * -----	1,9-14	
X	US 2012/167904 A1 (MORROW ANTHONY [US]) 5 July 2012 (2012-07-05) * claims 1-5 * * paragraph [0006] - paragraph [0008] * -----	1,7,9-15	
X	CN 107 411 167 A (TEA RES INSTITUTE CHINESE ACADEMY OF AGRICULTURAL SCIENCES) 1 December 2017 (2017-12-01) * claims 1-8 * * paragraph [0027] - paragraph [0053] * -----	1,7,9, 11-15	
E	WO 2025/056711 A1 (CONTRAF NICOTEX TOBACCO GMBH [DE]) 20 March 2025 (2025-03-20) * page 2, line 15 - line 24; claims 1, 6, 10, 14; table 1 * * page 3, line 13 - line 14 * * page 5, line 24 - line 27 * * page 8, line 24 - line 25 * * page 8, line 28 - line 29 * * page 17, line 20 - page 18, line 11 * -----	1,2,7, 9-12,14	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 April 2025	Examiner Munteanu, I
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : 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	

1

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 24 21 2201

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-04-2025

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2023143690 A1	03-08-2023	DK 202270041 A1 EP 4468885 A1 WO 2023143690 A1	03-10-2023 04-12-2024 03-08-2023
WO 2023143687 A1	03-08-2023	DK 202270039 A1 EP 4468888 A1 WO 2023143687 A1	29-09-2023 04-12-2024 03-08-2023
WO 2023143689 A1	03-08-2023	DK 202270040 A1 EP 4468887 A1 WO 2023143689 A1	03-11-2023 04-12-2024 03-08-2023
WO 2023143688 A1	03-08-2023	DK 202270037 A1 EP 4468889 A1 WO 2023143688 A1	03-11-2023 04-12-2024 03-08-2023
US 2023320407 A1	12-10-2023	CA 2905059 A1 CA 2905063 A1 CA 2905069 A1 EP 2967123 A1 EP 2967124 A1 EP 4218429 A2 US 2014261472 A1 US 2014261484 A1 US 2014261979 A1 US 2016360778 A1 US 2017208854 A1 US 2017245544 A1 US 2018199619 A1 US 2019274351 A1 US 2019297935 A1 US 2020120972 A1 US 2020196655 A1 US 2021137155 A1 US 2021378284 A1 US 2022295865 A1 US 2023320407 A1 US 2024164434 A1 US 2025089759 A1 US 2025098727 A1 WO 2014152938 A1 WO 2014152945 A1 WO 2014152956 A1	25-09-2014 25-09-2014 25-09-2014 20-01-2016 20-01-2016 02-08-2023 18-09-2014 18-09-2014 18-09-2014 15-12-2016 27-07-2017 31-08-2017 19-07-2018 12-09-2019 03-10-2019 23-04-2020 25-06-2020 13-05-2021 09-12-2021 22-09-2022 12-10-2023 23-05-2024 20-03-2025 27-03-2025 25-09-2014 25-09-2014 25-09-2014
WO 2013185060 A2	12-12-2013	US 2015136160 A1 WO 2013185060 A2	21-05-2015 12-12-2013

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 24 21 2201

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-04-2025

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007031539 A1	08-02-2007	NONE	
US 2017210550 A1	27-07-2017	NONE	
EP 2552228 B1	28-06-2017	BR 112012024378 A2 CA 2794384 A1 DK 2552228 T3 EP 2552228 A1 JP 2013523102 A KR 20130020886 A MX 338013 B MY 162418 A PL 2552228 T3 RU 2012145456 A TW 201138849 A UA 112963 C2 US 2011236442 A1 US 2012312312 A1 US 2014093544 A1 WO 2011116977 A1	15-09-2015 29-09-2011 28-08-2017 06-02-2013 17-06-2013 04-03-2013 30-03-2016 15-06-2017 31-10-2017 10-05-2014 16-11-2011 25-11-2016 29-09-2011 13-12-2012 03-04-2014 29-09-2011
US 2013236605 A1	12-09-2013	US 2009025741 A1 US 2013236605 A1 WO 2009010884 A2	29-01-2009 12-09-2013 22-01-2009
US 2012167904 A1	05-07-2012	NONE	
CN 107411167 A	01-12-2017	NONE	
WO 2025056711 A1	20-03-2025	EP 4523549 A1 WO 2025056711 A1	19-03-2025 20-03-2025

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82