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(54) **DRIED TOBACCO ARTICLE MANUFACTURING**

(57) The invention relates to an aerosol generating article for being used in a heat-not-burn device, comprising: a container comprising a substantially hermetically sealed enclosure; and a smokable material comprised in the substantially hermetically sealed enclosure comprising dried tobacco lamina material and at least one other aerosol generating agent, wherein the smokable material has a moisture content below 12% by weight of the total weight of the smokeable material.

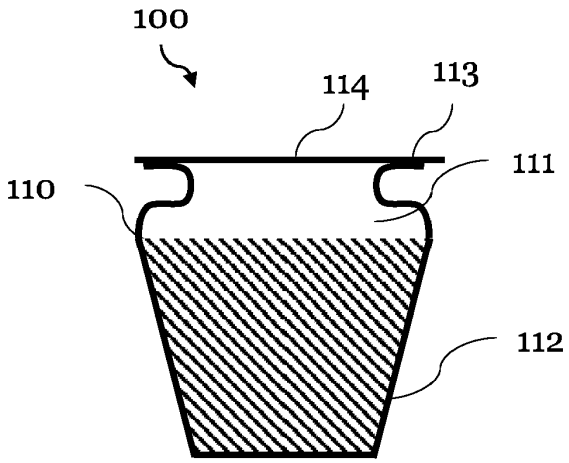

Fig. 1

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Description

TECHNICAL FIELD

[0001] The present invention relates to an aerosol generating article for being used in an aerosol generating device, to a system comprising the aerosol generating device and the aerosol generating device as well as to a method for manufacturing the aerosol generating article.

BACKGROUND

[0002] An aerosol generating device, or E-cigarette, is now a mainstream product to simulate a traditional tobacco cigarette. There are many types of aerosol generating devices, one of them having an operation method which is to heat a tobacco product to generate an aerosol without causing the tobacco to burn. These so-called heat-not-burn (HNB) devices are increasingly popular.

[0003] The heat-not-burn devices generally operate with a tobacco article that is inserted into the device and heated by a heating element comprised in the heat-not-burn device. Various tobacco articles are commercially available. While tobacco articles similar to classic cigarettes are most common, tobacco articles in the form of a cartridge such as a capsule comprising tobacco material are a viable alternative. Since the tobacco material remains inside the capsule while the article is consumed, there is less residue after consuming the article and less cleaning of the aerosol generating device is required. Moreover, the capsule design allows to use different materials, such as a thermal conductor material which allows to heat the tobacco material faster.

[0004] To meet consumer needs, it is desired to provide tobacco products with different taste and smoking characteristics. This is commonly achieved by adding aerosol generating agents such as a humectant to the tobacco to enhance the flavor, the amount of nicotine and the amount of aerosol generated from the tobacco. However, since humectants are hygroscopic and attract moisture from the atmosphere the moisture content of the tobacco product increases over time. The more moisture the tobacco product comprises, the more heat is required to generate the aerosol from the tobacco product. Consequently, more energy must be provided by the energy source and the battery drains faster. Moreover, as the amount of moisture changes in the composition, the delivery of volatiles (nicotine and flavour) is difficult to control accurately.

[0005] Therefore, it is desired to provide a capsule-type tobacco product that has the above-described benefits while extensive heating of the tobacco product is not required to generate the aerosol and the taste experience can be controlled more accurately.

[0006] One or more of these objects are achieved by the subject-matter of the independent claims. Preferred embodiments are subject of the dependent claims.

SUMMARY OF THE INVENTION

[0007] The present invention provides a device which solves some or all of the above problems.

[0008] A 1st embodiment of the invention is directed to an aerosol generating article for use in a heat-not-burn device, comprising a container comprising a substantially hermetically sealed enclosure, and a smokable material comprised in the substantially hermetically sealed enclosure comprising dried tobacco lamina material and at least one other aerosol generating agent, wherein the smokable material has a moisture content below 12% by weight of the total weight of the smokeable material.

[0009] According to a 2nd embodiment, in the 1st embodiment, the smokable material has a moisture content preferably below 11% by weight, more preferably below 10% by weight, and most preferably below 9% by weight, and/or preferably above 5% by weight, more preferably above 6% by weight, and most preferably above 7% by weight.

[0010] With the above arrangement, it is possible to maintain a relatively low moisture content in the aerosol generating article. Aerosol generating agents such as humectants and solvents that are used for nicotine and flavor delivery tend to draw moisture from the atmosphere, causing an increase in the moisture content of the smokeable material. By substantially hermetically sealing the enclosure containing the smokeable material exposure to the atmosphere is reduced and the moisture content remains constant. Since evaporating water requires a lot of heat, and some of this heat will also spread to the mouthpiece, less water means less heating of the mouthpiece, which is desirable for a user. Moreover, the time required to generate the aerosol decreases with a decrease in moisture content of the smokeable material.

[0011] According to a 3rd embodiment, in any one of the preceding embodiments the dried tobacco material comprises reconstituted tobacco, RTB, material.

[0012] RTB material is generally provided in relatively consistent sheets. Using RTB sheets facilitates cutting and portioning of the tobacco material for use as the smokeable material. In particular, this facilitates the use of tobacco lamina in containers with relatively small volume.

[0013] According to a 4th embodiment, in any one of the preceding embodiments, the at least one other aerosol generating agent is a humectant, solvent and/or flavoring agent.

[0014] According to a 5th embodiment, in any one of the preceding embodiments, the at least one aerosol generating agent is selected from a glycol such as propylene glycol or triethylene glycol, glycerol, glycerol derivates, an acid such as lactic acid, triethyl citrate, triacetin, a polyol such as sorbitol, a non-polyol such as monohydric alcohols, high boiling point hydrocarbons, esters such as diacetin, triacetin, triethylene, trethyl citrate, glycol diacetate, myristates such as ethily myristate and isopropyl myristate, aliphatic carboxyilic acid esters such as

methyl stearate, dimethyl tetradecanedioate and dimethyl dodecanedioate, or a combination thereof.

[0015] By providing at least one other aerosol generating agent, such as a humectant, a solvent and/or a flavoring agent, the provision of aerosol can be improved. It is possible to tailor the aerosol provided to the user in accordance with user preferences. For example, the at least one other aerosol generating agent may increase the density of the aerosol provided to the user and/or provide a certain flavor and/or a certain amount of nicotine.

[0016] According to a 6th embodiment, in any one of the preceding embodiments, the container is a pod comprising a flange and a sealing membrane attached to the flange.

[0017] Forming the container as a pod comprising a flange and a sealing membrane attached to the flange provides a relatively simple arrangement for a substantially hermetically sealed enclosure. Moreover, the flange provides a contact area that allows to strengthen the connection between the container and the sealing membrane, such that the enclosure is more durable. In particular, adhesives may be applied to the flange to chemically connect the flange with the sealing membrane, or the sealing membrane may be mechanically deformed such that it surrounds the flange connection, which increases the strength of the connection.

[0018] According to a 7th embodiment, in the preceding embodiment, the sealing membrane is attached to the flange, using any one or more of an adhesive preferably an epoxy adhesive, heat sealing, ultrasonic welding and/or laser welding.

[0019] According to a 8th embodiment, in any one of the preceding embodiments, the container comprises a metal, preferably aluminum or stainless steel, a ceramic and/or a polymeric material preferably a polyester, or a polymer laminate (e.g. polyolefin based such as PP, PE, PET) comprising a diffusion barrier such as PVDC, LDPE, LLDPE, HDPE, or a metallized polymer film such as metallized PE or PET, or a polymer (such as polyester) with a thin-film coating.

[0020] According to a 9th embodiment, in any one of the preceding embodiments, the container comprises a material having a Moisture Vapor Transmission Rate (MVTR) of at most 2, preferably at most 1.5 and more preferably at most 1.

[0021] According to an 10th embodiment, in any one of the preceding embodiments, the container comprises a thermally conductive material and is configured to transfer heat to the smokeable material by means of the thermally conductive material.

[0022] According to a 11th embodiment, in the preceding embodiment, the thermally conductive material comprises a metal, preferably aluminum and/or stainless steel.

[0023] This allows to generate the aerosol without requiring any heating elements in the smoking article. This allows for a simple design of the container. Moreover, heat provided from an external source is directed to the tobacco product more efficiently when then container comprises thermally conductive material. Thereby, the energy consumption of the device decreases.

[0024] According to a 12th embodiment, in any one of the preceding embodiments, the container is configured to be in thermal transfer with a resistive and/or radiant heating element configured to heat the smokeable material in the container.

[0025] According to an 13th embodiment, in any one of the 1st to 9th embodiments, the aerosol generating article is configured to be heated using induction heating, wherein a susceptor is preferably embedded in the tobacco material and/or in the container.

[0026] The above configuration of the aerosol generating article allows to generate an aerosol even if no external heater is available. For example, the aerosol generating article may be inserted into a device comprising only an inductive coil configured to inductively heat the smokeable article such that an aerosol is formed. This allows to omit a complex heating element, and thereby reduces the requirements for heating the article in an aerosol generating device without having to add any parts to the aerosol generating article. It is therefore possible to use the aerosol generating article in a variety of aerosol generating devices.

[0027] According to a 14th embodiment, in any of the preceding embodiments, the aerosol generating article is configured to be inserted into a heating chamber configured to be heated by means of a heating assembly using resistive heating, radiant heating and/or induction heating, wherein the heating assembly is preferably comprised by the heat-not-burn device.

[0028] A 15th embodiment of the invention is directed to a method for manufacturing an aerosol generating article, preferably according to any one of the preceding embodiments, comprising the steps of drying tobacco lamina material, mixing the dried tobacco lamina material with at least one other aerosol generating agent to obtain smokable material having a moisture content below 12% by weight of the total weight of the smokeable material, preferably below 11% by weight, more preferably below 9% by weight, and/or preferably above 5% by weight, more preferably above 6% by weight and most preferably above 7% by weight, and enclosing the smokeable material substantially hermetically in an enclosure comprised by the aerosol generating article.

[0029] The above method allows to obtain the smoking article described in the previous embodiments, in particular an aerosol generating article with a relatively low moisture content that can be heated without having to apply extensive heating to the aerosol generating article.

[0030] According to a 16th embodiment, in the preceding embodiment, the steps of drying, mixing and enclosing are performed one after the other, wherein the time span between the performance of each of the steps of drying, mixing and enclosing is at most 60 minutes.

[0031] According to a 17th embodiment, in the preced-

ing embodiment, the time span is at most 1 minute and preferably at most 10s.

[0032] By performing the steps substantially immediately one after the other, and/or within a relatively short time span, it is prevented that the smokeable material having a relatively low moisture content draws moisture from the atmosphere. It is thereby ensured that the moisture content stays on a relatively low level.

[0033] According to a 18th embodiment, in any one of the 15th to 17th embodiments, the drying step comprises one or more of the steps of drying tobacco leaves, cutting the dried tobacco leaves into small strips to obtain tobacco lamina material, and drying the tobacco lamina material to obtain dried tobacco lamina material.

[0034] By drying the already dried tobacco material, the moisture content of the tobacco lamina material can be further decreased.

[0035] According to a 19th embodiment, in any one of the 15th to 18th embodiments, the drying step is performed for at most 10 seconds, preferably at most 5 seconds and most preferably for at most 2 seconds.

[0036] The above arrangement prevents damage to the delicate natural material, as the tobacco material is dried for only a relatively short period of time.

[0037] According to an 20th embodiment, in any one of the 15th to 19th embodiments, the drying step involves a drum drying process, a freeze-drying process and/or a spraydrying process.

[0038] The above drying methods are capable of drying the tobacco lamina material as required, without damaging the tobacco material.

[0039] According to a 21st embodiment, in any one of the 15th to the 20th embodiments, the step of enclosing the aerosol generating article substantially hermetically comprises one or more of the steps of providing a container comprising a hermetically sealable enclosure, filling the container with the smokable material, and closing and sealing the container filled with the smokable material substantially hermetically.

[0040] According to a 22nd embodiment, in any one of the 15th to 21st embodiments, at least one, preferably all of the steps of drying, mixing and enclosing are performed in a controlled atmosphere, preferably a humidity-controlled atmosphere and/or the atmosphere to which the tobacco material is subjected between the steps is controlled, preferably humidity-controlled, the humidity-controlled atmosphere preferably having a relative humidity (RH) of below 50% RH, more preferably below 30% RH and most preferably below 20% RH.

[0041] Controlling the atmosphere during the manufacturing steps allows to prevent that the smokeable material draws moisture from the atmosphere, in particular if the atmosphere is controlled in such a way that the relative humidity of the atmosphere is low.

[0042] According to a 23rd embodiment, in any one of the 15th to 22nd embodiments, the mixing step is performed in a stirrer tank which is substantially hermetically closed.

[0043] By performing the mixing step in a substantially hermetically closed stirrer tank, the smokeable material cannot draw additional moisture from the atmosphere. This is particularly relevant in this step, as the smokeable material is particularly susceptible to humidity in the atmosphere during the mixing step.

[0044] A 24th embodiment of the invention is directed to a method for manufacturing an aerosol generating article, preferably according to any one of embodiments 1 to 14, comprising the steps of mixing reconstituted tobacco material (RTB) with at least one other aerosol generating agent to obtain a slurry, drying the slurry to obtain smokable material having a moisture content of below 12% by weight of the total weight of the smokeable material, preferably below 11% by weight, more preferably below 9% by weight, and/or preferably above 5% by weight, more preferably above 6% by weight and most preferably above 7% by weight, by weight of the total weight of the smokeable material, and enclosing the smokeable material substantially hermetically in an enclosure comprised by the aerosol generating article.

[0045] Using reconstituted tobacco material facilitates manufacturing of the smokeable material. That is, reconstituted tobacco material is generally provided in sheets which are easier to handle and to work with. Moreover, reconstituted tobacco material is often provided in various configurations. For example, one variety may comprise a higher concentration of volatiles (such as nicotine and flavor components) as another variety. Thus, providing a smokeable material with specific desired properties is facilitated.

[0046] A 25th embodiment of the invention is directed to an aerosol generating article according to any one of the 1 to 14th embodiments obtained by a method according to any one of the 15th to 22nd embodiments.

[0047] A 26th embodiment of the invention is directed to an aerosol generating system comprising an aerosol generating article according to any one of the 1st to 14th embodiments, and/or manufactured according to any one of the 15th to 23rd embodiments, and an aerosol generating device configured to receive the aerosol generating article and comprising a power source and a heating assembly comprising a resistive heating system, a radiant heating system and/or an inductive heating system, powered by the power source.

[0048] According to a 27th embodiment, in the preceding embodiment, the aerosol generating device comprises a perforating member configured to be poked into the enclosure of the aerosol generating article and create an opening in the enclosure when the aerosol generating system is assembled by inserting the aerosol generating article into the aerosol generating device.

[0049] According to a 28th embodiment, in the preceding embodiment, the aerosol generating device comprises a mouthpiece comprising the perforating member.

[0050] According to a 29th embodiment, in any one of the 26th to 28th embodiments, the aerosol generating device comprises:

a first perforating member configured to be poked into the enclosure of the aerosol generating article and create a first opening in the enclosure when the aerosol generating system is assembled by inserting the aerosol generating article into the aerosol generating device;

a second perforating member configured to be poked into the enclosure of the aerosol generating article and create a second opening in the enclosure when the aerosol generating system is assembled by inserting the aerosol generating article into the aerosol generating device.

[0051] According to a 30th embodiment, in the preceding embodiment, the first opening is an air inlet configured to provide air into the enclosure and the second opening is an aerosol outlet configured to release the aerosol from the enclosure.

[0052] By providing the aerosol generating device with a perforating member, preferably a mouthpiece with a perforating member, the user can poke an opening into the enclosure when he intends to use the device. In fact, when the aerosol is generated inside the substantially hermetically sealed enclosure inside the aerosol generating article, the aerosol can only escape through this opening. Moreover, the substantially hermetically enclosure remains closed until the user desires to consume the product. Therefore, the low moisture content can be maintained until the capsule is opened/perforated, i.e., until the user wants to consume the product.

[0053] Preferred embodiments are now described, by way of example only, with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0054]

Figure 1: is a schematic view of the aerosol generating article in an exemplary embodiment;

Figure 2: is an explosion view of the aerosol generating system in a disassembled state in an exemplary embodiment;

Figure 3: is a schematic drawing showing the aerosol generating system in an assembled state in an exemplary embodiment.

Figure 4: is a schematic drawing illustrating the drying step in an exemplary embodiment;

Figure 5: is a schematic drawing illustrating the mixing step in an exemplary embodiment;

Figure 6: is a schematic drawing illustrating the enclosing step in an exemplary embodiment.

DETAILED DSCRIPTION OF THE PREFERRED EMBODIMENTS

[0055] Preferred embodiments of the present invention are described hereinafter with reference to the drawings.

[0056] Figure 1 is a schematic view of an aerosol generating article 100 according to an exemplary embodiment. The aerosol generating article 100 comprises a container 110 comprising a substantially hermetically sealed enclosure 111 and a smokeable material 112 comprised in the substantially hermetically sealed enclosure 111. The smokeable material 112 comprises dried tobacco lamina material and at least one aerosol generating agent other than the dried tobacco lamina material, wherein the moisture content of the smokeable material 112 is below 12% by weight of the total weight of the smokeable material 112, preferably below 11% by weight, more preferably below 10% by weight, and most preferably below 9% by weight and/or above 5% by weight, preferably above 6% by weight and most preferably above 7% by weight. In some examples, the moisture content is ranging from 5% to below 12%, or preferably from 5% to 11%, or preferably from 5% to 10%, or preferably from 5% to 9% by weight of the total weight of the smokeable material 112. In some further examples, the moisture content is ranging from 6% to below 12%, or preferably from 6% to 11%, or preferably from 6% to 10%, or preferably from 6% to 9% by weight of the total weight of the smokeable material 112. In some further examples, the moisture content is ranging from 7% to below 12%, or preferably from 7% to 11%, or preferably from 7% to 10%, or preferably from 7% to 9% by weight of the total weight of the smokeable material 112.

[0057] The smokeable material 112 is configured to provide an inhalable aerosol when it is heated up to a certain temperature. In an exemplary embodiment, the aerosol is formed between 100°C and 350°C, preferably between 150°C and 300°C, more preferably between 190°C and 270°C and most preferably between 200°C and 250°C. In an exemplary embodiment, the heat may be provided to the aerosol generating article 100 by an external heat source, such as a heating assembly 212 of an aerosol generating device into which the aerosol generating article 100 may be inserted. In this embodiment, heat is transferred by means of thermal conduction from the external heat source through the container 110 of the aerosol generating article 100 to the smokeable material 112. In another exemplary embodiment, the aerosol generating article 100 may comprise a susceptor and be configured to heat the smokeable material 112 when an electromagnetic field is applied to the aerosol generating article 100. The susceptor may be embedded in the smokeable material 112 and/or in the container 110. A coil for providing the electromagnetic field may be part of the aerosol generating article 100 or part of an external device, such as an aerosol generating device 210 comprising a power source 212.

[0058] The at least one other aerosol generating agent

is added to the smokeable material 112 to improve the flavor and/or generation of the aerosol. In an exemplary embodiment, the at least one other aerosol generating agent may be one or more of a solvent, a humectant and/or a flavoring agent. Exemplary aerosol generating agents are a glycol such as propylene glycol or triethylene glycol, glycerol, glycerol derivates, an acid such as lactic acid, triethyl citrate, triacetin, a polyol such as sorbitol, a non-polyol such as monohydric alcohols, high boiling point hydrocarbons, esters such as diacetin, triacetin, triethylene, trethyl citrate, glycol diacetate, myristates such as ethily myristate and isopropyl myristate, aliphatic carboxyilic acid esters such as methyl stearate, dimethyl tetradecanedioate and dimethyl dodecanedioate, or a combination thereof. The at least one other aerosol generating agent may also comprise a flavoring agent to obtain an apple, cherry, chocolate, honey, grape, menthol, mint, peach, rum, strawberry, "sweet" (including bubble gum, candy, mango, blueberry, strawberry, orange, gum mint, banana and toffee) and/or vanilla taste. For example, by adding one or more of an ethylvanillin (vanilla), menthol, isoamyl acetate (banana oil) or other commonly known flavoring agents. Moreover, caffeine or nicotine may also be added to enhance the taste sensation for a user.

[0059] A high moisture content means that more liquid must be evaporated until the smokeable material 112 reaches the temperature required to obtain the aerosol from the smokeable material 112. However, excessive heat maybe disadvantageous, as it requires more power, and may also heat up the device providing the heat, which is not desired by the user. Moreover, some devices 210 may only be able to provide a certain amount of heat, such that it can take an unpleasantly long time until the aerosol is provided by the smokeable material 112 if the moisture content is high.

[0060] Thus, in an exemplary embodiment, the at least one other aerosol generating agent represents between 5% and 50% by weight of the dried tobacco lamina material, preferably between 8% and 30% by weight of the dried tobacco lamina material and most preferably between 10% to 25% of the dried tobacco lamina material. These ranges have proven to provide a smokeable material 112 that generates an aerosol with good properties for a user, i.e., that provides a good taste, a good mouthfeel to the user and heats fast without requiring excessive heat.

[0061] In traditional aerosol generating articles 100, smokeable material 112 with low moisture content as well as some aerosol generating agents, such as glycerol, tend to draw moisture from the atmosphere such that the moisture content of the smokeable material 112 increases over time. However, in view of the above, it is beneficial to maintain a constant, low moisture content of the smokeable material 112. This can be achieved by storing the smokeable material 112 in the substantially hermetically sealed enclosure 111, such that exposure of the smokeable material 112 to the atmosphere is minimized. That is, the substantially hermetically sealed enclosure 111 should at least be hermetically sealed such that moisture cannot enter the enclosure 111. This prevents or at least makes it more difficult for the smokeable material 112 to draw moisture from the surrounding atmosphere and keeps the moisture content constant.

[0062] To ensure that the smokeable material 112 does not draw moisture through the container 110, it is beneficial that the container 110 comprises material with a relatively low moisture vapor transmission rate (MVTR)/water vapor transmission rate (WVTR) or oxygen transmission rate (OTR). The MVTR/WVTR is a measure of how much moisture/water passes through a surface of 1 m^2 of a substance in 24 h, whereas the OTR indicates how much oxygen/gas passes through the surface. Thus, the lower the MVTR/WVTR or the OTR of the container material, the less liquid and/or oxygen can diffuse through the material and therefore the higher the capability of the container to maintain a constant moisture content.

[0063] To facilitate heating of the smokeable material 112 to reach the temperature required to form the inhalable aerosol, container materials that show good thermal conductivity properties are preferred.

[0064] In an exemplary embodiment, the container 110 may comprise or consist of materials such as metal, ceramic, a polymeric material, or a combination thereof, and a thermally conductive material configured to transfer heat to the smokeable material 112. For example, the thermally conductive material may comprise a metal such as aluminum and/or stainless steel, or a polymer/ceramic material with a good thermal conductivity.

[0065] Polymers having an MVTR/WVTR/OTR below 10 $cm^3/m^2/24h$, preferably below 8 $cm^3/m^2/24h$, more preferably below 6 $cm^3/m^2/24h$ and most preferably below 5 $cm^3/m^2/24h$ are considered polymers with good MVTR/WVTR/OTR properties, wherein metals such as aluminum or stainless steel can even have an MVTR/WVTR/OTR as low as 1×10^-3 $cm^3/m^2/24h$ (aluminum foil) or even below 1×10^-5 $cm^3/m^2/24h$ (stainless steel). Even though the above seems to indicate that metals are the preferred material for the container 110, containers comprising polymers are cheaper and easier to manufacture when compared to metal containers. Thus, in some embodiments, a container comprising a polymer material is preferred.

[0066] When an inexpensive base material is preferred but the thermal conductivity and the MVTR/WVTR/OTR is also critical, the thermal conductivity and the MVTR/WVTR/OTR of the base materials can be enhanced by multiple orders of magnitude by applying a coating such as a thin film coating to the container 110. In an exemplary embodiment, the container 110 may comprise a base material comprising a ceramic, a polymeric material or a metal having a coating that enhances the thermally conductive properties of the container 110, for example by providing a particularly good thermal conductor such as gold or platinum in the coating. In another

exemplary embodiment, the container 110 may comprise a coating that enhances the MVTR property or the OTR property of the container 110 (i.e., reduce the MVTR/OTR). In this case, the coating functions as a diffusion barrier for the container 110, such that it is prevented or at least made more difficult that oxygen and/or vapor may pass/diffuse through the container 110.

[0067] For example, the polymer may be one or more of a polyester, or a polymer laminate (e.g., polyolefin based such as PP, PE, PET) comprising a moisture barrier such as PVDC, LDPE, LLDPE, HDPE, or a metallized polymer film such as metallized PE or PET, or a polymer (such as polyester) with thin-film barrier coating

As seen in Fig. 1, the container 110 may comprise at least one flange 113 at an opening of the container 110. The flange 113 may be part of the container 110 or may be attached to the container 110. A sealing membrane 114 may be connected to the at least one flange 113 such that the membrane 114 substantially hermetically closes the container 110. Substantially hermetically closed (or sealed), as used herein, relates to closed in a way that the atmosphere inside the container 110 is only negligibly exposed to the atmosphere outside of the container 110, preferably not exposed to the atmosphere outside of the container 110 at all. The sealing membrane 114 may be connected directly to the flange 113, or it may be attached to an intermediate layer between the flange 113 and the sealing membrane 114 configured to connect the sealing membrane 114 with the flange, such as an adhesive like a glue, for example an epoxy adhesive. The sealing membrane 114 may be attached to the flange 113 mechanically, for example by pressing and/or deforming the sealing membrane 114 onto the flange 113 by applying pressure and/or welding such as ultrasonic welding or laser welding, or chemically, for example by means of the adhesive or a chemical reaction between the sealing membrane 114 and the flange 113, or a combination thereof. The sealing membrane 114 may also be attached to the flange 113 by means of heat, for example by means of heat sealing. It is preferred that the sealing membrane 114 has a relatively low MVTR/WVTR/OTR, and preferably a relatively high thermal conductivity. Providing the container 110 with the flange 113 and the sealing membrane 114 facilitates enclosing the container 110, as connecting the sealing membrane 114 to the container 110 is facilitated.

[0068] In an exemplary embodiment, the container 110 is formed as a pod having a truncated-cone-shape. In this embodiment, the flange 113 is configured to surround the circular area of the truncated cone having the larger diameter forming an opening of the container 110. Inside the truncated-cone-shaped container 110, the enclosure 111 is formed into which the smokeable material 112 is inserted. A circular, thin sealing membrane 114 is connected to the container 110 by means of the flange 113 to substantially hermetically enclose/seal the container. When formed in this way, the smokeable material 112 is substantially hermetically enclosed in the pod. If materials with good MVTR/WVTR/OTR properties are used for the container 110, it is ensured that the moisture content of the smokeable material 112 inside the pod is maintained. Since the sealing membrane 114 is thin, it is possible to puncture the sealing membrane 114 such that an opening into the container 110 is formed, to access the smokeable material 112.

[0069] Figure 2 shows an explosion view of an aerosol generating system 200 in a disassembled state comprising an aerosol generating device 210, the aerosol generating article 100, and a mouthpiece 215 with a perforating member 214, according to an exemplary embodiment. The aerosol generating device 210 may comprise a heating assembly 212 and a power source 211 configured to power the heating assembly 212. The power source 211 may be a battery providing electrical power to the heating assembly 212.

[0070] The heating assembly 212 may comprise a resistive heating system or an inductive heating system configured to provide heat to the aerosol generating article 100. In another embodiment, the heating assembly 212 may comprise the coil configured to apply an electromagnetic field to the susceptor of/in the aerosol generating article 100 and thereby heat the smokeable material 112.

[0071] The mouthpiece 215 may be removably attached to the aerosol generating device 210 or the mouthpiece 215 maybe permanently attached to the device 210. According to an exemplary embodiment, when the mouthpiece is removable, the mouthpiece 215 may comprise a threading configured to be screwed into the device 210. In another embodiment, the mouthpiece 215 may also be clipped to the device 210 by means of a protrusion or a recess cooperating respectively with a recess or a protrusion on the device 210 and/or by means of a spring. According to another exemplary embodiment, when the mouthpiece is permanently attached, the mouthpiece 215 may comprise a hinge allowing the mouthpiece to rotate around an axis perpendicular to the longitudinal axis of the device. This rotation allows the mouthpiece to be in an open or a close position. In such an embodiment, the mouthpiece may additionally comprise a protrusion or a recess cooperating respectively with a recess or a protrusion on the device 210, such that the mouthpiece can be maintain on the device 210 when the aerosol generating system 200 is assembled and during use of the aerosol generating device 210.

[0072] The perforating member 214 may be part of the mouthpiece 215 or separate from the mouthpiece 215. The perforating member 214 is configured to pierce into the substantially hermetically sealed enclosure 111, preferably through the sealing membrane 114 of the container 110 when the aerosol generating system 200 is assembled. When the perforating member 214 pierces through the container 110, at least a portion of the perforating member 214 is received by the enclosure 111.

[0073] In another embodiment, the aerosol generating device 210 may comprise a first perforating member and

a second perforating member configured to pierce into the substantially hermetically sealed enclosure 111, preferably through the sealing membrane 114 of the container 110 when the aerosol generating system 200 is assembled. In this configuration the first perforating member creates a first opening and the second perforating member creates a second opening, wherein the first opening is an air inlet configured to provide air into the enclosure and the second opening is an aerosol outlet configured to release the aerosol from the enclosure.

[0074] When the aerosol generating system 200 is in the disassembled state, the container is not perforated and the substantially hermetically sealed enclosure 111 maintains substantially hermetically sealed. Therefore, the moisture content of the smokeable material 112 in the substantially hermetically sealed enclosure remains substantially constant.

[0075] Figure 3 shows the aerosol generating system 200 in the assembled state, according to another embodiment. In this embodiment, the aerosol generating article 100 (not shown in Fig. 3) is placed inside the aerosol generating device 210, and the enclosure 111 comprising the smokeable material is opened.

[0076] That is, in the embodiment shown in Fig 3., the aerosol generating system 200 is assembled by inserting the aerosol generating article 100 into the aerosol generating device 210 and attaching the removable mouthpiece 215 comprising the perforating member 214 to the aerosol generating device 210, such that the substantially hermetically sealed enclosure 111 is opened by means of the perforating member 214. That is, when assembled, the perforating member 214 pokes the opening through the container 110, preferably through the sealing membrane 114.

[0077] In other embodiments, the aerosol generating system 200 may be assembled by inserting the aerosol generating article 100 into the aerosol generating device 210 which includes the perforating member 214. In such an embodiment, the substantially hermetically sealed enclosure 111 is not pierced by attaching the mouthpiece 215 to the aerosol generating device 210, but by a piercing mechanism comprised by the aerosol generating device 210.

[0078] In embodiments where the system comprises the first perforating member and the second perforating member, the first opening and the second opening are created when the device 210 is assembled. By creating the first and the second opening through assembling the device, an airflow through the container 110 comprising the smokeable material 112 is provided only at a timing where the aerosol is supposed to be formed. Thereby, the moisture content in the container remains substantially constant until the system 200 is used.

[0079] In another embodiment, the substantially hermetically sealed enclosure 111 may be opened without the perforating member 214. For example, the container 110 may comprise a predetermined breaking point that is opened using electrical power and/or mechanical force.

[0080] In any of the above embodiments, a user may assemble the aerosol generating device 210 and activate it preferably by pressing a button. The aerosol generating device may also be activated by means of a sensor. The sensor may detect that the device is assembled or may detect a touch operation from the user after the device is assembled and the aerosol generating device may be activated accordingly. This causes the heating assembly 212 to be energized such that the smokeable material 112 is heated and the aerosol is generated. As the container 110 is opened, the aerosol formed inside the aerosol generating article 100 escapes from the enclosure 111 and is provided to the user through the mouthpiece 215. In another embodiment, energizing the heating assembly 212 does not require activation by the user but it is energized as soon as the aerosol generating device 210 is assembled. Once the aerosol generating article 100 is consumed, the user may open the aerosol generating device 210 and remove the consumed aerosol generating article 100.

[0081] In the following, a method for manufacturing the aerosol generating article 100 will be described with reference to figures 4 to 6, where individual steps of the method are illustrated according to exemplary embodiments.

[0082] The method comprises a drying step S110 of drying the tobacco lamina material, a mixing step S120 of mixing the dried tobacco lamina material with the at least one other aerosol generating agent to obtain the smokeable material 112, and an enclosing step S130 of enclosing the smokeable material 112 substantially hermetically in the enclosure 111 comprised by the aerosol generating article 100.

[0083] In the drying step, the tobacco material is dried to obtain dried tobacco lamina material. Figure 4 shows the drying step as a drum drying process, according to an exemplary embodiment.

[0084] Tobacco lamina material is obtained by curing tobacco leaves and then cutting the dried tobacco leaves into small strips. In this embodiment, it is preferred to use a tobacco lamina material with an initial moisture content between 10% and 25% a, preferably between 12% and 22%, more preferably between 14% and 20% and most preferably between 16% and 18%. The tobacco lamina material is added into a drum 410 of a drum dryer. The drum 410 of the drum dryer is heated, which is shown by the four parallel arrows in Fig. 4, and the tobacco lamina material is exposed to a dry air stream 420. In some embodiments, the dry air stream 420 is heated additionally or alternatively. The tobacco lamina material is dried by means of the dry air 420 and/or the heat from the drum 410. To maximize the surface exposure of the tobacco lamina material to the dry air stream 420 and the heat and thereby maximize the drying efficiency, the tobacco lamina is moved inside the drum 410 through a rotational movement of the drum 410. The moisture evaporated from the tobacco lamina is drawn away from the drum

410 by means of a heat exchanger 430. To enhance the evaporation rate of the moisture, the pressure inside the drum 410 may be reduced.

[0085] In other embodiments, the drying step may be one or more of a freeze-drying, spray drying and/or vacuum agitation drying. Vacuum drum or vacuum agitation dryers as well as spray dryers are commonly available technologies. If it is necessary to minimize potential damage of the tobacco lamina material, the elaborate and expensive freeze-drying process may be preferred.

[0086] Independent from the drying technique, the tobacco lamina material is heated for at most 5 s, preferably for at most about 4 s, more preferably for at most about 3 s, and most preferably for at most about 2 s, to minimize damage to the delicate tobacco lamina material. The obtained dried tobacco lamina material has a moisture content of below 12% by weight, preferably below 11% by weight, more preferably below 10% by weight and most preferably below 9% by weight of the dried tobacco lamina material.

[0087] Since the moisture content of the dried tobacco material is relatively low, the atmosphere should be controlled during the drying step S110 to prevent that the dried tobacco lamina material draws moisture from the surrounding atmosphere. A humidity-controlled atmosphere is preferable, for example an atmosphere with at most 50% RH, preferably at most 40% RH, more preferably at most 30% RH, and most preferably at most 20% RH. To further prevent the rehydration of the dried tobacco lamina material by moisture of the surrounding atmosphere, the temperature may be controlled. That is, the higher the temperature of the atmosphere, the less rehydration occurs.

[0088] After the drying step S110, the dried tobacco lamina material is mixed with the at least one other aerosol generating agent in the mixing step S120 to obtain the smokeable material 112. An exemplary embodiment of the mixing step S120 is illustrated in Fig. 5. The at least one other aerosol generating agents that are added may be any one or more of humectants, solvents, nicotine and flavouring components. Exemplary of other aerosol generating agents have already been described above with respect to the aerosol generating article 100 of Fig. 1.

[0089] In the embodiment shown in Fig. 5, the dried tobacco lamina material is added to a closed stirrer tank 530 comprising a blender 520 and a jet for providing the at least one other aerosol generating agent 510. The at least one other aerosol generating agent is added to the dried tobacco lamina material by means of the jet 510, the mixture is mixed by the blender 520, and the smokeable material 112 is obtained. Since adding the at least one other aerosol generating agents increases the moisture content of the mixture, adding the at least one other aerosol generating agent must be controlled such that the resulting smokeable material 112 has a moisture content of below 12% by weight of the total weight of the smokeable material 112, preferably below 11% by weight, more preferably below 10% by weight, and most preferably below 9% by weight, and/or above 5% by weight, preferably above 6% by weight and most preferably above 7% by weight. In some examples, the moisture content is ranging from 5% to below 12%, or preferably from 5% to 11%, or preferably from 5% to 10%, or preferably from 5% to 9% by weight of the total weight of the smokeable material 112. In some further examples, the moisture content is ranging from 6% to below 12%, or preferably from 6% to 11%, or preferably from 6% to 10%, or preferably from 6% to 9% by weight of the total weight of the smokeable material 112. In some further examples, the moisture content is ranging from 7% to below 12%, or preferably from 7% to 11%, or preferably from 7% to 10%, or preferably from 7% to 9% by weight of the total weight of the smokeable material 112.

[0090] The moisture content of the resulting smokeable material can be determined, for example, by using a measurement method involving thermogravimetry. In a thermogravimetric measurement method, a sample of the smokeable material is taken, placed on a balance and the initial weight of the sample is measured. Then, the sample is dried/heated using, for example, any of a drying oven, infrared drying (heating through absorption of IR radiation), halogen drying or microwave drying (heating through absorption of microwaves), until the weight is constant, or a predetermined time is reached. The amount of weight loss during the drying process (or before and after the drying process) is measured and defined as the moisture content of the sample. All substances that volatilize during the heating contribute to the sample's loss of mass/the moisture content. Alongside water this may also include decomposition products or alcohol. Thus, when using thermogravimetric measurement methods, no distinction is made between water and highly volatile components.

[0091] An exemplary thermogravimetric method to determine the moisture content of the resulting smokeable material in is a moisture content measurement using a halogen moisture analyser. According to this method, a sample of the smokeable material is taken, placed on a balance and the initial weight of the sample is measured. Then, a halogen radiator (heating through absorption of IR radiation from a halogen radiator) dries the sample while the sample maintains on the balance and the weight loss caused by the drying process (i.e., by the evaporation of moisture in the sample) is continuously measured. After the sample is fully dried (for example if a constant mass or a predetermined times is reached), the total loss in weight is interpreted as the moisture content. Since the smokeable material 112 comprises of the tobacco lamina material and the at least one other aerosol generating agent, the moisture content does not only resemble the moisture in the tobacco lamina material, but also in the at least one other aerosol generating agent as well as any volatiles that evaporate during the drying process.

[0092] The closed stirrer tank 530 is advantageous, as the atmosphere, preferably the humidity of the atmosphere, inside the tank can be controlled. In this embod-

iment, a relative humidity of at most 50% RH, preferably at most 40% RH, more preferably at most 30% RH and most preferably at most 20% RH is preferred inside the closed stirrer tank 530, such that rehydration of the tobacco lamina material/the smokeable material 112 is prevented.

[0093] The mixing step S120 may be performed as a batch process, as well as a continuous processes.

[0094] After the mixing step S120, the smokeable material 112 is substantially hermetically enclosed in step S130. Step S130 according to an exemplary embodiment is illustrated in Fig. 6.

[0095] In a first step of the enclosure step S130, an empty container 110 having a substantially hermetically sealable enclosure 111 is provided. The container 110 comprises a material having relatively good water vapor barrier properties to protect the tobacco material from rehydrating, as well as a good thermal conductivity to facilitate heating of the smokeable material 112. In this embodiment, the container 110 comprises a metal such as aluminium or stainless steel. Metals have the added advantage that they can function as a susceptor for an induction type heating arrangement. However, other materials such as ceramic or polymers, and in particular ceramics or polymers with a coating can be used as well.

[0096] In a second step of the enclosure step S130, the substantially hermetically sealable enclosure 111 of the container 110 is filled with the smokeable material 112, preferably by means of a dispenser 610. Afterwards, in a third step of the enclosure step S130, the substantially hermetically sealable enclosure 111 of the container 110 is hermetically sealed/closed, preferably by the sealing membrane 114. The sealing membrane 114 preferably provides sufficient MVTR/WVTR/OTR properties to prevent rehydration of the smokeable material 112 and is preferably configured to be easily pierced by the perforating member 214 of the aerosol generating device 210. The sealing membrane 114 used in this embodiment is a thin aluminium layer which provides good MVTR/WVTR/OTR properties as well as a good thermal conductivity, and can be easily poked/opened by means of the perforating member 214. Preferably, the container 110 comprises the flange 113 that facilitates sealing of the container 110 with the sealing membrane 114. The container 110 may be sealed chemically, by means of an adhesive such as a glue or a chemical reaction, or mechanically, by means of deformation, welding or applying pressure, or a combination thereof.

[0097] Once the container 110 is substantially hermetically sealed, the smokeable material 112 is not exposed to the surrounding atmosphere until the container 110 is opened by means of the perforating member 114 during assembly of the device 210. This means that the moisture content of the smokeable material 112 remains substantially constant and thus below 12% by weight of the total weight of the smokeable material 112, preferably below 11% by weight, more preferably below 10% by weight, and most preferably below 9% by weight.

[0098] Similar to the previous steps of drying S110 and mixing S120, the atmosphere during the enclosing process S130 is controlled, preferably humidity-controlled in this embodiment. This humidity-controlled atmosphere has preferably a relative humidity of below 50% RH, more preferably below 30% RH and most preferably below 20% RH.

[0099] In addition to preventing exposure of the smokeable material 112 during the process steps of drying S110, mixing S120 and enclosing S130, it is preferred to prevent the exposure of the smokeable material 112 to the atmosphere between each of the steps. One way of preventing extensive exposure is to reduce the time span between each of the process steps, preferably to perform each of the steps S110, S120, S130 immediately or at least substantially immediately one after the other. I.e., after S110 has been performed, the dried tobacco lamina material is immediately - without any storage time and/or additional processing - added to the stirrer tank and, after S120 has been performed, the smokeable material is immediately enclosed in the container.

[0100] Reducing the time span between the process steps is particularly relevant after the at least one other aerosol generating agents have been mixed into the smokeable material 112, as many aerosol generating agents, such as humectants, will attract moisture from the atmosphere. Because of this it is preferred that the time spans between the mixing step S120 and the enclosure step S130 is below 60 minutes, preferably below 10 minutes and more preferably below 1 minute and most preferably below 10 seconds.

[0101] To further reduce exposure of the smokeable material 112 to the natural surrounding atmosphere, the atmosphere between the process steps S110, S120 and S130 can be controlled, preferably humidity-controlled. In an exemplary embodiment, a relative humidity of at most 50% RH, preferably at most 40% RH, more preferably at most 30% RH and most preferably at most 20% RH is preferred between at least two of the three processes, such that rehydration of the tobacco lamina material/the smokeable material 112 is prevented.

[0102] The above embodiments were described with reference to a smokeable material 112 comprising tobacco lamina material. However, the smokeable material 112 may also comprise other tobacco materials such as reconstituted tobacco. Reconstituted tobacco or reconstituted tobacco sheets are sheets of homogenized tobacco material. The sheets are commonly obtained by mixing a tobacco dust or shredded tobacco fibers with a binder to form a slurry. The slurry is then cast onto a moving endless belt and passed through a drier to remove the moisture and to obtain reconstituted tobacco (binder) sheets (also referred to as RTS or RTB). Alternatively, a process similar to papermaking can be used to obtain RTS/RTB. In such a process tobacco leaves are cut and mixed with water such that water-soluble parts in the tobacco are extracted from the tobacco fibers. The remaining tobacco fibers are refined, passed into a

papermaking machine and formed into a sheet. Afterwards, the water-soluble products obtained in the extraction process are incorporated with a binder and/or humectant into the sheet to form the reconstituted tobacco sheet. In this step, the composition of the obtained RTS/RTB maybe altered according to the taste of consumers. For example, certain volatiles such as flavouring agents, aerosol generating substances and/or nicotine may be added to the sheets and/or the water-soluble products may be added in a higher/lower concentration to the sheets such that RTS/RTB sheets with the desired characteristics are obtained.

[0103] All of the above embodiments are also applicable with RTS/RTB instead of (or in addition to) tobacco lamina material. However, if RTS/RTB is used, the drying step S110 is performed after the mixing step S120. That is, to obtain the smokeable material 112, in a first step, the sheets of RTS/RTB are cut into stripes/smaller portions that are then mixed with the at least one other aerosol generating agent as described above with reference to S120, and in a second step, the mixture/slurry comprising the at least one other aerosol generating agent and the RTS/RTB is dried in the drying step, as described above with reference to S110. For the RTS/RTB after the drying step the moisture content of the smokeable material 112 is below 12% by weight of the smokeable material 112, preferably below 11% by weight, more preferably below 10% by weight, and most preferably below 9% by weight. Afterwards, the smokeable material 112 comprising RTS/RTB is enclosed in the container, as described above with reference to S130.

[0104] The above methods of manufacturing the aerosol generating article 100 allow to produce the aerosol generating article 100 with a low moisture content and to make sure that this moisture content does not increase unintentionally during the manufacturing of the article 100.

LIST OF REFERENCE SIGNS USED

[0105]

100	aerosol generating article
110	container
111	enclosure
112	smokeable material
113	flange
114	sealing membrane
120	stirrer tank
200	aerosol generating system
210	aerosol generating device
211	power source
212	heating assembly
213	mouthpiece
214	perforating member
410	drum
420	dry air stream
430	heat exchanger
510	jet for providing the at least one other aerosol generating agent
520	blender
530	closed stirrer tank
610	dispenser
S110	drying step
S120	mixing step
S130	enclosing step

Claims

1. An aerosol generating article (100) for being used in a heat-not-burn device, comprising:

   a container (110) comprising a substantially hermetically sealed enclosure (111); and
   a smokable material (112) comprised in the substantially hermetically sealed enclosure (111) comprising dried tobacco lamina material and at least one other aerosol generating agent,
   wherein the smokable material (112) has a moisture content below 12% by weight of the total weight of the smokeable material (112).

2. The aerosol generating article (100) according to the preceding claim, wherein the at least one other aerosol generating agent is a humectant and/or solvent.

3. The aerosol generating article (100) according to the preceding claim, wherein the humectant is selected from propylene glycol, vegetable glycerin or a combination thereof.

4. The aerosol generating article (100) according to any one of the preceding claims, wherein the container (110) is a pod comprising a flange (113) and a sealing membrane (114) attached to the flange (113).

5. The aerosol generating article (100) according to any one of the preceding claims, wherein the container (110) comprises a thermally conductive material and is configured to transfer heat to the smokeable material (112) by means of the thermally conductive material.

6. The aerosol generating article (100) according to any one of claims 1 to 4, wherein the aerosol generating article (100) is configured to be heated using induction heating, wherein a susceptor is preferably embedded in the tobacco material and/or in the container (110).

7. A method for manufacturing an aerosol generating article (100), preferably according to any one of the preceding claims, comprising the steps of:

   drying tobacco lamina material (S110);

mixing (S120) the dried tobacco lamina material with at least one other aerosol generating agent to obtain smokable material (112) having a moisture content below 12% by weight of the total weight of the smokeable material; and
enclosing the smokeable material (112) substantially hermetically (S130) in an enclosure (111) comprised by the aerosol generating article (100).

8. The method according to the preceding claim, wherein the steps drying (S110), mixing (S120) and enclosing (S130) are performed one after the other, wherein a time span between performing each of the steps of drying (S110), mixing (S120) and enclosing (S130) is preferably at most 60 minutes.

9. The method according to any one of claims 7 or 8, wherein the drying step (S110) comprises one or more of the steps of:

drying tobacco leaves;
cutting the dried tobacco leaves into small strips to obtain tobacco lamina material; and
drying the tobacco lamina material to obtain dried tobacco lamina material.

10. The method according to any one of claims 7 to 9, wherein the drying step (S110) is performed for at most 10 seconds.

11. The method according to any one of claims 7 to 10, wherein at least one, preferably all of the steps of drying (S110), mixing (S120) and enclosing (S130) are performed in a controlled atmosphere, preferably a humidity-controlled atmosphere and/or wherein the atmosphere to which the tobacco material is subjected between the steps is controlled, preferably humidity-controlled,
the humidity-controlled atmosphere preferably having a relative humidity of below 50% RH, more preferably below 30% RH and most preferably below 20% RH.

12. The method according to any one of claims 7 to 11, wherein the mixing step is performed in a stirrer tank (120) which is substantially hermetically closed.

13. An aerosol generating system (200) comprising:

an aerosol generating article (100) according to any one of claims 1 to 6; and
an aerosol generating device (210) configured to receive the aerosol generating article (100) and comprising:

a power source (211); and
a heating assembly (212) comprising a resistive heating system or an inductive heating system, powered by the power source.

14. The aerosol generating system (200) according to the preceding claim, wherein the aerosol generating device (210) comprises a perforating member (214) configured to be poked into the enclosure (111) of the aerosol generating article (100) and create an opening in the enclosure (111) when the aerosol generating system (200) is assembled by inserting the aerosol generating article (100) into the aerosol generating device (210).

15. The aerosol generating system according to the preceding claim, wherein the aerosol generating device (210) comprises a mouthpiece (213) comprising the perforating member (214).

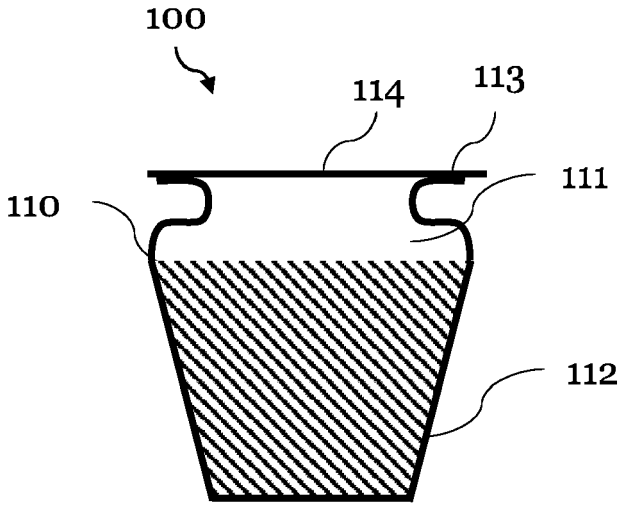

Fig. 1

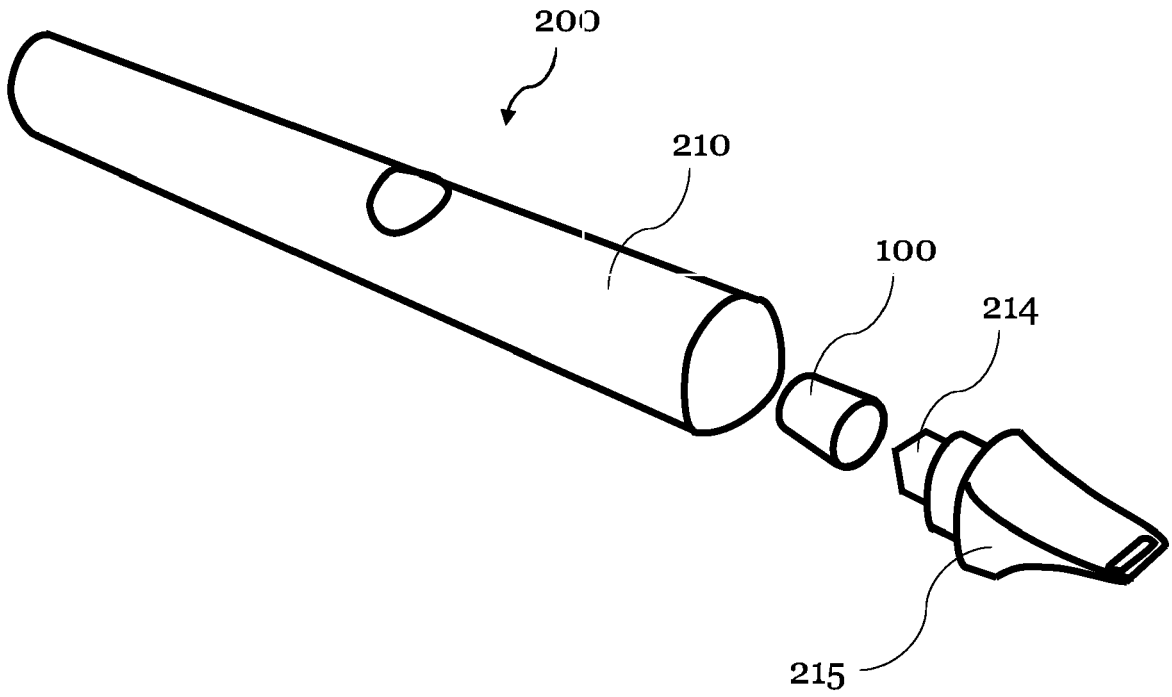

Fig. 2

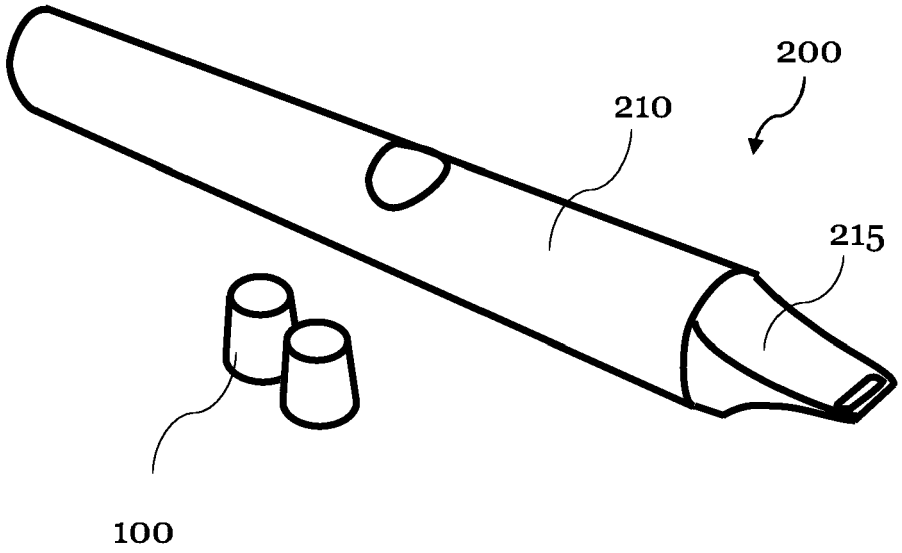

Fig. 3

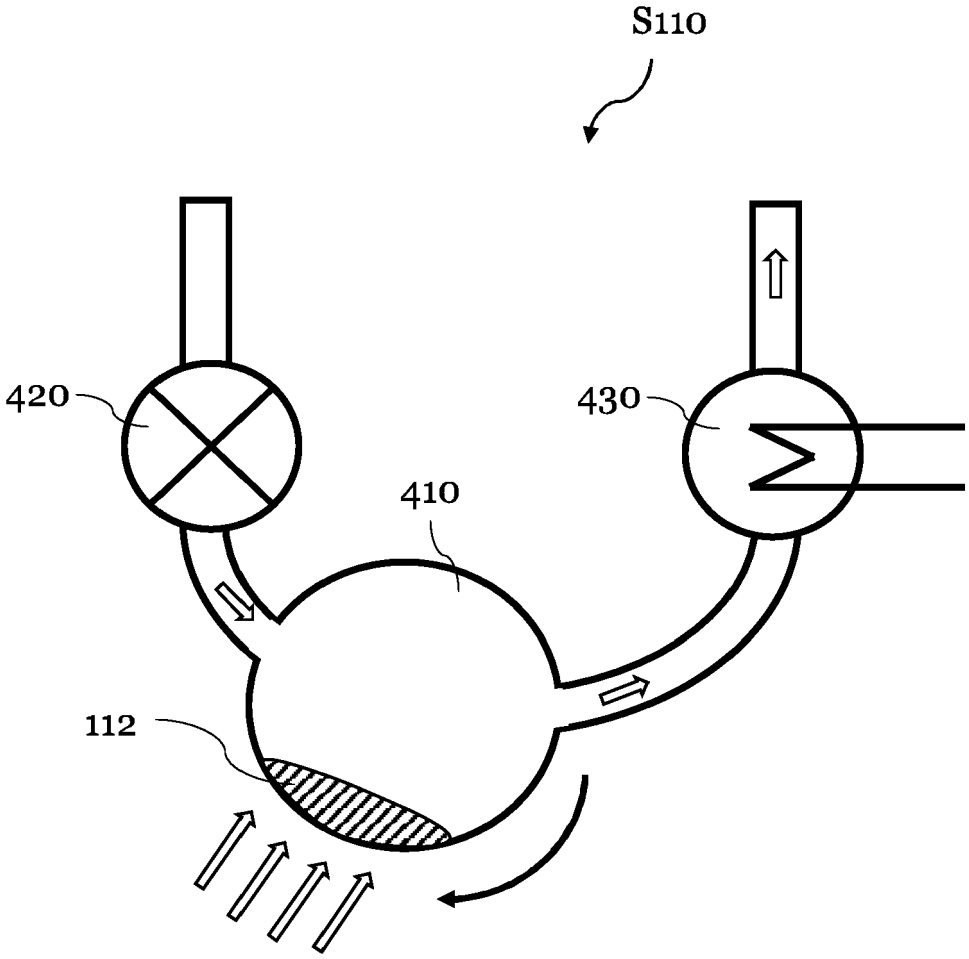

Fig. 4

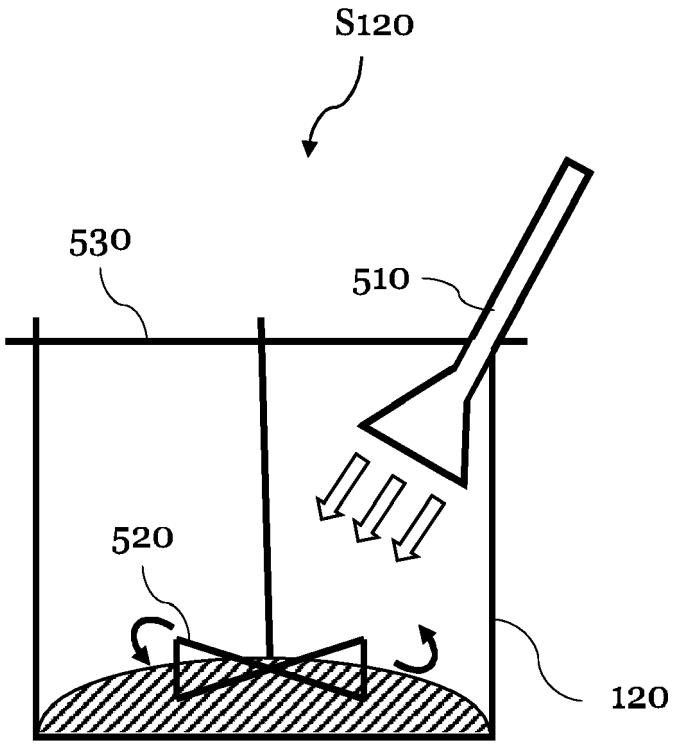

Fig. 5

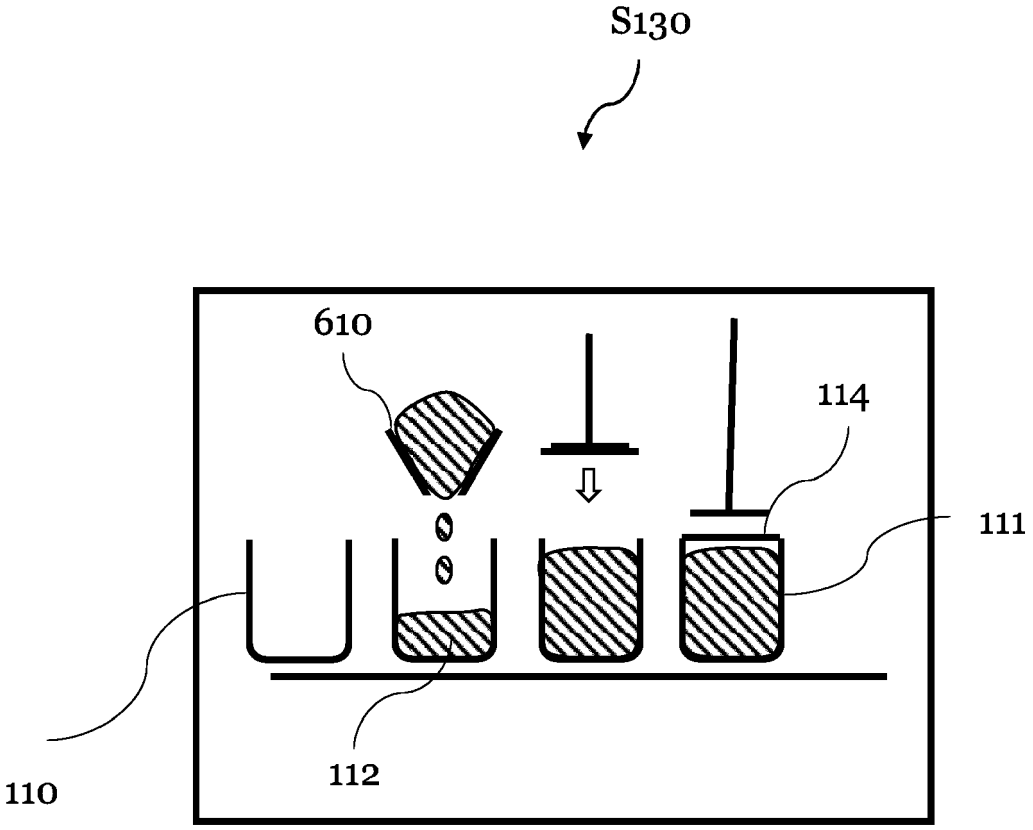

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 22 18 2942

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 2020/229507 A1 (FLORA JASON [US] ET AL) 23 July 2020 (2020-07-23)	1-3,5-14	INV. A24B15/10
Y	* paragraph [0003] - paragraph [0007] *	4,15	A24B15/30
	* paragraph [0012] *		A24F40/20
	* paragraph [0054] - paragraph [0055] *		A24F40/42
	* paragraph [0100] *		A24B15/12
	* figures 1-8 *		

Y	US 2018/352858 A1 (ROJO-CALDERON NOELIA [CH]) 13 December 2018 (2018-12-13)	4,15	
A	* figures 1, 2 *	1-3,5-14	
	* paragraph [0003] *		
	* paragraph [0007] *		
	* paragraph [0034] - paragraph [0040] *		
	* paragraph [0078] - paragraph [0083] *		

Y	CA 3 031 999 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 1 February 2018 (2018-02-01)	15	
A	* claims 1-17 *	1-14	
	* figures 1, 2a-2c, 3b, 4 *		
	-----		TECHNICAL FIELDS SEARCHED (IPC)
Y	US 2020/375252 A1 (ZUBER GERARD [CH] ET AL) 3 December 2020 (2020-12-03)	4	A24B
A	* figures 1-4 *	1-3,5-15	A24F
	* claims 1-20 *		
	* paragraph [0004] *		
	* paragraph [0013] - paragraph [0015] *		
	* paragraph [0048] *		
	* paragraph [0052] - paragraph [0055] *		
	* paragraph [0069] *		
	* paragraph [0074] *		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 November 2022	Dimoula, Kerasina

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 22 18 2942

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
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16-11-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2020229507 A1	23-07-2020	CN 113473873 A	01-10-2021
		EP 3911186 A1	24-11-2021
		JP 2022519459 A	24-03-2022
		US 2020229507 A1	23-07-2020
		WO 2020150034 A1	23-07-2020
US 2018352858 A1	13-12-2018	CA 3002705 A1	27-04-2017
		CN 108135278 A	08-06-2018
		CN 113303514 A	27-08-2021
		EP 3364793 A1	29-08-2018
		EP 3639683 A1	22-04-2020
		IL 258721 A	28-06-2018
		JP 6882273 B2	02-06-2021
		JP 2018535660 A	06-12-2018
		JP 2021121199 A	26-08-2021
		KR 20180071322 A	27-06-2018
		RU 2018118550 A	25-11-2019
		RU 2020124787 A	18-08-2020
		US 2018352858 A1	13-12-2018
		WO 2017068095 A1	27-04-2017
CA 3031999 A1	01-02-2018	CA 3031999 A1	01-02-2018
		CN 109414056 A	01-03-2019
		EP 3490390 A1	05-06-2019
		IL 263446 A	31-01-2019
		JP 7157732 B2	20-10-2022
		JP 2019526242 A	19-09-2019
		KR 20190035683 A	03-04-2019
		RU 2019103839 A	28-08-2020
		TW 201808123 A	16-03-2018
		WO 2018019578 A1	01-02-2018
US 2020375252 A1	03-12-2020	US 2018027884 A1	01-02-2018
		US 2020375252 A1	03-12-2020

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