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(54) **A CONTAINER**

(57) A container for an oral smokeless article including a container body, a lid, and a humidity regulator, the container having a non-magnetic securing element configured to secure the humidity regulator to an inner surface of the container, wherein the humidity regulator is configured to provide and remove moisture from the atmosphere within the container to maintain the relative humidity in a desired range.

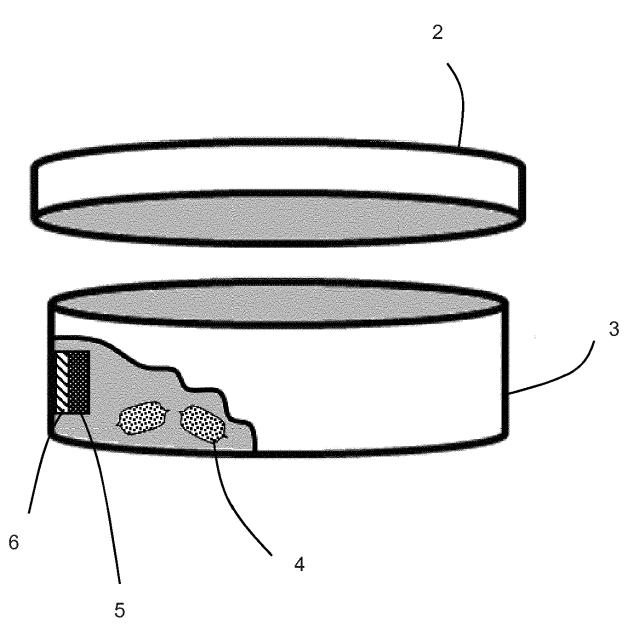

FIG 1

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Description

Field of the Invention

[0001] The present invention relates to a container for an oral smokeless article, and particularly, although not exclusively for snus.

Background

[0002] Smoking is generally considered to expose a smoker to potentially harmful substances. It is generally thought that the majority of the potentially harmful substances are formed by the heat generated during burning (combustion) of the article. There is interest in so-called heat not burn products, which heat a tobacco or similar substrate at a lower temperature than a conventional cigarette. These products are usually described as less harmful than convention cigarettes. Both conventional cigarettes and heat not burn products are visible during use and produce smoke or vapour.

[0003] As a result of these considerations and because of consumer preferences, it is desirable to find and improve alternative substance delivery routes that to continue meet user expectations. Smokeless articles are a suitable alternative because they do not require heating for substance delivery to the user. Instead, smokeless articles rely on saliva to extract soluble substances, typically nicotine and/or flavours, from tobacco contained within the smokeless article.

[0004] Conventional smokeless articles have a saliva permeable pouch housing a content. The content is generally in the form of tobacco. Said tobacco containing a soluble element, typically nicotine. Such a product may be referred to a portion snus. It is typically provided as prepackaged (traditionally moist) powder in small teabag-like pouches. Each pouch is a single portion or unit. This moistened product may be referred to as original snus.

[0005] Smokeless articles are placed in the mouth where saliva extracts the soluble element from the tobacco 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.

[0006] The resulting saliva, which contains extracts, subsequently contacts a mucous membrane in the mouth, or at another point of the gastrointestinal tract, to deliver the soluble element across the membrane and into the bloodstream. The soluble element is then transported by the bloodstream to the site of action. For example, nicotine is delivered to the brain where it acts upon acetylcholine receptors.

[0007] The above described extraction and delivery process continues until the soluble element is depleted from the smokeless article. The smokeless article must then be removed from the mouth and disposed of.

[0008] Some commercially available smokeless articles contain snuff. Snuff is smokeless tobacco made from ground or pulverised tobacco leaves. Snuff is available in dry form or wet (moist) form. Moist snuff may be referred to as snus. Two common varieties of snus are Scandinavian snus and American snus. Both varieties of snus are available in a loose form, but are often contained within a saliva permeable pouch.

[0009] Typically, production of snus is achieved by grinding a blend of leaf tobaccos to specified particle sizes. The ground tobacco is then mixed with water and sodium chloride in closed process blenders. The mixture is subjected to a heat treatment, involving temperatures up to 80 - 100 °C, for several hours to pasteurize the snus. Thereafter, the snus is cooled and other ingredients may be added. Snus is typically manufactured to meet the GothiaTek® standard, as detailed in "Swedish snus and the GothiaTek® standard" (2005), Rutqvist, et al.

[0010] The World Health Organisation states that smokeless articles are considerably less hazardous than cigarettes. Action on Smoking and Health considers smokeless articles to be about one hundred times less harmful than cigarettes. Smokeless articles are therefore thought to provide a healthier alternative for smokers.

[0011] There is a need for improved design of containers for smokeless articles to enhance the user's experience of the smokeless article, and/or improve the shelf life of the smokeless article.

[0012] The present invention has been devised in light of the above considerations.

Summary of the Invention

[0013] According to a first aspect, there is provided a container for an oral smokeless article comprising a container body, a lid, and a humidity regulator, the container having a non-magnetic securing element configured to secure the humidity regulator to an inner surface of the container, wherein the humidity regulator is configured to provide and remove moisture from the atmosphere within the container to maintain the relative humidity in a desired range.

[0014] The container is primarily intended as a storage container for snus. Oral smokeless articles, such as snus, tend to have high moisture content. Oral smokeless articles stored within containers are prone to drying during use of the container i.e. through opening and closing of the container to access the contents. Also, if the moisture content of the oral smokeless article is too high during storage undesired microbial or fungal growth may occur. A humidity regulator enables the relative humidity levels of the atmosphere in the container to be maintained by removing moisture when the relative humidity is too high, and adding moisture when the relative humidity is too low. By securing the humidity regulator to the interior of the container easy access to the humidity regulator is facilitated (for example access to the humidity regulator

is not impeded by snus articles in the container). Also, it prevents the user from mistakenly removing the humidity regulator when they instead intend to remove an oral smokeless article. Also, magnetic securing elements are prone to demagnetisation. They may also demagnetise surrounding objects such as credit cards, and access cards (e.g. train tickets, hotel room keys) this is especially undesirable to the user who will likely carry the container alongside such items. A non-magnetic securing element avoids this problem.

[0015] The container comprises a container body and a lid. The container body and lid define an enclosed volume when the lid is in a closed position. The container may take any suitable shape. In a preferred embodiment the container is cylindrical. The lid of the container may attach to the container body portion by a push-fit, screw thread or any other suitable method. Preferably the material from which the container is formed is impermeable to moisture, for example metal or plastic. Most preferably, the material from which the container is formed is High Density Polyethylene (HDPE).

[0016] Preferably, the humidity regulator is removable. Advantageously, this allows the user to replace an exhausted humidity regulator with a fresh humidity regulator, thereby allowing the user to re-use the container. It also allows the user to easily clean the container.

[0017] Preferably, the humidity regulator is secured to an inner surface of the lid. Advantageously, this provides greater exposure of the humidity regulator to the atmosphere of the container, whilst keeping the humidity regulator separate from other contents of the container. However, in some embodiments the humidity regulator may be secured to an inner surface of the container in a region other than the lid. This may be preferable to avoid the humidity regulator from being accidentally detached when the lid is removed to access the contents of the container. Any suitable non-magnetic element to secure the humidity regulator may be used. This includes adhesives, hook-and-loop-fasteners, and other fasteners known in the art. Preferably, the non-magnetic securing element is an adhesive.

[0018] Preferably, the container body contains one or more oral smokeless articles.

[0019] Preferably, the oral smokeless article is snus.

[0020] The term "humidity regulator" is intended to refer to "two way humidity regulator". A two-way humidity regulator controls humidity by providing moisture to an atmosphere, when the relative humidity of said atmosphere decreases below a certain level; and removes moisture from said atmosphere, when the relative humidity of said atmosphere increases above a certain level. Any suitable humidity regulators may be used in the present invention. Preferably, the humidity regulator is Boveda®.

[0021] Preferably, the two-way humidity regulator comprises a saturated solution of salt in water contained within a water vapour permeable membrane. The salt may be selected from calcium chloride dihydrate, magnesium chloride hexahydrate, sodium citrate, sodium formate, sodium lactate, potassium citrate monohydrate, potassium acetate anhydrous, sodium chloride, ammonium chloride, potassium chloride and combinations thereof.

[0022] Preferably, the relative humidity within the container is maintained by the humidity regulator at $\geq$ 20 %.

[0023] The relative humidity within the container may have a lower limit of at least 20 %, such as at least 30 %, such as at least 40 %, such as at least 50 %, such as at least 60 %, such as at least 70 %, such as at least 80 %, such as at least 90 %.

[0024] The relative humidity within the container may have an upper limit of 95 %, such as at most 90 %, such as at most 80 %, such as at most 70 %, such as at most 60 %, such as at most 50 %, such as at most 40 %, such as at most 30 %.

[0025] Most preferably, the relative humidity within the container is between 70 to 95 %. Such a range provides optimum storage humidity for snus.

[0026] According to a second aspect there is provided use of the container according to the first aspect to store an oral smokeless article.

[0027] According to a third aspect there is provided a kit of parts comprising the container according to the first aspect and a plurality of oral smokeless articles.

[0028] According to a fourth aspect there is provided a kit of parts comprising a humidity regulator for a container according to the first aspect, and a plurality of oral smokeless articles.

[0029] According to a fifth aspect there is provided a kit of parts consisting of a humidity regulator for a container according to the first aspect, and a plurality of oral smokeless articles.

[0030] Advantageously, by providing a kits of parts including a humidity regulator and a plurality of oral smokeless articles a user may replenish their container with oral smokeless articles and replace the existing humidity regulator without having to dispose of the container.

Summary of the Figures

[0031] Embodiments and experiments illustrating the principles of the invention will now be discussed with reference to the accompanying figures in which:

Figure 1. is a cutaway partially-exploded view of an embodiment of a container

Figure 2. is a perspective view of a container of Figure 1.

Detailed Description of the Invention

[0032] Aspects and embodiments of the present invention will now be discussed with reference to the accompanying figures. Further aspects and embodiments will be apparent to those skilled in the art. All documents

mentioned in this text are incorporated herein by reference.

[0033] Figure 1 shows a cutaway partially-exploded view of a container 1 having a container body 3 and lid 2, and a humidity regulator 5. The lid 2 is configured to attach to the container body 3 to provide a seal, as shown by Figure 2, this is typically achieved by a push-fit arrangement. The container body 3 and lid 2 are preferably made from a material impermeable to moisture, for example high density polyethylene (HDPE). Within the container 1 a smokeless article 4 is contained. A typical smokeless article is snus, in particular pouched snus. A non-magnetic securing element 6 is positioned on an inner surface of the container body 3. The non-magnetic securing element 6 is typically an adhesive patch. The non-magnetic securing element 6 secures a humidity regulator 5 to an inner surface of the container body 3. The humidity regulator 5 comprises a saturated solution of salt in water contained within a water vapour permeable membrane. The humidity regulator 5 may be removably secured to the non-magnetic securing element 6.

[0034] Figure 2 is a perspective view of the container 1 where the lid 2 is engaged with the container body 3 to provide a container 1 in a closed position.

[0035] In use, the user places a smokeless article within the container body 3 and closes the lid 2 to store the smokeless article within the enclosed volume of the container 1. The humidity regulator 5 acts to maintain the relative humidity levels of the atmosphere in the container. The humidity regulator does this by removing moisture when the relative humidity is too high, and adding moisture when the relative humidity is too low. This prevents the stored smokeless article both from drying out and from becoming too moist.

[0036] The features disclosed in the foregoing description, or in the following claims, or in the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for obtaining the disclosed results, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

[0037] While the invention has been described in conjunction with the exemplary embodiments described above, many equivalent modifications and variations will be apparent to those skilled in the art when given this disclosure. Accordingly, the exemplary embodiments of the invention set forth above are considered to be illustrative and not limiting. Various changes to the described embodiments may be made without departing from the spirit and scope of the invention.

[0038] For the avoidance of any doubt, any theoretical explanations provided herein are provided for the purposes of improving the understanding of a reader. The inventors do not wish to be bound by any of these theoretical explanations.

[0039] Any section headings used herein are for organizational purposes only and are not to be construed as limiting the subject matter described.

[0040] Throughout this specification, including the claims which follow, unless the context requires otherwise, the word "comprise" and "include", and variations such as "comprises", "comprising", and "including" will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

[0041] It must be noted that, as used in the specification and the appended claims, the singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. Ranges may be expressed herein as from "about" one particular value, and/or to "about" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by the use of the antecedent "about," it will be understood that the particular value forms another embodiment. The term "about" in relation to a numerical value is optional and means for example +/- 10%.

Claims

1. A container for an oral smokeless article comprising a container body, a lid, and a humidity regulator, the container having a non-magnetic securing element configured to secure the humidity regulator to an inner surface of the container, wherein the humidity regulator is configured to provide and remove moisture from the atmosphere within the container to maintain the relative humidity in a desired range.

2. The container of claim 1, wherein the humidity regulator is removable.

3. The container of any preceding claim, wherein the humidity regulator is secured to an inner surface of the lid.

4. The container of any one of claims 1 or 2, wherein the humidity regulator is secured to an inner surface of the container in a region other than the lid.

5. The container of any preceding claim, wherein the non-magnetic securing element is an adhesive.

6. The container of any preceding claim, wherein the relative humidity within the container is maintained at $\geq$ 20 %

7. The container of any one of the preceding claims, wherein the oral smokeless article is snus.

8. The container of any preceding claim, wherein the container body contains one or more oral smokeless articles.

9. Use of the container according to any of claims 1 to 8 to store an oral smokeless article.

10. A kit of parts comprising the container of any of claims 1 to 7 and a plurality of oral smokeless articles.

11. A kit of parts comprising a humidity regulator for a container according to any one of claims 1 to 7, and a plurality of oral smokeless articles.

12. A kit of parts consisting of a humidity regulator for a container according to any one of claims 1 to 7, and a plurality of oral smokeless articles.

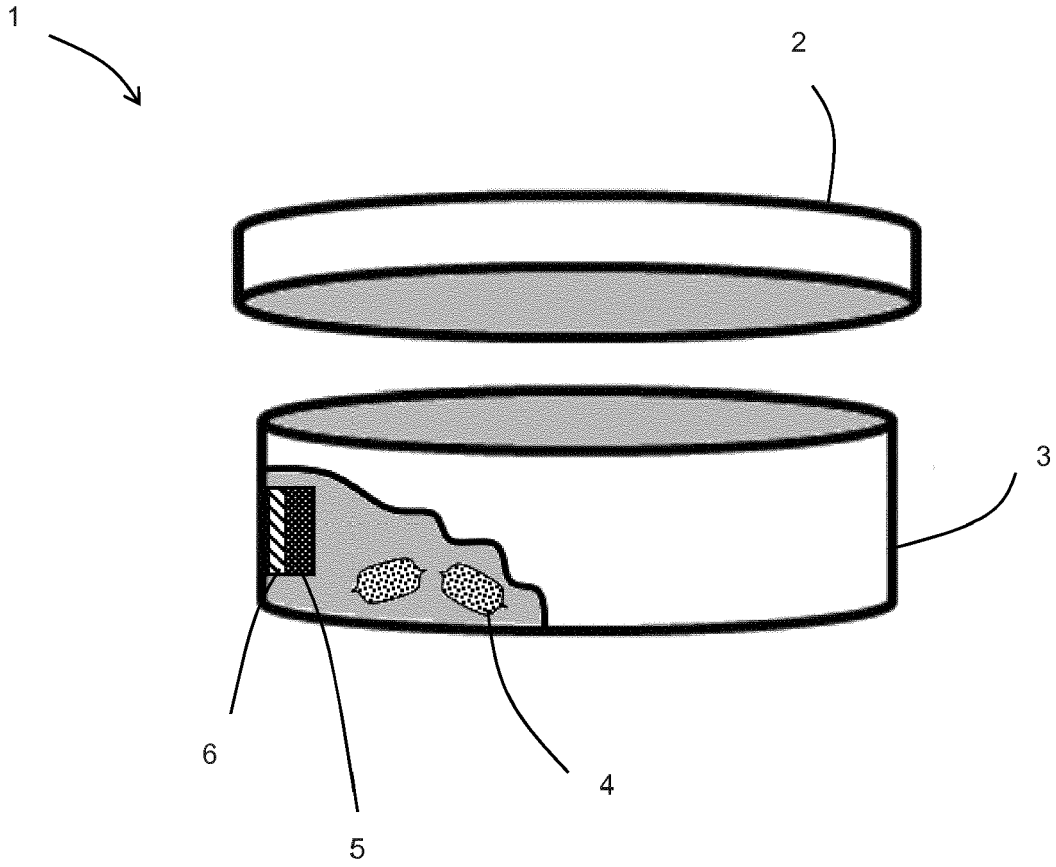

FIG 1

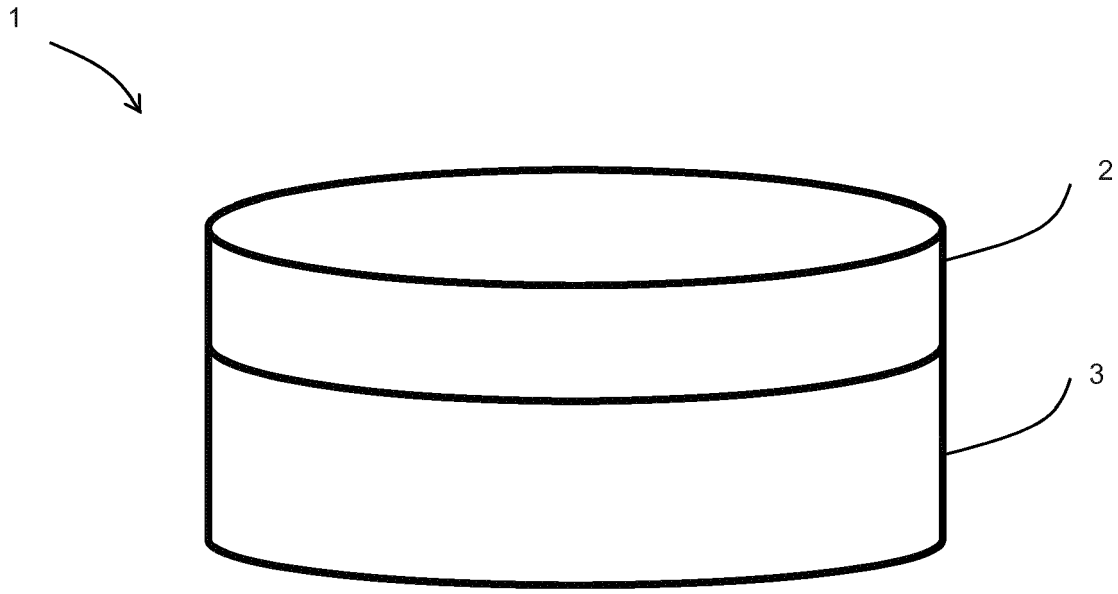

FIG 2

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EUROPEAN SEARCH REPORT

Application Number
EP 19 17 7433

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A24F
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	4 December 2019	Coniglio, Carlo

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 19 17 7433

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

REFERENCES CITED IN THE DESCRIPTION

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