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(54) **Method of producing a portioned smokeless tobacco product**

(57) The invention relates to a method of preparing a wrapped smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material with improved seal strength of the final product by dyeing the wrapping material before sealing it, a portioned smokeless tobacco product obtained by the method and a box comprising the portioned smokeless tobacco product.

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Description

[0001] The present invention relates to a method of preparing a wrapped smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material with improved seal strength of the final product, a portioned smokeless tobacco product obtained by the method and a box comprising the portioned smokeless tobacco product.

State of the art

[0002] Smokeless tobacco products are recently gaining popularity and they are available in a variety of ways including chewing tobacco, snuff or portioned tobacco products like snus.

[0003] The portioned smokeless tobacco products therein have the advantage that the tobacco is wrapped in a wrapping material to make a small teabag-like pouch that can be easily removed after consumption.

[0004] The manufacture of portioned smokeless tobacco products like brown portion snus involves the addition of water to the formed, sealed pouch to stain the virgin material to the final, e.g. brown, colour. However, this addition of water may degrade the seal strength of the wrapping material, which makes it more difficult to form the sealed pouches.

[0005] Several coloured pouch materials are known from e.g. EP2428126, EP2454954, and WO2012061192. However, none of these documents relate to the problems of the staining process, particularly when the staining is applied to the wrapped and sealed smokeless tobacco product.

[0006] One object of this invention is to provide an improved method of preparing a wrapped smokeless tobacco product with improved seal strength. It is a further object of the invention to provide a method of preparing a wrapped smokeless tobacco product with a natural appearance of tobacco.

Summary of the invention

[0007] The inventors found out that an improved wrapped smokeless tobacco product can be produced by dyeing a standard pouch material with a colorant-containing solution before wrapping and sealing the smokeless tobacco product, preferably resulting in a shade of brown that gives the same visual appearance as standard brown portion snus.

[0008] According to one aspect, the present invention relates to a method of preparing a wrapped smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material, wherein said method comprises the steps of providing the wrapping material with a colorant-containing solution, providing the moist smokeless tobacco material, wrapping the moist smokeless tobacco material with the coloured wrapping material, sealing the coloured wrapping material around the moist smokeless tobacco material, and obtaining a portioned smokeless tobacco having a seal strength comprised between 5 and 15 N/50mm.

[0009] According to another aspect, the present invention relates to a portioned smokeless tobacco product obtainable by the method of the invention.

[0010] According to a further aspect, the present invention relates to a box comprising the portioned smokeless tobacco product of the invention.

[0011] Further preferable aspects of the present method and the present portioned smokeless tobacco product will become evident from the description here below and from the dependent claims.

Detailed description

[0012] For the present application, the unit % refers to % by weight, unless noted otherwise.

[0013] In one aspect, the present invention relates to a method of preparing a wrapped smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material, wherein said method comprises the steps of providing the wrapping material with a colorant-containing solution, providing the moist smokeless tobacco material, wrapping the moist smokeless tobacco material with the coloured wrapping material, sealing the coloured wrapping material around the moist smokeless tobacco material, and obtaining a portioned smokeless tobacco having a seal strength comprised between 5 and 15 N/50mm. Preferably the seal strength is comprised between 7 and 12 N/50mm, more preferably between 8 and 11 N/50mm.

[0014] It is an important aspect of the present invention that the wrapping material is dyed with a colorant-containing solution before wrapping and sealing the wrapped smokeless tobacco product in order to improve the seal strength of the wrapped smokeless tobacco material and improve the manufacturability of the final product. Further, production can be improved and eased by dyeing the wrapping material ahead so that no difficult dyeing process is necessary for the wrapped material. Also, dyeing of the pouch can be carried out more easily and homogeneously on the wrapping material rather than on the pouch, as the wrapping material is more easily accessible to the colorant. Also wrinkles in the wrapping material, which are not easily accessible to dyeing, are not present in such pre-staining process, leading to a product with improved colorant distribution and finally better appearance. Due to the pre-coloring of the wrapping material, e.g.

a pouch material, no water is required to be added after sealing of the pouch or the amount of water added can be reduced, leading to higher seal strength and an easier online process.

[0015] The wrapping material is not particularly limited and can be any wrapping material that is normally used in pouches for wrapping a smokeless tobacco material, and can include cellulose fiber material, viscose, viscose/rayon or viscose/polyester.

[0016] The moist smokeless tobacco material is not particularly limited in the present invention and can comprise moist smokeless tobacco material as it is commonly used in smokeless tobacco products. The moisture content is not particularly limited and is comprised between 25 to 60 % based on the weight of the dry tobacco, preferably between 35 and 55 % and more preferably about 49 %.

[0017] The moist smokeless tobacco material comprises tobacco and can further contain various additives. Any tobacco can be used for the present oral tobacco composition. Examples thereof include a mixture of stem and lamina derived from various sources and curing types, but also just stems or just lamina or just shredded leaves or shredded ground tobacco/botanical plant material, mixtures thereof, etc. can be used for production of the moist smokeless tobacco material.

[0018] Additives in the moist smokeless tobacco material can be flavorants (e.g. including encapsulated flavours, flavour capsules), binders, colorants, fillers, disintegration aids, humectants, antioxidants, pH regulators, oral care ingredients, preservatives, additives from herbal or botanical sources, or further additives usually used in smokeless tobacco products, as well as mixtures thereof.

[0019] The colorant-containing solution is not particularly limited, but preferably uses as a solvent only solvents that are approved for food production. Also mixtures of solvents can be used in order to solve different colorants. A suitable solvent can be selected from water, glycerol, or mixtures thereof. The solvent can be suitably determined based on the colorant to be used. According to certain embodiments, the colorant-containing solution comprises water. According to certain embodiments, the colorant-containing solution comprises glycerol. According to certain embodiments, the colorant-containing solution comprises water and glycerol. The glycerol can be present in the solution in a concentration between 5 and 15 % by weight, based on the weight of the dry pouch material, preferably between 7 and 13 %, more preferably between 9 and 11 %.

[0020] The colorant is not limited and can include any colorant that is approved for food production. According to certain embodiments, brown colorants are used to dye the wrapping material in a colour tone close to the one of the tobacco material, i.e. close to the colour that is normally obtained by bleeding the tobacco material into the wrapping material, e.g. a pouch, during normal production. When using a brown colorant, particularly a colorant comprising glycerol, further the look of "wet" pouches can be mimicked.

[0021] Preferably the colorant is selected so that the wrapping material, e.g. a standard pouch material, is dyed a shade of brown that gives the same visual appearance as standard brown portion snus. Preferred colorants include a colorant selected from the group consisting of E102 (tartrazine), E120 (carmine), E153 (activated carbon), E150a - 150d (caramel colour), E151 (brilliant black BN), E154 (Brown FK), E155 (Brown HT) and natural colorants, or mixtures thereof. Particularly preferred colorants are caramel, tobacco extracts or edible brown colorants. The colorant can be contained in the colorant-containing solution in a concentration between 1 and 10 % by weight, preferably between 1.5 and 7 % by weight, particularly preferably between 2 and 5 % by weight, based on the weight of the colorant-containing solution.

[0022] The seal strength in the present invention is measured according to the following method: For the Tear and Peel test, e.g. a Lloyds equipment model LS1 with a 20N Load cell can be used. The machine can be set up by placing 25 mm spring grips on the instrument. The sample is placed in the grips so that the material is firmly clamped, e.g. approximately 4 mm of material are in each grip to prevent it from being pulled out once testing begins. The jaw separation between the grips can be set to 20 mm. The measurement can then be carried out using Nexygen Plus 3 software at a crosshead speed of 15 mm/min and a crosshead limit of 15 mm at a tear of 180 degrees in 20 ms time steps.

[0023] Samples for top/bottom seam strength can be prepared by cutting either the top or bottom seam and emptying the pouch content into a container. Afterwards, each side of the pouch can be cut along its full length along the remaining top or bottom seal.

[0024] Samples for side seam strength can be prepared by cutting off the top and bottom seams and emptying the contents of the pouch into a container. Afterwards, the remaining pouch can be folded in half along the length of the side seam and the opposite side of the material can be cut, ensuring that there are equal proportions of sample on each side of the seam.

[0025] For each sample, the sample width can be measured from one side of the pouch to the other.

[0026] The samples are then placed individually in the machine and measured.

[0027] According to certain embodiments, the present invention provides a method of wrapping a unit of smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material, wherein said method comprises the steps of:

a) providing the wrapping material with a colorant-containing solution,

b) providing the unit of moist smokeless tobacco material,
c) wrapping the unit of moist smokeless tobacco material with the coloured wrapping material,
d) sealing the coloured wrapping material around the unit of moist smokeless tobacco material, and
e) obtaining a portioned smokeless tobacco having a seal strength comprised between 5 and 15 N/50mm.

[0028] Preferably the seal strength is comprised between 7 and 12 N/50mm, more preferably between 8 and 11 N/50mm.

[0029] In such embodiments, the unit size is not particularly limited and can be chosen suitably based on the intended use, e.g. as a portioned snus.

[0030] According to certain embodiments, the present method comprises the step of drying the coloured wrapping material at least in the sealing region before step c). In this way the seal strength in the wrapped portioned smokeless tobacco can further be improved. Drying can be carried out using a suitable drying temperature (e.g. 22 °C at 58 % RH) and drying time (e.g. 14 hours) depending on the wrapping material. By drying only the sealing region the quality of the wrapping material in the wrapped portioned smokeless tobacco as well as the stability of the final product can be further improved.

[0031] According to certain embodiments, the present method does not comprise after step d) a further step requiring the addition of water. According to certain embodiments, no water is added after step d) in the present method. In this way the seal strength in the portioned smokeless tobacco is particularly improved.

[0032] In a further aspect the invention provides a portioned smokeless tobacco product obtained or obtainable by the method of the present invention. The present portioned smokeless tobacco product shows improved dyeing of the wrapping material and improved seal strength of seams after sealing, leading to improved usability and less detrimental effects when used by a consumer, e.g. when applied as a portioned snus in the oral cavity under the lip.

[0033] A preferred portioned smokeless tobacco product is a portioned snus, and a particularly preferred portioned smokeless tobacco product is a brown portion snus. In certain embodiments the wrapping material in the portioned smokeless tobacco product comprises a concentration of colorant between 0.1 and 10 % by weight, preferably between 0.5 and 5% by weight, based on the weight of the wrapping material.

[0034] In certain embodiments the moist smokeless tobacco material has a moisture content between 25 to 60 % based on the weight of the dry tobacco, preferably between 35 and 55 % and more preferably about 49 %. In preferred embodiments, the portioned smokeless tobacco product comprises a wrapping material that is dyed brown.

[0035] In a further aspect the present invention relates to a box comprising the portioned smokeless tobacco product described herein. The box is not limited in its size or shape and can be symmetrical or odd-shaped. In certain embodiments the box is symmetrical and its cross section can be round, elliptical, square, rectangular, etc. or have any other shape like a star, etc. A round shape is preferred for easier packaging and transportation of the user. The height of the box is also not limited. Further, the material of the box is also not limited and can for example be wooden, made of plastic, carton, metal or made of glass, etc. The material of the box preferably seals the portioned smokeless tobacco product airtight from the surrounding in a closed state.

Examples

[0036] The present invention will now be described in more detail in connection with exemplary embodiments which are merely presented for illustrative purpose and do not restrict the invention to these exemplary embodiments. In the examples, the unit % refers to % by weight, unless noted otherwise.

[0037] All experiments in the examples were carried out at ambient temperature. The tobacco used in the experiments was a standard snus blend containing around 10 - 25% by weight stem in regard to the tobacco component only. The moisture content of the tobacco was about 30% by weight, based on the tobacco material.

Example 1

[0038] A finished fleece from BFF Technical fabrics, commercially denominated SDH27, was used as wrapping material and was dyed with a caramel solution comprising 2 g of caramel in 248 ml water. This fleece material was further exhibiting a basis weight of 29 gsm (g/m^2), a thickness of 200 micron (μm], and a tensile strength around 60N/50mm. The sample was fully submerged in the solution and then left to dry overnight (about 14 hours). Thereafter, pouches were prepared with the dyed wrapping material by filling it with tobacco material and manufacturing it into pouches on a SC51-1T74 Merz machine. Afterwards, the seal strength was measured using the following Tear and Peel test method:

[0039] For the Tear and Peel test, a Lloyds equipment model LS1 with a 20N Load cell was used. The machine was set up by placing 25 mm spring grips on the instrument. The sample is placed in the grips so that the material is firmly clamped, i.e. approximately 4 mm of material are in each grip to prevent it from being pulled out once testing begins. The jaw separation between the grips is set to 20 mm. The measurement is then carried out using Nexygen Plus 3

software at a crosshead speed of 15 mm/min and a crosshead limit of 15 mm at a tear of 180 degrees in 20 ms time steps.

[0040] Samples for top/bottom seam strength are prepared by cutting either the top or bottom seam and emptying the pouch content into a container. Afterwards, each side of the pouch is cut along its full length along the remaining top or bottom seal.

[0041] Samples for side seam strength are prepared by cutting off the top and bottom seams and emptying the contents of the pouch into a container. Afterwards, the remaining pouch is folded in half along the length of the side seam and the opposite side of the material is cut, ensuring that there are equal proportions of sample on each side of the seam.

[0042] For each sample, the sample width is measured from one side of the pouch to the other.

[0043] The samples are then placed individually in the machine and measured.

[0044] The results in the tables are obtained by dividing the "Load at Maximum Load" value, i.e. the force required to break the seal, by the individual sample width and multiply by 50 to convert the result from N to N/50mm.

[0045] At least five samples were prepared for each measurement series and the average results taken are given in the tables.

Comparative Example 1

[0046] The experiment was carried out as in Example 1, except that no pre-dyeing and drying was carried out on the wrapping material and it was used directly for wrapping the tobacco material. After sealing, water was added as per normal production, i.e. wherein water addition is conducted by depositing the samples on a moving belt and passing the samples through a water spraying device en route to the canning station, for the undyed material. The results are shown in tables 1 and 2. For comparison, reference pouches were made without addition of water using the virgin pouch material / wrapping material.

Table 1: Percent reduction in side seam strength - virgin pouches and finished product

Pouch Material	Virgin Material Side Seam Strength (N/50mm)	Side Seam Strength (N/50mm) After water addition	% Reduction After water addition
Finished fleece	12.42	4.49	63.85

Table 2: Percent reduction in top/bottom seam strength - virgin pouches and finished product

Pouch Material	Virgin Material Top Seam Strength (N/50mm)	Top Seam Strength (N/50mm) After water addition	% Reduction After water addition
Finished fleece	8.05	4.16	48.32

[0047] As can be seen from Tables 1 and 2, the addition of water onto a pouch immediately after sealing the material degrades the pouch material seam strength by > 45% on the horizontal seams and > 60% on the longitudinal seams.

[0048] On the other hand, the seam strength was much less reduced in the pouches produced according to the invention in Example 1, as can be seen from Table 3.

Table 3: Brown pouch material - seam strength of dyed material (Example 1) (pouch material Finished fleece)

Seam Type	Dyed material - no water addition Seam strength (N/50mm)
Top/Bottom	7.59
Side seam	10.87

[0049] As can be seen from the above, dyed brown pouches of snus are obtained with improved seal strength in Example 1 compared to Comparative Example 1. This is achieved by not treating the pouch with water after sealing, but dyeing it right from the beginning by using a colorant.

[0050] As can be seen by comparing Table 3 with Tables 1 and 2, the dyed material exhibited less seam strength reduction when no water was added after sealing the material. The seam strength of the finished pouches using the process according to the invention was reduced by less than 30% compared to the virgin material seam strength. More specifically it has been observed that the pouch material seam strength was reduced by < 20% on the horizontal (top/bottom) seams and < 10% on the longitudinal (side) seams.

Claims

1. A method of preparing a wrapped smokeless tobacco product comprising a wrapping material and a moist smokeless tobacco material, wherein said method comprises the steps of:

    a) providing the wrapping material with a colorant-containing solution,
    b) providing the moist smokeless tobacco material,
    c) wrapping the moist smokeless tobacco material with the coloured wrapping material,
    d) sealing the coloured wrapping material around the moist smokeless tobacco material, and
    e) obtaining a portioned smokeless tobacco having a seal strength comprised between 5 and 15 N/50mm.

2. The method according to claim 1, wherein the obtained seal strength of the portioned smokeless tobacco is reduced by less than 30%, preferably less than 20% compared to that of the seal strength of the wrapping material before being exposed to step a).

3. The method according to claim 1 or 2, further comprising the step of drying the coloured wrapping material at least in the sealing region before step c).

4. The method according to any one of claims 1 to 3, wherein the colorant-containing solution comprises a colorant selected from the group consisting of E102, E120, E153, E150a - 150d, E151, E154, E155 and natural colorants.

5. The method according to claim 4, wherein the colorant is present in the solution in a concentration between 1 and 10 % by weight.

6. The method according to claim 4 or 5, wherein the colorant is caramel, a tobacco extract or an edible brown colorant.

7. The method according to any one of the previous claims, wherein the colorant-containing solution comprises water.

8. The method according to any one of the previous claims, wherein the colorant-containing solution comprises glycerol.

9. The method according to claim 8, wherein glycerol is present in the solution in a concentration between 5 and 15 % by weight.

10. The method according to any one of the previous claims, wherein the method does not comprise after step d) a further step requiring the addition of water.

11. A portioned smokeless tobacco product obtainable by the method according to any one of claims 1 to 10.

12. The portioned smokeless tobacco product according to claim 11, wherein the wrapping material comprises a concentration of colorant between 0.1 and 10 % by weight.

13. The portioned smokeless tobacco product according to any one of claims 11 or 12, wherein the moist smokeless tobacco material has a moisture content between 25 and 60 % by weight.

14. A box comprising the portioned smokeless tobacco product according to any one of claims 11 to 13.

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EUROPEAN SEARCH REPORT

Application Number
EP 14 00 2515

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A24B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
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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
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 00 2515

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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