



EUROPEAN PATENT APPLICATION

(43) Date of publication:
20.09.2023 Bulletin 2023/38

(51) International Patent Classification (IPC):
A24D 1/02 ^(2006.01) **A24D 1/20** ^(2020.01)
A24D 3/04 ^(2006.01)

(21) Application number: **22162916.5**

(52) Cooperative Patent Classification (CPC):
A24D 1/20; A24D 1/02; A24D 3/043

(22) Date of filing: **18.03.2022**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **JT International S.A.**
1202 Geneva (CH)

(72) Inventor: **HARTANTO, Adrian Oliver**
54294 TRIER (DE)

(74) Representative: **Lavoix**
2, place d'Estienne d'Orves
75441 Paris Cedex 09 (FR)

(54) **TOBACCO ARTICLE COMPRISING A SPECIAL PLUG WRAP**

(57) The present invention concerns a tobacco article (10), comprising a wrapped tobacco portion (12), a filter portion (14), a plug wrap (22) wrapping the filter portion (14), a tipping paper (21) and a plurality of ventilation holes (40).

The tipping paper (21) comprises:
- a fixed part (31A) fixed to a surface comprising an upstream part of the plug wrap (22) and a part of an external

surface delimiting the wrapped tobacco portion (12); and
- a peelable part (31B) covering a surface comprising the downstream part of the plug wrap and configured to be peeled before using the tobacco article (10).

The ventilation holes (40) are arranged circumferentially and extend through the plug wrap (21) and the fixed part (31A) of the tipping paper (21).

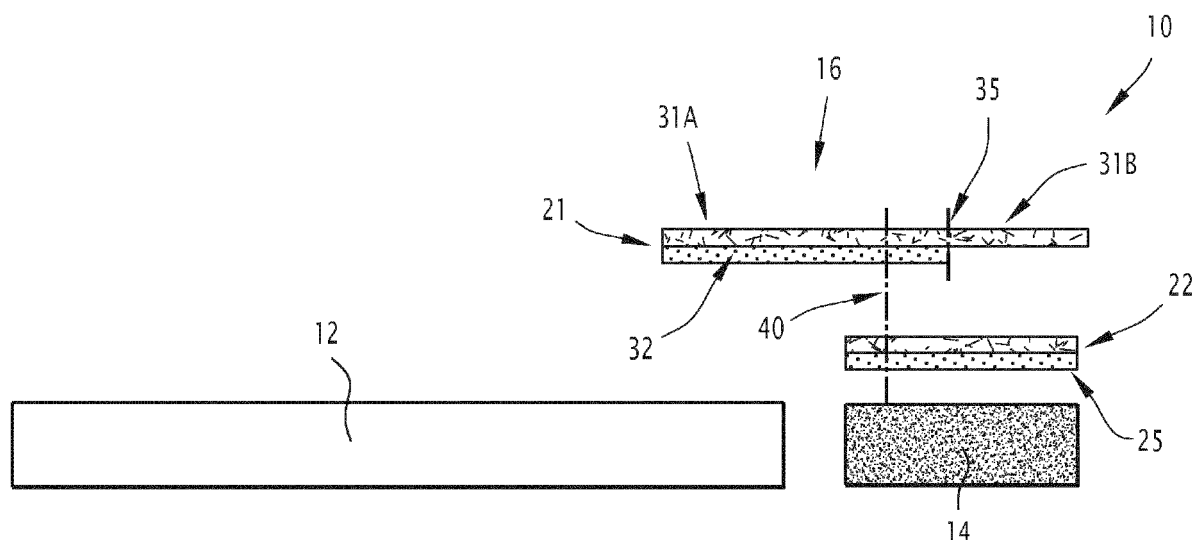


FIG.2

Description

FIELD OF THE INVENTION

[0001] The present invention concerns a tobacco article comprising a special plug wrap.

[0002] According to a particular embodiment of the invention, the tobacco article according to the invention is configured to operate with an aerosol generating device, also known as a heat-not-burn device or HNB device. Such type of aerosol generating devices is adapted to heat, rather than burn, an aerosol generating substrate comprised in the article.

[0003] Alternatively, the tobacco article according to the invention is a ready-made cigarette (RMC) comprising an aerosol generating substrate configured to release aerosol when being burnt.

BACKGROUND OF THE INVENTION

[0004] In conventional tobacco articles such as cigarettes, a plug wrap is used to wrap one or more filter segments and has certain porosity or perforated ventilation and coefficient friction. This porosity or perforated ventilation in combination with a pre-perforated tipping paper is usually needed to allow good ventilation of a stream flow passing through the filter. In such type of articles, the tipping paper is also used to ensure a filter connection to a tobacco portion of the article. Additionally, the tipping paper is designed to be in contact with the user's lips and defines for this purpose an appropriate roughness and design. Thus, a conventional tobacco article usually defines at least a double wrap layer where each layer has its specific role. Additionally, if two or more segments are used in a filter, an individual plug wrap is necessary for each segment. In this case, a combined plug wrap for combining the segments together and a tipping paper (or outermost layer of wrapper) for combining the multi-segment filter with the tobacco plug are necessary. In total, this makes three layers of wrapper. This constrains the tobacco article manufacturing process without adding substantial benefits.

[0005] The outermost layer of wrapper is usually designed to be in contact with the user's lips. However, nowadays, hygiene becomes more and more important for the users and additional precautionary measures to ensure hygiene may be required.

SUMMARY OF THE INVENTION

[0006] One of the aims of the invention is to provide a tobacco article taking an additional advantageous from at least double wrap layer structure without modifying the manufacturing process. This additional advantage can be used for improving hygienic properties of the tobacco article without altering other properties of the article as the quality of the flow and aerosol released (taste, temperature, pressure drop, etc.).

[0007] For this purpose, the invention relates to a tobacco article comprising:

- a wrapped tobacco portion;
- a filter portion forming a mouth end;
- a plug wrap wrapping the filter portion, and defining a downstream part adjacent to the mouth end and an upstream part opposite to the downstream part;
- a tipping paper wrapping at least a part of the wrapped tobacco portion together with the filter portion and being in contact with the plug wrap;
- a plurality of ventilation holes; wherein the tipping paper comprises:
 - a fixed part fixed to a surface comprising the upstream part of the plug wrap and a part of an external surface delimiting the wrapped tobacco portion; and
 - a peelable part covering a surface comprising the downstream part of the plug wrap and configured to be peeled before using the tobacco article; wherein the ventilation holes are arranged circumferentially and extend through the plug wrap and the fixed part of the tipping paper.

[0008] Thanks to these features, the peelable part of the tipping paper can be peeled before using the article and uncover a part of the plug wrap. Thus, it is possible to achieve a hygiene protection to the user since the plug wrap, before being put in the user's mouth, does not interact with external objects or for example user's fingers.

[0009] Additionally, a particular arrangement of the ventilation holes in respect with the peelable and fixed parts keeps unchanged the quality of the flow delivered to the user in comparison with conventional tobacco articles. Particularly, using this arrangement, it is possible to ensure a ventilation stream flow inside the filter portion as it is the case of conventional tobacco articles.

[0010] Moreover, contrary to some conventional articles, neither the plug wrap nor the tipping paper according to the invention need to be porous. The plug wrap can for example be made from a material similar to the material of the tipping paper. This doesn't change the user perception of the mouth end of the article on the lips of the user.

[0011] According to some embodiments, the fixed part is delimited from the peelable part by a weakening line.

[0012] The weakening line may, for example be formed by a prescored line of the tipping paper. The prescored line can be arranged fully around the circumference of the tobacco article. The distance between the holes of the line can be comprised between 1 and 2 mm. The width of the holes can be substantially equal to 0,5 mm. Their length can be comprised between 0,5 and 1 mm. The line may be prescored by laser on the flat paper blank before it is formed into the tipping paper. The prescored line can be done online or offline. According to an alternative embodiment, the line may be done using a rotating circular knife.

[0013] The holes of the weakening line can take vari-

ous shapes. Such a shape can for example be circular, square, rectangular or a water drop shape. For example, when a laser perforation is used, a water drop shape can be formed for each hole. When a circular knife is used, a square or rectangular shape can be formed for each hole.

[0014] According to some embodiments, the weakening line extends circumferentially.

[0015] Thanks to these features, the peeling of the peelable part can be performed by the user in a simple way. Additionally, this avoids tearing of the fixed part of the tipping paper and improves the appearance of the tobacco article after removing the peelable part.

[0016] According to some embodiments, the ventilation holes are spaced from the weakening line.

[0017] Thanks to these features, the ventilation holes can extend fully through the fixed part of the tipping paper even after peeling of the peelable part. Thus, the geometry and structure of the ventilation holes can be the same as in the case of a conventional cigarette. Additionally, this arrangement reduces the risk of breaking their geometry or structure when the user tears for example accidentally a part of the fixed part, while peeling the peelable part. The ventilation holes may be produced by laser perforation with a diameter between 100 μm and 500 μm or by electrostatic perforation for ventilation holes or smaller diameter (e.g., between 30 μm and 100 μm or smaller).

[0018] The ventilation holes can be advantageously smaller than the holes of the weakening line. Particularly, the ventilation holes are adapted to allow air entering whereas the weakening line is adapted to allow easier detaching of the peelable part. Additionally, the ventilation holes can have a shape which is different from the shape of the holes of the weakening line. For example, a circular shape can be used for the ventilation holes and an elongated shape (rectangular or water drop shape) can be used for the holes of the weakening line.

[0019] According to some embodiments, the peelable part further comprises a flap configured to be actuated to peel the peelable part.

[0020] Thanks to these features, the user can use the flap to pull the flap and remove the peelable part. Thus, the separation of the peelable part from the fixed part can be easily done. The flap is preferably formed as a circumferential extension of the peelable part having a width smaller than the total width of the peelable part. The flap is preferably closer to the mouth end of the filter portion than to the fixed part to facilitate handling.

[0021] According to some embodiments, the peelable part is adapted to be detached from the fixed part by twisting.

[0022] Thanks to these features, the peelable part can be detached from the fixed part by a simple and intuitive movement by the user. For this purpose, the weakening line separating the peelable and fixed parts can be adapted to be teared upon twisting.

[0023] According to some embodiments, the fixed part is fixed to said surface by an adhesive layer.

[0024] Thanks to these features, the fixed part of the tipping paper can be firmly fixed to the plug wrap. Additionally, it is advantageous that this layer extends through the zone of this fixed part comprising the ventilation holes. Preferably, the adhesive layer extends from the ventilation holes to the peelable part according to a minimum distance of at least 1 mm, preferably at least 2 mm for delivering enough holding properties during tearing the weakening line. This avoids flow leakage between the tipping paper and the plug wrap so as the whole amount of the airflow passes inside the filter portion. Flow leakage can not only alter the quality of the flow inside the article but also deteriorate user experience when it is directed toward the user. A preferred adhesive layer is polyvinyl alcohol (PVA) starch or copolymer based material. Its application amount to the whole surface may be around 4 mg. The viscosity of this material can be comprised between 6 500 and 8 000 cps.

[0025] According to some embodiments, the adhesive layer extends according to substantially the whole area of the fixed part.

[0026] According to some embodiments, the ventilation holes extend through the adhesive layer.

[0027] Thanks to these features, it is possible to further reduce the risk of the flow leakage between the tipping paper and the plug wrap, since the ventilation holes are surrounded by the adhesive layer.

[0028] According to some embodiments, the peelable part is fixed to the downstream part of the plug wrap surface by at least one fixing point detachable upon peeling.

[0029] For example, the peelable part can comprise a unique fixing point or a finite number of fixing points, for example two, three or four fixing points. The fixing point or points are configured to break or detach during peeling of the peelable part. In other words, the or each fixing point presents a low bonding strength. Thus, the peelable part can be attached to the plug wrap when the article is not used and can be easily detached by the user before peeling the peelable part. One or several fixing points can be arranged on an internal surface of the peelable part so as to facilitate its detachment. For example, at least one fixing point can be arranged under the flap. At least one fixing point can be arranged close to the flap, for example at a distance less than 1 mm. At least one fixing point can be arranged close to an edge or in the middle of the peelable part. The or each fixing point can present a small dot in shape of circle not more than 1 mm of diameter.

[0030] According to some embodiments, the ventilation holes are formed by online laser perforation.

[0031] The online laser perforation device can be mounted on the cigarette making machine used to manufacture the tobacco articles according to the invention.

[0032] According to some embodiments, the plug wrap has at least one of the following characteristics:

- a basis weight comprised between 30 g/m² and 50 g/m², and advantageously substantially equal to 35

g/m²;

- a thickness above 36 μm and advantageously substantially equal to 40 μm;
- a tensile strength above 25 N/15 mm and advantageously substantially equal to 30 N/15 mm;
- a strain at break above 1,5% and advantageously substantially equal to 1,7%;
- a felt side Bekk smoothness above 130 s;
- a wire side Bekk smoothness substantially equal to 80 s;
- a Cobb value of the wire side comprised between 10 g/m² and 16 g/m² and advantageously substantially equal to 13 g/m²;
- a porosity substantially less than 1,5 CU.

[0033] The plug wrap can have one or several of the above-cited characteristics. In a case of a plurality characteristics, these characteristics can be combined in any suitable manner. In a particular embodiment, the plug wrap has all of the above-cited characteristics. The plug wrap can thus be formed from a material similar to the material used to form a conventional tipping paper. In some cases, the plug wrap can be formed from exactly the same material as a conventional tipping paper.

[0034] According to some embodiments, the plug wrap has at least one of the following characteristics substantially equal to the corresponding characteristic of the tipping paper:

- thickness;
- tensile strength;
- strain at break;
- felt side Bekk smoothness;
- wire side Bekk smoothness;
- Cobb value;
- porosity;
- stiffness;
- opacity;
- brightness.

[0035] Thanks to these features, the plug wrap can be similar to the tipping paper so that it can be used to interact with the user's lips and saliva after the peeling.

[0036] The plug wrap can comprise one or several of the above-cited characteristics of the tipping paper of the tobacco article according to the invention. In a case of a plurality of characteristics, these characteristics can be combined in any suitable manner. In a particular embodiment, the plug wrap has all of the above-cited characteristics. In this case, the plug wrap is done from the same material as the tipping paper used to form tobacco article.

[0037] According to some embodiments, the plug wrap has a water resistant and/or a flavour releasing coating.

[0038] Thanks to these features, the water resistant coating of the plug wrap can allow to the plug wrap direct interaction with the user's saliva without deteriorating its other properties. Thus, the user's lips can interact directly with the plug wrap instead of the tipping paper. The fla-

avour releasing coating can allow releasing of a particular substance upon interaction with the user's lips or saliva. This substance can for example be a flavoring substance. The coating can be starch or co-polymer based. The coating material can be acrylic, ethyl cellulose or PVA.

[0039] According to some embodiments, the plug wrap has a printed design and/or embossed roughness.

[0040] Thanks to these features, the plug wrap can have the same appearance as a conventional tipping paper. For example, the plug wrap can be colored as a conventional tipping paper and can present the same visual design as a conventional tipping paper. Additionally, using an embossed roughness can give to the user the same haptic effect as a conventional tipping paper.

[0041] According to some embodiments, the plug wrap is formed from a transparent plastic or cellulose paper.

[0042] Thanks to these features, specific visual effects can be achieved.

[0043] According to some embodiments, the tobacco article is designed to be used with an aerosol generating device, as for example an HNB device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0044] The invention and its advantages will be better understood upon reading the following description, which is given solely by way of none-limiting examples and which is made with reference to the appended drawings, in which:

- Figure 1 is a schematic view of a tobacco article according to the invention, the tobacco article comprising a plug wrap and a tipping paper;
- Figure 2 is a schematic exploded view showing a respective arrangement of the plug wrap and the tipping paper of Figure 1, the tipping paper comprising a fixed part and a peelable part, the peelable part being in an attached position;
- Figure 3 is a schematic exploded view shown the tipping paper of Figure 1 where the peelable part is in a detached position and removed from the fixed part; and
- Figure 4 is a schematic view of the peelable part of the tipping paper of Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

[0045] Before describing the invention, it is to be understood that it is not limited to the details of construction set forth in the following description. It will be apparent to those skilled in the art having the benefit of the present disclosure that the invention is capable of other embodiments and of being practiced or being carried out in various ways.

[0046] The expression "**substantially equal to**" is un-

derstood hereinafter as an equality at plus or minus 10% and preferably at plus or minus 5%.

[0047] As used herein, the term **"aerosol generating device"** or **"device"** may include a vaping device to deliver aerosol from a tobacco article received in the device, for example comprising tobacco. The device may be portable. "Portable" may refer to the device being for use when held by a user. The device may be adapted to generate a variable amount of aerosol, e.g. by activating a heating system for a variable amount of time (as opposed to a metered dose of aerosol) using a trigger. The trigger may be user activated, such as a vaping button and/or inhalation sensor. The inhalation sensor may be sensitive to the strength of inhalation as well as the duration of inhalation to enable a variable amount of vapor to be provided (so as to mimic the effect of smoking a conventional combustible smoking article such as a cigarette, cigar or pipe, etc.).

[0048] As used herein, the term **"aerosol generating substrate"** or **"aerosol substrate"** or **"tobacco substrate"** may refer to a material that is designed to deliver aerosol upon heating in an aerosol generating device and which may for example comprise nicotine or tobacco and an aerosol former. Tobacco may take the form of various materials such as shredded tobacco, tobacco cut filler, granulated tobacco, tobacco leaf and/or reconstituted tobacco. Reconstituted tobacco can be produced in the form of a sheet by any suitable process such as paper making process, cast sheet, extrusion/lamination. The sheet can then be gathered, cut or shredded, optionally mixed with cellulose or other fillers, tobacco lamina, stems, aerosol former, additives, flavour (e.g., menthol), acid (e.g., benzoic acid), and wrapped in a wrapper to form a tobacco portion. The filling density of the tobacco portion is not particularly limited, but is usually 250 mg / cm³ to 900 mg / cm³ from the viewpoint of ensuring the performance of the tobacco portion and imparting a good taste. Suitable aerosol formers include: a polyol such as sorbitol, glycerol, and glycols like propylene glycol or triethylene glycol; a non-polyol such as monohydric alcohols, acids such as lactic acid, glycerol derivatives, esters such as triacetin, triethylene glycol diacetate, triethyl citrate, 1,3-butanediol, glycerin or vegetable glycerin. Suitable amount of aerosol former may be between e.g., 5 wt. % and 50 wt.% of the substrate. In some embodiments, the aerosol generating agent may be glycerol, propylene glycol, or a mixture of glycerol and propylene glycol. The substrate may also comprise at least one of a gelling agent, a binding agent, a stabilizing agent, and a humectant.

[0049] As used herein, the term **"aerosol"** may include a suspension of precursor as one or more of: solid particles; liquid droplets; gas. Said suspension may be in a gas including air. Aerosol may be formed by the aerosol generating substrate and may comprise one or several components of it. The aerosol is generally obtained by a temperature increase of the aerosol generating substrate, such as at a temperature less than 400°C, pref-

erably up to 350°C.

[0050] As used herein, the term "vaping session" may refer to a using period of the aerosol generated device starting from the activation of the trigger defined above to the moment in which the aerosol generation device is disabled.

[0051] As used herein the terms "upstream" and "downstream" refer to a position relative to the direction of the flow in the article towards the mouth end.

[0052] As used herein the term "longitudinal" refers to the extension direction of the tobacco article.

[0053] In reference to Figure 1, the tobacco article 10 extends between a mouth end and tobacco end. The tobacco article 10 comprises a wrapped tobacco portion 12 forming the tobacco end, a filter portion 14 forming the mouth end, an article wrapper 16 and in some embodiments, a cooling or distancing element (not-shown) arranged between the wrapped tobacco portion 12 and the filter portion 14 or in the filter portion 14. According to some embodiments, the tobacco article 10 is a cigarette that can be used in a conventional way, i.e. by burning at least partially the wrapped tobacco portion 12. According to some other embodiments, the tobacco article 10 is designed to be used with an aerosol generating device, such an HNB device where the wrapped tobacco portion 12 is heated and not burnt. The tobacco article 10 has for example a cylindrical shape with a circular cross-section.

[0054] In a preferred example, the length of the wrapped tobacco portion 12 is comprised between 10 and 30 mm, preferably between 15 and 25 mm, more preferably substantially equal to 20 mm (+/- 2 mm). In said example, the length of the filter portion 14 is comprised between 10 and 30 mm, preferably between 15 and 25 mm, more preferably substantially equal to 20 mm (+/- 2 mm).

[0055] The wrapped tobacco portion 12 contains an aerosol generating substrate as defined above. The wrapped tobacco portion 12 is wrapped in a wrapper (not-shown) which is advantageously rolled around the whole length of the tobacco portion and keeps the ends of the tobacco portion unwrapped. This wrapper is for example formed by a known cigarette paper.

[0056] The filter portion 14 contains any material or a combination of materials forming a filter of an airflow generated during heating or burning the tobacco portion 12. The filter portion 14 may thus comprises cellulose acetate fiber and/or paper. The filter portion may be formed of a densified bundle of filaments, in particular of cellulose acetate tow, or be a gathered paper sheet. The filter portion may comprise additives such as a plasticizer, for example triacetin. In some embodiments, the filter portion 14 may further comprise a flavouring element, like a flavouring capsule breakable by the user and/or soluble by heating and/or interaction with saliva.

[0057] The wrapped tobacco portion 12, the filter portion 14 and optionally the cooling or distancing element are maintained together with the article wrapper 16. For

example, the cooling or distancing element may comprise a paper tubular element. In reference to Figure 2, the article wrapper 16 comprises a tipping paper 21 and a plug wrap 22. Particularly, the tipping paper 21 is rolled around the plug wrap 22 and around a part of the wrapped tobacco portion 12 as it will be explained in further detail below.

[0058] The plug wrap 22 is designed to wrap the filter portion 14 and extends for example according to the whole length of the filter portion 14. The plug wrap 22 defines thus a downstream part adjacent to the mouth end and an upstream part opposite to the downstream part and adjacent to the wrapped tobacco portion 12. The plug wrap 22 is formed from a single sheet rolled around the filter portion 14. The plug wrap overlaps at a small longitudinal sealed seam.

[0059] The tipping paper 21 is designed to fix the filter portion 14 with the plug wrap 22 to the wrapped tobacco portion 12. For this, purpose the tipping paper 21 has an overlapping zone with each of the plug wrap 22 and the wrapped tobacco portion 12.

[0060] In the example of Figure 2, the overlapping zone with the plug wrap 22 extends according to the whole area of the plug wrap 22 and the overlapping zone with the wrapped tobacco portion 12 extends according to a part of the wrapped tobacco portion 12. The longitudinal extension of this last part (i.e. overlapping zone with the wrapped tobacco portion 12) is comprised for example between 10% and 60% of the longitudinal extension of the wrapped tobacco portion 12.

[0061] The tipping paper 21 is made from a material which, for example, is conventionally used to form a tipping paper in conventional cigarettes or heated aerosol generating articles. This material is defined by several physical characteristics. Each of these characteristics is chosen for example from the group comprising:

- thickness;
- tensile strength;
- strain at break;
- felt side Bekk smoothness;
- wire side Bekk smoothness;
- Cobb value;
- porosity;
- stiffness;
- opacity;
- brightness.

[0062] According to some embodiments, at least some of these characteristics are defined by standards, for example ISO standards.

[0063] Thus, for example, the basis weight of the tipping paper 21 can be comprised between 30 g/m² and 50 g/m², preferably between 32 g/m² and 45 g/m², advantageously between 34 g/m² and 40 g/m² and preferably substantially equal to 35 g/m², or 36 g/m², or 37 g/m².

[0064] The thickness of the tipping paper 21 can be above 36 μm, preferably above 38 μm and advanta-

geously substantially equal to 40 μm. The tensile strength of the tipping paper 21 is for example above 25 N/15 mm and advantageously substantially equal to 30 N/15 mm. The strain at break of the tipping paper 21 is for example above 1,5% and advantageously substantially equal to 1,7%. The felt side Bekk smoothness of the tipping paper 21 is for example above 130 s and advantageously substantially equal to 200 s. The wire side Bekk smoothness is for example above 60 s, advantageously above 70 s and substantially equal to 80 s. The Cobb value of the wire side of the tipping paper 21 is for example comprised between 10 g/m² and 16 g/m², preferably between 11 g/m² and 15 g/m² and advantageously substantially equal to 13 g/m². The porosity of the tipping paper 21 may be comprised between 0 and 3 000 coresta, preferably 1 000 coresta, and is advantageously substantially equal to 0 coresta. The opacity of the tipping paper 21 can be above 78%, preferably above 78,5% and substantially equal to 81%. The brightness of the tipping paper 21 can be above 88% and substantially equal to 90%.

[0065] The plug wrap 22 is made of a material which is similar to the material of the tipping paper 21 of the tobacco article 10 or similar to the material of a tipping paper used in conventional cigarettes or heated aerosol generating articles. This means that the material of the plug wrap 22 has at least one characteristic among the above-mentioned characteristics which is similar to the corresponding characteristic of the tipping paper 21 or of a tipping paper used in conventional cigarettes. Advantageously, the plug wrap 22 may have several characteristics, for example at least two or three or four, among the above-mentioned characteristics which are similar to the corresponding characteristics of the tipping paper 21 or of a tipping paper used in conventional cigarettes.

[0066] For example, the basis weight of the plug wrap 22 can be comprised between 30 g/m² and 50 g/m², preferably between 32 g/m² and 45 g/m², advantageously between 34 g/m² and 40 g/m² and preferably substantially equal to 35 g/m², or 36 g/m², or 37 g/m².

[0067] The thickness of the plug wrap 22 can be above 36 μm, preferably above 38 μm and advantageously substantially equal to 40 μm. The tensile strength of the plug wrap 22 is for example above 25 N/15 mm and advantageously substantially equal to 30 N/15 mm. The strain at break of the plug wrap 22 is for example above 1,5% and advantageously substantially equal to 1,7%. The felt side Bekk smoothness of the plug wrap 22 is for example above 130 s and advantageously substantially equal to 200 s. The wire side Bekk smoothness is for example above 60 s, advantageously above 70 s and substantially equal to 80 s. The Cobb value of the wire side of the plug wrap 22 is for example comprised between 10 g/m² and 16 g/m², preferably between 11 g/m² and 15 g/m² and advantageously substantially equal to 13 g/m². The porosity of the plug wrap 22 may be comprised between 0 and 3 000 coresta, preferably 1 000 coresta, and is ad-

vantageously substantially equal to 0 coresta. The plug wrap 22 can thus be formed by a non-porous material. The opacity of the plug wrap 22 can be above 78%, preferably above 78,5% and substantially equal to 81%. The brightness of the plug wrap 22 can be above 88% and substantially equal to 90%.

[0068] Additionally, the plug wrap 22 can be titanium oxide free. The plug wrap 22 can be formed from transparent plastic or cellulose paper. Moreover, the plug wrap 22 can have a visual and/or haptic design similar to the corresponding design of a tipping paper of conventional cigarettes. For example, the plug wrap 22 can be coloured and/or comprise visual marks/printings as a tipping paper of conventional cigarettes. It can also have embossed roughness similar to one of a tipping paper of conventional cigarettes. During the article manufacturing, the plug wrap 22 can be applied by a filter maker machine in transverse direction. The plug wrap 22 can be glued to the material forming the filter portion 14 via a layer 25 shown in Figure 2.

[0069] The plug wrap has preferably a filler material chosen from the group of materials which contains: Kaolin, CaCO_3 , TALC AND Al(OH)_3 . In an example, the plug wrap 22 comprises a base layer with a porosity less than 1,5 CU, wherein the base layer contains at least one filter material and it comprises a surface which is pigmented with a pigment component which contains CaCO_3 and at least a second component serving as a non-combustible filler. The pigment component preferably has a grammage of at least 2.0 gsm and the pigmented surface has a surface smoothness of at least 400 sec. The advantage of this plug wrap is that it has a good lip feeling during smoking without additional printing process and without use of titanium dioxide (TiO_2). An improved lip release feeling is also provided. Additional characteristics and advantages of the plug wrap are described in relation to a tipping paper in WO 2021019016 inserted herein by reference.

[0070] According to the invention, the plug wrap 22 is designed to be in direct contact with the user's lips as it will be explained in detail below. The plug wrap 22 can comprise thus a water resistant and/or a flavour releasing coating. The water resistant coating protects the wrap 22 against humidity, notably against saliva and the flavour releasing coating can release flavour upon contact with the user's lips and/or saliva. Such flavour can comprise a taste improving or performance enhancing additive. Such taste improving additive is for example flavourants such as menthol, peppermint, berry, lemon, peach, apple, cardamon, cherry, celery, fenugreek, bergamot, jasmine, ginger, orange oil, lemon oil, cassia, coffee, tobacco powder, herbs, spices, flavour enhancers, sugars, sugar substitutes and combinations thereof which, when being in contact with aerosol, enhances and/or modify the taste of the aerosol.

[0071] Referring again to Figure 2, the tipping paper 21 comprises a fixed part 31A and a peelable part 31B. Advantageously, the tipping paper 21 is formed of the

fixed part 31A and the peelable part 31B.

[0072] The fixed part 31A is fixed to a surface comprising the upstream part of the plug wrap 22 and a part of an external surface delimiting the wrapped tobacco portion 12, using for example an adhesive layer 32. This external surface corresponds to the overlapping zone of the tipping paper 21 with the wrapped tobacco portion 12.

[0073] The fixed part 31A can cover less than 70%, advantageously less than 60%, of the total area of the plug wrap 22. For example, the fixed part 31A can cover between 10% and 50% of the total area of the plug wrap 22.

[0074] The adhesive layer 32 is formed for example by an appropriate glue and extends for example according to the whole area of the fixed part 31A.

[0075] The peelable part 31B is detachable from the fixed part 31A as it is shown in Figure 3 where the peelable part 31B is entirely removed. In the attached position (shown in Figure 2), the peelable part 31 covers the downstream part of the plug wrap 22 and in the detached position (shown in Figure 3), the peelable part 31B uncovers this part of the plug wrap 22. Thus, the peelable part 31B in the attached position can extend according to at least 20%, preferably 30%, more preferably 40% and advantageously according 50%, of the total area of the plug wrap 22. Advantageously, the downstream part of the plug wrap 22 covered by the peelable part 31B corresponds to a zone of the filter portion 14 intended to be in contact with the user's lips.

[0076] In some embodiments, the peelable part 31B can be attached only to the fixed part 31A and can be in free contact with the plug wrap 22. In some other embodiments, the peelable part 31B can be fixed, at least slightly, to the downstream part of the plug wrap 22 using one or several fixing points (non-shown). The or each fixing point can be formed as small dots by a glue ensuring a weak bonding which breakable upon tearing or pulling the peelable part 31B. The fixing points can be arranged in any suitable manner on the peelable part 31 and/or on the corresponding part of the plug wrap 22.

[0077] The peelable part 31B is separated from the fixed part 31A by a weakening line 35 also shown in Figure 4 where the tipping paper 21 in its unrolled state. The weakening line 35 extends for example circumferentially and is formed by perforations or holes. The weakening line 35 can be arranged fully around the circumference of the tobacco article. The distance between the holes of the line can be comprised between 1 and 2 mm. The width of the holes can be substantially equal to 0,5 mm. Their length can be comprised between 0,5 and 1 mm. The line may be prescored by laser on the flat paper blank before it is formed into the tipping paper. The prescoreing can be done online or offline. According to an alternative embodiment, the line may be done using a rotating circular knife.

[0078] The holes of the weakening line 35 can take various shapes. Such a shape can for example be circular, square, rectangular or a water drop shape. For ex-

ample, when a laser perforation is used, a water drop shape can be formed for each hole. When a circular knife is used, a square or rectangular shape can be formed for each hole.

[0079] As it is shown in Figure 4, in some embodiments, the peelable part 31B can further comprise a flap 37 designed to be gripped by the user to detach the peelable part 31B. The shape of the flap 37 can be configured to be easily gripped by the user when the tipping paper 21 is rolled around the plug wrap 22. Thus, as it is shown in Figure 4, the peelable part 31B in its unrolled state has a substantially rectangular shape and the flap 37 extends from one of the sides of this shape, advantageously from a corner. The flap 37 can for example be arranged opposite to the weakening line 35.

[0080] Referring again to Figure 2, in some embodiments, the tobacco article 10 further comprises a plurality of ventilation holes 40 arranged circumferentially and extending from the filter portion 14 through the plug wrap 22 and the fixed part 31A of the tipping paper 21. Advantageously, the adhesive layer 32 extends through the zone of the fixed part 31A comprising the ventilation holes 40. The ventilation holes 40 are preferably formed by online laser perforation extending through the plug wrap 22 and the tipping paper 21. For example, the diameter of each ventilation hole 40 can be comprised between 4 and 10 μm . In this case, it is possible to use a substantially unporous material to form the plug wrap 22 and the tipping paper. The online laser perforation can be performed by a device mounted on the cigarette making machine used to manufacture the tobacco article 10. In some embodiments, this device can also form the weakening line 35.

[0081] Advantageously, as it is shown in Figure 4, the ventilation holes 40 are spaced from the weakening line 35. For example, the weakening line 35 can extend parallel to the ventilation holes 40 and can be spaced from the ventilation holes 40 by a distance comprised between 5% and 70%, advantageously between 10% and 50%, of the longitudinal extension of the fixed part 31A. As it is clear from the properties of the adhesive layer 32 mentioned above, the adhesive layer 32 comprises a part extending between the weakening line 35 and the ventilation holes 40 so as to avoid flow leakage between the plug wrap 22 and the fixed part 31A. The ventilation holes 40 can be advantageously smaller than the holes of the weakening line 35. The ventilation holes 40 can have a shape which is different from the shape of the holes of the weakening line 35. For example, a circular shape can be used for the ventilation holes 40 and an elongated shape (rectangular or water drop shape) can be used for the holes of the weakening line 35.

[0082] Before using the tobacco article 10 for smoking or vaping, the user can pull the flap 37 and detach the peelable part 31B from the fixed part 31A. This action will thus uncover a part of the plug wrap 22. This part can be then in contact with the user's lips during the smoking or vaping session. Since the plug wrap 22 is made from a

material similar to a conventional tipping paper, the user's experience of smoking or vaping will be similar to one of a conventional cigarette or HNB article. Additionally, due to the ventilation holes 40 extending through both plug wrap 22 and tipping paper 21, the flow inside the filter portion 14 keeps the same properties as those of the flow inside a conventional cigarette.

[0083] The manufacturing of the tobacco article 10 according to the invention can be performed similarly to the manufacturing of a conventional tobacco article. The only difference can be the material used to form the plug wrap 22. As mentioned before, the same material can be used to form the plug wrap 22 and the tipping paper 21.

Claims

1. A tobacco article (10), comprising:

- a wrapped tobacco portion (12);
 - a filter portion (14) forming a mouth end;
 - a plug wrap (22) wrapping the filter portion (14), and defining a downstream part adjacent to the mouth end and an upstream part opposite to the downstream part;
 - a tipping paper (21) wrapping at least a part of the wrapped tobacco portion (12) together with the filter portion (14) and being in contact with the plug wrap (22);
 - a plurality of ventilation holes (40);
- wherein the tipping paper (21) comprises:

- a fixed part (31A) fixed to a surface comprising the upstream part of the plug wrap (22) and a part of an external surface delimiting the wrapped tobacco portion (12); and
 - a peelable part (31B) covering a surface comprising the downstream part of the plug wrap and configured to be peeled before using the tobacco article (10);
- wherein the ventilation holes (40) are arranged circumferentially and extend through the plug wrap (21) and the fixed part (31A) of the tipping paper (21).

2. The tobacco article (10) according to claim 1, wherein the fixed part (31A) is delimited from the peelable part (31B) by a weakening line (35).

3. The tobacco article (10) according to claim 2, wherein the weakening line (35) extends circumferentially.

4. The tobacco article (10) according to claim 2 or 3, wherein the ventilation holes (40) are spaced from the weakening line (35).

5. The tobacco article (10) according to any one of the

preceding claims, wherein the peelable part (31B) further comprises a flap (37) configured to be actuated to peel the peelable part (31B).

6. The tobacco article (10) according to any one of the preceding claims, wherein the fixed part (31A) is fixed to said surface by an adhesive layer (32). 5
7. The tobacco article (10) according to claim 6, wherein the adhesive layer (32) extends according to substantially the whole area of the fixed part (31A). 10
8. The tobacco article (10) according to claim 6 or 7, wherein the ventilation holes (40) extend through the adhesive layer (32). 15
9. The tobacco article (10) according to any one of the preceding claims, wherein the peelable part (31B) is fixed to the downstream part of the plug wrap surface by at least one fixing point detachable upon peeling. 20
10. The tobacco article (10) according to any one of the preceding claims, wherein the ventilation holes (40) are formed by online laser perforation. 25
11. The tobacco article (10) according to any one of the preceding claims, wherein the plug wrap (22) has at least one of the following characteristics:

- a basis weight comprised between 30 g/m² and 50 g/m², and advantageously substantially equal to 35 g/m²; 30
- a thickness above 36 μm and advantageously substantially equal to 40 μm;
- a tensile strength above 25 N/15 mm and advantageously substantially equal to 30 N/15 mm; 35
- a strain at break above 1,5% and advantageously substantially equal to 1,7%;
- a felt side Bekk smoothness above 130 s; 40
- a wire side Bekk smoothness substantially equal to 80 s;
- a Cobb value of the wire side comprised between 10 g/m² and 16 g/m² and advantageously substantially equal to 13 g/m²; 45
- a porosity substantially less than 1,5 CU.

12. The tobacco article (10) according to any one of the preceding claims, wherein the plug wrap (22) has at least one of the following characteristics substantially equal to the corresponding characteristic of the tipping paper (21): 50
 - thickness; 55
 - tensile strength;
 - strain at break;
 - felt side Bekk smoothness;
 - wire side Bekk smoothness;

- Cobb value;
- porosity;
- stiffness;
- opacity;
- brightness.

13. The tobacco article (10) according to any one of the preceding claims, wherein the plug wrap (22) has a water resistant and/or a flavour releasing coating.
14. The tobacco article (10) according to any one of the preceding claims, wherein the plug wrap (22) has a printed design and/or embossed roughness.
15. The tobacco article (10) according to any one of the preceding claims, wherein the plug wrap (22) is formed from a transparent plastic or cellulose paper.

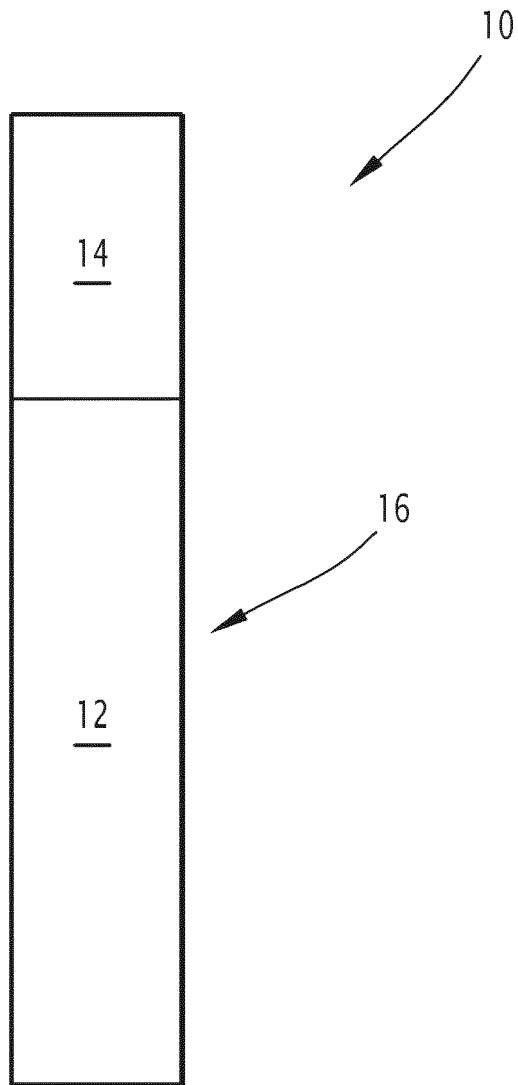


FIG.1

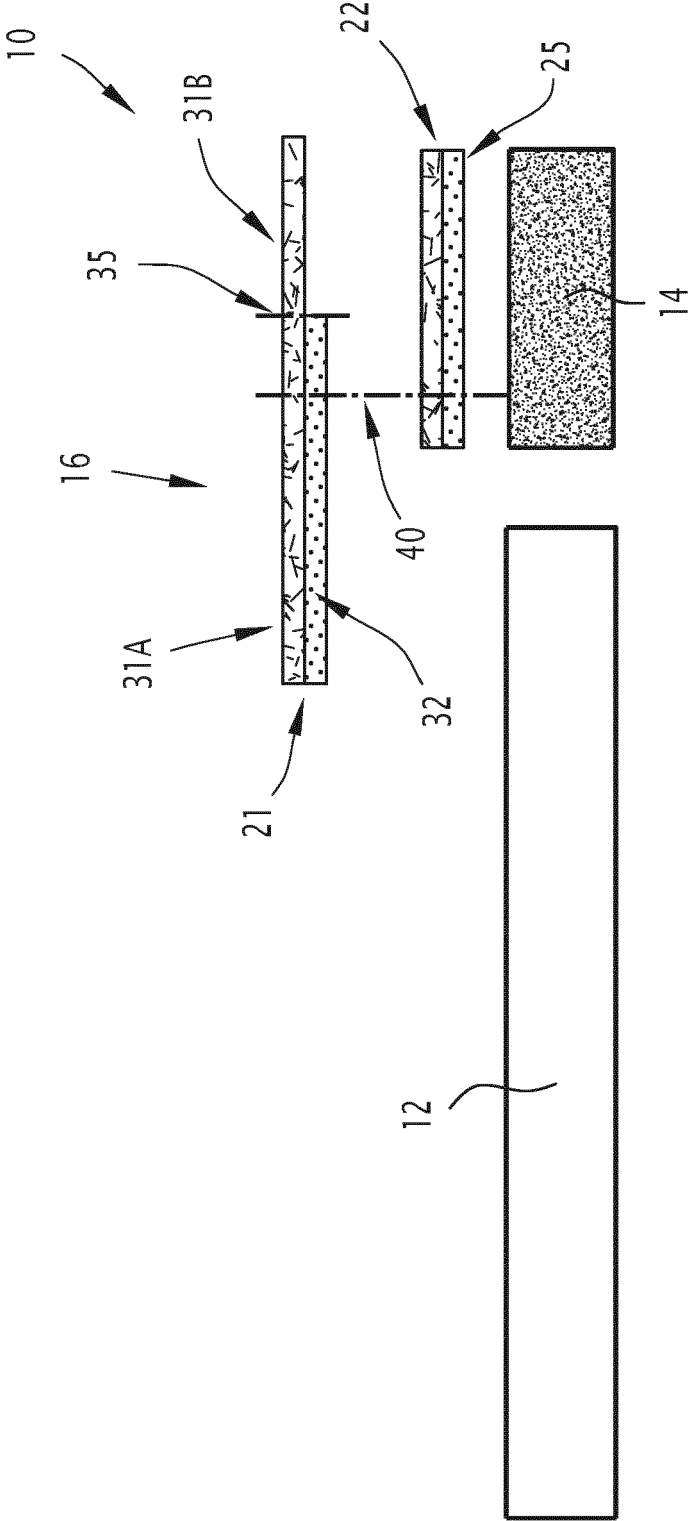


FIG.2

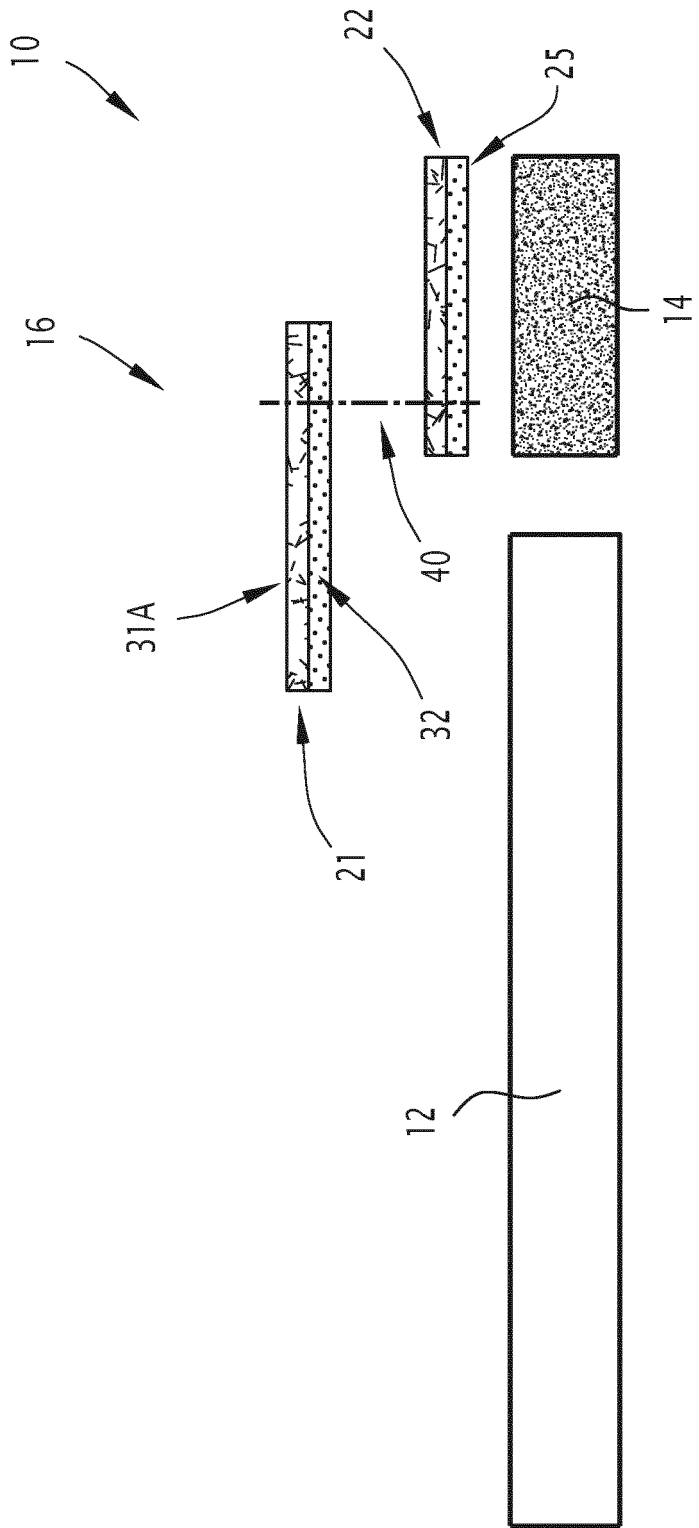


FIG.3

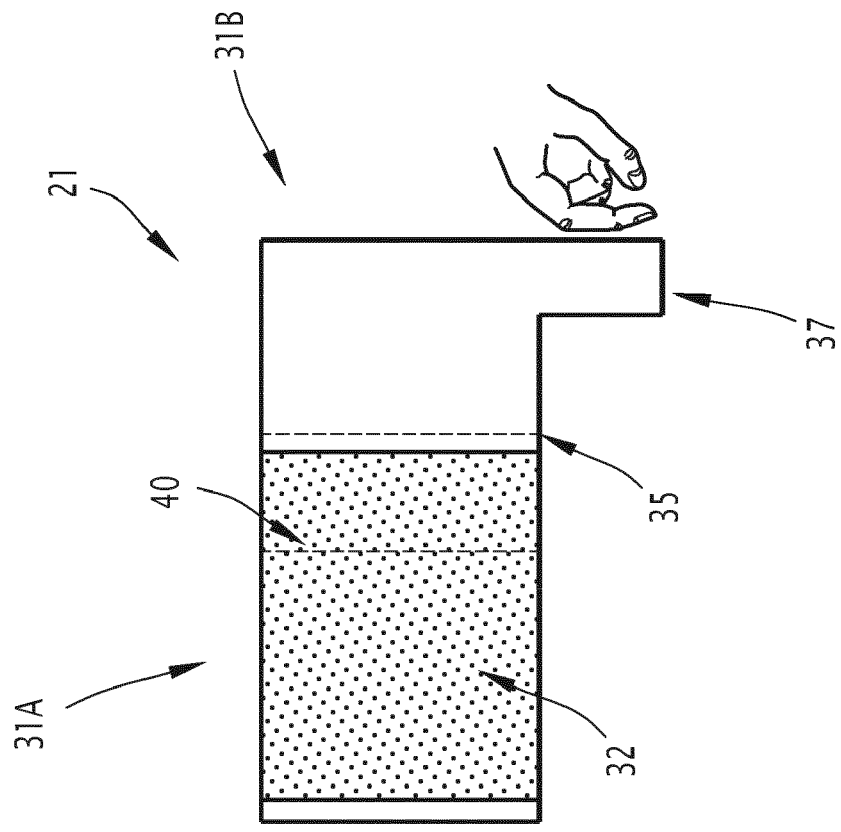


FIG. 4



EUROPEAN SEARCH REPORT

Application Number

EP 22 16 2916

5

10

15

20

25

30

35

40

45

50

55

1

EPO FORM 1503 03.82 (P04C01)

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	EP 2 046 153 A2 (REYNOLDS TOBACCO CO R [US]) 15 April 2009 (2009-04-15) * paragraph [0011] - paragraph [0071]; figures 1-11 *	1-15	INV. A24D1/02 A24D1/20 A24D3/04
A	US 2020/236990 A1 (BRANDAO DIOGO MEIRA [CH] ET AL) 30 July 2020 (2020-07-30) * paragraph [0007] - paragraph [0099]; figures 1-4 *	1-15	
A	EP 3 468 393 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 17 April 2019 (2019-04-17) * paragraph [0018] - paragraph [0039]; figures 1-5 *	1-15	
A	WO 2017/068667 A1 (JAPAN TOBACCO INC [JP]) 27 April 2017 (2017-04-27) * paragraph [0016] - paragraph [0057]; figures 1-14 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A24D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 August 2022	Examiner Espla, Alexandre
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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

EP 22 16 2916

5

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

24-08-2022

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2046153 A2	15-04-2009	EP 2046153 A2	15-04-2009
		EP 2494875 A2	05-09-2012
		ES 2391663 T3	28-11-2012
		ES 2526906 T3	16-01-2015
		JP 5610381 B2	22-10-2014
		JP 2009545324 A	24-12-2009
		US 2008029111 A1	07-02-2008
		US 2010294289 A1	25-11-2010
		WO 2008019281 A2	14-02-2008

US 2020236990 A1	30-07-2020	CN 109688845 A	26-04-2019
		EP 3518694 A1	07-08-2019
		JP 7082612 B2	08-06-2022
		JP 2019528725 A	17-10-2019
		KR 20190049723 A	09-05-2019
		RU 2019112476 A	29-10-2020
		SG 11201810056Y A	28-12-2018
		US 2020236990 A1	30-07-2020
		WO 2018060141 A1	05-04-2018

EP 3468393 A1	17-04-2019	BR 112018073024 A2	26-02-2019
		CN 109843090 A	04-06-2019
		EP 3468393 A1	17-04-2019
		JP 7080830 B2	06-06-2022
		JP 2019525734 A	12-09-2019
		KR 20190017745 A	20-02-2019
		PL 3468393 T3	02-11-2020
		RU 2018145744 A	10-07-2020
		WO 2017211943 A1	14-12-2017

WO 2017068667 A1	27-04-2017	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 2021019016 A [0069]