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(71) Applicant: **PHILIP MORRIS PRODUCTS, S.A.**
[CH/CH]; Quai Jeanrenaud 3, CH-2000 Neuchatel (CH).

(72) Inventors: **CHRISTLBAUER, Monika**; Bahnhofstrasse 34, CH-2540 Grenchen (CH). **GADANI, Ferruccio**; Rue du Cret-Taconnet 34, CH-2000 Neuchatel (CH). **MAROTTA, Gabriel**; Chemin de la Caboletaz 6, CH-1066 Epalinges (CH). **MONTOYA, Bernardino**; Verger Clottu 5, CH-2068 Hauterive (CH). **ZAIT, Dzeti**; Rue de la Raffinerie 5, CH-2000 Neuchatel (CH).

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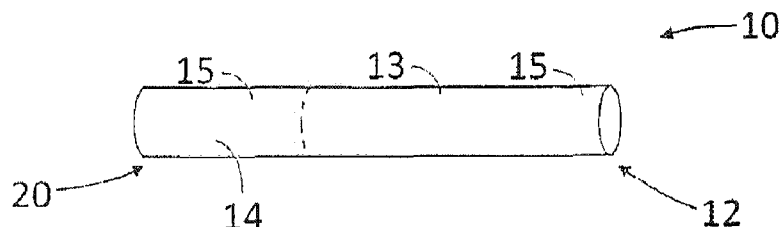


FIG. 1

(57) Abstract: A tobacco product includes a tobacco substrate having cut or ground tobacco and a flower of *Nicotiana* species plant disposed within the cut or ground tobacco or a flower of *Nicotiana* species plant disposed within a mouthpiece of the smoking article.

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TOBACCO PRODUCT WITH TOBACCO FLOWER

The present disclosure relates to tobacco products that include tobacco flower. The tobacco flower can be incorporated into the components of the tobacco product such as the cut or ground tobacco or the filter element.

Combustible smoking articles, such as cigarettes, have shredded tobacco (tobacco cut filler) surrounded by a paper wrapper forming a tobacco rod. A cigarette is employed by a smoker by lighting one end thereof and burning the shredded tobacco rod. The smoker then receives mainstream smoke into their mouth by drawing on the mouth end or filter end of the cigarette. The shredded tobacco can be a single type of tobacco or a blend of two or more types of tobacco depending of the brand of cigarette.

A number of smoking articles in which an aerosol generating substrate, such as tobacco, is heated rather than combusted have also been proposed in the art. In heated smoking articles, the aerosol is generated by heating the aerosol generating substrate. Known heated smoking articles include, for example, smoking articles in which an aerosol is generated by electrical heating or by the transfer of heat from a combustible fuel element or heat source to an aerosol generating substrate. During smoking, volatile compounds are released from the aerosol generating substrate by heat transfer from the heat source and entrained in air drawn through the smoking article. As the released compounds cool they condense to form an aerosol that is inhaled by the consumer. Also known are smoking articles in which a nicotine-containing aerosol is generated from a tobacco material, tobacco extract, or other nicotine source, without combustion, and in some cases without heating, for example through a chemical reaction.

Some smoking articles include a filter segment including functional materials that capture or convert components of the smoke from the smoking article or release materials into the smoke as smoke is being drawn through the filter. Such functional materials are known and include, for example, sorbents, catalysts and flavourant materials.

Various treatment methods and additives have been proposed for altering the overall character or taste of the tobacco utilized in smoking articles. For example, additives or treatment processes have been utilized to alter the chemistry or sensory properties of the tobacco or mainstream smoke generated by the tobacco.

It would be desirable to provide tobacco products or smoking articles that include tobacco-based material to enhance the sensory characteristics of a tobacco blend provided. It would also be desirable to provide tobacco products or smoking articles that can selectively alter the taste of certain portions of a tobacco blend.

According to the current disclosure, there is provided a tobacco product tobacco substrate having cut or ground tobacco and a flower of *Nicotiana* species plant disposed in the

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cut or ground tobacco. There is also provided a smoking article mouthpiece that includes a flower of *Nicotiana* species plant.

Smoking articles or tobacco products that include a flower of *Nicotiana* species plant according to the present disclosure provide an effective way to enhance the tobacco blend taste provided by the smoking article or tobacco product. The flower of *Nicotiana* species plant can be uniformly applied to the smoking article tobacco substrate or mouthpiece to provide a consistent tobacco blend taste or the flower of *Nicotiana* species plant can be discretely applied to a specific portion or portions of the tobacco substrate to alter the tobacco blend taste as a function of time. Substantially intact tobacco flowers can be utilized in the smoking articles or tobacco products via simple addition or direct inclusion of the tobacco flowers to the tobacco substrate or mouthpiece.

All scientific and technical terms used herein have meanings commonly used in the art unless otherwise specified. The definitions provided herein are to facilitate understanding of certain terms used frequently herein.

The term "tobacco flower" is used herein to indicate a flower of *Nicotiana* species plant. The terms "tobacco flower" and "flower of *Nicotiana* species" is used herein to indicate both a single species of *Nicotiana* and two or more species of *Nicotiana* forming a flower blend.

The term "flower" is used herein to indicate the characteristic reproductive structure of the plant and includes the whole flower or a portion thereof. A tobacco flower is the characteristic reproductive structure of the plant of the *Nicotiana* genus. Various parts or portions of the flower can be employed. For example, the entire or substantially the entire flower (the whole flower) can be employed including the petal, sepal and receptacle together. Alternatively, various parts or portions of the flower can be employed. For example, the petal, corolla, sepal, receptacle, anther, filament, stigma, stamen, style, pistil, pedicel, ovary or combinations thereof can be isolated and employed.

The term "tobacco product" refers to a smoking article or a smokeless tobacco product.

The term "smoking article" is used herein to indicate cigarettes, cigars, cigarillos and other articles in which a smokable material, such as a tobacco, is lit and combusted to produce smoke. The term "smoking article" also includes articles in which smokable material is not combusted such as but not limited to smoking articles that heat the smoking composition directly or indirectly, or smoking articles that neither combust nor heat the smoking composition, but rather use air flow or a chemical reaction to deliver nicotine or other materials from the smokable material.

The term "smokeless tobacco product" includes tobacco products that are inserted into the mouth of the user. An example of a smokeless tobacco product is "snuff", commonly referred to as "snus".

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The term "tobacco substrate" is used herein to indicate the portion of the smoking article that includes tobacco. The tobacco substrate can be the portion of the smoking article that includes cut or ground tobacco or tobacco cut filler, for example a rod of tobacco. The tobacco substrate can be connected to the mouthpiece or filter in an end-to-end relationship, as further
5 discussed below.

The term "mouthpiece" is used herein to indicate the portion of the smoking article that is designed to be contacted with the mouth of the consumer. The mouthpiece can be the portion of the smoking article that includes the filter, or in some cases the mouthpiece can be defined by the extent of the tipping paper. In other cases, the mouthpiece can be defined as a portion
10 of the smoking article extending about 40 mm from the mouth end of the smoking article, or extending about 30 mm from the mouth end of the smoking article.

The term "tobacco cut filler" is used herein to indicate tobacco material that is predominately formed from the lamina portion of the tobacco leaf. The terms "tobacco cut filler" is used herein to indicate both a single species of *Nicotiana* and two or more species of
15 *Nicotiana* forming a tobacco cut filler blend. The term "tobacco cut filler" includes cut or ground tobacco.

The phrase "substantially intact epidermal cellular structure" refers to an epidermal cellular structure that has not been disrupted by chemical processes (such as extraction for example) or otherwise disrupted. Preferably the only processing experienced by the cellular
20 structure may be removal or addition of water, size reduction via cutting or grinding, or both. This flower material with an intact cellular structure can then be simply added or directly included into the smoking article.

The terms "upstream" and "downstream" refer to relative positions of elements of the smoking article described in relation to the direction of mainstream smoke as it is drawn from a
25 tobacco rod and through the filter and mouthpiece.

The term "smoke" is used herein to indicate smoke produced by combustible smoking articles, such as cigarettes, and aerosols produced by non-combustible smoking articles as described above.

The term "percent oven volatiles" or "%OV" is determined by measuring the percentage
30 weight loss from the sample upon drying the sample in an oven at 103 degrees centigrade for 100 minutes.

As used in this specification and the appended claims, the singular forms "a", "an", and "the" encompass embodiments having plural referents, unless the content clearly dictates otherwise.

35 As used in this specification and the appended claims, the term "or" is generally employed in its sense including "and/or" unless the content clearly dictates otherwise.

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As used herein, "have", "having", "include", "including", "comprise", "comprising" or the like are used in their open ended sense, and generally mean "including, but not limited to". It will be understood that "consisting essentially of", "consisting of", and the like are subsumed in "comprising," and the like.

5 The words "preferred" and "preferably" refer to embodiments of the invention that may afford certain benefits under certain circumstances. However, other embodiments may also be preferred under the same or other circumstances. Furthermore, the recitation of one or more preferred embodiments does not imply that other embodiments are not useful, and is not intended to exclude other embodiments from the scope of the disclosure, including the claims.

10 The present disclosure provides a smoking article tobacco substrate having cut or ground tobacco and tobacco flowers disposed in the tobacco cut filler. There is also provided a smoking article mouthpiece that includes tobacco flower. The flower of the *Nicotiana* species plants enhance or selectively alter the taste of a portion of the tobacco blend. The tobacco flower added to the smoking article has a substantially intact epidermal cellular structure.

15 In another embodiment, any of the tobacco flower materials disclosed herein can be used in a smokeless product, for example smokeless products that comprise tobacco particles or cut or shredded tobacco. As such, any reference to tobacco flower materials herein that can be used in cut filler may also be used in a smokeless product.

20 Substantially intact tobacco flowers can be utilized in the smoking articles via simple direct addition of the tobacco flowers to the cut or ground tobacco or tobacco substrate or mouthpiece. In other words the tobacco flowers with a substantially intact epidermal cellular structure are added to the tobacco product. These tobacco flowers can be directly added to the cut or ground tobacco or tobacco substrate or mouthpiece and provide aroma or taste elements to the tobacco blend.

25 The tobacco flower includes both a single species of *Nicotiana* and two or more species of *Nicotiana* forming a flower blend. Specific *Nicotiana* species plants (useful for flower or cut filler) includes: *glauca*; *paniculata*; *knightiana*; *solaniifolia*; *benavidesii*; *cordifolia*; *raimondii*; *thyrsiflora*; *rustica*; *tomentosa*; *tomentosiformis*; *otophora*; *kawakamii*; *glutinosa*; *tabacum*; *undulate*; *arentsii*; *wigandioïdes*; *trigonophylla*; *palmeri*; *sylvestris*; *langsdorffii*; *alata*; *forgetiana*; *bonariensis*; *longiflora*; *plumbaginifolia*; *repanda*; *stocktonii*; *nesophila*; *noctiflora*; *petunioïdes*; *acaulis*; *ameghinoi*; *acuminate*; *pauciflora*; *attenuate*; *miersii*; *corymbosa*; *linearis*; *spgazzinii*; *bigelovii*; *clevelandii*; *nudicaulis*; *benthamiana*; *umbratica*; *cavicola*; *debneyi*; *gossei*; *amplexicaulis*; *maritime*; *velutina*; *hesperis*; *occidentalis*; *simulans*; *megalosiphon*; *rotundifolia*; *excelsior*; *suaveolens*; *ingulba*; *exigua*; *goodspeedii*; *fragrans*; *Africana*; *stenocarpa*; *wuttkei*; *setchellii*; and *purpurea*. In many embodiments, the *Nicotiana* species plants include varieties such as: Red Russian, K326, Lakson, Kasturi, Kasturi Asep, Tombak, Basma Zihna, Basma

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Drama, or TI1112. Generally, *Nicotiana* species plants include oriental, burley and flue cured varieties. Specific oriental varieties include Izmir and Samsun, for example. A specific variety of burley includes TN90.

The tobacco flowers can be dried to a percent oven volatiles (%OV) range and then
5 incorporated into the cut or ground tobacco of the tobacco substrate or mouthpiece. In many
embodiments the tobacco flowers are dried to a range from about 1 to 5 %OV. In preferred
embodiments these dried tobacco flowers can be rehydrated to a range from about 10 to about
20 %OV before being blended or incorporated into the cut or ground tobacco of the tobacco
substrate or mouthpiece. In some embodiments, the tobacco flowers are dried with a freeze
10 drying process.

The tobacco flowers can be incorporated into the tobacco product in a number of
different manners. In some embodiments, the tobacco flowers are added to the cut or ground
tobacco in particulate form or in strip form. In some of these embodiments the tobacco flowers
are added to tobacco to form a tobacco/flower blend where the tobacco flower has a strip width
15 that is different (being larger or smaller) than the tobacco strip width. In other embodiments the
tobacco flowers are added to the tobacco to form a tobacco/flower blend and then this blend is
processed by cutting the blend into strips of tobacco flower and tobacco where the strips of
tobacco flower and tobacco has substantially the same width since they are cut at the same
time as a blend. Cutting up the tobacco flower and tobacco at the same time can provide
20 efficient blending of the two materials. The tobacco flower in strip form can have any useful
dimensions. In many embodiments the length of the tobacco flower strip is at least about
1.5 times the width, or at least about 2 times the width or at least three times the width. In many
embodiments the width of the tobacco flower strip is at least about 0.5 mm, or at least 1 mm. In
many embodiments, the width of the tobacco flower strip is in a range from about 0.5 mm to 1.2
25 mm.

In some embodiments the tobacco flowers are in particulate form and can be added to
the cut or ground tobacco by being sprayed onto the cut or ground tobacco (for example, as a
casing). In some of these embodiments, at least a portion of the tobacco flower particulate that
was sprayed onto the cut or ground tobacco remains adhered to the cut or ground tobacco.
30 Tobacco flower particulate that is adhered to the cut or ground tobacco reduces the amount of
tobacco flower material that may fall out of the cut filler, thus providing a more stable or
consistent tobacco flower/tobacco blend.

The tobacco flower can be utilized and included in the tobacco product without
alteration. In other embodiments, the tobacco flower can be divided into a plurality of pieces or
35 particles and then included in the tobacco product, as described above. Tobacco flower in
particulate form can have any useful size. In many embodiments the tobacco flower particulate

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has an average size of less than about 2000 micrometres, or less than about 1000 micrometres or less than about 500 micrometres or less than about 250 micrometres, or less than about 100 micrometres. In many embodiments, the tobacco flower particulate has a range from about 1 to 2000 micrometres, preferably from about 10 to 500 micrometres, and more preferably from about 10 to 250 micrometres or preferably from about 10 to 100 micrometres. The term "particle size" refers to the largest cross sectional dimension of an individual particle within the particulate material. The "average" particle size refers to the arithmetic mean particle size for the particles. The particle size distribution for a sample of particulate material may be determined using a known sieve test, or by examining the particles individually under magnification.

In a one embodiment, the tobacco substrate is the portion of the smoking article that is designed to produce the tobacco smoke. The tobacco substrate can be the portion of the smoking article that includes tobacco cut filler. The tobacco substrate can be connected downstream to the mouthpiece or filter in an end-to-end relationship. The tobacco cut filler can be formed of one or more useful tobacco variety such as Burley tobacco, Oriental tobacco, Virginia tobacco, Dark air cured, fermented or combinations thereof. In many embodiments the tobacco cut filler includes reconstituted or expanded tobacco or combinations thereof.

In some embodiments, tobacco flowers can be uniformly distributed throughout the tobacco cut filler of the tobacco substrate to provide a uniform tobacco blend taste as the smoking article is utilized by a user. In other embodiments, the tobacco flowers can be specifically located in one or more portions of the tobacco substrate to provide specific timing of alteration of the tobacco blend taste as the smoking article is utilized by a user. In many embodiments, the tobacco substrate has at least about 0.1% by weight tobacco flower. In some embodiments, the tobacco substrate has at least about 1% by weight tobacco flower. In some embodiments, the tobacco substrate has at least about 3% by weight tobacco flower. In some embodiments, the tobacco substrate has at least about 5% by weight tobacco flower. In some embodiments, the tobacco substrate has from about 0.1 to 25% by weight tobacco flower or from about 0.1 to 10% by weight tobacco flower or from about 1 to 7% by weight tobacco flower. In preferred embodiments, the tobacco flower is a different *Nicotiana* species than the tobacco cut filler.

In some preferred embodiments, tobacco flowers are dispersed within the tobacco cut filler. The tobacco flowers can be uniformly dispersed along a length of the tobacco substrate. In other embodiments the tobacco flowers can be non-uniformly dispersed along a length of the tobacco substrate. For example, the % by weight tobacco flower can increase from the lit end to the mouth end of the tobacco substrate, or decrease, or the highest % by weight tobacco flower can be present somewhere between the lit end and the mouth end of the tobacco

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substrate. Changing an amount of tobacco flower along a downstream length of the tobacco substrate can provide unique tobacco blend taste changes as the smoking article is utilized by a user.

5 In some other preferred embodiments, tobacco flowers form a flower plug segment in the tobacco substrate. In many embodiments, the flower plug segment is at least about 1% by weight tobacco flower. In some embodiments, the flower plug segment has at least about 3% by weight tobacco flower. In some embodiments, the flower plug segment has at least about 5% by weight tobacco flower. In some embodiments, the flower plug segment is at least about 10% by weight tobacco flower or at least 25% by weight tobacco flower or at least 50% by weight tobacco flower. In preferred embodiments the flower plug segment is substantially all, or
10 entirely, tobacco flower.

In many embodiments the flower plug segment has a diameter that is substantially the same diameter as the tobacco substrate. The flower plug segment can have any useful lateral length. In many embodiments the flower plug segment has a lateral length in a range of about
15 2 to 50 mm, preferably in a range of about 5 to about 15 mm.

The flower plug segment is disposed along a length of the tobacco substrate. The specific location of the flower plug segment within the tobacco substrate can provide specific timing of a change of tobacco blend taste as the smoking article is utilized by a user. In preferred embodiments, the tobacco substrate includes a tobacco rod with an upstream
20 segment comprising cut filler and flower of *Nicotiana* species and a downstream segment comprising cut filler where the upstream segment has more flower of *Nicotiana* species or a higher amount or concentration of flower of *Nicotiana* species than the downstream segment. In preferred embodiments this downstream segment is substantially free of flower of *Nicotiana* species.

25 For example, in one preferred embodiment, the flower plug segment is located at an upstream-most end of the tobacco substrate to provide an initial tobacco flower blend taste or carry-over effect. In many of these embodiments the remainder of the tobacco substrate is substantially free of flower of *Nicotiana* species. In other embodiments the flower plug segment can be located at a mid-point or central region, for example where there is an approximately
30 equal amount of upstream and downstream tobacco substrate to provide a tobacco flower blend taste at a mid-use tobacco blend taste alteration. In other embodiments the flower plug segment can be located at a downstream-most end of the tobacco substrate to provide a tobacco flower blend taste near the end of the use of the smoking article. In this embodiment, the flower plug segment can separate a tobacco cut filler segment from a mouthpiece or
35 mouthpiece filter material of the smoking article.

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In some embodiments, two or more flower plug segments are disposed along a length of the tobacco substrate. A tobacco cut filler segment (a segment with little, or less, tobacco flower than the flower plug segments) can separate adjacent flower plug segments. The specific location of the flower plug segments within the tobacco substrate can provide specific timing of the change of tobacco blend taste as the smoking article is utilized by a user, as described above. For example, one flower plug segment can be located at an upstream-most end of the tobacco substrate and a second flower plug segment can be located at a downstream-most end of the tobacco substrate. In another example, one flower plug segment can be located at an upstream-most end of the tobacco substrate and a second flower plug segment can be located at a mid-point or central region where there is an approximately equal amount of upstream and downstream tobacco substrate. In another example, one flower plug segment can be located at an upstream-most end of the tobacco substrate and a second flower plug segment can be located at a mid-point or central region where there is an approximately equal amount of upstream and downstream tobacco substrate. In a further example, one flower plug segment can be located at a downstream-most end of the tobacco substrate and a second flower plug segment can be located at a mid-point or central region where there is an approximately equal amount of upstream and downstream tobacco substrate. It is understood that the one or more flower plug segments can be located in any number of locations along a length of the tobacco substrate other than the locations specifically described above.

The smoking article mouthpiece is designed to be contacted with the mouth of the consumer. The mouthpiece can be the portion of the smoking article that includes a filter. Filters can be attached to a tobacco substrate to form all or at least part of a smoking article. Preferably, the filter is axially aligned with the tobacco substrate. In many embodiments, the filter is joined to the tobacco substrate with tipping paper. Tobacco flowers can be disposed on or within filter material of a filter element. Since the tobacco flowers on or within the filter element are not combusted, they can provide a taste note that is different than the tobacco flowers that are combusted in the tobacco substrate.

Tobacco flowers can be uniformly distributed on or within filter material of a filter element to provide a uniform tobacco blend taste as the smoking article is utilized by a user. In other embodiments, the tobacco flowers can be specifically located in one or more portions of the filter element. In many embodiments, the filter element has at least about 1% by weight tobacco flower. In many embodiments, the filter element has up to about 100 mg tobacco flower or from about 10 mg to about 100 mg tobacco flower. In many embodiments, the tobacco flower is a different *Nicotiana* species than the tobacco cut filler found in the tobacco substrate.

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In some preferred embodiments, tobacco flowers form a flower plug segment in the filter element. In many embodiments, the flower plug segment is at least about 1% by weight tobacco flower. In some embodiments, the filter element has at least about 3% by weight tobacco flower. In some embodiments, the filter element has at least about 5% by weight tobacco flower. In some embodiments, the filter element has at least about 10% by weight tobacco flower or at least 25% by weight tobacco flower or at least 50% by weight tobacco flower. In preferred embodiments the flower plug segment is substantially all, or entirely, tobacco flower. In many embodiments the flower plug segment has a diameter that is substantially the same diameter as the filter element. The flower plug segment can have any useful lateral length. In many embodiments the flower plug segment has a lateral length in a range of about 2 to 30 mm, preferably in a range of about 5 to 20 mm.

In some preferred embodiments, the mouthpiece includes a mouth end segment formed of filter material (such as cellulose acetate, for example) and a flower plug segment upstream of the mouth end segment. In some embodiments, the mouthpiece alternatively or additionally includes a rod end segment formed of filter material (such as cellulose acetate, for example) and a flower plug segment downstream of the rod end segment. In some embodiments the mouthpiece includes a segment comprising a tobacco substrate, the tobacco substrate comprising a tobacco cut filler blended with tobacco flower and forming a tobacco and flower segment disposed along a length of the mouthpiece.

Preferably, the filter includes a mouth end filter segment, a rod end filter segment and the flower plug segment separates the mouth end segment from the rod end segment. The mouth end segment and the rod end segment can each include a plurality of non-woven fibres, such as cellulose acetate fibres. In one or more embodiments, the mouth end segment and the rod end segment each have a longitudinal length in a range from 2 to 30 mm, or in a range from 5 to 20 mm, or in a range from 4 to 10 mm.

In many embodiments the overall length of the smoking article is between about 70 mm and about 130 mm. In some embodiments the overall length of the smoking article is about 84 mm. The external diameter of smoking article can be between about 4.6 mm and about 8.5 mm, or between about 4.6 mm and about 7.4 mm for slim sized smoking articles or between about 7.4 mm and about 8.5 mm for regular sized smoking articles. The overall length of the filter of the smoking article can be between about 18 mm and about 50 mm. In some embodiments the overall length of the filter is about 27 mm.

The resistance to draw (RTD) of the smoking articles and the filters of the present disclosure can vary. In many embodiments the RTD of the smoking article with the filter is between about 50 to 200 mm H₂O. The RTD of a smoking article with the filter refers to the static pressure difference between the two ends of the specimen when it is traversed by an air

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flow under steady conditions in which the volumetric flow is 17.5 millilitres per second at the output end. The RTD of a specimen can be measured using the method set out in ISO Standard 6565:2002 with any ventilation blocked.

In one or more embodiments, smoking articles according to the present disclosure may be packaged in containers, for example in soft packs or hard packs or hinge-lid packs, with an inner liner coated with one or more flavourants.

In many of the depicted figures, various aspects of smoking articles or components of smoking articles described above are illustrated. The schematic drawings are not necessarily to scale and are presented for purposes of illustration and not limitation. Various drawings depict various aspects described in this disclosure. However, it will be understood that other aspects not depicted in the drawings fall within the scope and spirit of this disclosure. Like numbers used in the figures refer to like components, steps and the like. However, it will be understood that the use of a number to refer to a component in a given figure is not intended to limit the component in another figure labelled with the same number. In addition, the use of different numbers to refer to components is not intended to indicate that the different numbered components cannot be the same or similar.

The disclosure will be further described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a schematic side view of a smoking article according to the present disclosure;

Figure 2 shows a schematic side view of a smoking article according to the present disclosure having a plurality of tobacco flower plugs in the tobacco substrate; and

Figure 3 shows a schematic side view of a smoking article according to the present disclosure having a tobacco flower plug in the filter.

The smoking article **10** shown in **Figure 1** includes a tobacco substrate or tobacco rod **12** attached to an axially aligned mouthpiece or filter **20**. The mouthpiece or filter **20** is joined to the tobacco rod or substrate **12** with tipping paper **14**. The tobacco rod or substrate **12** includes tobacco cut filler **13**. Tobacco flowers **15** are disposed in the tobacco cut filler or the filter **20**.

Figure 2 illustrates a smoking article **10** tobacco substrate **12** having a downstream-most end flower plug segment **16**, an upstream-most end flower plug segment **17** and a middle flower plug segment **18** separated by tobacco cut filter segments **19**.

Figure 3 illustrates a smoking article filter **20** having a downstream mouth end filter segment **22**, an upstream rod end filter **26** segment and a flower plug segment **28** separating the mouth end segment **22** from the rod end segment **26**. The flower plug segment **28** includes tobacco flower and optionally tobacco cut filler. Plug wrap **11** is disposed about the filter segments **22**, **26**, **28** and tipping paper **14** joins the filter **20** to the tobacco rod or substrate **12**.

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Direct Inclusion

Dried tobacco flowers were added, cut and processed together with tobacco strips in a ratio of 0.001-0.5(flowers):1(tobacco); inclusion rate of 0.1 – 50%. A first tobacco blend having 5% by weight tobacco flower and 95% by weight tobacco cut filler was formulated. A second tobacco blend having 50% by weight tobacco flower and 50% by weight tobacco cut filler was formulated.

Sprayed on Cut Filler

A suspension of ground dried flower and water is made with the following recipe to obtain an application rate of 5% by weight tobacco flower.

Material	Weight (g)
Tobacco Flower powder	100
Water	610
Total	710

The suspension is sprayed homogenously onto 2 kg of cut filler tobacco blend. The sprayed cut filler is dried to about 13.5 to 14% O.V. before being incorporated into a tobacco substrate.

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CLAIMS:

1. A tobacco product comprising a tobacco substrate, the tobacco substrate comprising cut or ground tobacco leaf and a flower of *Nicotiana* species plant within the cut or ground tobacco leaf, the flower of *Nicotiana* species plant forming a flower plug segment in the tobacco substrate.
2. The tobacco product according to claim 1, wherein the cut or ground tobacco leaf is tobacco cut filler and the tobacco substrate is a rod of tobacco.
3. The tobacco product according to claim 1 or 2, the flower being cut in strips having a width between about 0.5 mm and about 1.2 mm.
4. The tobacco product according to claim 1 or 2, wherein the flower further comprises a particulate flower material that is dispersed in the cut filler.
5. The tobacco product according to claim 4, at least some of the particulate flower material being adhered to the cut or ground tobacco leaf.
6. The tobacco product according to any of the preceding claims, wherein the tobacco substrate includes a tobacco rod with an upstream segment comprising cut filler and flower of the *Nicotiana* species and a downstream segment comprising cut filler, wherein the *Nicotiana* species flower is dispersed in the upstream segment, forming the flower plug segment.
7. The tobacco product according to claim 6 wherein the flower plug segment comprises at least about 5% by weight flower of *Nicotiana* species plant.
8. The tobacco product according to any of claims 4, 5, or 6, wherein the flower of *Nicotiana* species plant is in particulate form with an average size of less than about 2000 micrometres.
9. The tobacco product according to any of claims 1 to 8 wherein the flower plug segment is disposed at an upstream-most end of the tobacco substrate.
10. The tobacco product according to any of claims 1 to 9 wherein the flower of *Nicotiana* species plant is a different species than the tobacco cut filler.

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11. A smoking article comprising a mouthpiece, the mouthpiece comprising a flower of *Nicotiana* species plant.

5 12. The smoking article according to claim 11 wherein the mouthpiece comprises filter material and the flower of *Nicotiana* species plant is dispersed within the filter material.

13. The smoking article according to claim 11 wherein the mouthpiece comprises a mouth
10 end segment comprising filter material and a flower plug segment upstream of the mouth end segment, the flower plug segment comprising at least about 1% by weight flower of *Nicotiana* species plant, and the flower plug segment is disposed along a length of the mouthpiece.

14. The smoking article according to any of claims 11 to 13 wherein the flower of *Nicotiana*
15 species plant is in particulate form with an average size of less than about 2000 micrometres.

15 15. The smoking article according to any of claims 11 to 14 wherein the flower of *Nicotiana* species plant is blended with tobacco cut filler and forms a tobacco substrate segment comprising tobacco cut filler and tobacco flower, the tobacco and flower segment is disposed along a length of the mouthpiece.

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- 1/1 -

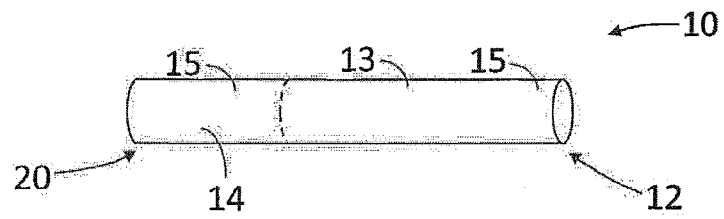


FIG. 1

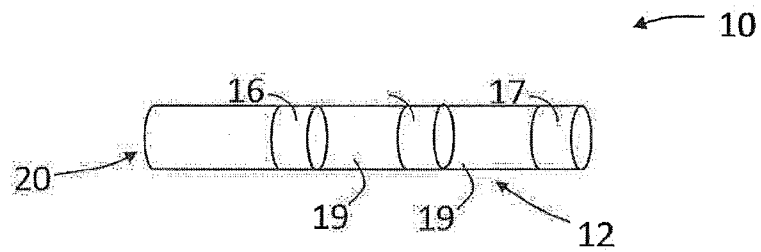


FIG. 2

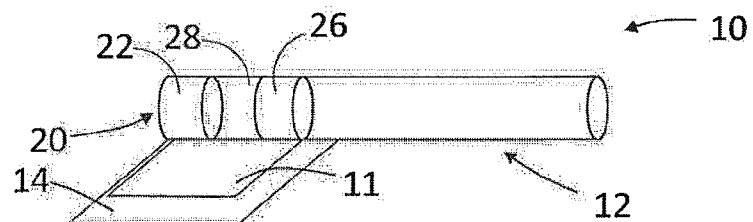


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2014/060009

A. CLASSIFICATION OF SUBJECT MATTER INV. A24D3/02 A24D3/14 A24B15/30 C11D3/00 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A24D A24B C11D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, PAJ, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2011/088171 A2 (REYNOLDS TOBACCO CO R [US]; COLEMAN III WILLIAM MONROE [US]; DUBE MICH) 21 July 2011 (2011-07-21) claims 1,6,7,11-14,22 page 4, line 10 - line 29 page 8, line 26 - line 30 page 9, line 3 - page 10, line 27 page 14, line 22 - page 15, line 20 page 6, line 14 - line 31 -----	1-15
A	WO 2010/054198 A2 (REYNOLDS TOBACCO CO R [US]; MARSHALL JERRY WAYNE [US]; ADAMS SUSAN MAR) 14 May 2010 (2010-05-14) claim 34 page 3, paragraph 8 - paragraph 9 page 5, paragraph 25 -----	1-15
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 20 May 2014	Date of mailing of the international search report 27/05/2014	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Neys, Patricia	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2014/060009

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