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(54) **AEROSOL-GENERATING ARTICLE AND AEROSOL-GENERATING SYSTEM COMPRISING AN INTERNAL HEATING ELEMENT**

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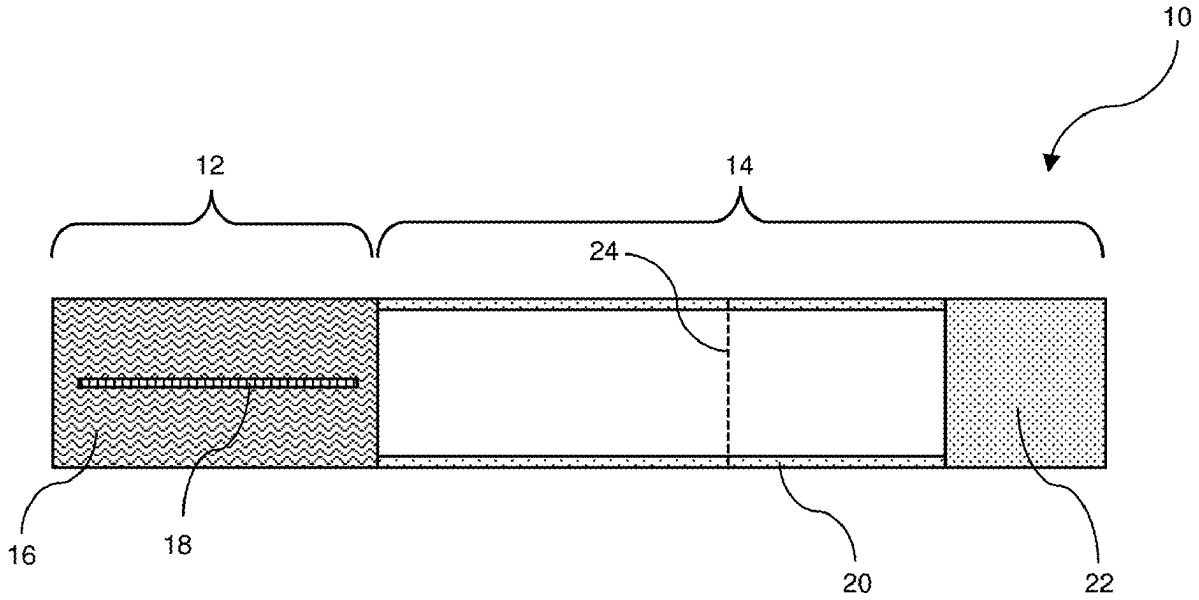
(57) **ABSTRACT**

An aerosol-generating system is provided, including: an aerosol-generating article including: an aerosol-generating section including an aerosol-generating substrate including a plurality of strands of aerosol-generating material, the aerosol-generating substrate having a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and an aerosol-generating device including an elongate internal heating element configured to be inserted into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, the aerosol-generating substrate being a star anise material, and a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element being between 0.05 and 4.



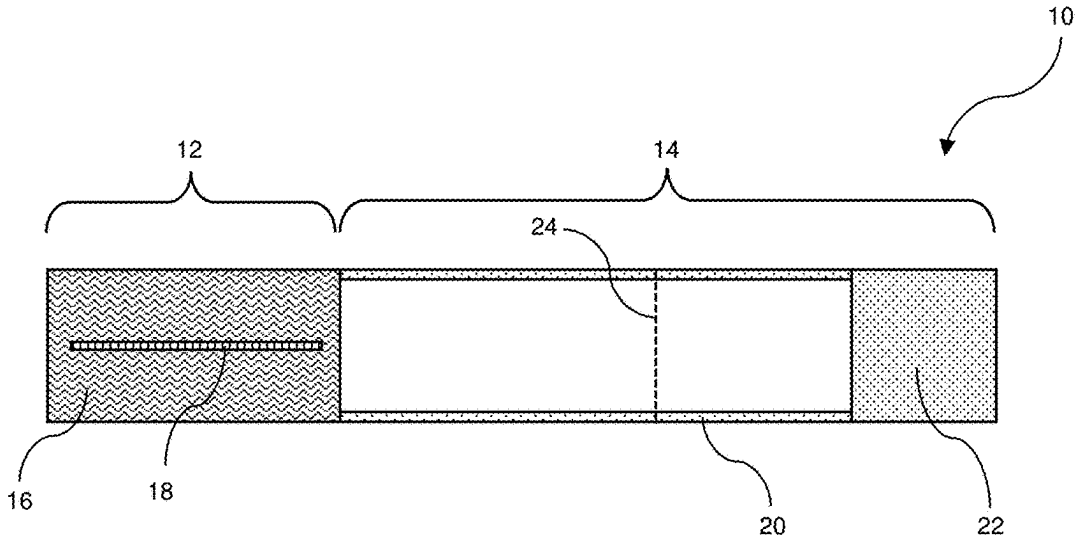


Figure 1

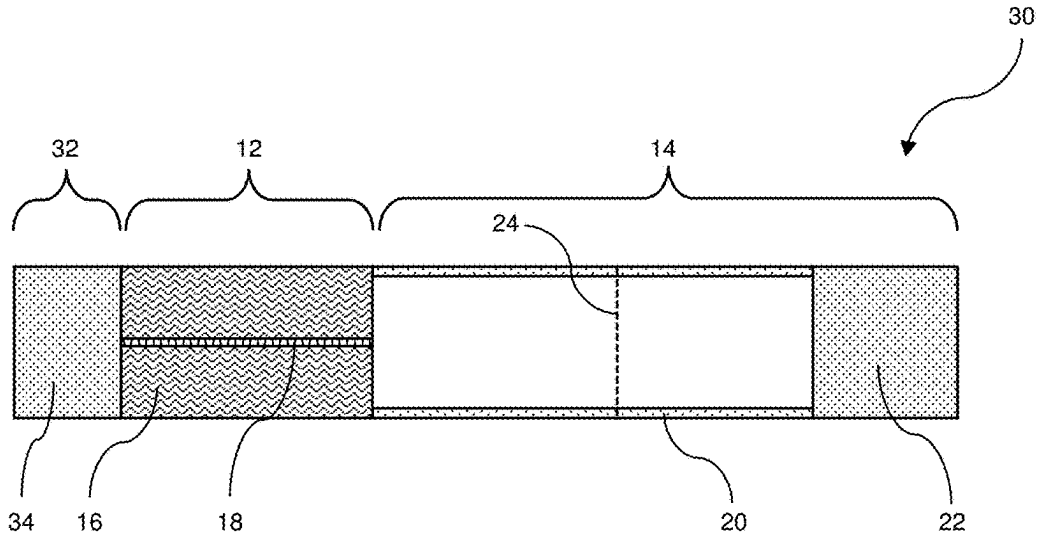


Figure 2

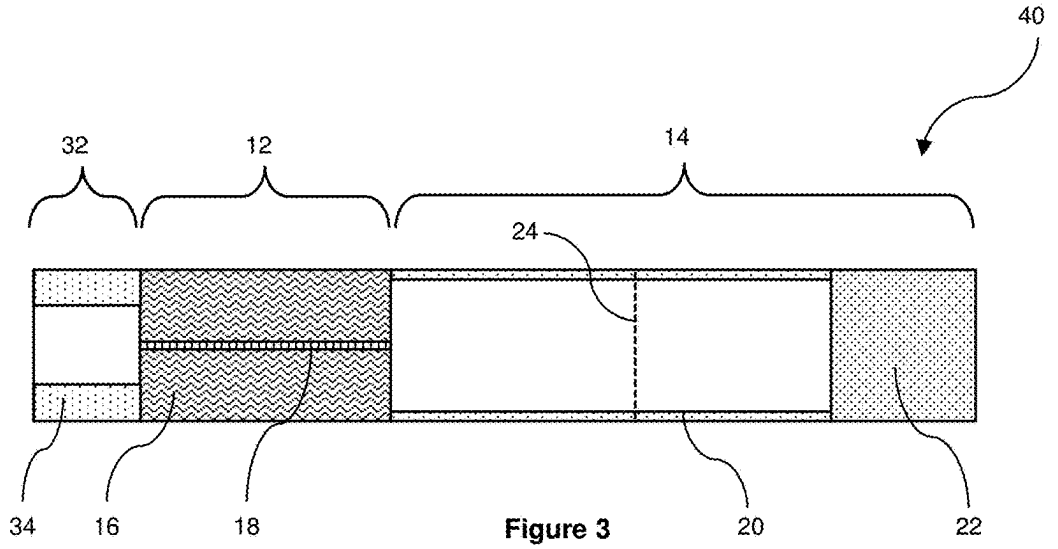


Figure 3

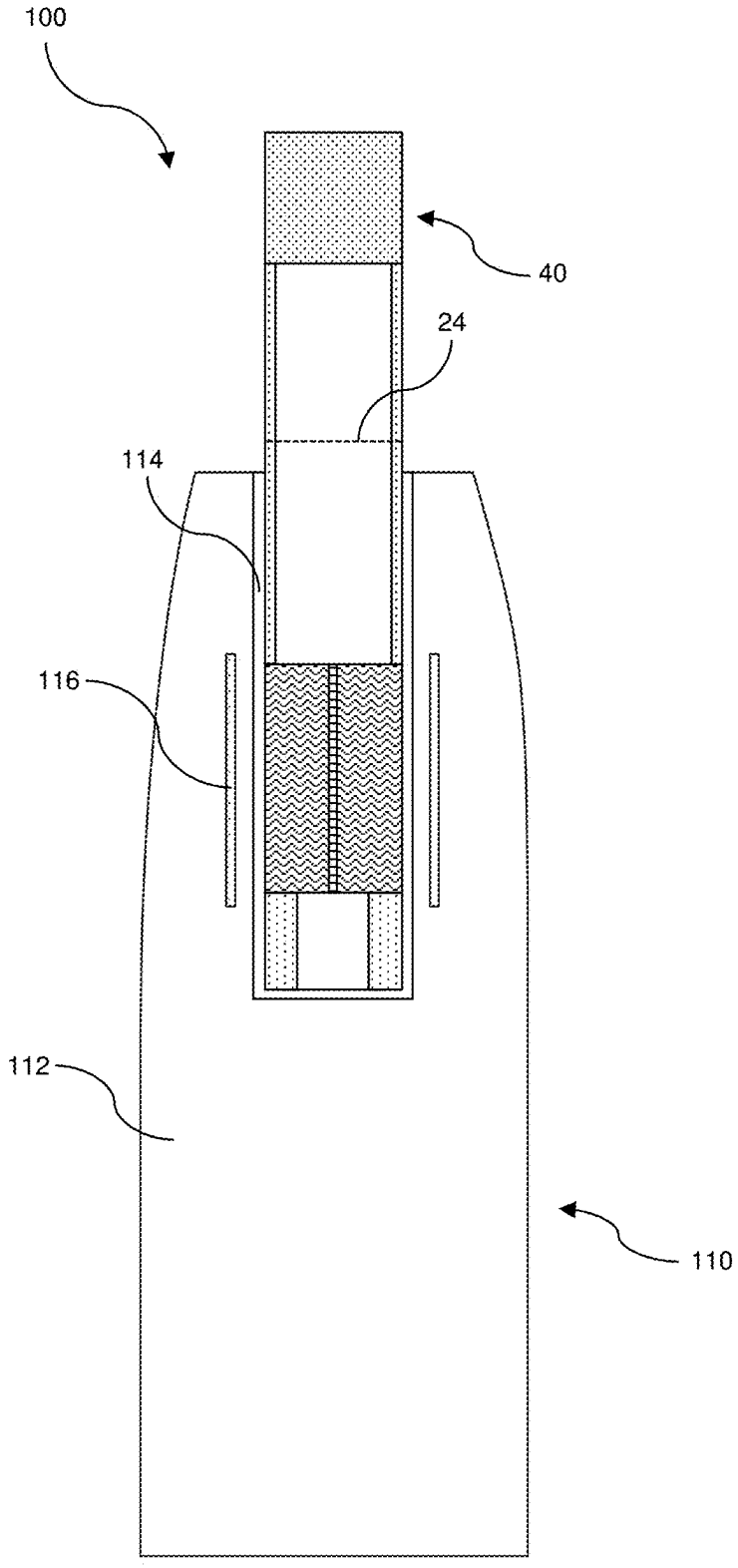


Figure 4

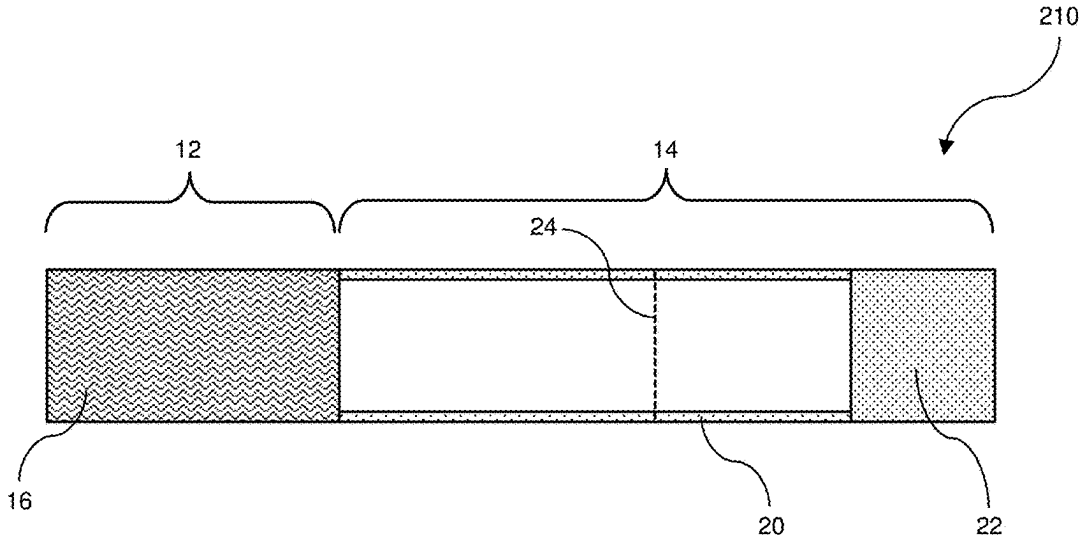


Figure 5

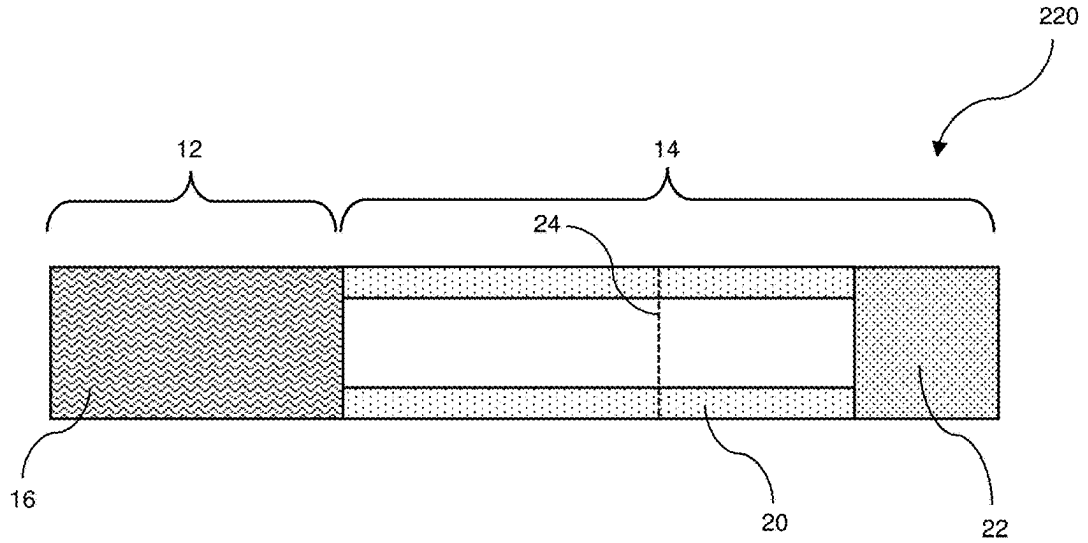


Figure 6

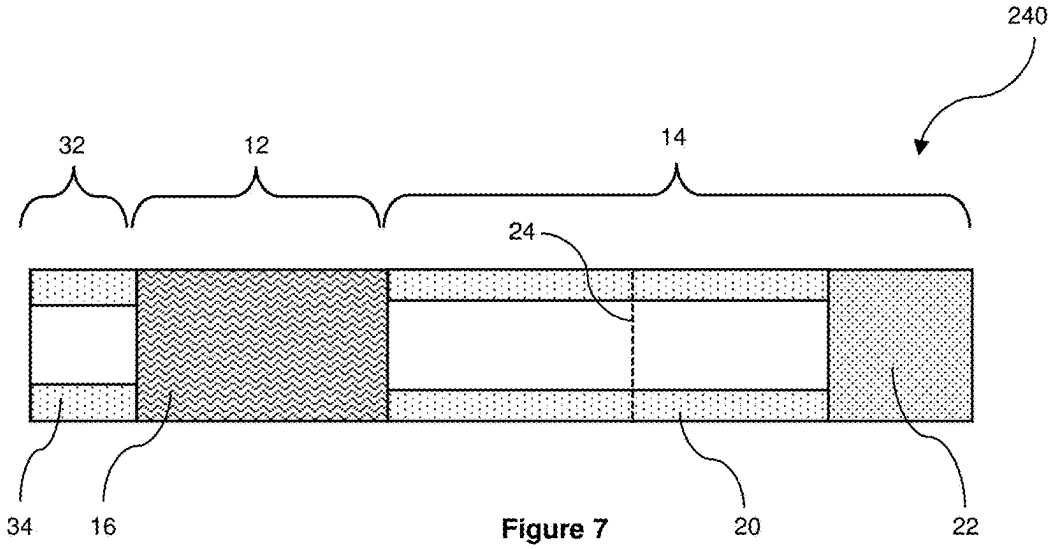


Figure 7

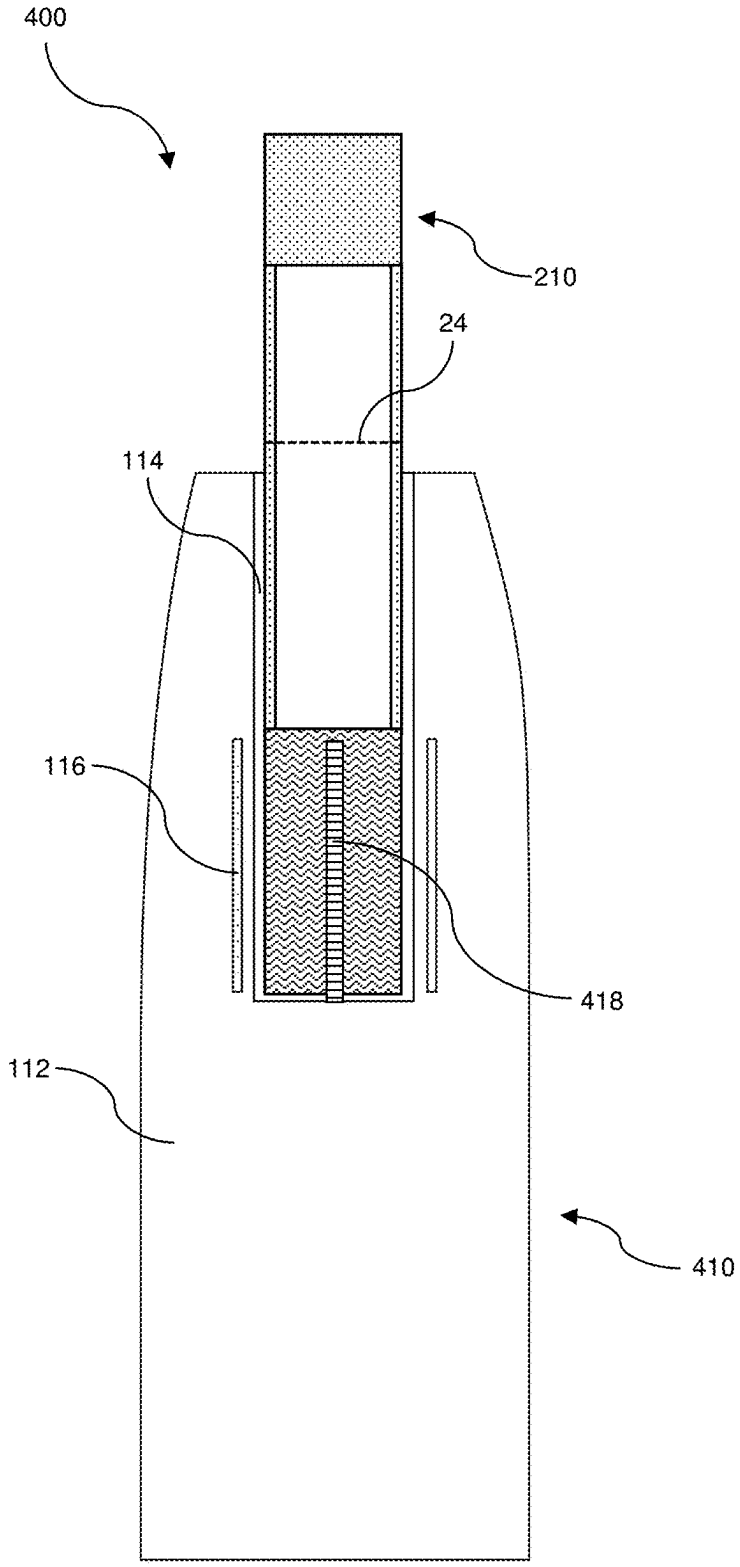


Figure 8

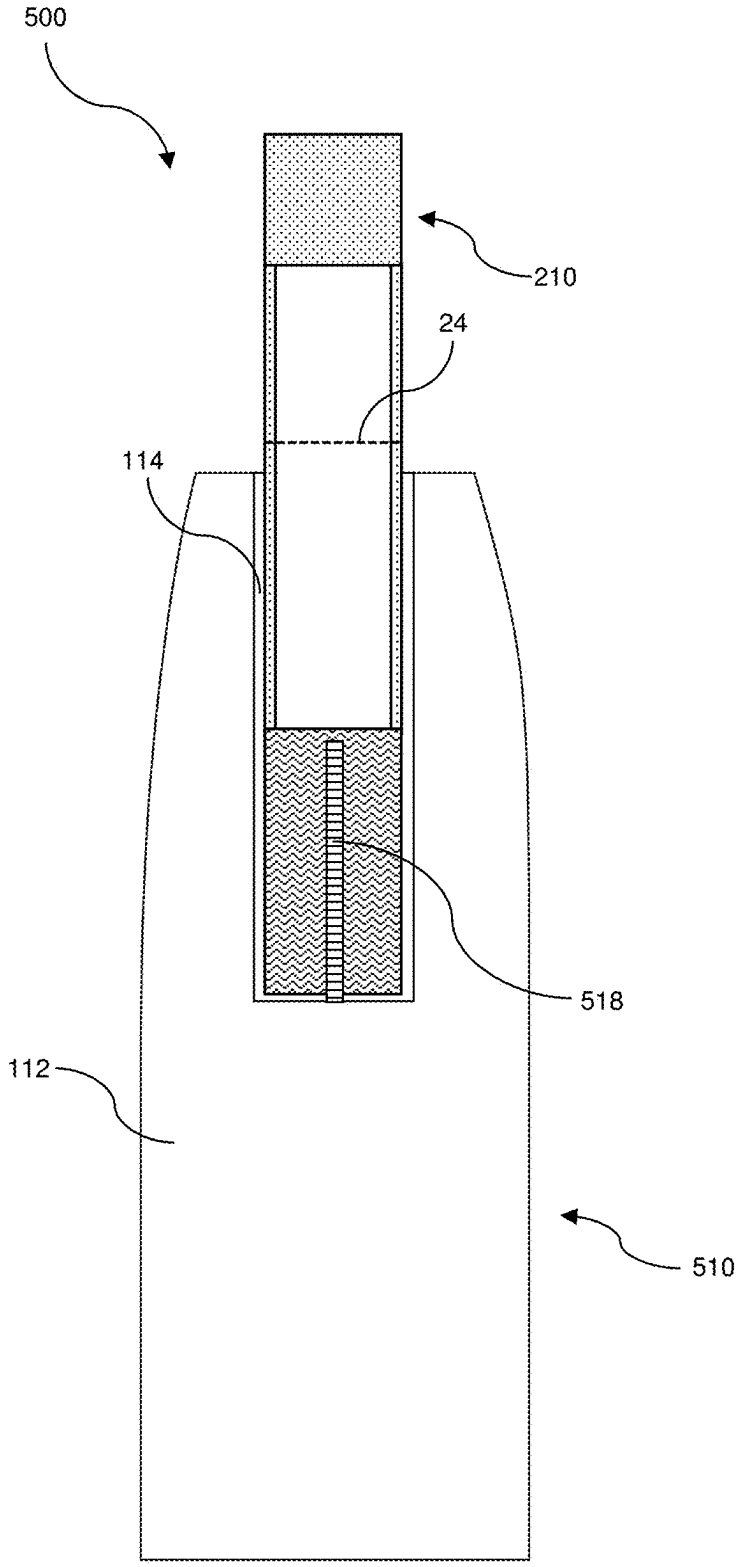


Figure 9

AEROSOL-GENERATING ARTICLE AND AEROSOL-GENERATING SYSTEM COMPRISING AN INTERNAL HEATING ELEMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation application of and claims benefit under 35 U.S.C. § 120 to U.S. application Ser. No. 18/853,210, filed on Oct. 1, 2024, which is a U.S. national stage application of PCT/EP2023/059567, filed on Apr. 12, 2023, and claims the benefit of priority under 35 U.S.C. § 119 from EP 22168014.3, filed Apr. 12, 2022, from EP 22168017.6, filed Apr. 12, 2022, from EP 22168019.2, filed Apr. 12, 2022, from EP 22168021.8, filed Apr. 12, 2022, from EP 22168022.6, filed Apr. 12, 2022, from EP 22168025.9, filed Apr. 12, 2022, and from EP 22204268.1, filed Oct. 27, 2022, the entire contents of each of which are incorporated herein by reference

TECHNICAL FIELD

[0002] The present disclosure relates to an aerosol-generating article and an aerosol-generating system comprising an internal heating element.

DESCRIPTION OF THE RELATED ART

[0003] Aerosol-generating articles in which an aerosol-generating substrate, such as a tobacco-containing material, is heated rather than combusted are known in the art. An aim of such 'heated' aerosol-generating articles is to reduce known harmful smoke constituents of the type produced by the combustion and pyrolytic degradation of tobacco in conventional cigarettes.

[0004] Typically, in heated aerosol-generating articles an aerosol is generated by the transfer of heat from a heat source to a physically separate aerosol-generating substrate. In use, volatile compounds are released from the aerosol-generating substrate by heat transfer from the heat source to the aerosol-generating substrate and are entrained in air drawn through the aerosol-generating article. As the released compounds cool, they condense to form an aerosol that is inhaled by the user.

[0005] A number of handheld aerosol-generating devices configured to heat aerosol-generating substrates of heated aerosol-generating articles are known in the art. These include electrically-operated aerosol-generating devices in which an aerosol is generated by the transfer of heat from one or more electrical heating elements of the aerosol-generating device to the aerosol-generating substrate of the heated aerosol-generating article. Known handheld electrically operated aerosol-generating devices typically comprise a battery or other power source, control electronics and one or more electrical heating elements for heating the aerosol-generating substrate of a heated aerosol-generating article designed specifically for use with the aerosol-generating device.

[0006] Some known electrically-operated aerosol-generating devices comprise one or more external heating elements. For example, WO 2020/115151 A1 discloses an aerosol-generating system comprising an aerosol-generating article and an electrically-operated aerosol-generating device comprising an external heating element that circumscribes the outer periphery of the aerosol-generating article.

[0007] Other known electrically-operated aerosol-generating devices comprise an internal heating element that is configured to be inserted into the aerosol-generating substrate of a heated aerosol-generating article. For example, WO 2013/098410 A2 discloses an aerosol-generating system comprising an aerosol-generating article and an electrically-operated aerosol-generating device comprising a heating element in the form of a blade that is inserted into the aerosol-generating substrate of the aerosol-generating article.

[0008] Electrically-operated aerosol-generating devices comprising an inductor configured to inductively heat aerosol-generating substrates of heated aerosol-generating articles are also known in the art. For example, WO 2015/176898 A1 discloses an aerosol-generating system comprising an electrically-operated aerosol-generating device having an inductor for producing a fluctuating electromagnetic field and an aerosol-generating article with an internal susceptor located within the aerosol-generating substrate. In use, the alternating electromagnetic field produced by the inductor induces a current in the susceptor, causing the susceptor to heat up. In a preferred embodiment, the aerosol-forming substrate comprises a gathered sheet of homogenised tobacco material or other aerosol-forming material.

[0009] As described in WO 2015/176898 A1, direct contact between an internal heating element and the aerosol-generating substrate of an aerosol-generating article can provide an efficient means for heating the aerosol-generating substrate to form an inhalable aerosol. In such a configuration, heat from the internal heating element may be conveyed almost instantaneously to at least a portion of the aerosol-generating substrate when the internal heating element is actuated, and this may facilitate the rapid generation of an aerosol. Furthermore, the overall heating energy required to generate an aerosol may be lower than would be the case in an aerosol-generating system comprising an external heating element where the aerosol-generating substrate does not directly contact the external heating element and initial heating of the aerosol-generating substrate occurs primarily by convection or radiation. Where an internal heating element is in direct contact with an aerosol-generating substrate, initial heating of portions of the aerosol-generating substrate that are in direct contact with the internal heating element will be effected primarily by conduction.

[0010] Where the aerosol-generating substrate of an aerosol-generating article comprises a gathered sheet of aerosol-generating material, air channels formed between convolutions of the gathered sheet may increase the thermal resistance of the aerosol-generating substrate and reduce direct contact between the aerosol-generating substrate and an internal heating element. This may result in less efficient heating of the aerosol-generating substrate.

[0011] It would be desirable to provide aerosol-generating articles and aerosol-generating systems with internal heating elements that are configured to allow for more efficient and consistent heating of an aerosol-generating substrate by an internal heating element compared to known aerosol-generating articles and aerosol-generating systems.

[0012] Further, it would be desirable to provide aerosol-generating articles and aerosol-generating systems with internal heating elements that are configured to allow for more efficient and consistent heating of an aerosol-generating substrate by the internal heating element compared to

known aerosol-generating articles and aerosol-generating systems, while maintaining an acceptable resistance to draw.

SUMMARY

[0013] The present disclosure relates to an aerosol-generating article. The aerosol-generating article may comprise an aerosol-generating section. The aerosol-generating section may comprise an aerosol-generating substrate. The aerosol-generating substrate may comprise a plurality of strands of aerosol-generating material. The aerosol-generating substrate may have a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre. The aerosol-generating section may comprise an elongate internal heating element. The elongate internal heating element may be arranged within the aerosol-generating substrate. The elongate internal heating element may be in thermal contact with the plurality of strands of aerosol-generating material. The elongate internal heating element may be a susceptor element. A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element may be between 0.05 and 4.

[0014] The present disclosure also relates to an aerosol-generating system. The aerosol-generating system may comprise an aerosol-generating article. The aerosol-generating article may comprise an aerosol-generating section. The aerosol-generating section may comprise an aerosol-generating substrate. The aerosol-generating substrate may comprise a plurality of strands of aerosol-generating material. The aerosol-generating substrate may have a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre. The aerosol-generating system may comprise an aerosol-generating device. The aerosol-generating device may comprise an elongate internal heating element. The elongate internal heating element may be for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article. A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element may be between 0.05 and 4.

[0015] According to a first aspect of the invention there is provided an aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material, wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and an elongate internal heating element located within the aerosol-generating substrate in thermal contact with the plurality of strands of aerosol-generating material, wherein the elongate internal heating element is a susceptor element, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element is between 0.05 and 4.

[0016] According to an embodiment of the first aspect of the invention there is provided an aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate, wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and an elongate internal heating element located within the aerosol-generating substrate in thermal contact with the aerosol-generating substrate, wherein the elongate internal heating element is a susceptor element, wherein the aerosol-generating substrate is tobacco cut filler and wherein a ratio of a mean cut width of the tobacco cut filler to a width of the elongate internal heating element is between 0.05 and 4.

[0017] According to a second aspect of the invention there is provided an aerosol-generating system comprising: an aerosol-generating article according to the first aspect of the invention; and an aerosol-generating device comprising an induction element.

[0018] According to a third aspect of the invention there is provided an aerosol-generating system comprising: an aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material, wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and an aerosol-generating device, the aerosol-generating device comprising: elongate internal heating element for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element is between 0.05 and 4.

[0019] According to an embodiment of the third aspect of the invention there is provided an aerosol-generating system comprising: an aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate, wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and an aerosol-generating device, the aerosol-generating device comprising: elongate internal heating element for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein the aerosol-generating substrate is tobacco cut filler and wherein a ratio of a mean cut width of the tobacco cut filler to a width of the elongate internal heating element is between 0.05 and 4.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The invention will be further described, by way of example only, with reference to the accompanying figures in which:

[0021] FIG. **1** shows a schematic side sectional view of an aerosol-generating article in accordance with a first embodiment of the first aspect of the invention;

[0022] FIG. **2** shows a schematic side sectional view of an aerosol-generating article in accordance with a second embodiment of the first aspect of the invention;

[0023] FIG. **3** shows a schematic side sectional view of an aerosol-generating article in accordance with a third embodiment of the first aspect of the invention;

[0024] FIG. **4** shows a schematic side sectional view of an aerosol-generating system in accordance with an embodiment of the second aspect of the invention comprising the aerosol-generating article shown in FIG. **3**;

[0025] FIG. **5** shows a schematic side perspective view of a first embodiment of an aerosol-generating article for use in an aerosol-generating system in accordance with the third aspect of the invention;

[0026] FIG. **6** shows a schematic side perspective view of a second embodiment of an aerosol-generating article for use in an aerosol-generating system in accordance with the third aspect of the invention;

[0027] FIG. **7** shows a schematic side perspective view of a third embodiment of an aerosol-generating article for use in an aerosol-generating system in accordance with the third aspect of the invention;

[0028] FIG. **8** shows a schematic side sectional view of an aerosol-generating system in accordance with a first embodiment of the third aspect of the invention comprising the aerosol-generating article shown in FIG. **5**; and

[0029] FIG. **9** shows a schematic side sectional view of an aerosol-generating system in accordance with a second embodiment of the third aspect of the invention comprising the aerosol-generating article shown in FIG. **5**.

DETAILED DESCRIPTION

[0030] Provision of an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material, and an elongate internal heating element, wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre and wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element is between 0.05 and 4 may advantageously allow for more efficient and consistent heating of the aerosol-generating substrate by the internal heating element compared to known aerosol-generating articles and aerosol-generating systems, while maintaining an acceptable resistance to draw (RTD).

[0031] In combination, a density of the aerosol-generating substrate of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre and a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element of between 0.05 and 4 may advantageously ensure sufficient direct contact between the internal heating element and the strands of aerosol-generating material to allow for rapid and efficient heating of the plurality of strands of aerosol-generating material by the internal heating element without adversely increasing the RTD of the aerosol-generating article beyond an acceptable level.

[0032] Unless otherwise stated, references to "the aerosol-generating article" refer to aerosol-generating articles according to the first aspect of the invention, aerosol-generating articles in aerosol-generating systems according to the second aspect of the invention, and aerosol-generating articles in aerosol-generating systems according to the third aspect of the invention.

[0033] Unless otherwise stated, references to "the internal heating element" refer to elongate internal heating elements in aerosol-generating articles according to the first aspect of the invention, elongate internal heating elements in aerosol-generating articles in aerosol-generating systems according to the second aspect of the invention, and elongate internal heating elements in aerosol-generating devices in aerosol-generating systems according to the third aspect of the invention.

[0034] Unless otherwise stated, references to "the aerosol-generating system" refer to aerosol-generating systems according to the second aspect of the invention and aerosol-generating systems according to the third aspect of the invention.

[0035] Unless otherwise stated, references to "the aerosol-generating device" refer to aerosol-generating devices in aerosol-generating systems according to the second aspect of the invention and aerosol-generating devices in aerosol-generating systems according to the third aspect of the invention.

[0036] As used herein, the term "aerosol-generating article" is used to describe an article comprising an aerosol-generating substrate that is heated to generate an inhalable aerosol for delivery to a user.

[0037] As used herein, the term "aerosol-generating substrate" is used to describe a substrate comprising aerosol-generating material that is capable of releasing upon heating volatile compounds that can generate an aerosol.

[0038] As used herein, the term "aerosol" is used to describe a dispersion of solid particles, or liquid droplets, or a combination of solid particles and liquid droplets, in a gas. The aerosol may be visible or invisible. The aerosol may include vapours of substances that are ordinarily liquid or solid at room temperature as well as solid particles, or liquid droplets, or a combination of solid particles and liquid droplets.

[0039] As used herein, the term "aerosol-generating device" is used to describe a device that interacts with the aerosol-generating substrate of an aerosol-generating article to generate an aerosol.

[0040] The aerosol-generating article has a proximal end through which, in use, an aerosol exits the aerosol-generating article for delivery to a user. The proximal end of the aerosol-generating article may also be referred to as the downstream end or mouth end of the aerosol-generating article. In use, a user draws directly or indirectly on the proximal end of the aerosol-generating article in order to inhale an aerosol generated by the aerosol-generating article.

[0041] The aerosol-generating article has a distal end. The distal end is opposite the proximal end. The distal end of the aerosol-generating article may also be referred to as the upstream end of the aerosol-generating article.

[0042] Components of the aerosol-generating article may be described as being upstream or downstream of one another based on their relative positions between the proximal end of the aerosol-generating article and the distal end of the aerosol-generating article.

[0043] As used herein, the term "longitudinal" is used to describe the direction between the upstream end and the downstream end of the aerosol-generating article. In use, air is drawn through the aerosol-generating article in the longitudinal direction.

[0044] As used herein, the term "length" is used to describe the maximum dimension of the aerosol-generating article or a component of the aerosol-generating article in the longitudinal direction.

[0045] As used herein, the term "transverse" is used to describe the direction perpendicular to the longitudinal direction. Unless otherwise stated, references to the "cross-section" of the aerosol-generating article or a component of the aerosol-generating article refer to the transverse cross-section.

[0046] As used herein the term "width" is used to describe the maximum dimension of the aerosol-generating article or a component of the aerosol-generating article in the transverse direction. Where the aerosol-generating article has a substantially circular cross-section, the width of the aerosol-generating article corresponds to the diameter of the aerosol-

generating article. Where a component of the aerosol-generating article has a substantially circular cross-section, the width of the component of the aerosol-generating article corresponds to the diameter of the component of the aerosol-generating article.

[0047] As used herein, the term "thickness" is used to describe the maximum dimension of the aerosol-generating article or a component of the aerosol-generating article in a direction perpendicular to both the longitudinal direction and the transverse direction.

[0048] As used herein, the term "elongate" is used to describe a component or element having a length that is greater than the width and the thickness thereof. For example, the length of an elongate component or element may be at least twice the width thereof. An elongate component or element may have a width that is greater than the thickness thereof. For example, an elongate element may have a substantially rectangular cross-section or a substantially elliptical or oval circular cross-section. An elongate component or element may have a width that is substantially the same as the thickness thereof. For example, an elongate element may have a substantially square cross-section or a substantially circular cross-section.

[0049] As used herein in relation to the aerosol-generating substrate, the term "strand" describes an elongate element of aerosol-generating material having a length that is greater than the width and the thickness thereof.

[0050] As used herein in relation to the aerosol-generating substrate, the term "density" refers to the bulk density of the aerosol-generating substrate in the aerosol-generating section of the aerosol-generating article. The density of the aerosol-generating substrate is calculated by dividing the mass of the aerosol-generating substrate in the aerosol-generating section of the aerosol-generating article by the volume occupied by the aerosol-generating substrate in the aerosol-generating section of the aerosol-generating article. For example, where the aerosol-generating section of the aerosol-generating article is substantially cylindrical and comprises a mass of aerosol-generating substrate circumscribed by a wrapper, the density of the aerosol-generating substrate is equal to the mass of the aerosol-generating substrate divided by the cylindrical volume bounded by the inner surface of the wrapper.

[0051] As used herein, the term "susceptor element" is used to describe an element comprising a susceptor material that is capable of converting electromagnetic energy into heat. When located within an alternating or fluctuating electromagnetic field, at least one of hysteresis losses and eddy currents induced in the susceptor element cause heating of the susceptor element.

[0052] As used herein, the term "nicotine" is used to describe nicotine, a nicotine base or a nicotine salt. In embodiments in which the aerosol-generating substrate comprises a nicotine base or a nicotine salt, amounts of nicotine recited herein are the amount of free base nicotine or amount of protonated nicotine, respectively.

[0053] As used herein, the term "tobacco cut filler" is used to describe an aerosol-generating substrate comprising a plurality of strands of tobacco lamina. Where the aerosol-generating substrate is tobacco cut filler, the average width of the plurality of strands of aerosol-generating material is the mean cut width of the tobacco cut filler.

[0054] As used herein, the term "homogenised plant material" is used to describe a material formed by agglomerating particulate plant material. Homogenised plant material may be formed by agglomerating particles of plant material obtained by pulverising, grinding or comminuting plant material. Homogenised plant material may be produced by casting, extrusion, paper making processes or other suitable processes known in the art.

[0055] As used herein, the term "homogenised tobacco material" is used to describe a material formed by agglomerating particulate tobacco material.

[0056] As used herein, the term "gel" is used to describe a substantially dilute cross-linked material, which exhibits no flow in the steady state.

[0057] As used herein, the term "heat transfer enhancement element" is used to describe an element having a thermal conductivity at 25 degrees Celsius that is greater than the thermal conductivity of the plurality of strands of aerosol-generating material at 25 degrees Celsius.

[0058] As used herein, the term "hollow tubular element" is used to describe a generally cylindrical element having a lumen or cavity along a longitudinal axis thereof. The hollow tubular element may have a substantially circular, oval or elliptical cross-section. The lumen may have a substantially circular, oval or elliptical cross-section. In particular, the term "hollow tubular element" is used to describe an element defining at least one airflow conduit establishing an uninterrupted fluid communication between an upstream end of the hollow tubular element and a downstream end of the hollow tubular element.

[0059] In the context of the present invention, a hollow tubular element provides an unrestricted flow channel. This means that the hollow tubular element provides a negligible level of resistance to draw (RTD). As used herein, the term "negligible level of RTD" is used to describe an RTD of less than 1 mm H_2O per 10 millimetres of length of the hollow tubular element, less than 0.4 mm H_2O per 10 millimetres of length of the hollow tubular element, or less than 0.1 mm H_2O per 10 millimetres of length of the hollow tubular element. The flow channel should therefore be free from any components that would obstruct the flow of air in a longitudinal direction. The flow channel may be substantially empty.

[0060] As used herein, the term "ventilation level" describes a volume ratio of the airflow admitted into the aerosol-generating article via the ventilation zone (ventilation airflow) and the sum of the aerosol airflow and the ventilation airflow. The greater the ventilation level, the higher the dilution of the aerosol flow delivered to a user.

[0061] Unless otherwise stated, percentages by weight of components of the aerosol-generating substrate recited herein are based on the dry weight of the aerosol-generating substrate.

[0062] Unless otherwise stated, percentages by weight of components of the aerosol-generating material recited herein are based on the dry weight of the aerosol-generating material.

[0063] Unless otherwise stated, averages values recited herein are arithmetic means.

[0064] Unless otherwise stated, the resistance to draw (RTD) of the aerosol-generating article or a component of the aerosol-generating article is measured in accordance with ISO 6565-2015 at a volumetric flow rate of 17.5 millilitres per second at the proximal end of the aerosol-

generating article or the component thereof at a temperature of 22 degrees Celsius, a pressure of 101 kPa (760 Torr) and a relative humidity of 60%.

[0065] As used herein, the RTD per unit length of the aerosol-generating article or a component of the aerosol-generating article is equal to the RTD of the aerosol-generating article divided by the length of the aerosol-generating article or the RTD of the component divided by the length of the component, respectively.

[0066] The aerosol-generating article may have a total length of at least 35 millimetres, at least 38 millimetres, at least 40 millimetres, or at least 42 millimetres.

[0067] The aerosol-generating article may have a total length of less than or equal to 100 millimetres, less than or equal to 70 millimetres, less than or equal to 60 millimetres, or less than or equal to 50 millimetres.

[0068] The aerosol-generating article may have a total length of between 35 millimetres and 100 millimetres, between 35 millimetres and 70 millimetres, between 35 millimetres and 60 millimetres, or between 35 millimetres and 50 millimetres.

[0069] The aerosol-generating article may have a total length of between 38 millimetres and 100 millimetres, between 38 millimetres and 70 millimetres, between 38 millimetres and 60 millimetres, or between 38 millimetres and 50 millimetres.

[0070] The aerosol-generating article may have a total length of between 40 millimetres and 100 millimetres, between 40 millimetres and 70 millimetres, between 40 millimetres and 60 millimetres, or between 40 millimetres and 50 millimetres.

[0071] The aerosol-generating article may have a total length of between 42 millimetres and 100 millimetres, between 42 millimetres and 70 millimetres, between 42 millimetres and 60 millimetres, or between 42 millimetres and 50 millimetres.

[0072] For example, the aerosol-generating article may have a total length of 45 millimetres.

[0073] The aerosol-generating article may be substantially cylindrical.

[0074] The aerosol-generating article may have a substantially circular cross-section.

[0075] The aerosol-generating article may have an external diameter of at least 5 millimetres, at least 6 millimetres, or at least 7 millimetres.

[0076] The aerosol-generating article may have an external diameter of less than or equal to 12 millimetres, less than or equal to 10 millimetres, or less than or equal to 8 millimetres.

[0077] The aerosol-generating article may have an external diameter of between 5 millimetres and 12 millimetres, between 5 millimetres and 10 millimetres, or between 5 millimetres and 8 millimetres.

[0078] The aerosol-generating article may have an external diameter of between 6 millimetres and 12 millimetres, between 6 millimetres and 10 millimetres, or between 6 millimetres and 8 millimetres.

[0079] The aerosol-generating article may have an external diameter of between 7 millimetres and 12 millimetres, between 7 millimetres and 10 millimetres, or between 7 millimetres and 8 millimetres.

[0080] For example, the aerosol-generating article may have an external diameter of 7.1 millimetres or an external diameter of 7.2 millimetres.

[0081] The aerosol-generating section may have a length of at least 4 millimetres, at least 6 millimetres, at least 8 millimetres, or at least 10 millimetres.

[0082] The aerosol-generating section may have a length of less than or equal to 60 millimetres, less than or equal to 45 millimetres, less than or equal to 35 millimetres, less than or equal to 25 millimetres, or less than or equal to 15 millimetres.

[0083] The aerosol-generating section may have a length of between 4 millimetres and 60 millimetres, between 4 millimetres and 45 millimetres, between 4 millimetres and 35 millimetres, between 4 millimetres and 25 millimetres, or between 4 millimetres and 15 millimetres.

[0084] The aerosol-generating section may have a length of between 6 millimetres and 60 millimetres, between 6 millimetres and 45 millimetres, between 6 millimetres and 35 millimetres, between 6 millimetres and 25 millimetres, or between 6 millimetres and 15 millimetres.

[0085] The aerosol-generating section may have a length of between 8 millimetres and 60 millimetres, between 8 millimetres and 45 millimetres, between 8 millimetres and 35 millimetres, between 8 millimetres and 25 millimetres, or between 8 millimetres and 15 millimetres.

[0086] The aerosol-generating section may have a length of between 10 millimetres and 60 millimetres, between 10 millimetres and 45 millimetres, between 10 millimetres and 35 millimetres, between 10 millimetres and 25 millimetres, or between 10 millimetres and 15 millimetres.

[0087] For example, the aerosol-generating section may have a length of 11 millimetres or a length of 12 millimetres.

[0088] A ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be at least 0.10, at least 0.15, or at least 0.20.

[0089] A ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be less than or equal to 0.60, less than or equal to 0.50, less than or equal to 0.40, less than or equal to 0.35, or less than or equal to 0.30.

[0090] A ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be between 0.10 and 0.60, between 0.10 and 0.50, between 0.10 and 0.40, between 0.10 and 0.35, or between 0.10 and 0.30.

[0091] A ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be between 0.15 and 0.60, between 0.15 and 0.50, between 0.15 and 0.40, between 0.15 and 0.35, or between 0.15 and 0.30.

[0092] A ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be between 0.20 and 0.60, between 0.20 and 0.50, between 0.20 and 0.40, between 0.20 and 0.35, or between 0.20 and 0.30.

[0093] For example, a ratio of a length of the aerosol-generating section to a total length of the aerosol-generating article may be 0.27.

[0094] The aerosol-generating section may be substantially cylindrical.

[0095] The aerosol-generating section may have a substantially circular cross-section.

[0096] The aerosol-generating section may have an external diameter that is substantially the same as an external diameter of the aerosol-generating article.

[0097] The aerosol-generating section may have an external diameter of at least 5 millimetres, at least 6 millimetres, or at least 7 millimetres.

[0098] The aerosol-generating section may have an external diameter of less than or equal to 12 millimetres, less than or equal to 10 millimetres, or less than or equal to 8 millimetres.

[0099] The aerosol-generating section may have an external diameter of between 5 millimetres and 12 millimetres, between 5 millimetres and 10 millimetres, or between 5 millimetres and 8 millimetres.

[0100] The aerosol-generating section may have an external diameter of between 6 millimetres and 12 millimetres, between 6 millimetres and 10 millimetres, or between 6 millimetres and 8 millimetres.

[0101] The aerosol-generating section may have an external diameter of between 7 millimetres and 12 millimetres, between 7 millimetres and 10 millimetres, or between 7 millimetres and 8 millimetres.

[0102] For example, the aerosol-generating section may have an external diameter of 7 millimetres or 7.1 millimetres.

[0103] The RTD of the aerosol-generating section may be at least 4 millimetres H_2O, at least 5 millimetres H_2O, or at least 6 millimetres H_2O.

[0104] The RTD of the aerosol-generating section may be less than or equal to 25 millimetres H_2O, less than or equal to 20 millimetres H_2O, or less than or equal to 15 millimetres H_2O.

[0105] The RTD of the aerosol-generating section may be less than or equal to 10 millimetres H_2O, less than or equal to 9 millimetres H_2O, or less than or equal to 8 millimetres H_2O.

[0106] The RTD of the aerosol-generating section may be between 4 millimetres H_2O and 25 millimetres H_2O, between 4 millimetres H_2O and 20 millimetres H_2O, or between 4 millimetres H_2O and 20 millimetres H_2O.

[0107] The RTD of the aerosol-generating section may be between 4 millimetres H_2O and 10 millimetres H_2O, between 4 millimetres H_2O and 9 millimetres H_2O, or between 4 millimetres H_2O and 8 millimetres H_2O.

[0108] The RTD of the aerosol-generating section may be between 5 millimetres H_2O and 25 millimetres H_2O, between 5 millimetres H_2O and 20 millimetres H_2O, or between 5 millimetres H_2O and 15 millimetres H_2O.

[0109] The RTD of the aerosol-generating section may be between 5 millimetres H_2O and 10 millimetres H_2O, between 5 millimetres H_2O and 9 millimetres H_2O, or between 5 millimetres H_2O and 8 millimetres H_2O.

[0110] The RTD of the aerosol-generating section may be between 6 millimetres H_2O and 25 millimetres H_2O, between 6 millimetres H_2O and 20 millimetres H_2O, or between 6 millimetres H_2O and 15 millimetres H_2O.

[0111] The RTD of the aerosol-generating section may be between 6 millimetres H_2O and 10 millimetres H_2O, between 6 millimetres H_2O and 9 millimetres H_2O, or between 6 millimetres H_2O and 8 millimetres H_2O.

[0112] The aerosol-generating substrate may have a density of at least 100 milligrams per cubic centimetre, at least 150 milligrams per cubic centimetre, at least 200 milligrams per cubic centimetre at least 250 milligrams per cubic centimetre, or at least 275 milligrams per cubic centimetre.

[0113] The aerosol-generating substrate may have a density of less than or equal to 700 milligrams per cubic centimetre, less than or equal to 650 milligrams per cubic centimetre, less than or equal to 600 milligrams per cubic centimetre, less than or equal to 550 milligrams per cubic centimetre, or less than or equal to 500 milligrams per cubic centimetre.

[0114] The aerosol-generating substrate may have a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre, between 100 milligrams per cubic centimetre and 650 milligrams per cubic centimetre, between 100 milligrams per cubic centimetre and 600 milligrams per cubic centimetre, between 100 milligrams per cubic centimetre and 550 milligrams per cubic centimetre, or between 100 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

[0115] The aerosol-generating substrate may have a density of between 150 milligrams per cubic centimetre and 700 milligrams per cubic centimetre, between 150 milligrams per cubic centimetre and 650 milligrams per cubic centimetre, between 150 milligrams per cubic centimetre and 600 milligrams per cubic centimetre, between 150 milligrams per cubic centimetre and 550 milligrams per cubic centimetre, or between 150 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

[0116] The aerosol-generating substrate may have a density of between 200 milligrams per cubic centimetre and 700 milligrams per cubic centimetre, between 200 milligrams per cubic centimetre and 650 milligrams per cubic centimetre, between 200 milligrams per cubic centimetre and 600 milligrams per cubic centimetre, between 200 milligrams per cubic centimetre and 550 milligrams per cubic centimetre, or between 200 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

[0117] The aerosol-generating substrate may have a density of between 250 milligrams per cubic centimetre and 700 milligrams per cubic centimetre, between 250 milligrams per cubic centimetre and 650 milligrams per cubic centimetre, between 250 milligrams per cubic centimetre and 600 milligrams per cubic centimetre, between 250 milligrams per cubic centimetre and 550 milligrams per cubic centimetre, or between 250 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

[0118] The aerosol-generating substrate may have a density of between 275 milligrams per cubic centimetre and 700 milligrams per cubic centimetre, between 275 milligrams per cubic centimetre and 650 milligrams per cubic centimetre, between 275 milligrams per cubic centimetre and 600 milligrams per cubic centimetre, between 275 milligrams per cubic centimetre and 550 milligrams per cubic centimetre, or between 275 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

[0119] The aerosol-generating substrate may have a mass of at least 120 milligrams, at least 130 milligrams, at least 140 milligrams, at least 150 milligrams, or at least 160 milligrams.

[0120] The aerosol-generating substrate may have a mass of less than or equal to 340 milligrams, less than or equal to 310 milligrams, less than or equal to 280 milligrams, less than or equal to 250 milligrams, or less than or equal to 220 milligrams.

[0121] The aerosol-generating substrate may have a mass of between 120 milligrams and 340 milligrams, between 120 milligrams and 310 milligrams, between 120 milligrams and 280 milligrams, between 120 milligrams and 250 milligrams, or between 120 milligrams and 220 milligrams.

[0122] The aerosol-generating substrate may have a mass of between 130 milligrams and 340 milligrams, between 130

milligrams and 310 milligrams, between 130 milligrams and 280 milligrams, between 130 milligrams and 250 milligrams, or between 130 milligrams and 220 milligrams.

[0123] The aerosol-generating substrate may have a mass of between 140 milligrams and 340 milligrams, between 140 milligrams and 310 milligrams, between 140 milligrams and 280 milligrams, between 140 milligrams and 250 milligrams, or between 140 milligrams and 220 milligrams.

[0124] The aerosol-generating substrate may have a mass of between 150 milligrams and 340 milligrams, between 150 milligrams and 310 milligrams, between 150 milligrams and 280 milligrams, between 150 milligrams and 250 milligrams, or between 150 milligrams and 220 milligrams.

[0125] The aerosol-generating substrate may have a mass of between 160 milligrams and 340 milligrams, between 160 milligrams and 310 milligrams, between 160 milligrams and 280 milligrams, between 160 milligrams and 250 milligrams, or between 160 milligrams and 220 milligrams.

[0126] The aerosol-generating substrate comprises a plurality of strands of aerosol-generating material.

[0127] The plurality of strands of aerosol-generating material may be randomly oriented within the aerosol-generating section. In use, this may help to retain generated aerosol within the aerosol-generating section between puffs.

[0128] The plurality of strands of aerosol-generating material may be arranged substantially parallel to each other within the aerosol-generating section.

[0129] The strands of aerosol-generating material may be arranged substantially longitudinally within the aerosol-generating section. That is, a longitudinal axis of the strands of aerosol-generating material may be approximately parallel to a longitudinal axis of the aerosol-generating section. For example, a longitudinal axis of the strands of aerosol-generating material may be within plus or minus 10 degrees of parallel to a longitudinal axis of the aerosol-generating section.

[0130] The aerosol-generating substrate may be circumscribed by wrapper. The aerosol-generating substrate may be circumscribed by a paper wrapper. For example, the aerosol-generating substrate may be circumscribed by a plug wrap.

[0131] The strands of aerosol-generating material may have an average length of at least 0.5 millimetres, at least 1 millimetre, at least 2 millimetres, or at least 5 millimetres.

[0132] The average length of the strands of aerosol-generating material is equal to the sum of the individual lengths of each of the strands of aerosol-generating material in the aerosol-generating substrate divided by the number of strands of aerosol-generating material in the aerosol-generating substrate.

[0133] The strands of aerosol-generating material may have an average length of less than or equal to 80 millimetres, less than or equal to 50 millimetres, less than or equal to 30 millimetres, less than or equal to 25 millimetres, less than or equal to 20 millimetres, or less than or equal to 15 millimetres.

[0134] The strands of aerosol-generating material may have an average length of between 0.5 millimetres and 80 millimetres, between 0.5 millimetres and 50 millimetres, between 0.5 millimetres and 30 millimetres, between 0.5 millimetres and 25 millimetres, between 0.5 millimetres and 20 millimetres, or between 0.5 millimetres and 15 millimetres.

[0135] The strands of aerosol-generating material may have an average length of between 1 millimetre and 80 millimetres, between 1 millimetre and 50 millimetres, between 1 millimetre and 30 millimetres, between 1 millimetre and 25 millimetres, between 1 millimetre and 20 millimetres, or between 1 millimetre and 15 millimetres.

[0136] The strands of aerosol-generating material may have an average length of between 2 millimetres and 80 millimetres, between 2 millimetres and 50 millimetres, between 2 millimetres and 30 millimetres, between 2 millimetres and 25 millimetres, between 2 millimetres and 20 millimetres, or between 2 millimetres and 15 millimetres.

[0137] The strands of aerosol-generating material may have an average length of between 5 millimetres and 80 millimetres, between 5 millimetres and 50 millimetres, between 5 millimetres and 30 millimetres, between 5 millimetres and 25 millimetres, between 5 millimetres and 20 millimetres, or between 5 millimetres and 15 millimetres.

[0138] For example, the strands of aerosol-generating material may have a length of 11 millimetres or a length of 12 millimetres.

[0139] The plurality of strands of aerosol-generating material may have substantially the same length.

[0140] The length of the strands of aerosol-generating material may be substantially the same as the length of the aerosol-generating section.

[0141] The length of the strands of aerosol-generating material may be determined by a manufacturing process of the aerosol-generating section in which a longer section is severed to form a plurality of shorter sections.

[0142] The strands of aerosol-generating material may an average width of at least 0.1 millimetres, at least 0.3 millimetres, at least 0.4 millimetres, at least 0.5 millimetres, or at least 0.6 millimetres.

[0143] The average width of the strands of aerosol-generating material is equal to the sum of the individual widths of each of the strands of aerosol-generating material in the aerosol-generating substrate divided by the number of strands of aerosol-generating material in the aerosol-generating substrate.

[0144] Where the aerosol-generating substrate is tobacco cut filler, the average width of the plurality of strands of aerosol-generating material is the mean cut width of the tobacco cut filler. The mean cut width of the tobacco cut filler is equal to the sum of the individual cut widths of each of the strands of tobacco lamina in the aerosol-generating substrate divided by the number of strands of tobacco lamina in the aerosol-generating substrate.

[0145] The strands of aerosol-generating material may an average width of less than or equal to 5 millimetres, less than or equal to 2 millimetres, less than or equal to 1.5 millimetres, less than or equal to 1.2 millimetres, or less than or equal to 0.9 millimetres.

[0146] The strands of aerosol-generating material may have an average width of between 0.1 millimetres and 5 millimetres, between 0.1 millimetres and 2 millimetres, between 0.1 millimetres and 1.5 millimetres, between 0.1 millimetres and 1.2 millimetres or between 0.1 millimetres and 0.9 millimetres.

[0147] The strands of aerosol-generating material may have an average width of between 0.3 millimetres and 5 millimetres, between 0.3 millimetres and 2 millimetres, between 0.3 millimetres and 1.5 millimetres, between 0.3 millimetres and 1.2 millimetres or between 0.3 millimetres and 0.9 millimetres.

[0148] The strands of aerosol-generating material may have an average width of between 0.4 millimetres and 5 millimetres, between 0.4 millimetres and 2 millimetres, between 0.4 millimetres and 1.5 millimetres, between 0.4 millimetres and 1.2 millimetres or between 0.4 millimetres and 0.9 millimetres.

[0149] The strands of aerosol-generating material may have an average width of between 0.5 millimetres and 5 millimetres, between 0.5 millimetres and 2 millimetres, between 0.5 millimetres and 1.5 millimetres, between 0.5 millimetres and 1.2 millimetres or between 0.5 millimetres and 0.9 millimetres.

[0150] The strands of aerosol-generating material may have an average width of between 0.6 millimetres and 5 millimetres, between 0.6 millimetres and 2 millimetres, between 0.6 millimetres and 1.5 millimetres, between 0.6 millimetres and 1.2 millimetres or between 0.6 millimetres and 0.9 millimetres.

[0151] For example, the strands of aerosol-generating material may an average width of 0.7 millimetres or 0.8 millimetres.

[0152] The strands of aerosol-generating material may have an average thickness substantially the same as the average width thereof.

[0153] The average thickness of the strands of aerosol-generating material is equal to the sum of the individual thicknesses of each of the strands of aerosol-generating material in the aerosol-generating substrate divided by the number of strands of aerosol-generating material in the aerosol-generating substrate.

[0154] Where the aerosol-generating substrate is tobacco cut filler, the thickness of the plurality of strands of tobacco lamina is equal to the thickness of the tobacco lamina.

[0155] The strands of aerosol-generating material may have a substantially circular cross-section.

[0156] The strands of aerosol-generating material may have an average width greater than the average thickness thereof.

[0157] The strands of aerosol-generating material may have a substantially rectangular cross-section.

[0158] The strands of aerosol-generating material may an average thickness of at least 0.1 millimetres, at least 0.15 millimetres, at least 0.18 millimetres, or at least 0.2 millimetres.

[0159] The strands of aerosol-generating material may an average thickness of less than or equal to 2 millimetres, less than or equal to 1 millimetres, less than or equal to 0.6 millimetres, or less than or equal to 0.3 millimetres.

[0160] The strands of aerosol-generating material may have an average thickness of between 0.1 millimetres and 2 millimetres, between 0.1 millimetres and 1 millimetre, between 0.1 millimetres and 0.6 millimetres, or between 0.1 millimetres and 0.3 millimetres.

[0161] The strands of aerosol-generating material may have an average thickness of between 0.15 millimetres and 2 millimetres, between 0.15 millimetres and 1 millimetre, between 0.15 millimetres and 0.6 millimetres, or between 0.15 millimetres and 0.3 millimetres.

[0162] The strands of aerosol-generating material may have an average thickness of between 0.18 millimetres and 2 millimetres, between 0.18 millimetres and 1 millimetre, between 0.18 millimetres and 0.6 millimetres, or between 0.18 millimetres and 0.3 millimetres.

[0163] The strands of aerosol-generating material may have an average thickness of between 0.2 millimetres and 2 millimetres, between 0.2 millimetres and 1 millimetre, between 0.2 millimetres and 0.6 millimetres, or between 0.2 millimetres and 0.3 millimetres.

[0164] For example, the strands of aerosol-generating material may have an average thickness of 0.25 millimetres.

[0165] The aerosol-generating material may be a plant material.

[0166] The aerosol-generating material may be a non-tobacco plant material. Examples of suitable non-tobacco plant materials include cannabis material, ginger material, eucalyptus material, clove material, and star anise material.

[0167] The aerosol-generating material may be a tobacco material.

[0168] The aerosol-generating substrate may be tobacco cut filler.

[0169] The aerosol-generating material may be a homogenised plant material.

[0170] Strands of homogenised plant material may be formed by cutting or shredding a sheet of homogenised plant material. Strands of homogenised plant material may be formed by other methods. For example, strands of homogenised plant material may be formed by extrusion.

[0171] The aerosol-generating material may be a homogenised non-tobacco plant material

[0172] The aerosol-generating material may be a homogenised tobacco material.

[0173] The aerosol-generating material may be a gel material.

[0174] Strands of gel material may be formed by cutting or shredding a sheet of gel material.

[0175] Strands of gel material may be formed by other methods. For example, strands of gel material may be formed by extrusion.

[0176] The aerosol-generating material may comprise an aerosol former.

[0177] The aerosol former may be any suitable known compound or mixture of compounds that, in use, facilitates formation of a dense and stable aerosol. The aerosol former may be substantially resistant to thermal degradation at temperatures typically reached during use of the aerosol-generating article.

[0178] Examples of suitable aerosol formers include: polyhydric alcohols such as, for example, triethylene glycol, 1,3-butanediol, propylene glycol and glycerine; esters of polyhydric alcohols such as, for example, glycerol mono-, di- or triacetate; aliphatic esters of mono-, di- or polycarboxylic acids such as, for example, dimethyl dodecanedioate and dimethyl tetradecanedioate; and combinations thereof.

[0179] The aerosol former may comprise one or more of glycerine and propylene glycol. The aerosol former may consist of glycerine. The aerosol former may consist of propylene glycol. The aerosol former may consist of a combination of glycerine and propylene glycol.

[0180] The aerosol-generating material may comprise at least 1 percent by weight of aerosol former, at least 5 percent by weight of aerosol former, at least 10 percent by weight of aerosol former, or at least 15 percent by weight of aerosol former. That is, the aerosol-generating material may have an aerosol former content of at least 5 percent by weight, at least 10 percent by weight, or at least 15 percent by weight.

[0181] The aerosol-generating material may comprise less than or equal to 30 percent by weight of aerosol former, less

than or equal to 25 percent by weight of aerosol former, or less than or equal to 20 percent by weight of aerosol former. That is, the aerosol-generating material may have an aerosol former content of less than or equal to 30 percent by weight, less than or equal to 25 percent by weight, or less than or equal to 20 percent by weight.

[0182] The aerosol-generating material may comprise between 1 percent and 30 percent by weight of aerosol former, between 1 percent and 25 percent by weight of aerosol former, or between 1 percent and 20 percent by weight of aerosol former.

[0183] The aerosol-generating material may comprise between 5 percent and 30 percent by weight of aerosol former, between 5 percent and 25 percent by weight of aerosol former, or between 5 percent and 20 percent by weight of aerosol former.

[0184] The aerosol-generating material may comprise between 10 percent and 30 percent by weight of aerosol former, between 10 percent and 25 percent by weight of aerosol former, or between 10 percent and 20 percent by weight of aerosol former.

[0185] The aerosol-generating material may comprise between 15 percent and 30 percent by weight of aerosol former, between 15 percent and 25 percent by weight of aerosol former, or between 15 percent and 20 percent by weight of aerosol former.

[0186] The aerosol-generating material may comprise at least 50 percent by weight of aerosol former, at least 60 percent by weight of aerosol former, or at least 70 percent by weight of aerosol former.

[0187] The aerosol-generating material may comprise less than or equal to 85 percent by weight of aerosol former, less than or equal to 80 percent by weight of aerosol former, or less than or equal to 75 percent by weight of aerosol former.

[0188] The aerosol-generating material may comprise between 50 percent and 85 percent by weight of aerosol former, between 50 percent and 80 percent by weight of aerosol former, or between 50 percent and 75 percent by weight of aerosol former.

[0189] The aerosol-generating material may comprise between 60 percent and 85 percent by weight of aerosol former, between 60 percent and 80 percent by weight of aerosol former, or between 60 percent and 75 percent by weight of aerosol former.

[0190] The aerosol-generating material may comprise between 70 percent and 85 percent by weight of aerosol former, between 70 percent and 80 percent by weight of aerosol former, or between 70 percent and 75 percent by weight of aerosol former.

[0191] The aerosol-generating material may comprise nicotine.

[0192] The aerosol-generating material may comprise natural nicotine, or synthetic nicotine, or a combination of natural nicotine and synthetic nicotine.

[0193] The aerosol-generating material may comprise at least 0.5 percent by weight of nicotine, at least 1 percent by weight of nicotine, at least 1.5 percent by weight of nicotine, or at least 2 percent by weight of nicotine. That is, the aerosol-generating material may have a nicotine content of at least 0.5 percent by weight, at least 1 percent by weight, at least 1.5 percent by weight, or at least 2 percent by weight.

[0194] The aerosol-generating material may comprise less than or equal to 10 percent by weight of nicotine, less than or equal to 8 percent by weight of nicotine, less than or equal to 6 percent by weight of nicotine, or less than or equal to 4 percent by weight of nicotine. That is, the aerosol-generating material may have a nicotine content of less than or equal to 10 percent by weight, less than or equal to 8 percent by weight, less than or equal to 6 percent by weight, or less than or equal to 4 percent by weight.

[0195] The aerosol-generating material may comprise between 0.5 percent and 10 percent by weight of nicotine, between 0.5 percent and 8 percent by weight of nicotine, between 0.5 percent and 6 percent by weight of nicotine, or between 0.5 percent and 4 percent by weight of nicotine.

[0196] The aerosol-generating material may comprise between 1 percent and 10 percent by weight of nicotine, between 1 percent and 8 percent by weight of nicotine, between 1 percent and 6 percent by weight of nicotine, or between 1 percent and 4 percent by weight of nicotine.

[0197] The aerosol-generating material may comprise between 1.5 percent and 10 percent by weight of nicotine, between 1.5 percent and 8 percent by weight of nicotine, between 1.5 percent and 6 percent by weight of nicotine, or between 1.5 percent and 4 percent by weight of nicotine.

[0198] The aerosol-generating material may comprise between 2 percent and 10 percent by weight of nicotine, between 2 percent and 8 percent by weight of nicotine, between 2 percent and 6 percent by weight of nicotine, or between 2 percent and 4 percent by weight of nicotine.

[0199] The aerosol-generating substrate may comprise a plurality of strands of aerosol-generating material of substantially the same composition. For example, the aerosol-generating substrate may comprise a plurality of strands of homogenised tobacco material of substantially the same composition.

[0200] The aerosol-generating substrate may comprise a plurality of strands of aerosol-generating material of different composition. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a first composition and one or more strands of a second aerosol-generating material having a second composition, wherein the first composition is different to the second composition. For example, the aerosol-generating substrate may comprise one or more strands of homogenised tobacco material having a first composition and one or more strands of gel material having a second composition.

[0201] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, at least one of the strands of aerosol-generating material may have an aerosol former content as a percentage by weight as set out above. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a first composition and one or more strands of a second aerosol-generating material having a second composition, wherein the first composition is different to the second composition and wherein at least one of the first aerosol-generating material and the second aerosol-generating material has an aerosol former content of between 5 percent and 30 percent by weight. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having an aerosol former content of between 5 percent and 30 percent by weight and one or more strands of a second aerosol-generating material having an aerosol former content of between 50 percent and 85 percent by weight.

[0202] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, the strands of aerosol-generating material may have an average aerosol former content as a percentage by weight as set out above. For example, the strands of aerosol-generating material may have an average aerosol former content of between 5 percent and 30 percent by weight, between 5 percent and 25 percent by weight, or between 5 percent and 20 percent by weight. For example, the strands of aerosol-generating material may have an average aerosol former content of between 50 percent and 85 percent by weight, between 50 percent and 80 percent by weight, or between 50 percent and 75 percent by weight.

[0203] The average aerosol former content of the strands of aerosol-generating material is equal to the sum of the individual aerosol former contents of each of the strands of aerosol-generating material in the aerosol-generating substrate as a percentage by weight divided by the number of strands of aerosol-generating material in the aerosol-generating substrate.

[0204] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, each of the strands of aerosol-generating material may have an aerosol former content as a percentage by weight as set out above. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a first composition and one or more strands of a second aerosol-generating material having a second composition, wherein the first composition is different to the second composition and wherein the first aerosol-generating material has an aerosol former content of between 5 percent and 30 percent by weight and the second aerosol-generating material has an aerosol former content of between 5 percent and 30 percent by weight.

[0205] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, at least one of the strands of aerosol-generating material may have a nicotine content as a percentage by weight as set out above. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a first composition and one or more strands of a second aerosol-generating material having a second composition, wherein the first composition is different to the second composition and wherein at least one of the first aerosol-generating material and the second aerosol-generating material has a nicotine content of between 0.5 percent and 10 percent by weight. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a nicotine content of between 0.5 percent and 10 percent by weight and one or more strands of a second aerosol-generating material having a nicotine content of 0 percent by weight.

[0206] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, the strands of aerosol-generating material may have an average aerosol nicotine content as a percentage by weight as set out above. For example, the strands of aerosol-generating material may have an average nicotine content of between 0.5 percent and 10 percent by weight, between 0.5 percent and 8 percent by weight, between 0.5 percent and 6 percent by weight, or between 0.5 percent and 4 percent by weight.

[0207] The average nicotine content of the strands of aerosol-generating material is equal to the sum of the individual nicotine contents of each of the strands of aerosol-generating material in the aerosol-generating substrate as a percentage by weight divided by the number of strands of aerosol-generating material in the aerosol-generating substrate.

[0208] Where the aerosol-generating substrate comprises strands of aerosol-generating material of different composition, each of the strands of aerosol-generating material may have nicotine content as a percentage by weight as set out above. For example, the aerosol-generating substrate may comprise one or more strands of a first aerosol-generating material having a first composition and one or more strands of a second aerosol-generating material having a second composition, wherein the first composition is different to the second composition and wherein the first aerosol-generating material has a nicotine content of between 0.5 percent and 10 percent by weight and the second aerosol-generating material has a nicotine content of between 0.5 percent and 10 percent by weight.

[0209] The aerosol-generating section may comprise a heat transfer enhancement element located within the aerosol-generating substrate.

[0210] The heat transfer enhancement element may be in thermal with the plurality of strands of aerosol-generating material.

[0211] The heat transfer enhancement element may advantageously be in direct contact with the plurality of strands of aerosol-generating material.

[0212] The heat transfer enhancement element may facilitate heat transfer from an internal heating element to the plurality of strands of aerosol-generating material.

[0213] The heat transfer enhancement element may facilitate heat transfer between the plurality of strands of aerosol-generating material.

[0214] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of at least 0.15 W/(mK), at least 0.2 W/(mK), at least 0.25 W/(mK), or at least 0.3 W/(mK).

[0215] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of less than or equal to 1700 W/(mK), less than or equal to 1600 W/(mK), or less than or equal to 1500 W/(mK).

[0216] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of between 0.15 W/(mK) and 1700 W/(mK), between 0.15 W/(mK) and 1600 W/(mK), or between 0.15 W/(mK) and 1500 W/(mK).

[0217] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of between 0.2 W/(mK) and 1700 W/(mK), between 0.2 W/(mK) and 1600 W/(mK), or between 0.2 W/(mK) and 1500 W/(mK).

[0218] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of between 0.25 W/(mK) and 1700 W/(mK), between 0.25 W/(mK) and 1600 W/(mK), or between 0.25 W/(mK) and 1500 W/(mK).

[0219] The heat transfer enhancement element may have a thermal conductivity in at least one direction at 25 degrees Celsius of between 0.3 W/(mK) and 1700 W/(mK), between 0.3 W/(mK) and 1600 W/(mK), or between 0.3 W/(mK) and 1500 W/(mK).

[0220] The heat transfer enhancement element may comprise one or more thermally conductive materials. The heat transfer enhancement element may comprise one or more metals, one or more alloys, one or more carbon-containing materials, or a combination thereof. For example, the heat transfer enhancement element may comprise one or more of aluminium, copper, gold, silver, tungsten, stainless steel, diamond, graphene, graphite, and expanded graphite.

[0221] The heat transfer enhancement element may comprise an aerosol former.

[0222] Examples of suitable aerosol formers include: polyhydric alcohols such as, for example, triethylene glycol, 1,3-butanediol, propylene glycol and glycerine; esters of polyhydric alcohols such as, for example, glycerol mono-, di- or triacetate; aliphatic esters of mono-, di- or polycarboxylic acids such as, for example, dimethyl dodecanedioate and dimethyl tetradecanedioate; and combinations thereof.

[0223] The aerosol former may comprise one or more of glycerine and propylene glycol. The aerosol former may consist of glycerine. The aerosol former may consist of propylene glycol. The aerosol former may consist of a combination of glycerine and propylene glycol.

[0224] The heat transfer enhancement element may comprise a plurality of discrete thermally conductive elements. The plurality of discrete thermally conductive elements may be substantially homogeneously distributed within the aerosol-generating substrate.

[0225] The heat transfer enhancement element may comprise a plurality of thermally conductive particles. For example, the heat transfer enhancement element may comprise: a plurality of metal particles; a plurality of alloy particles; a plurality of carbon-containing particles, such as graphene particles, graphite particles, and expanded graphite particles; or a combination thereof. The thermally conductive particles may comprise an aerosol former.

[0226] The heat transfer enhancement element may comprise a plurality of thermally conductive strands. For example, the heat transfer enhancement element may comprise: a plurality of strands of metal foil, such as aluminium foil or copper foil; a plurality of strands of alloy foil, such as stainless steel foil; a plurality of strands of carbon-containing foil, such as graphite foil; or a combination thereof. The thermally conductive strands may comprise an aerosol former.

[0227] The aerosol generating section of the aerosol-generating article may comprise an internal heating element located within the aerosol-generating substrate.

[0228] The aerosol-generating device of the aerosol-generating system may comprise an internal heating element for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0229] The internal heating element may be in thermal contact with the plurality of strands of aerosol-generating material. In use, heat from the internal heating element may be conveyed to the plurality of strands of aerosol-generating material.

[0230] The internal heating element may advantageously be in direct contact with the plurality of strands of aerosol-generating material.

[0231] The internal heating element may have a length of at least 4 millimetres, at least 6 millimetres, at least 8 millimetres, or at least 10 millimetres.

[0232] The internal heating element may have a length of less than or equal to 45 millimetres, less than or equal to 35 millimetres, less than or equal to 25 millimetres, or less than or equal to 15 millimetres.

[0233] The internal heating element may have a length of between 4 millimetres and 45 millimetres, between 4 millimetres and 35 millimetres, between 4 millimetres and 25 millimetres, or between 4 millimetres and 15 millimetres.

[0234] The internal heating element may have a length of between 6 millimetres and 45 millimetres, between 6 millimetres and 35 millimetres, between 6 millimetres and 25 millimetres, or between 6 millimetres and 15 millimetres.

[0235] The internal heating element may have a length of between 8 millimetres and 45 millimetres, between 8 millimetres and 35 millimetres, between 8 millimetres and 25 millimetres, or between 8 millimetres and 15 millimetres.

[0236] The internal heating element may have a length of between 10 millimetres and 45 millimetres, between 10 millimetres and 35 millimetres, between 10 millimetres and 25 millimetres, or between 10 millimetres and 15 millimetres.

[0237] For example, the susceptor element may have a length of 11 millimetres or a length of 12 millimetres.

[0238] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements located within the aerosol-generating substrate.

[0239] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of substantially the same length located within the aerosol-generating substrate.

[0240] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of different length located within the aerosol-generating substrate. For example, the aerosol-generating substrate may comprise one or more first internal heating elements having a first length located within the aerosol-generating substrate and one or more second internal heating elements having a second length located within the aerosol-generating substrate, wherein the first length is different to the second length.

[0241] The aerosol generating device may comprise a plurality of internal heating elements for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0242] The aerosol generating device may comprise a plurality of internal heating elements of substantially the same length for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0243] The aerosol generating device may comprise a plurality of internal heating elements of different length for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article. For example, the aerosol-generating device may comprise one or more first internal heating elements having a first length for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article and one or more second internal heating elements having a second length for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein the first length is different to the second length.

[0244] Where there are a plurality of internal heating elements, at least one of the plurality of internal heating elements may have a length in millimetres as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first length and one or more second internal heating elements located within the aerosol-generating substrate having a second length, wherein at least one of the first length and the second length is between 4 millimetres and 45 millimetres.

[0245] Where there are a plurality of internal heating elements, the plurality of internal heating elements may have an average length in millimetres as set out above. For example, the plurality of internal heating elements may have an average length of between 4 millimetres and 45 millimetres, between 4 millimetres and 35 millimetres, between 4 millimetres and 25 millimetres, or between 4 millimetres and 15 millimetres.

[0246] The average length of the plurality of internal heating elements is equal to the sum of the individual lengths of each of the internal heating elements divided by the number of internal heating elements.

[0247] Where there are a plurality of internal heating elements, each of the plurality of internal heating elements may have a length in millimetres as set out above. For example, each of the plurality of internal heating elements may have a length of between 4 millimetres and 45 millimetres.

[0248] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be at least 0.04, at least 0.07, at least 0.10, at least 0.12, at least 0.15, at least 0.20, or at least 0.25.

[0249] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be less than or equal to 7, less than or equal to 4, less than or equal to 1, less than or equal to 0.8, less than or equal to 0.7, less than or equal to 0.6, or less than or equal to 0.5.

[0250] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.04 and 7, between 0.04 and 4, between 0.04 and 1, between 0.04 and 0.8, between 0.04 and 0.7, between 0.04 and 0.6, or between 0.04 and 0.5.

[0251] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.07 and 7, between 0.07 and 4, between 0.07 and 1, between 0.07 and 0.8, between 0.07 and 0.7, between 0.07 and 0.6, or between 0.07 and 0.5.

[0252] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.10 and 7, between 0.10 and 4, between 0.10 and 1, between 0.10 and 0.8, between 0.10 and 0.7, between 0.10 and 0.6, or between 0.10 and 0.5.

[0253] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.12 and 7, between 0.12 and 4, between 0.12 and 1, between 0.12 and 0.8, between 0.12 and 0.7, between 0.12 and 0.6, or between 0.12 and 0.5.

[0254] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.15 and 7, between 0.15 and 4, between 0.15 and 1, between 0.15 and 0.8, between 0.15 and 0.7, between 0.15 and 0.6, or between 0.15 and 0.5.

[0255] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.20 and 7, between 0.20 and 4, between 0.20 and 1, between 0.20 and 0.8, between 0.20 and 0.7, between 0.20 and 0.6, or between 0.20 and 0.5.

[0256] A ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element may be between 0.25 and 7, between 0.25 and 4, between 0.25 and 1, between 0.25 and 0.8, between 0.25 and 0.7, between 0.25 and 0.6, or between 0.25 and 0.5.

[0257] Where there are a plurality of internal heating elements, a ratio of an average length of the plurality of strands of aerosol-generating material to a length of at least one of the plurality of internal heating elements may be as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first length and one or more second internal heating elements located within the aerosol-generating substrate having a second length, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to at least one of the first length and the second length is between 0.04 and 7.

[0258] Where there are a plurality of internal heating elements, a ratio of an average length of the plurality of strands of aerosol-generating material to an average length of the plurality of internal heating elements may be as set out above. For example, a ratio of an average length of the plurality of strands of aerosol-generating material to an average length of the plurality of internal heating elements may be between 0.04 and 7, between 0.04 and 4, between 0.04 and 1, between 0.04 and 0.8, between 0.04 and 0.7, between 0.04 and 0.6, or between 0.04 and 0.5.

[0259] Where there are a plurality of internal heating elements, a ratio of an average length of the plurality of strands of aerosol-generating material to a length of each of the plurality of internal heating elements may be as set out above. For example, a ratio of an average length of the plurality of strands of aerosol-generating material to a length of each of the plurality of internal heating elements may be between 0.04 and 7.

[0260] A ratio of a length of the internal heating element to a total length of the aerosol-generating article may be at least 0.10, at least 0.15, or at least 0.20.

[0261] A ratio of a length of the internal heating element to a total length of the aerosol-generating article may be less than or equal to 0.40, less than or equal to 0.35, or less than or equal to 0.30.

[0262] A ratio of a length of the internal heating element to a total length of the aerosol-generating article may be between 0.10 and 0.40, between 0.10 and 0.35, or between 0.10 and 0.30.

[0263] A ratio of a length of the internal heating element to a total length of the aerosol-generating article may be between 0.15 and 0.40, between 0.15 and 0.35, or between 0.15 and 0.30.

[0264] A ratio of a length of the internal heating element to a total length of the aerosol-generating article may be between 0.20 and 0.40, between 0.20 and 0.35, or between 0.20 and 0.30.

[0265] For example, a ratio of a length of the internal heating element to a total length of the aerosol-generating article may be 0.27.

[0266] Where there are a plurality of internal heating elements, a ratio of a length of at least one of the plurality of internal heating elements to a total length of the aerosol-generating article may be as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first length and one or more second internal heating elements located within the aerosol-generating substrate having a second length, wherein a ratio of at least one of the first length and the second length to a total length of the aerosol-generating article is between 0.10 and 0.40.

[0267] Where there are a plurality of internal heating elements, a ratio of an average length of the plurality of internal heating elements to a total length of the aerosol-generating article may be as set out above. For example, a ratio of an average length of the plurality of internal heating elements to a total length of the aerosol-generating article may be between 0.10 and 0.40, between 0.10 and 0.35, or between 0.10 and 0.30.

[0268] Where there are a plurality of internal heating elements, a ratio of a length of each of the plurality of internal heating elements to a total length of the aerosol-generating article may be as set out above. For example, a ratio of a length of each of the plurality of internal heating elements to a total length of the aerosol-generating article may be between 0.10 and 0.40.

[0269] The internal heating element may have a width of at least 0.5 millimetres, at least 1 millimetre, at least 1.5 millimetres, at least 2 millimetres, or at least 2.5 millimetres.

[0270] The internal heating element may have a width of less than or equal to 8 millimetres, less than or equal to 7 millimetres, less than or equal to 6 millimetres, less than or equal to 5 millimetres, or less than or equal to 4 millimetres.

[0271] The internal heating element may have a width of between 0.5 millimetres and 8 millimetres, between 0.5 millimetres and 7 millimetres, between 0.5 millimetres and 6 millimetres, between 0.5 millimetres and 5 millimetres, or between 0.5 millimetres and 4 millimetres.

[0272] The internal heating element may have a width of between 1 millimetre and 8 millimetres, between 1 millimetre and 7 millimetres, between 1 millimetre and 6 millimetres, between 1 millimetre and 5 millimetres, or between 1 millimetre and 4 millimetres.

[0273] The internal heating element may have a width of between 1.5 millimetres and 8 millimetres, between 1.5 millimetres and 7 millimetres, between 1.5 millimetres and 6 millimetres, between 1.5 millimetres and 5 millimetres, or between 1.5 millimetres and 4 millimetres.

[0274] The internal heating element may have a width of between 2 millimetres and 8 millimetres, between 2 millimetres and 7 millimetres, between 2 millimetres and 6 millimetres, between 2 millimetres and 5 millimetres, or between 2 millimetres and 4 millimetres.

[0275] The internal heating element may have a width of between 2.5 millimetres and 8 millimetres, between 2.5 millimetres and 7 millimetres, between 2.5 millimetres and 6 millimetres, between 2.5 millimetres and 5 millimetres, or between 2.5 millimetres and 4 millimetres.

[0276] For example, the internal heating element may have a width of 4 millimetres.

[0277] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of substantially the same width located within the aerosol-generating substrate.

[0278] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of different width located within the aerosol-generating substrate. For example, the aerosol-generating substrate may comprise one or more first internal heating elements having a first width located within the aerosol-generating substrate and one or more second internal heating elements having a second width located within the aerosol-generating substrate, wherein the first width is different to the second width.

[0279] The aerosol generating device may comprise a plurality of internal heating elements of substantially the same width for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0280] The aerosol generating device may comprise a plurality of internal heating elements of different width for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article. For example, the aerosol-generating device may comprise one or more first internal heating elements having a first width for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article and one or more second internal heating elements having a second width for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein the first width is different to the second width.

[0281] Where there are a plurality of internal heating elements, at least one of the plurality of internal heating elements may have a width in millimetres as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first width and one or more second internal heating elements located within the aerosol-generating substrate having a second width, wherein at least one of the first width and the second width is between 0.5 millimetres and 8 millimetres.

[0282] Where there are a plurality of internal heating elements, the plurality of internal heating elements may have an average width in millimetres as set out above. For example, the plurality of internal heating elements may have an average width of between 0.5 millimetres and 8 millimetres, between 0.5 millimetres and 7 millimetres, between 0.5 millimetres and 6 millimetres, between 0.5 millimetres and 5 millimetres, or between 0.5 millimetres and 4 millimetres.

[0283] The average width of the plurality of internal heating elements is equal to the sum of the individual widths of each of the internal heating elements divided by the number of internal heating elements.

[0284] Where there are a plurality of internal heating elements, each of the plurality of internal heating elements may have a width in millimetres as set out above. For

example, each of the plurality of internal heating elements may have a width between 0.5 millimetres and 8 millimetres.

[0285] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be at least 0.05, at least 0.06, at least 0.08, at least 0.09, at least 0.10, at least 0.11, at least 0.12, or at least 0.13.

[0286] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be less than or equal to 4, less than or equal to 3, less than or equal to 2, less than or equal to 1.8, less than or equal to 1.6, less than or equal to 1.5, less than or equal to 1.4, or less than or equal to 1.3.

[0287] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.05 and 4, between 0.05 and 3, between 0.05 and 2, between 0.05 and 1.8, between 0.05 and 1.6, between 0.05 and 1.5, between 0.05 and 1.4, or between 0.05 and 1.3.

[0288] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.06 and 4, between 0.06 and 3, between 0.06 and 2, between 0.06 and 1.8, between 0.06 and 1.6, between 0.06 and 1.5, between 0.06 and 1.4, or between 0.06 and 1.3.

[0289] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.08 and 4, between 0.08 and 3, between 0.08 and 2, between 0.08 and 1.8, between 0.08 and 1.6, between 0.08 and 1.5, between 0.08 and 1.4, or between 0.08 and 1.3.

[0290] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.09 and 4, between 0.09 and 3, between 0.09 and 2, between 0.09 and 1.8, between 0.09 and 1.6, between 0.09 and 1.5, between 0.09 and 1.4, or between 0.09 and 1.3.

[0291] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.10 and 4, between 0.10 and 3, between 0.10 and 2, between 0.10 and 1.8, between 0.10 and 1.6, between 0.10 and 1.5, between 0.10 and 1.4, or between 0.10 and 1.3.

[0292] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.11 and 4, between 0.11 and 3, between 0.11 and 2, between 0.11 and 1.8, between 0.11 and 1.6, between 0.11 and 1.5, between 0.11 and 1.4, or between 0.11 and 1.3.

[0293] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.12 and 4, between 0.12 and 3, between 0.12 and 2, between 0.12 and 1.8, between 0.12 and 1.6, between 0.12 and 1.5, between 0.12 and 1.4, or between 0.12 and 1.3.

[0294] A ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element may be between 0.13 and 4, between 0.13 and 3, between 0.13 and 2, between 0.13 and 1.8, between 0.13 and 1.6, between 0.13 and 1.5, between 0.13 and 1.4, or between 0.13 and 1.3.

[0295] Where there are a plurality of internal heating elements, a ratio of an average width of the plurality of strands of aerosol-generating material to a width of at least one of the plurality of internal heating elements is between 0.05 and 4. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first width and one or more second internal heating elements located within the aerosol-generating substrate having a second width, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to at least one of the first width and the second width is between 0.05 and 4.

[0296] Where there are a plurality of internal heating elements, a ratio of an average width of the plurality of strands of aerosol-generating material to an average width of the plurality of internal heating elements may be as set out above. For example, a ratio of an average width of the plurality of strands of aerosol-generating material to an average width of the plurality of internal heating elements may be between 0.05 and 4, between 0.05 and 3, between 0.05 and 2, between 0.05 and 1.8, between 0.05 and 1.6, between 0.05 and 1.5, between 0.05 and 1.4, or between 0.05 and 1.3.

[0297] Where there are a plurality of internal heating elements, a ratio of an average width of the plurality of strands of aerosol-generating material to a width of each of the plurality of internal heating elements may be as set out above. For example, a ratio of an average width of the plurality of strands of aerosol-generating material to a width of each of the plurality of internal heating elements may be between 0.05 and 4.

[0298] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be at least 0.1, at least 0.2, at least 0.3, or at least 0.4,

[0299] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be less than or equal to 0.9, less than or equal to 0.8, less than or equal to 0.7, or less than or equal to 0.6.

[0300] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be between 0.1 and 0.9, between 0.1 and 0.8, between 0.1 and 0.7, or between 0.1 and 0.6.

[0301] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be between 0.2 and 0.9, between 0.2 and 0.8, between 0.2 and 0.7, or between 0.2 and 0.6.

[0302] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be between 0.3 and 0.9, between 0.3 and 0.8, between 0.3 and 0.7, or between 0.3 and 0.6.

[0303] A ratio of a width of the internal heating element to a width of the aerosol-generating section may be between 0.4 and 0.9, between 0.4 and 0.8, between 0.4 and 0.7, or between 0.4 and 0.6.

[0304] Where there are a plurality of internal heating elements, a ratio of a width of at least one of the plurality of internal heating elements to a width of the aerosol-generating article may be as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first width and one or more second internal heating elements located within the aerosol-generating substrate having a second width, wherein a ratio of at least one of the first width and the second width to a width of the aerosol-generating section is between 0.1 and 0.9.

[0305] Where there are a plurality of internal heating elements, a ratio of an average width of the plurality of internal heating elements to a width of the aerosol-generating article may be as set out above. For example, a ratio of an average width of the plurality of internal heating elements to a width of the aerosol-generating article may be between 0.1 and 0.9, between 0.1 and 0.8, between 0.1 and 0.7, or between 0.1 and 0.6.

[0306] Where there are a plurality of internal heating elements, a ratio of a width of each of the plurality of internal heating elements to a width of the aerosol-generating article may be as set out above. For example, a ratio of a width of each of the plurality of internal heating elements to a width of the aerosol-generating article may be between 0.1 and 0.9.

[0307] The internal heating element may be substantially cylindrical.

[0308] The internal heating element may be in the form of a pin.

[0309] The internal heating element may have a thickness substantially the same as the width thereof.

[0310] The internal heating element may have a substantially circular cross-section.

[0311] The internal heating element may have the form of a needle or pin.

[0312] The internal heating element may have a diameter of at least 0.5 millimetres, at least 1 millimetre, at least 1.5 millimetres, at least 2 millimetres, or at least 2.5 millimetres.

[0313] The internal heating element may have a diameter of less than or equal to 5 millimetres, less than or equal to 4.5 millimetres, less than or equal to 4 millimetres, less than or equal to 3.5 millimetres, or less than or equal to 3 millimetres.

[0314] The internal heating element may have a diameter of between 0.5 millimetres and 5 millimetres, between 0.5 millimetres and 4.5 millimetres, between 0.5 millimetres and 4 millimetres, between 0.5 millimetres and 3.5 millimetres, or between 0.5 millimetres and 3 millimetres.

[0315] The internal heating element may have a diameter of between 1 millimetre and 5 millimetres, between 1 millimetre and 4.5 millimetres, between 1 millimetre and 4 millimetres, between 1 millimetre and 3.5 millimetres, or between 1 millimetre and 3 millimetres.

[0316] The internal heating element may have a diameter of between 1.5 millimetres and 5 millimetres, between 1.5 millimetres and 4.5 millimetres, between 1.5 millimetres and 4 millimetres, between 1.5 millimetres and 3.5 millimetres, or between 1.5 millimetres and 3 millimetres.

[0317] The internal heating element may have a diameter of between 2 millimetres and 5 millimetres, between 2 millimetres and 4.5 millimetres, between 2 millimetres and 4 millimetres, between 2 millimetres and 3.5 millimetres, or between 2 millimetres and 3 millimetres.

[0318] The internal heating element may have a diameter of between 2.5 millimetres and 5 millimetres, between 2.5 millimetres and 4.5 millimetres, between 2.5 millimetres and 4 millimetres, between 2.5 millimetres and 3.5 millimetres, or between 2.5 millimetres and 3 millimetres.

[0319] For example, the internal heating element may have a diameter of 3 millimetres.

[0320] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of substantially the same diameter located within the aerosol-generating substrate.

[0321] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of different diameter located within the aerosol-generating substrate. For example, the aerosol-generating substrate may comprise one or more first internal heating elements having a first diameter located within the aerosol-generating substrate and one or more second internal heating elements having a second diameter located within the aerosol-generating substrate, wherein the first diameter is different to the second diameter.

[0322] The aerosol generating device may comprise a plurality of internal heating elements of substantially the same diameter for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0323] The aerosol generating device may comprise a plurality of internal heating elements of different diameter for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article. For example, the aerosol-generating device may comprise one or more first internal heating elements having a first diameter for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article and one or more second internal heating elements having a second diameter for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein the first diameter is different to the second diameter.

[0324] Where there are a plurality of internal heating elements, at least one of the plurality of internal heating elements may have a diameter in millimetres as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first diameter and one or more second internal heating elements located within the aerosol-generating substrate having a second diameter, wherein at least one of the first diameter and the second diameter is between 0.5 millimetres and 5 millimetres.

[0325] Where there are a plurality of internal heating elements, the plurality of internal heating elements may have an average diameter in millimetres as set out above. For example, the plurality of internal heating elements may have an average diameter of between 0.5 millimetres and 5 millimetres, between 0.5 millimetres and 4.5 millimetres, between 0.5 millimetres and 4 millimetres, between 0.5 millimetres and 3.5 millimetres, or between 0.5 millimetres and 3 millimetres.

[0326] The average diameter of the plurality of internal heating elements is equal to the sum of the individual diameters of each of the internal heating elements divided by the number of internal heating elements located within the aerosol-generating substrate.

[0327] Where there are a plurality of internal heating elements, each of the plurality of internal heating elements may have a diameter in millimetres as set out above. For example, each of the plurality of internal heating elements may have a diameter of between 0.5 millimetres and 5 millimetres.

[0328] The internal heating element may have a width greater than the thickness thereof.

[0329] The internal heating element may have a substantially rectangular cross-section.

[0330] The internal heating element may have the form of a blade or a strip.

[0331] The internal heating element may have a substantially constant cross-section along the length of the internal heating element.

[0332] The internal heating element may have a thickness of at least 0.01 millimetres, at least 0.02 millimetres, at least 0.03 millimetres, or at least 0.05 millimetres.

[0333] The internal heating element may have a thickness of less than or equal to 2 millimetres, less than or equal to 1 millimetre, less than or equal to 0.5 millimetres, or less than or equal to 0.1 millimetres.

[0334] The internal heating element may have a thickness of between 0.01 millimetres and 2 millimetres, between 0.01 millimetres and 1 millimetre, between 0.01 millimetres and 0.5 millimetres, or between 0.01 millimetres and 0.1 millimetres.

[0335] The internal heating element may have a thickness of between 0.02 millimetres and 2 millimetres, between 0.02 millimetres and 1 millimetre, between 0.02 millimetres and 0.5 millimetres, or between 0.02 millimetres and 0.1 millimetres.

[0336] The internal heating element may have a thickness of between 0.03 millimetres and 2 millimetres, between 0.03 millimetres and 1 millimetre, between 0.03 millimetres and 0.5 millimetres, or between 0.03 millimetres and 0.1 millimetres.

[0337] The internal heating element may have a thickness of between 0.05 millimetres and 2 millimetres, between 0.05 millimetres and 1 millimetre, between 0.05 millimetres and 0.5 millimetres, or between 0.05 millimetres and 0.1 millimetres.

[0338] The internal heating element may have a thickness of at least 55 micrometres, at least 56 micrometres, at least 57 micrometres, or at least 58 micrometres.

[0339] The internal heating element may have a thickness of less than or equal to 65 micrometres, less than or equal to 64 micrometres, less than or equal to 63 micrometres, or less than or equal to 62 micrometres.

[0340] The internal heating element may have a thickness of between 55 micrometres and 65 micrometres, between 55 micrometres and 64 micrometres, between 55 micrometres and 63 micrometres, or between 55 micrometres and 62 micrometres.

[0341] The internal heating element may have a thickness of between 56 micrometres and 65 micrometres, between 56 micrometres and 64 micrometres, between 56 micrometres and 63 micrometres, or between 56 micrometres and 62 micrometres.

[0342] The internal heating element may have a thickness of between 57 micrometres and 65 micrometres, between 57 micrometres and 64 micrometres, between 57 micrometres and 63 micrometres, or between 57 micrometres and 62 micrometres.

[0343] The internal heating element may have a thickness of between 58 micrometres and 65 micrometres, between 58 micrometres and 64 micrometres, between 58 micrometres and 63 micrometres, or between 58 micrometres and 62 micrometres.

[0344] For example, the internal heating element may have a thickness of 60 micrometres.

[0345] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of substantially the same thickness located within the aerosol-generating substrate.

[0346] The aerosol generating section of the aerosol-generating article may comprise a plurality of internal heating elements of different thickness located within the aerosol-generating substrate. For example, the aerosol-generating substrate may comprise one or more first internal heating elements having a first thickness located within the aerosol-generating substrate and one or more second internal heating elements having a second thickness located within the aerosol-generating substrate, wherein the first thickness is different to the second thickness.

[0347] The aerosol generating device may comprise a plurality of internal heating elements of substantially the same thickness for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0348] The aerosol generating device may comprise a plurality of internal heating elements of different thickness for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article. For example, the aerosol-generating device may comprise one or more first internal heating elements having a first thickness for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article and one or more second internal heating elements having a second thickness for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article, wherein the first thickness is different to the second thickness.

[0349] Where there are a plurality of internal heating elements, at least one of the plurality of internal heating elements may have a thickness in millimetres or micrometres as set out above. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first thickness and one or more second internal heating elements located within the aerosol-generating substrate having a second thickness, wherein at least one of the first thickness and the second thickness is between 0.01 millimetres and 2 millimetres. For example, the aerosol-generating substrate may comprise one or more first internal heating elements located within the aerosol-generating substrate having a first thickness and one or more second internal heating elements located within the aerosol-generating substrate having a second thickness, wherein at least one of the first thickness and the second thickness is between 55 micrometres and 65 micrometres.

[0350] Where there are a plurality of internal heating elements, the plurality of internal heating elements may have an average thickness in millimetres or micrometres as set out above. For example, the plurality of internal heating elements may have an average thickness of between 0.01 millimetres and 2 millimetres, between 0.01 millimetres and 1 millimetre, between 0.01 millimetres and 0.5 millimetres, or between 0.01 millimetres and 0.1 millimetres. For example, the plurality of internal heating elements may have an average thickness of between 55 micrometres and 65 micrometres, between 55 micrometres and 64 micrometres, between 55 micrometres and 63 micrometres, or between 55 micrometres and 62 micrometres.

[0351] The average thickness of the plurality of internal heating elements is equal to the sum of the individual

thicknesses of each of the internal heating elements divided by the number of internal heating elements.

[0352] Where there are a plurality of internal heating elements, each of the plurality of internal heating elements may have a thickness in millimetres or micrometres as set out above. For example, each of the plurality of internal heating elements may have a thickness of between 0.01 millimetres and 2 millimetres. For example, each of the plurality of internal heating elements may have a thickness of between 55 micrometres and 65 micrometres.

[0353] The internal heating element may be arranged substantially longitudinally within the aerosol-generating section. That is, a longitudinal axis of the internal heating element may be approximately parallel to a longitudinal axis of the aerosol-generating section. For example, a longitudinal axis of the internal heating element may be within plus or minus 10 degrees of parallel to a longitudinal axis of the aerosol-generating section.

[0354] The internal heating element may be arranged centrally within the aerosol-generating section. The internal heating element may extend along a longitudinal axis of the aerosol-generating section.

[0355] The internal heating element may extend from a downstream end of the aerosol-generating section towards an upstream end of the aerosol-generating section.

[0356] The susceptor element may extend from an upstream end of the aerosol-generating section towards a downstream end of the aerosol-generating section.

[0357] The susceptor element may extend from an upstream end of the aerosol-generating section to a downstream end of the aerosol-generating substrate. That is, the susceptor element may extend along the entire length of the aerosol-generating section.

[0358] The length of the internal heating element may be substantially the same as the length of the aerosol-generating section.

[0359] The internal heating element may extend part way along the length of the aerosol-generating section.

[0360] The internal heating element may be spaced apart from a downstream end of the aerosol-generating section.

[0361] The internal heating element may be spaced apart from an upstream end of the aerosol-generating section.

[0362] The internal heating element may be spaced apart from both a downstream end and an upstream end of the aerosol-generating section.

[0363] The length of the internal heating element may be less than the length of the aerosol-generating section.

[0364] The internal heating element may be entirely enclosed within the aerosol-generating substrate. That is, the aerosol-generating substrate may completely surround the internal heating element.

[0365] The internal heating element may be a susceptor element.

[0366] The susceptor element may comprise any susceptor material that can be inductively heated to a temperature sufficient to generate an aerosol from the aerosol-generating substrate. For example, the susceptor element may comprise a metal, an alloy, or carbon.

[0367] The susceptor element may comprise a ferromagnetic material. For example, the susceptor element may comprise a ferromagnetic alloy, ferritic iron, or a ferromagnetic steel or stainless steel. The susceptor element may comprise aluminium. The susceptor element may comprise 400 series stainless steels. For example, the susceptor element may comprise grade 410, or grade 420, or grade 430 stainless steel. Different susceptor materials will dissipate different amounts of energy when positioned within electromagnetic fields having similar values of frequency and field strength.

[0368] Thus, parameters of the susceptor element such as susceptor material type, length, width, and thickness may all be altered to provide a desired power dissipation within a known electromagnetic field. The susceptor element may be heated to a temperature in excess of 250 degrees Celsius.

[0369] The susceptor element may comprise a non-metallic core with a metal layer disposed on the non-metallic core. For example, the susceptor element may comprise metallic tracks formed on a surface of a ceramic core.

[0370] The susceptor element may comprise a protective outer layer. For example, the susceptor element may comprise a protective outer ceramic layer, a protective outer glass layer, or a protective outer inert metal layer.

[0371] The susceptor element may comprise a protective coating. For example, the susceptor element may comprise a protective coating formed by a glass, a ceramic, or an inert metal.

[0372] The susceptor element may be a multi-material susceptor element. For example, the susceptor element may comprise a first susceptor material and a second susceptor material.

[0373] The internal heating-element may be a resistive heating element.

[0374] The aerosol-generating article may comprise an upstream section located upstream of the aerosol-generating section.

[0375] The upstream section may be adjacent to the aerosol-generating section.

[0376] The upstream section may be located immediately upstream of the aerosol-generating section.

[0377] The upstream section may abut the aerosol-generating section.

[0378] The upstream section may be connected to the aerosol-generating section by means of a wrapper. The upstream section may be connected to the aerosol-generating section by means of a paper wrapper.

[0379] An upstream end of the aerosol-generating article may be defined by an upstream end of the upstream section.

[0380] The upstream section may provide an improved appearance to the upstream end of the aerosol-generating article.

[0381] The upstream section may have a length of at least 2 millimetres, at least 3 millimetres, or at least 4 millimetres.

[0382] The upstream section may have a length of less than or equal to 10 millimetres, less than or equal to 8 millimetres, or less than or equal to 6 millimetres.

[0383] The upstream section may have a length of between 2 millimetres and 10 millimetres, between 2 millimetres and 8 millimetres, or between 2 millimetres and 6 millimetres.

[0384] The upstream section may have a length of between 3 millimetres and 10 millimetres, between 3 millimetres and 8 millimetres, or between 3 millimetres and 6 millimetres.

[0385] The upstream section may have a length of between 4 millimetres and 10 millimetres, between 4 millimetres and 8 millimetres, or between 4 millimetres and 6 millimetres.

[0386] For example, the upstream element may have a length of 5 millimetres.

[0387] The length of the upstream section may advantageously be varied in order to provide a desired total length of the aerosol-generating article. For example, where it is desired to reduce the length of one of more other components of the aerosol-generating article, the length of the upstream section may be increased in order to maintain the same overall length of the aerosol-generating article.

[0388] The length of the upstream section may be used to control the position of the aerosol-generating article within a device cavity of an aerosol-generating device. This may advantageously ensure that the position of the aerosol-generating section of the aerosol-generating article within the cavity is optimised for heating of the aerosol-generating substrate. This may advantageously ensure that the position of any ventilation is optimised.

[0389] The upstream section may be substantially cylindrical.

[0390] The upstream section may have a substantially circular cross-section.

[0391] The upstream section may have an external diameter that is substantially the same as an external diameter of the aerosol-generating article.

[0392] The upstream section may have an external diameter of at least 5 millimetres, at least 6 millimetres, or at least 7 millimetres.

[0393] The upstream section may have an external diameter of less than or equal to 12 millimetres, less than or equal to 10 millimetres, or less than or equal to 8 millimetres.

[0394] The upstream section may have an external diameter of between 5 millimetres and 12 millimetres, between 5 millimetres and 10 millimetres, or between 5 millimetres and 8 millimetres.

[0395] The upstream section may have an external diameter of between 6 millimetres and 12 millimetres, between 6 millimetres and 10 millimetres, or between 6 millimetres and 8 millimetres.

[0396] The upstream section may have an external diameter of between 7 millimetres and 12 millimetres, between 7 millimetres and 10 millimetres, or between 7 millimetres and 8 millimetres.

[0397] For example, upstream section may have an external diameter of 7 millimetres or 7.1 millimetres.

[0398] The RTD of the upstream section may be at least 0 millimetres H_2O, at least 0.1 millimetres H_2O, at least 0.25 millimetres H_2O, or at least 0.5 millimetres H_2O.

[0399] The RTD of the upstream section may be less than or equal to 30 millimetres H_2O, less than or equal to 20 millimetres H_2O, less than or equal to 10 millimetres H_2O, less than or equal to 5 millimetres H_2O, or less than or equal to 2 millimetres H_2O.

[0400] The RTD of the upstream section may be between 0 millimetres H_2O and 30 millimetres H_2O, between 0 millimetres H_2O and 20 millimetres H_2O, between 0 millimetres H_2O and 10 millimetres H_2O, between 0 millimetres H_2O and 5 millimetres H_2O, or between 0 millimetres H_2O and 2 millimetres H_2O.

[0401] The RTD of the upstream section may be between 0.1 millimetres H_2O and 30 millimetres H_2O, between 0.1 millimetres H_2O and 20 millimetres H_2O, between 0.1 millimetres H_2O and 10 millimetres H_2O, between 0.1 millimetres H_2O and 5 millimetres H_2O, or between 0.1 millimetres H_2O and 2 millimetres H_2O.

[0402] The RTD of the upstream section may be between 0.25 millimetres H_2O and 30 millimetres H_2O, between 0.25 millimetres H_2O and 20 millimetres H_2O, between 0.25 millimetres H_2O and 10 millimetres H_2O, between 0.25 millimetres H_2O and 5 millimetres H_2O, or between 0.25 millimetres H_2O and 2 millimetres H_2O.

[0403] The RTD of the upstream section may be between 0.5 millimetres H_2O and 30 millimetres H_2O, between 0.5 millimetres H_2O and 20 millimetres H_2O, between 0.5 millimetres H_2O and 10 millimetres H_2O, between 0.5 millimetres H_2O and 5 millimetres H_2O, or between 0.5 millimetres H_2O and 2 millimetres H_2O.

[0404] The upstream section may have an RTD of less than or equal to 2 millimetres H_2O per millimetre of length, less than or equal to 1.5 millimetres H_2O per millimetre length, less than or equal to 1 millimetre H_2O per millimetre of length, less than or equal to 0.5 millimetres H_2O per millimetre of length, less than or equal to 0.3 millimetres H_2O per millimetre of length, or less than or equal to 0.2 millimetres H_2O per millimetre of length.

[0405] The combined RTD of the upstream section and the aerosol-generating section may be less than or equal to 30 millimetres H_2O, less than or equal to 20 millimetres H_2O, less than or equal to 15 millimetres H_2O, less than or equal to 12 millimetres H_2O, or less than or equal to 10 millimetres H_2O.

[0406] The upstream section may comprise an upstream element.

[0407] An upstream end of the aerosol-generating article may be defined by an upstream end of the upstream element.

[0408] A downstream end of the upstream element may abut the aerosol-generating section.

[0409] The upstream element may advantageously prevent direct physical contact with an upstream end of the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0410] Where the aerosol-generating section of the aerosol-generating article comprises an internal heating element located within the aerosol-generating substrate, the upstream element may prevent direct physical contact with an upstream end of internal heating element. This may advantageously help to prevent displacement or deformation of the internal heating element during storage, transportation, handling, and use of the aerosol-generating article.

[0411] The upstream element may advantageously help to prevent or reduce loss of strands of aerosol-generating material from the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article during storage, transportation, handling, and use of the aerosol-generating article.

[0412] The upstream element may facilitate insertion of the aerosol-generating article into a device cavity of an aerosol-generating device. The upstream element may protect the aerosol-generating section of the aerosol-generating article during the insertion of the aerosol-generating article into the device cavity such that the risk of damage to the aerosol-generating section is minimised.

[0413] The upstream element may be substantially cylindrical.

[0414] The upstream element may have a substantially circular cross-section.

[0415] The upstream element may have an external diameter that is substantially the same as an external diameter of the upstream section.

[0416] The upstream element may be a non-tubular upstream element.

[0417] The upstream element may be a porous non-tubular upstream element.

[0418] The upstream element may have a porosity of at least 50 percent in the longitudinal direction of the aerosol-generating article.

[0419] The porosity of the upstream element in the longitudinal direction is defined by the ratio of the cross-sectional area of material forming the upstream element to the internal cross-sectional area of the aerosol-generating article at a position along the upstream element.

[0420] The upstream element may have a porosity of less than or equal to 90 percent in the longitudinal direction of the aerosol-generating article.

[0421] The upstream element may have a porosity of between 50 percent and 90 percent in the longitudinal direction of the aerosol-generating article.

[0422] The porosity of the upstream element may advantageously be designed to provide an aerosol-generating article with a desired overall RTD without substantially impacting the filtration provided by other portions of the article.

[0423] The upstream element may be formed of a porous material.

[0424] The upstream element may comprise a plurality of openings. For example, the upstream element may comprise a plurality of openings formed through laser perforation. The plurality of openings may be substantially homogeneously distributed over the cross-section of the upstream element.

[0425] The upstream element may be a hollow tubular upstream element.

[0426] The hollow tubular upstream element may not substantially contribute to the overall

[0427] RTD of the aerosol-generating article.

[0428] The hollow tubular upstream element may define a lumen having a diameter of at least 3 millimetres, at least 3.5 millimetres, at least 4 millimetres, or at least 4.5 millimetres.

[0429] The diameter of the lumen of the hollow tubular upstream element may be maximised in order to minimise the RTD of the upstream section.

[0430] The hollow tubular upstream element may have a peripheral wall having a thickness of less than or equal to 2 millimetres, less than or equal to 1.5 millimetres or less than or equal to 1 millimetre.

[0431] The upstream element may be made of any suitable material or combination of materials for use in an aerosol-generating article.

[0432] Examples of suitable materials include: ceramic materials; polymeric materials; paper materials; and combinations thereof.

[0433] The upstream element may be a non-tubular segment of cellulose acetate tow.

[0434] The upstream element may be a hollow cellulose acetate tube.

[0435] The upstream element may be a hollow cardboard tube.

[0436] The upstream element may be formed of a heat resistant material. For example, the upstream element may be formed of a material that resists temperatures of up to 350 degrees Celsius. This may advantageously ensure that the upstream element is not adversely affected by the internal heating element for heating the aerosol-generating substrate.

[0437] The upstream element may be circumscribed by a wrapper. The upstream element may be circumscribed by a paper wrapper. For example, the upstream element may be circumscribed by a plug wrap.

[0438] The aerosol-generating article may comprise a downstream section located downstream of the aerosol-generating section.

[0439] The downstream section may be adjacent to the aerosol-generating section.

[0440] The downstream section may be located immediately upstream of the aerosol-generating section.

[0441] The downstream section may abut the aerosol-generating section.

[0442] The downstream section may be connected to the aerosol-generating section by means of a wrapper. The downstream section may be connected to the aerosol-generating section by means of a paper wrapper.

[0443] A downstream end of the aerosol-generating article may be defined by a downstream end of the downstream section.

[0444] The length of the downstream section may be at least 15 millimetres, at least 20 millimetres, at least 25 millimetres, or at least 30 millimetres.

[0445] The length of the downstream section may be less than or equal to 50 millimetres, less than or equal to 45 millimetres, less than 40 millimetres, or less than 35 millimetres.

[0446] The length of the downstream section may be between 15 millimetres and 50 millimetres, between 15 millimetres and 45 millimetres, between 15 millimetres and 40 millimetres, or between 15 millimetres and 35 millimetres.

[0447] The length of the downstream section may be between 20 millimetres and 50 millimetres, between 20 millimetres and 45 millimetres, between 20 millimetres and 40 millimetres, or between 20 millimetres and 35 millimetres.

[0448] The length of the downstream section may be between 25 millimetres and 50 millimetres, between 25 millimetres and 45 millimetres, between 25 millimetres and 40 millimetres, or between 25 millimetres and 35 millimetres.

[0449] The length of the downstream section may be between 30 millimetres and 50 millimetres, between 30 millimetres and 45 millimetres, between 30 millimetres and 40 millimetres, or between 30 millimetres and 35 millimetres.

[0450] Provision of a relatively long downstream section may ensure that a suitable length of the aerosol-generating article protrudes from a device cavity of an aerosol-generating device when the aerosol-generating article is received therein. This may advantageously facilitate insertion and extraction of the aerosol-generating article from the device cavity of the aerosol-generating device. This may advantageously reduce the risk of damage to the aerosol-generating article during insertion and removal.

[0451] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be at least 0.50, at least 0.55, at least 0.60, or at least 0.65.

[0452] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be less than or equal to 0.85, less than or equal to 0.80, less than or equal to 0.75, or less than or equal to 0.70.

[0453] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be between 0.50 and 0.85, between 0.50 and 0.80, between 0.50 and 0.75, or between 0.50 and 0.70.

[0454] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be between 0.55 and 0.85, between 0.55 and 0.80, between 0.55 and 0.75, or between 0.55 and 0.70.

[0455] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be between 0.60 and 0.85, between 0.60 and 0.80, between 0.60 and 0.75, or between 0.60 and 0.70.

[0456] A ratio of a length of the downstream section to a total length of the aerosol-generating article may be between 0.65 and 0.85, between 0.65 and 0.80, between 0.65 and 0.75, or between 0.65 and 0.70.

[0457] A ratio of a length of the downstream section to a length of the upstream section may be at least 4, at least 5, at least 6, or at least 7.

[0458] A ratio of a length of the downstream section to a length of the upstream section may be less than or equal to 25, less than or equal to 20, less than or equal to 15, or less than or equal to 10.

[0459] A ratio of a length of the downstream section to a length of the upstream section may be between 4 and 25, between 4 and 20, between 4 and 15, or between 4 and 10.

[0460] A ratio of a length of the downstream section to a length of the upstream section may be between 5 and 25, between 5 and 20, between 5 and 15, or between 5 and 10.

[0461] A ratio of a length of the downstream section to a length of the upstream section may be between 6 and 25, between 6 and 20, between 6 and 15, or between 6 and 10.

[0462] A ratio of a length of the downstream section to a length of the upstream section may be between 7 and 25, between 7 and 20, between 7 and 15, or between 7 and 10.

[0463] A ratio of a length of the downstream section to a length of the aerosol-generating section may be at least 1.0, at least 1.25, at least 1.5, or at least 1.75.

[0464] A ratio of a length of the downstream section to a length of the aerosol-generating section may be less than or equal to 3.5, less than or equal to 3.25, less than or equal to 3.0, or less than or equal to 2.75.

[0465] A ratio of a length of the downstream section to a length of the aerosol-generating section may be between 1.0 and 3.5, between 1.0 and 3.25, between 1.0 and 3.0, or between 1.0 and 2.75.

[0466] A ratio of a length of the downstream section to a length of the aerosol-generating section may be between 1.25 and 3.5, between 1.25 and 3.25, between 1.25 and 3.0, or between 1.25 and 2.75.

[0467] A ratio of a length of the downstream section to a length of the aerosol-generating section may be between 1.5 and 3.5, between 1.5 and 3.25, between 1.5 and 3.0, or between 1.5 and 2.75.

[0468] A ratio of a length of the downstream section to a length of the aerosol-generating section may be between 1.75 and 3.5, between 1.75 and 3.25, between 1.75 and 3.0, or between 1.75 and 2.75.

[0469] The downstream section may be substantially cylindrical.

[0470] The downstream section may have a substantially circular cross-section.

[0471] The downstream section may have an external diameter that is substantially the same as an external diameter of the aerosol-generating article.

[0472] The downstream section may have an external diameter of at least 5 millimetres, at least 6 millimetres, or at least 7 millimetres.

[0473] The downstream section may have an external diameter of less than or equal to 12 millimetres, less than or equal to 10 millimetres, or less than or equal to 8 millimetres.

[0474] The downstream section may have an external diameter of between 5 millimetres and 12 millimetres, between 5 millimetres and 10 millimetres, or between 5 millimetres and 8 millimetres.

[0475] The downstream section may have an external diameter of between 6 millimetres and 12 millimetres, between 6 millimetres and 10 millimetres, or between 6 millimetres and 8 millimetres.

[0476] The downstream section may have an external diameter of between 7 millimetres and 12 millimetres, between 7 millimetres and 10 millimetres, or between 7 millimetres and 8 millimetres.

[0477] For example, downstream section may have an external diameter of 7 millimetres or 7.1 millimetres.

[0478] The RTD of the downstream section may be at least 0 millimetres H_2O, at least 3 millimetres H_2O, or at least 6 millimetres H_2O.

[0479] The RTD of the downstream section may be less than or equal to 12 millimetres H_2O, less than or equal to 11 millimetres H_2O, or equal to 10 millimetres H_2O.

[0480] The RTD of the downstream section may be between 0 millimetres H_2O and 12 millimetres H_2O, between 0 millimetres H_2O and 11 millimetres H_2O, or between 0 millimetres H_2O and 10 millimetres H_2O.

[0481] The RTD of the downstream section may be between 3 millimetres H_2O and 12 millimetres H_2O, between 3 millimetres H_2O and 11 millimetres H_2O, or between 3 millimetres H_2O and 10 millimetres H_2O.

[0482] The RTD of the downstream section may be between 6 millimetres H_2O and 12 millimetres H_2O, between 6 millimetres H_2O and 11 millimetres H_2O, or between 6 millimetres H_2O and 10 millimetres H_2O.

[0483] For example, the RTD of the downstream section may be 8 millimetres H_2O.

[0484] The downstream section may comprise a support element.

[0485] The support element may define an upstream end of the downstream section of the aerosol-generating article.

[0486] An upstream end of the support element may abut the aerosol-generating section.

[0487] The support element may have a length of at least 8 millimetres, at least 10 millimetres, or at least 15 millimetres.

[0488] The support element may have a length of less than or equal to 30 millimetres, less than or equal to 25 millimetres, or less than or equal to 22 millimetres.

[0489] The support element may have a length of between 8 millimetres and 30 millimetres, between 8 millimetres and 25 millimetres, or between 8 millimetres and 22 millimetres.

[0490] The support element may have a length of between 10 millimetres and 30 millimetres, between 10 millimetres and 25 millimetres, or between 10 millimetres and 22 millimetres.

[0491] The support element may have a length of between 15 millimetres and 30 millimetres, between 15 millimetres and 25 millimetres, or between 15 millimetres and 22 millimetres.

[0492] For example, the support element may have a length of 21 millimetres.

[0493] The support element may be substantially cylindrical.

[0494] The support element may have a substantially circular cross-section.

[0495] The support element may have an external diameter that is substantially the same as an external diameter of the downstream section.

[0496] The support element may be a hollow tubular support element.

[0497] The support element may define a downstream end of the downstream section of the aerosol-generating article.

[0498] The support element may extend to a downstream end of the aerosol-generating article.

[0499] A downstream end of the support element may define a downstream end of the aerosol-generating article.

[0500] The downstream section may comprise one or more additional elements located downstream of the support element.

[0501] The downstream section may comprise a mouthpiece element located downstream of the support element.

[0502] The mouthpiece element may be located directly downstream of the support element.

[0503] An upstream end of the mouthpiece element may abut the support element.

[0504] The downstream section may comprise one or more additional elements located between the support element and the mouthpiece element.

[0505] The mouthpiece element may define a downstream end of the downstream section of the aerosol-generating article.

[0506] The mouthpiece element may extend to a downstream end of the aerosol-generating article.

[0507] A downstream end of the mouthpiece element may define a downstream end of the aerosol-generating article.

[0508] The length of the mouthpiece element may be at least 5 millimetres, at least 6 millimetres, or at least 7 millimetres.

[0509] The length of the mouthpiece element may less than or equal to 15 millimetres, less than or equal 12 millimetres, or less than or equal 10 millimetres.

[0510] The length of the mouthpiece element may be between 5 millimetres and 15 millimetres, between 5 millimetres and 12 millimetres, or between 5 millimetres and 10 millimetres.

[0511] The length of the mouthpiece element may be between 6 millimetres and 15 millimetres, between 6 millimetres and 12 millimetres, or between 6 millimetres and 10 millimetres.

[0512] The length of the mouthpiece element may be between 8 millimetres and 15 millimetres, between 8 millimetres and 12 millimetres, or between 8 millimetres and 10 millimetres.

[0513] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be at least 0.05, at least 0.07, at least 0.10, or at least 0.15.

[0514] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be less than or equal to 0.40, less than or equal to 0.30, less than or equal to 0.25, or less than or equal to 0.20.

[0515] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be between 0.05 and 0.40, between 0.05 and 0.30, between 0.05 and 0.25, or between 0.05 and 0.20.

[0516] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be between 0.07 and 0.40, between 0.07 and 0.30, between 0.07 and 0.25, or between 0.07 and 0.20.

[0517] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be between 0.10 and 0.40, between 0.10 and 0.30, between 0.10 and 0.25, or between 0.10 and 0.20.

[0518] A ratio of a length of the mouthpiece element to a total length of the aerosol-generating article may be between 0.15 and 0.40, between 0.15 and 0.30, between 0.15 and 0.25, or between 0.15 and 0.20.

[0519] For example, of a length of the mouthpiece element to a total length of the aerosol-generating article may be 0.16.

[0520] A ratio of a length of the mouthpiece element to a length of the downstream section may be at least 0.05, at least 0.10, at least 0.15, or at least 0.20.

[0521] A ratio of a length of the mouthpiece element to a length of the downstream section may be less than or equal to 0.55, less than or equal to 0.45, less than or equal to 0.35, or less than or equal to 0.25.

[0522] A ratio of a length of the mouthpiece element to a length of the downstream section may be between 0.05 and 0.55, between 0.05 and 0.45, between 0.05 and 0.35, or between 0.05 and 0.25.

[0523] A ratio of a length of the mouthpiece element to a length of the downstream section may be between 0.10 and 0.55, between 0.10 and 0.45, between 0.10 and 0.35, or between 0.10 and 0.25.

[0524] A ratio of a length of the mouthpiece element to a length of the downstream section may be between 0.15 and 0.55, between 0.15 and 0.45, between 0.15 and 0.35, or between 0.15 and 0.25.

[0525] A ratio of a length of the mouthpiece element to a length of the downstream section may be between 0.20 and 0.55, between 0.20 and 0.45, between 0.20 and 0.35, or between 0.20 and 0.25.

[0526] For example, a ratio of a length of the mouthpiece element to a length of the downstream section may be 0.25.

[0527] A ratio of a length of the support element to a length of the mouthpiece element may be at least 1.25, at least 1.5, or at least 2.

[0528] A ratio of a length of the support element to a length of the mouthpiece element may be less than or equal to 6, less than or equal to 5, or less than or equal to 4.

[0529] A ratio of a length of the support element to a length of the mouthpiece element may be between 1.25 and 6, between 1.25 and 5, or between 1.25 and 4.

[0530] A ratio of a length of the support element to a length of the mouthpiece element may be between 1.5 and 6, between 1.5 and 5, or between 1.5 and 4.

[0531] A ratio of a length of the support element to a length of the mouthpiece element may be between 2 and 6, between 2 and 5, or between 2 and 4.

[0532] For example, a ratio of a length of the support element to a length of the mouthpiece element may be 3.

[0533] The RTD characteristics of the downstream section may be wholly or mostly attributed to the RTD characteristics of the mouthpiece element of the downstream section. In other words, the RTD of the mouthpiece element of the downstream section may wholly or mostly define the mouthpiece element of the downstream section.

[0534] The RTD of the mouthpiece element may be at least 0 millimetres H_2O, at least 3 millimetres H_2O, or at least 6 millimetres H_2O.

[0535] The RTD of the mouthpiece element may be less than or equal to 12 millimetres H_2O, less than or equal to 11 millimetres H_2O, or equal to 10 millimetres H_2O.

[0536] The RTD of the mouthpiece element may be between 0 millimetres H_2O and 12 millimetres H_2O, between 0 millimetres H_2O and 11 millimetres H_2O, or between 0 millimetres H_2O and 10 millimetres H_2O.

[0537] The RTD of the mouthpiece element may be between 3 millimetres H_2O and 12 millimetres H_2O, between 3 millimetres H_2O and 11 millimetres H_2O, or between 3 millimetres H_2O and 10 millimetres H_2O.

[0538] The RTD of the mouthpiece element may be between 6 millimetres H_2O and 12 millimetres H_2O, between 6 millimetres H_2O and 11 millimetres H_2O, or between 6 millimetres H_2O and 10 millimetres H_2O.

[0539] For example, the RTD of the mouthpiece element may be 8 millimetres H_2O.

[0540] The mouthpiece element may be substantially cylindrical.

[0541] The mouthpiece element may have a substantially circular cross-section.

[0542] The mouthpiece element may have an external diameter that is substantially the same as an external diameter of the downstream section.

[0543] The mouthpiece element may have an external diameter that is substantially the same as an external diameter of the support element.

[0544] The mouthpiece element may be a non-tubular element.

[0545] The mouthpiece element may be a porous non-tubular element.

[0546] The mouthpiece element may be hollow tubular mouthpiece element.

[0547] The mouthpiece element may be a filter element.

[0548] The filter element may have a low particulate filtration efficiency.

[0549] The filter element may be formed of a biodegradable material.

[0550] The filter element may be formed of a fibrous filtration material.

[0551] The filter element may be formed of a cellulose material. For example, the filter element may be formed of cellulose acetate tow.

[0552] The filter element may be a non-tubular segment of cellulose acetate tow.

[0553] The filter element may be formed of a polylactic acid-based material.

[0554] The filter element may be formed of a bioplastic material. The filter element may be formed of a starch-based bioplastic material.

[0555] The mouthpiece element may comprise a flavourant. For example, the mouthpiece element may comprise one or more capsules, beads or granules of a flavourant, or one or more flavour loaded threads or filaments.

[0556] The mouthpiece element may be circumscribed by wrapper. The mouthpiece element may be circumscribed by a paper wrapper. For example, the mouthpiece element may be circumscribed by a plug wrap.

[0557] The mouthpiece element may be unventilated such that air does not enter the aerosol-generating article along the mouthpiece element.

[0558] The mouthpiece element may be connected to one or more of the upstream components of the aerosol-generating article by means of a tipping wrapper.

[0559] The downstream section may comprise a mouth end cavity.

[0560] The mouth end cavity may be located at a downstream end of the downstream section.

[0561] A downstream end of the mouth end cavity may define a downstream end of the aerosol-generating article.

[0562] The mouth end cavity may be located downstream of the filter element, where present.

[0563] The mouth end cavity may be defined by a hollow tubular mouth end element.

[0564] The mouth end cavity may be defined by a wrapper circumscribing one or more adjacent upstream components of the aerosol-generating article, wherein the wrapper extends in a downstream direction from the one or more adjacent upstream components.

[0565] The aerosol-generating article may comprise a ventilation zone at a location along the downstream section.

[0566] The aerosol-generating article may comprise a ventilation zone at a location along the support element of the downstream section.

[0567] Where the support element is a hollow tubular support element, the ventilation zone may extend through a peripheral wall of the hollow tubular support element. As such, fluid communication may be established between the lumen defined by the hollow tubular support element and the outer environment. As such, a ventilated cavity may be provided downstream of the aerosol-generating substrate. This may provide several technical benefits.

[0568] Firstly, it has been found that such a ventilated hollow tubular element provides a particularly efficient cooling of the aerosol. Thus, a satisfactory cooling of the aerosol may be achieved even by means of a relatively short downstream section. This is especially desirable as it enables the provision of an aerosol-generating article wherein an aerosol-generating substrate is heated rather than combusted that combines a satisfactory aerosol delivery with an efficient cooling of the aerosol down to temperatures that are desirable for the user.

[0569] Secondly, it is has been surprisingly found that such rapid cooling of the volatile species released upon heating the aerosol-generating substrate promotes enhances nucleation of aerosol particles. This effect is felt particularly when the ventilation zone is arranged at a precisely defined location along the length of the hollow tubular element relative to other components of the aerosol-generating article. In effect, it has been found that the favourable effect of the enhanced nucleation is capable of significantly countering potentially less desirable effects of the dilution induced by the introduction of ventilation air.

[0570] A distance between the ventilation zone and an upstream end of the aerosol-generating article may be at least 25 millimetres, at least 26 millimetres, or at least 27 millimetres.

[0571] As used herein, the term "distance between the ventilation zone and another element or component of the aerosol-generating article" describes a distance measured in the longitudinal direction. That is, a distance measured in a direction extending along, or parallel to, the longitudinal axis of the aerosol-generating article.

[0572] A distance between the ventilation zone and an upstream end of the aerosol-generating article may be less than or equal to 40 millimetres, less than or equal to 37 millimetres, or less than or equal to 34 millimetres.

[0573] A distance between the ventilation zone and an upstream end of the aerosol-generating article may be between 25 millimetres and 40 millimetres, between 25 millimetres and 37 millimetres, or between 25 millimetres and 34 millimetres.

[0574] A distance between the ventilation zone and an upstream end of the aerosol-generating article may be between 26 millimetres and 40 millimetres, between 26 millimetres and 37 millimetres, or between 26 millimetres and 34 millimetres.

[0575] A distance between the ventilation zone and an upstream end of the aerosol-generating article may be between 27 millimetres and 40 millimetres, between 27 millimetres and 37 millimetres, or between 27 millimetres and 34 millimetres.

[0576] Aerosol-generating articles comprising a ventilation zone at a location along the hollow tubular element at a distance from an upstream end of the aerosol-generating article falling within the ranges described above have been found to present multiple benefits.

[0577] Firstly, such aerosol-generating articles have been observed to provide particularly satisfactory aerosol deliveries to the user, particularly where the aerosol-generating substrate comprises tobacco and an aerosol former.

[0578] Without wishing to be bound by theory, the intense cooling caused by the ambient air drawn into the cavity of the hollow tubular element at the ventilation zone is understood to accelerate the condensation of droplets of aerosol former released from the aerosol-generating substrate upon heating. In turn, volatilised nicotine and organic acids released from the tobacco accumulate onto the newly formed droplets of aerosol former, and subsequently combine into nicotine salts. Accordingly, the overall proportion of the aerosol particulate phase to the aerosol gas phase may be enhanced compared with existing aerosol-generating articles.

[0579] Positioning the ventilation zone at a distance from an upstream end of the aerosol-generating article as described above advantageously reduces the fly time of the volatilised nicotine before the volatilised nicotine particles reach the droplets of aerosol former. At the same time, such positioning of the ventilation zone relative to an upstream end of the aerosol-generating article ensures there are enough time and room for the accumulation of nicotine and formation of nicotine salts to occur in a significant proportion before the flow of aerosol reaches the user's mouth.

[0580] The ventilation zone may typically comprise a plurality of perforations extending through the peripheral wall of the hollow tubular element. The ventilation zone may comprise at least one circumferential row of perforations. The ventilation zone may comprise two circumferential rows of perforations. For example, the perforations may be formed online during manufacturing of the aerosol-generating article. Each circumferential row of perforations may comprise from 8 to 30 perforations.

[0581] The aerosol-generating article may have a ventilation level of at least 2 percent, at least 5 percent, at least 10 percent, at least 12 percent or at least 15 percent, at least 20 percent, at least 30 percent, or at least 40 percent.

[0582] An aerosol-generating article may have a ventilation level of less than or equal to 90 percent, less than or equal to 80 percent, less than or equal to 70 percent, less than or equal to 60 percent, or less than or equal to 50 percent.

[0583] The aerosol-generating article may have a ventilation level between 2 percent and 90 percent, between 2 percent and 80 percent, between 2 percent and 70 percent, between 2 percent and 60 percent, or between 2 percent and 50 percent.

[0584] The aerosol-generating article may have a ventilation level between 5 percent and 90 percent, between 5 percent and 80 percent, between 5 percent and 70 percent, between 5 percent and 60 percent, or between 5 percent and 50 percent.

[0585] The aerosol-generating article may have a ventilation level between 10 percent and 90 percent, between 10 percent and 80 percent, between 10 percent and 70 percent, between 10 percent and 60 percent, or between 10 percent and 50 percent.

[0586] The aerosol-generating article may have a ventilation level between 12 percent and 90 percent, between 12 percent and 80 percent, between 12 percent and 70 percent, between 12 percent and 60 percent, or between 12 percent and 50 percent.

[0587] The aerosol-generating article may have a ventilation level between 15 percent and 90 percent, between 15 percent and 80 percent, between 15 percent and 70 percent, between 15 percent and 60 percent, or between 15 percent and 50 percent.

[0588] The aerosol-generating article may have a ventilation level between 20 percent and 90 percent, between 20 percent and 80 percent, between 20 percent and 70 percent, between 20 percent and 60 percent, or between 20 percent and 50 percent.

[0589] The aerosol-generating article may have a ventilation level between 30 percent and 90 percent, between 30 percent and 80 percent, between 30 percent and 70 percent, between 30 percent and 60 percent, or between 30 percent and 50 percent.

[0590] The aerosol-generating article may have a ventilation level between 40 percent and 90 percent, between 40 percent and 80 percent, between 40 percent and 70 percent, between 40 percent and 60 percent, or between 40 percent and 50 percent.

[0591] Without wishing to be bound by theory, it has been found that the temperature drop caused by the admission of cooler, external air into the hollow tubular element via the ventilation zone may have an advantageous effect on the nucleation and growth of aerosol particles.

[0592] The rapid cooling induced by the admission of external air into the hollow tubular element via the ventilation zone can be favourably used to favour nucleation and growth of aerosol droplets. However, at the same time, the admission of external air into the hollow tubular element has the immediate drawback of diluting the aerosol stream delivered to the user.

[0593] It has surprisingly been found that the favourable effect of enhanced nucleation promoted by the rapid cooling

induced by the introduction of ventilation air into the article is capable of significantly countering the less desirable effects of dilution.

[0594] It has been surprisingly found that the diluting effect on the aerosol—which can be assessed by measuring, in particular, the effect on the delivery of aerosol former included in the aerosol-generating substrate—is advantageously minimised when the ventilation level is within the ranges described above.

[0595] The ventilated hollow tubular element substantially does not contribute to the overall RTD of the aerosol-generating article. Therefore, the overall RTD of the aerosol-generating article can advantageously be fine-tuned by adjusting the length and density of the aerosol-generating substrate, or the length and density of one or more elements of a downstream section of the aerosol-generating article, such as for example a filter element, or the length and density of one or more elements of an upstream section of the aerosol-generating article. Thus, aerosol-generating articles that have a predetermined RTD can be manufactured consistently and with great precision, such that satisfactory levels of RTD can be provided for the user even in the presence of ventilation.

[0596] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be at least 4 millimetres, at least 6 millimetres, at least 8 millimetres, at least 9 millimetres, at least 10 millimetres, or at least 11 millimetres.

[0597] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be less than or equal to 21 millimetres, less than or equal to 19 millimetres, less than or equal to 17 millimetres, or less than or equal to 15 millimetres.

[0598] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 4 millimetres and 21 millimetres, between 4 millimetres and 19 millimetres, between 4 millimetres and 17 millimetres, or between 4 millimetres and 15 millimetres.

[0599] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 6 millimetres and 21 millimetres, between 6 millimetres and 19 millimetres, between 6 millimetres and 17 millimetres, or between 6 millimetres and 15 millimetres.

[0600] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 8 millimetres and 21 millimetres, between 8 millimetres and 19 millimetres, between 8 millimetres and 17 millimetres, or between 8 millimetres and 15 millimetres.

[0601] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 9 millimetres and 21 millimetres, between 9 millimetres and 19 millimetres, between 9 millimetres and 17 millimetres, or between 9 millimetres and 15 millimetres.

[0602] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 10 millimetres and 21 millimetres, between 10 millimetres and 19 millimetres, between 10 millimetres and 17 millimetres, or between 10 millimetres and 15 millimetres.

[0603] A distance between the ventilation zone and a downstream end of the aerosol-generating substrate may be between 11 millimetres and 21 millimetres, between 11 millimetres and 19 millimetres, between 11 millimetres and 17 millimetres, or between 11 millimetres and 15 millimetres.

[0604] It has been found that positioning the ventilation zone at a distance from a downstream end of the aerosol-generating substrate within the ranges described above may advantageously enhance nucleation and aerosol formation and delivery.

[0605] Positioning the ventilation zone at a distance from a downstream end of the aerosol-generating substrate within the ranges described above may advantageously ensure that, when the aerosol-generating article is partially received within a device cavity of an aerosol-generating device, the ventilation zone is just outside of the aerosol-generating device while reducing the risk of the ventilation zone being inadvertently obstructed by a user's lips or hands.

[0606] A distance between the ventilation zone and a downstream end of the hollow tubular element may be at least 3 millimetres, at least 5 millimetres, or at least 7 millimetres.

[0607] A distance between the ventilation zone and a downstream end of the hollow tubular element may be less than or equal to 14 millimetres, less than or equal to 12 millimetres, or less than or equal to 10 millimetres.

[0608] A distance between the ventilation zone and a downstream end of the hollow tubular element may be from 3 millimetres to 14 millimetres, from 5 millimetres to 14 millimetres, or from 7 millimetres to 14 millimetres. A distance between the ventilation zone and a downstream end of the hollow tubular element may be from 3 millimetres to 12 millimetres, from 5 millimetres to 12 millimetres, or from 7 millimetres to 12 millimetres. A distance between the ventilation zone and a downstream end of the hollow tubular element may be from 3 millimetres to 10 millimetres, from 5 millimetres to 10 millimetres, or from 7 millimetres to 10 millimetres.

[0609] A distance between the ventilation zone and a downstream end of the aerosol-generating article may be at least 10 millimetres, at least 12 millimetres, or at least 15 millimetres.

[0610] A distance between the ventilation zone and a downstream end of the aerosol-generating article may be less than or equal to 21 millimetres, less than or equal to 19 millimetres, or less than or equal to 17 millimetres.

[0611] A distance between the ventilation zone and a downstream end of the aerosol-generating article may be from 10 millimetres to 21 millimetres, from 12 millimetres to 21 millimetres, or from 15 millimetres to 21 millimetres. A distance between the ventilation zone and a downstream end of the aerosol-generating article may be from 10 millimetres to 19 millimetres, from 12 millimetres to 19 millimetres, or from 15 millimetres to 19 millimetres. A distance between the ventilation zone and a downstream end of the aerosol-generating article may be from 10 millimetres to 17 millimetres, from 12 millimetres to 17 millimetres, or from 15 millimetres to 17 millimetres.

[0612] Positioning the ventilation zone at a distance from a downstream end of the aerosol-generating article within the ranges described above may have the benefit of generally ensuring that, when the aerosol-generating article is partially received within a device cavity of an aerosol-generating device, a portion of the aerosol-generating article extending outside of the aerosol-generating device is long enough for a user to comfortably hold the aerosol-generating article

between their lips while reducing the risk of the ventilation zone being inadvertently obstructed by a user's lips or hands. At the same time, evidence suggests that if a length of the portion of the aerosol-generating article extending outside of the aerosol-generating device were greater, it may become easy to inadvertently and undesirably bend the aerosol-generating article, and this may impair aerosol delivery or in general the intended use of the aerosol-generating article.

[0613] As discussed above, the support element of the downstream section of the aerosol-generating article may be a hollow tubular support element. Such a hollow tubular element may be referred to as a downstream hollow tubular element or a hollow tubular downstream element. The downstream section may comprise a single hollow tubular element in accordance with the present disclosure. In other words, the downstream section of the aerosol-generating article may comprise only one hollow tubular element.

[0614] As discussed above, the upstream element of the upstream section of the aerosol-generating article may be a hollow tubular upstream element. Such a hollow tubular element may be referred to as an upstream hollow tubular element or a hollow tubular upstream element. The upstream section may comprise a single hollow tubular element in accordance with the present disclosure. In other words, the upstream section of the aerosol-generating article may comprise only one hollow tubular element.

[0615] The hollow tubular downstream element may abut a downstream end of the aerosol-generating section. The upstream end of the hollow tubular downstream element may abut a downstream end of the aerosol-generating section. The downstream end of the hollow tubular downstream element may define the downstream end of the aerosol-generating article.

[0616] The hollow tubular upstream element may abut an upstream end of the aerosol-generating section. The downstream end of the hollow tubular upstream element may abut an upstream end of the aerosol-generating section. The upstream end of the hollow tubular upstream element may define the upstream end of the aerosol-generating article.

[0617] The upstream section, or the downstream section, or both the upstream section and the downstream section may comprise a hollow tubular element. Unless stated otherwise, general reference to a "hollow tubular element" may refer both to a hollow tubular element of the upstream section and to a hollow tubular element of the downstream section.

[0618] A hollow tubular element may be an individual, discrete element of the aerosol-generating article which has a defined length and thickness. The lumen or cavity of a hollow tubular element may have an area as measured perpendicular to the longitudinal direction of the hollow tubular element.

[0619] A hollow tubular element may comprise an end wall defining either the downstream end or the upstream end of the hollow tubular element. A hollow tubular element may comprise an end wall portion defining either the downstream end or the upstream end of the hollow tubular element. A hollow tubular element may comprise an upstream end wall portion defining the upstream end of the hollow tubular element. A hollow tubular element may comprise a downstream end wall portion defining the downstream end of the hollow tubular element.

[0620] A hollow tubular element may comprise an opening at an end of the hollow tubular element. The opening provides fluid communication into the cavity of the hollow tubular element from the exterior of the hollow tubular element. A hollow tubular element may comprise an opening at an end wall or end wall portion of the hollow tubular element. A hollow tubular element may comprise an upstream opening at the upstream end of the hollow tubular element. A hollow tubular element may comprise a downstream opening at the downstream end wall of the hollow tubular element. In other words, the opening may be defined through the downstream end wall of the hollow tubular element. A hollow tubular element may comprise an upstream opening at the upstream end wall of the hollow tubular element. In other words, the opening may be defined through the upstream end wall of the hollow tubular element. An opening at the end of the hollow tubular element may denote an entrance or access to the cavity, which is defined between the upstream and downstream ends of the hollow tubular element.

[0621] An end of the hollow tubular element may be flanged. A hollow tubular element may comprise a flanged end portion defining either the downstream end or the upstream end of the hollow tubular element. A hollow tubular element may comprise a flanged end portion defining the upstream end of the hollow tubular element. A hollow tubular element may comprise a flanged end portion defining the downstream end of the hollow tubular element. A flanged end portion may form or define an end wall or end wall portion of the hollow tubular element. Such an end wall or end wall portion may delimit an opening between the cavity and the exterior of the hollow tubular element. In other words, the opening may be defined through the end wall or end wall portion.

[0622] A flanged end of the hollow tubular element may be defined by a folded end of the hollow tubular element. An end of the hollow tubular element may be folded. A hollow tubular element may comprise a folded end portion defining either the downstream end or the upstream end of the hollow tubular element. A hollow tubular element may comprise a folded end portion defining the upstream end of the hollow tubular element. A hollow tubular element may comprise a folded end portion defining the downstream end of the hollow tubular element. A folded end portion may form or define an end wall or end wall portion of the hollow tubular element. Such an end wall or end wall portion may delimit an opening between the cavity and the exterior of the hollow tubular element. In other words, the opening may be defined through the end wall or end wall portion.

[0623] An end wall or end wall portion of a hollow tubular element may effectively define a closed end of the hollow tubular element. For example, a flanged end or folded end of a hollow tubular element may define a closed end of the hollow tubular element. The flange defined at a flanged or folded end of a hollow tubular element preferably extends inwardly towards the central longitudinal axis of the hollow tubular element.

[0624] A hollow tubular element may comprise an upstream opening, a downstream opening, or both. Each opening provides access to the air passage or cavity defined within the hollow tubular element. Each end of the hollow tubular element may comprise only one opening. In other words, the downstream end of the hollow tubular element

may comprise only one opening and the upstream end of the hollow tubular element may comprise only one opening.

[0625] The external diameter of the hollow tubular element is preferably substantially uniform along its length. In other words, the external diameter of hollow tubular element at its flanged end may correspond to the external diameter of the hollow tubular element. A flanged or folded end of the hollow tubular element preferably does not modify the external diameter of the hollow tubular element when measured at its ends.

[0626] A hollow tubular element may comprise a tubular body defining a cavity extending from a first end of the tubular body to a second end of the tubular body. A hollow tubular element may comprise a first end portion forming an end wall at the first end of the tubular body, the first end wall delimiting an opening for airflow between the cavity and the exterior of the second tubular element. A hollow tubular element may comprise a second end portion forming an end wall at the second end of the tubular body, the second end wall delimiting another opening for airflow between the cavity and the exterior of the second tubular element.

[0627] An end wall may extend partially into the cavity of the tubular body and forms an angle of less than or equal to 90 degrees with the inner surface of the tubular body, an angle of less than or equal to 80 degrees with the inner surface of the tubular body, or an angle of less than or equal to 70 degrees with the inner surface of the tubular body. This may be achieved by ensuring that, during manufacture of a hollow tubular element, a folding force is applied to the hollow tubular element such that at least part of an end portion of the hollow tubular element is pushed into the cavity of the tubular body. Such arrangements may advantageously increase the likelihood of an end wall remaining stationary with respect to the tubular body after the hollow tubular element has been manufactured. In particular, such arrangements may help to overcome any natural resilience in the material forming the hollow tubular element, such that the folded or flanged end portion of the hollow tubular element is less likely to revert towards its pre-folded condition after manufacture.

[0628] An opening delimited by an end wall may be the only opening in an end wall. An opening may be disposed in a generally radially central position of the hollow tubular element. An end wall may be generally annular shaped.

[0629] An end wall may extend from a fold point on the hollow tubular element and towards a radially central position of the hollow tubular element. The fold point may generally correspond to the first end of the tubular body of the hollow tubular element.

[0630] The cavity may have a constant cross-section along its length, as measured perpendicular to the longitudinal direction of the hollow tubular element. That is, preferably the cross-section of the cavity at a first longitudinal position of the tubular body is the same as the cross-section of the cavity at second and further longitudinal position of the tubular body. Consequently, the area of the cavity may be constant along the length of the tubular body. However, if the cavity does not may have a constant cross-section along its length (for example, because the internal surface of the hollow tubular body tapers along the length of the hollow tubular body), then the area of the cavity as measured as measured perpendicular to the longitudinal direction of the hollow tubular element is taken to be the smallest such area of the cavity along the length of the tubular body.

[0631] The tubular body of a hollow tubular element provides an unrestricted flow channel. This means that the tubular body portion of the hollow tubular element provides a negligible level of resistance to draw (RTD). The flow channel should therefore be free from any components that would obstruct the flow of air in a longitudinal direction. The flow channel is substantially empty. In such a case, the tubular body of the hollow tubular element defines an empty cavity.

[0632] The tubular element of the present disclosure provides an improved component for an aerosol-generating article. By forming a hollow tubular element from a tubular body defining a cavity extending from a first end of the tubular body to a second end of the tubular body, a relatively large proportion of the hollow tubular element can be empty and permit unimpeded airflow. Where a hollow tubular element is provided downstream of an aerosol-generating substrate, this may help to improve cooling and nucleation of the aerosol. Furthermore, such a configuration may also help to minimise filtration of any compounds released from the aerosol-generating substrate, particularly when compared to prior art hollow acetate tubes.

[0633] By providing a hollow tubular element with a folded or flanged end portion forming an end wall at an end of the tubular body, the hollow tubular element can be configured to have a desired RTD through configuration of the size and shape of the end wall. In particular, a hollow tubular element and its or each end wall can be manufactured efficiently and at high speed, with a satisfactory RTD and low RTD variability from one article to another. Furthermore, the configuration of a hollow tubular element and its end wall means that RTD can be localised at a specific longitudinal position of the hollow tubular element, rather than being continuously distributed along the length of the hollow tubular element.

[0634] Where an end wall of the hollow tubular element is adjacent to an aerosol-generating substrate, the end wall may provide a barrier which may restrict movement of the aerosol-generating substrate. This arrangement can also advantageously enable one or both of air and aerosol to flow through the opening into the cavity. The construction of the hollow tubular element may also be better suited to withstanding the temperatures generated by a heating blade or susceptor element.

[0635] By providing the opening of the end wall with a size as defined in the present disclosure either in respect of an absolute value or with reference to one or more of: the area of the cavity of the tubular body; the diameter of the cavity of the tubular body; and the outer or external diameter of the tubular body, the RTD of the hollow tubular element may be precisely tuned to a desired value. Furthermore, where the hollow tubular element is positioned downstream of an aerosol-generating substrate, selection of such a size of opening may help in the formulation of an aerosol having desirable properties, such as a desirably high level of aerosol constituents including one or both of nicotine and glycerine.

[0636] The aerosol-generating section and a hollow tubular element may be adjacent to one another and in contact with one another. For example, an end wall of a hollow tubular element may be adjacent to the aerosol-generating substrate of the aerosol-generating section and in contact with the aerosol-generating substrate of the aerosol-generating section.

[0637] The aerosol-generating section and a hollow tubular element may be adjacent to one another but not in contact with one another because a small gap of empty space separates the aerosol-generating section from the hollow tubular element in the longitudinal direction of the aerosol-generating article. For example, an end wall of the hollow tubular element may be adjacent to the aerosol-generating substrate but not in contact with the aerosol-generating substrate. The gap may be 2 millimetres or less. The gap may be 1 millimetre or less.

[0638] As discussed above, the upstream element may comprise or may be a hollow tubular element. Thus, a hollow tubular element may be positioned upstream of the aerosol-generating section. In such embodiments, the hollow tubular element may be referred to as an upstream hollow tubular element.

[0639] As discussed above, the downstream element may comprise or may be a hollow tubular element. Thus, a hollow tubular element may be positioned downstream of the aerosol-generating section. In such embodiments, the hollow tubular element may be referred to as a downstream hollow tubular element.

[0640] The aerosol-generating article may comprise two hollow tubular elements, one being a downstream hollow tubular element positioned downstream of the aerosol-generating section and the other being an upstream hollow tubular element positioned upstream of the aerosol-generating section. The downstream and upstream tubular elements may each have any feature or combination of features, which are described above or below in respect of the hollow tubular element of the present disclosure.

[0641] For example, the hollow tubular element may be a downstream hollow tubular element, which is positioned downstream of the aerosol-generating section with an end wall of the downstream hollow tubular element adjacent to the downstream end of the aerosol-generating substrate. The aerosol-generating article may further comprise an upstream hollow tubular element. The upstream hollow tubular element may be positioned upstream of the aerosol-generating section. An end wall of the upstream hollow tubular element may be adjacent to the upstream end of the aerosol-generating substrate. As a result, the aerosol-generating section comprising the aerosol-generating substrate may be sandwiched between upstream and downstream hollow tubular elements, where each tubular element has a respective end wall adjacent to or in abutment with the upstream or downstream end of the aerosol-generating section.

[0642] The aerosol-generating substrate of the aerosol-generating section may comprise a plurality of strands of aerosol-generating material. A ratio of a width (or diameter) of an opening of a hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 20. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 15. A ratio of a width of an opening of a hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 10. A ratio of a width of an opening of a hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 7.5. A ratio of a width of an opening of a hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 5. A ratio of a width of an opening of a hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 2.5. Such an opening of a hollow tubular element may refer to an upstream opening, a downstream opening, or both openings of a hollow tubular element.

[0643] A ratio of a width (or diameter) of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 0.1. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 0.2. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 0.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 1. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 2. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be at least 3. Such an opening of the hollow tubular element may refer to an upstream opening, a downstream opening, or both openings of the hollow tubular element.

[0644] A ratio of a width (or diameter) of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 0.1 and 20, between 0.1 and 15, between 0.1 and 10, between 0.1 and 7.5, between 0.1 and 5, or between 0.1 and 2.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 0.2 and 20, between 0.2 and 15, between 0.2 and 10, between 0.2 and 7.5, between 0.2 and 5, or between 0.2 and 2.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 0.5 and 20, between 0.5 and 15, between 0.5 and 10, between 0.5 and 7.5, between 0.5 and 5, or between 0.5 and 2.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 1 and 20, between 1 and 15, between 1 and 10, between 1 and 7.5, between 1 and 5, or between 1 and 2.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 2 and 20, between 2 and 15, between 2 and 10, between 2 and 7.5, between 2 and 5, or between 2 and 2.5. A ratio of a width of an opening of the hollow tubular element to an average width of the plurality of strands of aerosol-generating material may be between 3 and 20, between 3 and 15, between 3 and 10, between 3 and 7.5, or between 3 and 5. Such an opening of the hollow tubular element may refer to an upstream opening, a downstream opening, or both openings of the hollow tubular element.

[0645] A ratio of a width (or diameter) of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 20. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 15. A ratio of a width of an opening of the upstream element to

an average width of the plurality of strands of aerosol-generating material may be less than or equal to 10. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 7.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 2.5. Such an opening of the upstream element may refer to an upstream opening, a downstream opening, or both openings of the upstream element. The upstream element may comprise a hollow tubular element, as described herein.

[0646] A ratio of a width (or diameter) of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 0.1. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 0.2. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 0.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 1. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 2. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be at least 3. Such an opening of the upstream element may refer to an upstream opening, a downstream opening, or both openings of the upstream element. The upstream element may comprise a hollow tubular element, as described herein.

[0647] A ratio of a width (or diameter) of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 0.1 and 20, between 0.1 and 15, between 0.1 and 10, between 0.1 and 7.5, between 0.1 and 5, or between 0.1 and 2.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 0.2 and 20, between 0.2 and 15, between 0.2 and 10, between 0.2 and 7.5, between 0.2 and 5, or between 0.2 and 2.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 0.5 and 20, between 0.5 and 15, between 0.5 and 10, between 0.5 and 7.5, between 0.5 and 5, or between 0.5 and 2.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 1 and 20, between 1 and 15, between 1 and 10, between 1 and 7.5, between 1 and 5, or between 1 and 2.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 2 and 20, between 2 and 15, between 2 and 10, between 2 and 7.5, between 2 and 5, or between 2 and 2.5. A ratio of a width of an opening of the upstream element to an average width of the plurality of strands of aerosol-generating material may be between 3 and 20, between 3 and 15, between 3 and 10, between 3 and 7.5, or between 3 and 5. Such an opening of the upstream element may refer to an upstream opening, a downstream opening, or both openings of the upstream element. The upstream element may comprise a hollow tubular element, as described herein.

[0648] The above ratios have been found to reduce the risk of any dislodged aerosol-generating material from migrating upstream from the aerosol-generating section, towards the upstream end of the aerosol-generating article. Such ratios may ensure that the opening is sufficiently small in relation to the average size of aerosol-generating material in order to hinder said migration of aerosol-generating material. While the opening may be large enough for strands to fit through, the internal packing friction amongst the strands within the aerosol-generating section and the obstruction of other strands may also play a role in preventing such migration. However, such a ratio may ensure that the opening is sufficiently small in relation to the average size of aerosol-generating material in order to hinder and reduce said migration of aerosol-generating material, while maintaining an acceptable resistance to draw (RTD) for the overall article. Furthermore, the strands generally have an average length that is substantially greater than their average width. Any strands that may protrude through the opening will still need to travel, with relative difficulty, a distance equivalent to their average length in order to successfully migrate upstream.

[0649] A ratio of a width (or diameter) of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 20. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 15. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 10. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 7.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be less than or equal to 2.5. Such an opening of the support element may refer to an upstream opening, a downstream opening, or both openings of the support element. The support element may comprise a hollow tubular element, as described herein.

[0650] A ratio of a width (or diameter) of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 0.1. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 0.2. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 0.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 1. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 2. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be at least 3. Such an opening of the support element may refer to an upstream opening, a downstream opening, or both openings

of the support element. The support element may comprise a hollow tubular element, as described herein.

[0651] A ratio of a width (or diameter) of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 0.1 and 20, between 0.1 and 15, between 0.1 and 10, between 0.1 and 7.5, between 0.1 and 5, or between 0.1 and 2.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 0.2 and 20, between 0.2 and 15, between 0.2 and 10, between 0.2 and 7.5, between 0.2 and 5, or between 0.2 and 2.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 0.5 and 20, between 0.5 and 15, between 0.5 and 10, between 0.5 and 7.5, between 0.5 and 5, or between 0.5 and 2.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 1 and 20, between 1 and 15, between 1 and 10, between 1 and 7.5, between 1 and 5, or between 1 and 2.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 2 and 20, between 2 and 15, between 2 and 10, between 2 and 7.5, between 2 and 5, or between 2 and 2.5. A ratio of a width of an opening of the support element to an average width of the plurality of strands of aerosol-generating material may be between 3 and 20, between 3 and 15, between 3 and 10, between 3 and 7.5, or between 3 and 5. Such an opening of the support element may refer to an upstream opening, a downstream opening, or both openings of the support element. The support element may comprise a hollow tubular element, as described herein.

[0652] The above ratios have been found to reduce the risk of any dislodged aerosol-generating material from migrating downstream from the aerosol-generating section, towards the downstream or mouth end of the aerosol-generating article. Such ratios may ensure that the opening is sufficiently small in relation to the average size of aerosol-generating material in order to hinder said migration of aerosol-generating material. While the opening may be large enough for strands to fit through, the internal packing friction amongst the strands within the aerosol-generating section and the obstruction of other strands may also play a role in preventing such migration. However, such a ratio may ensure that the opening is sufficiently small in relation to the average size of aerosol-generating material in order to hinder and reduce said migration of aerosol-generating material, while maintaining an acceptable resistance to draw (RTD) for the overall article. Furthermore, the strands generally have an average length that is substantially greater than their average width. Any strands that may protrude through the opening will still need to travel, with relative difficulty, a distance equivalent to their average length in order to successfully migrate downstream.

[0653] An opening of the hollow tubular element, as measured perpendicular to the longitudinal direction of the hollow tubular element, may have an area of from 0.6 percent to 60 percent of a cross-sectional area of the cavity. An opening of the hollow tubular element may have an area of from 1.5 percent to 21 percent of a cross-sectional area of the cavity.

[0654] An opening at an end of the hollow tubular element may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, of at least 0.6 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, of at least 1.5 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, of at least 2.5 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, of at least 4 percent of the area of the cavity.

[0655] An opening at the end of the hollow tubular element may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, less than or equal to 60 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, less than or equal to 21 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, less than or equal to 10 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, less than or equal to 9.5 percent of the area of the cavity. The opening may have an area, as measured perpendicular to the longitudinal direction of the hollow tubular element, less than or equal to 7 percent of the area of the cavity.

[0656] The hollow tubular element may have an internal diameter which defines the cavity. The internal diameter of the hollow tubular element may therefore be referred to as the diameter of the cavity. The opening at an end of the hollow tubular element may have a diameter of from 8 percent to 77 percent of the diameter of the cavity. The opening may have a diameter of from 12 percent to 46 percent of the diameter of the cavity. The opening may have a diameter of from 15 percent to 30 percent of the diameter of the cavity.

[0657] The opening at an end of the hollow tubular element may have a diameter of at least 8 percent of the diameter of the cavity. The opening may have a diameter of at least 12 percent of the diameter of the cavity. The opening may have a diameter of at least 15 percent of the diameter of the cavity.

[0658] The opening at an end of the hollow tubular element may have a diameter less than or equal to 77 percent of the diameter of the cavity. The opening may have a diameter less than or equal to 50 percent of the diameter of the cavity. The opening may have a diameter less than or equal to 46 percent of the diameter of the cavity. The opening may have a diameter less than or equal to 30 percent of the diameter of the cavity. The opening may have a diameter less than or equal to 25 percent of the diameter of the cavity.

[0659] The hollow tubular element may have an external diameter. The opening at an end of the hollow tubular element may have a diameter of from 7 percent to 70 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter of from 11 percent to 45 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter of from 13 percent to 27 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow

tubular element may have a diameter of from 27 percent to 42 percent of the external diameter of the hollow tubular element.

[0660] The opening at an end of the hollow tubular element may have a diameter of at least 7 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter of at least 10 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter of at least 11 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter of at least 13 percent of the external diameter of the hollow tubular element.

[0661] The opening at an end of the hollow tubular element may have a diameter less than or equal to 70 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter less than or equal to 45 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter less than or equal to 42 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter less than or equal to 30 percent of the external diameter of the hollow tubular element. The opening at an end of the hollow tubular element may have a diameter less than or equal to 27 percent of the external diameter of the hollow tubular element.

[0662] The opening may have a diameter of from 0.5 millimetres to 5 millimetres. The opening may have a diameter of from 0.8 millimetres to 3 millimetres. The opening may have a diameter of from 1 millimetres to 2 millimetres. The opening may have a diameter of from 1.5 millimetres to 2.5 millimetres. The opening may have a diameter of from 0.5 millimetres to 5 millimetres.

[0663] The opening may have a diameter of at least 0.5 millimetres. The opening may have a diameter of at least 0.8 millimetres. The opening may have a diameter of at least 1 millimetres. The opening may have a diameter of at least 1.5 millimetres. The opening may have a diameter of at least 2 millimetres.

[0664] The opening may have a diameter less than or equal to 5 millimetres. The opening may have a diameter less than or equal to 4 millimetres. The opening may have a diameter less than or equal to 3 millimetres. The opening may have a diameter less than or equal to 2.5 millimetres.

[0665] The cavity may have a constant cross-section along its length, as measured perpendicular to the longitudinal direction of the hollow tubular element. That is, preferably the cross-section of the cavity at a first longitudinal position of the hollow tubular element is the same as the cross-section of the cavity at second and further longitudinal position of the hollow tubular element. Consequently, the area of the cavity may be constant along the length of the hollow tubular element. However, if the cavity does not may have a constant cross-section along its length (for example, because the internal surface of the hollow tubular element tapers along the length of the hollow tubular element), then the area of the cavity as measured as measured perpendicular to the longitudinal direction of the hollow tubular element is taken to be the smallest such area of the cavity along the length of the hollow tubular element.

[0666] The hollow tubular element provides an unrestricted flow channel. This means that a tubular body portion of the hollow tubular element provides a negligible level of resistance to draw (RTD). The flow channel should therefore be free from any components that would obstruct the flow of air in a longitudinal direction. The flow channel is substantially empty. In such a case, a tubular body of the hollow tubular element may define an empty cavity.

[0667] The hollow tubular element of the present disclosure may provide an improved component for an aerosol-generating article. By forming the hollow tubular element from a tubular body defining a cavity extending from a first end of the tubular body to a second end of the tubular body, a relatively large proportion of the hollow tubular element can be empty and permit unimpeded airflow. Where the hollow tubular element is downstream of an aerosol-generating substrate, this may help to improve cooling and nucleation of the aerosol. Furthermore, such a configuration may also help to minimise filtration of any compounds released from the aerosol-generating substrate, particularly when compared to prior art hollow acetate tubes.

[0668] By providing the hollow tubular element with a folded or flanged end portion forming an end wall, the hollow tubular element can be configured to have a desired RTD through configuration of the size and shape of the end wall. In particular, the hollow tubular element and its end wall can be manufactured efficiently and at high speed, with a satisfactory RTD and low RTD variability from one article to another. Furthermore, the configuration of the hollow tubular element and its end wall means that RTD can be localised at a specific longitudinal position of the hollow tubular element, rather than being continuously distributed along the length of the hollow tubular element.

[0669] Where an end wall of the hollow tubular element is adjacent to an aerosol-generating substrate, the end wall may provide a barrier which may restrict movement of the aerosol-generating substrate. This arrangement can also advantageously enable one or both of air and aerosol to flow through the opening into the cavity. The construction of the hollow tubular element may also be better suited to withstanding the temperatures generated by a heating blade or susceptor element.

[0670] By providing the opening of the end wall with a size as defined above either in respect of an absolute value or with reference to one or more of: the area of the cavity of the tubular body; the diameter of the cavity of the tubular body; and the outer or external diameter of the tubular body, the RTD of the hollow tubular element may be precisely tuned to a desired value, while reducing the risk of migration of aerosol-generating substrate material. Furthermore, where the hollow tubular element is positioned downstream of an aerosol-generating section, selection of such a size of opening may help in the formulation of an aerosol having desirable properties, such as a desirably high level of aerosol constituents including one or both of nicotine and glycerine.

[0671] The aerosol-generating section and a hollow tubular element may be adjacent to one another and in contact with one another. For example, an end wall of the hollow tubular element may be adjacent to the aerosol-generating substrate of the aerosol-generating section and in contact with the aerosol-generating substrate of the aerosol-generating section.

[0672] The aerosol-generating section and a hollow tubular element may be adjacent to one another but not in contact with one another because a small gap of empty space separates the aerosol-generating section from the hollow

tubular element in the longitudinal direction of the aerosol-generating article. For example, an end wall of the hollow tubular element may be adjacent to the aerosol-generating substrate but not in contact with the aerosol-generating substrate. The gap may be 2 millimetres or less. The gap may be 1 millimetre or less.

[0673] As discussed above, the upstream element may be a hollow tubular element. Thus, a hollow tubular element may be positioned upstream of the aerosol-generating section. In such embodiments, the hollow tubular element may be referred to as an upstream hollow tubular element.

[0674] As discussed above, the support element may be a hollow tubular element. Thus, a hollow tubular element may be positioned downstream of the aerosol-generating section. In such embodiments, the hollow tubular element may be referred to as a downstream hollow tubular element.

[0675] The aerosol-generating article may comprise two hollow tubular elements, one being a downstream hollow tubular element positioned downstream of the aerosol-generating section and the other being an upstream hollow tubular element positioned upstream of the aerosol-generating section. The downstream and upstream tubular elements may each have any feature or combination of features, which are described above or below in respect of the hollow tubular element of the present disclosure.

[0676] For example, the hollow tubular element may be a downstream hollow tubular element, which is positioned downstream of the aerosol-generating section with an end wall of the downstream hollow tubular element adjacent to the downstream end of the aerosol-generating substrate. The aerosol-generating article may further comprise an upstream hollow tubular element. The upstream hollow tubular element may be positioned upstream of the aerosol-generating section. An end wall of the upstream hollow tubular element may be adjacent to the upstream end of the aerosol-generating substrate. As a result, the aerosol-generating section comprising the aerosol-generating substrate may be sandwiched between upstream and downstream hollow tubular elements, where each tubular element has a respective end wall adjacent to or in abutment with the upstream or downstream end of the aerosol-generating section.

[0677] At least the first portion of the hollow tubular element forming an end wall may be substantially air impermeable. Put another way, an end wall may be substantially non-porous. An end wall may not comprise any perforations. The material forming an end wall may have a porosity of less than or equal to 2000 Coresta units. The material forming an end wall may have a porosity of less than or equal to 1000 Coresta units. The material forming an end wall may have a porosity of less than or equal to 500 Coresta units.

[0678] The tubular body of the hollow tubular element is substantially air impermeable. The tubular body may be substantially non-porous. The tubular body may not comprise any perforations. The material forming the tubular body may have a porosity of less than or equal to 2000 Coresta units. The material forming the tubular body may have a porosity of less than or equal to 1000 Coresta units. The material forming the tubular body may have a porosity of less than or equal to 500 Coresta units.

[0679] Where the aerosol-generating section comprises an internal heating element within the aerosol-generating substrate, the opening in the first wall may be generally aligned with the radial position of the internal heating element. This can advantageously help to keep a distance between an end wall of the hollow tubular element and the internal heating of the aerosol-generating section. Keeping such a distance may help to mitigate any undesirable heating of an end wall of the hollow tubular element by the internal heating.

[0680] A hollow tubular element may have an outer or external diameter that is approximately equal to the outer or external diameter of the aerosol-generating article. Where the aerosol-generating section is formed as a rod, a hollow tubular element may have an outer or external diameter that is approximately equal to the outer or external diameter of the aerosol-generating section.

[0681] A hollow tubular element may have an external diameter of between 6 millimetres and 10 millimetres, for example of between 7 millimetres and 9 millimetres or of between 7.5 millimetres and 8.5 millimetres. A hollow tubular element may have an external diameter of 7.8 millimetres.

[0682] A hollow tubular element or its tubular body may have an equivalent internal diameter of at least 5.5 millimetres. A hollow tubular element or its tubular body may have an equivalent internal diameter of at least 6 millimetres. A hollow tubular element or its tubular body may have an equivalent internal diameter of at least 7 millimetres. The term "equivalent internal diameter" is used herein to denote the diameter of a circle having the same surface area of a cross-section of the airflow conduit internally defined by a hollow tubular element. A cross-section of the airflow conduit may have any suitable shape. However, as described briefly above, a circular cross-section is preferred—that is, a hollow tubular element or its tubular body is effectively a cylindrical tube. In that case, the equivalent internal diameter of a hollow tubular element or its tubular body effectively coincides with the internal diameter of the cylindrical tube.

[0683] The equivalent internal diameter of a hollow tubular element or its tubular body may be less than or equal to 10 millimetres. The equivalent internal diameter of a hollow tubular element or its tubular body is less than or equal to 9.5 millimetres, or less than or equal to 9 millimetres.

[0684] A hollow tubular element may have a wall thickness of at least 0.1 millimetres, or at least 0.2 millimetres.

[0685] A hollow tubular element or its tubular body may have a wall thickness of less than or equal to 1.5 millimetres, or less than or equal to 1.25 millimetres. A hollow tubular element or its tubular body may have a wall thickness of less than or equal to 1 millimetre.

[0686] A hollow tubular element or its tubular body therefore may have a wall thickness of between 0.1 millimetres and 1.5 millimetres, or between 0.2 millimetres and 1.25 millimetres, or between 0.5 millimetres and 1 millimetre.

[0687] Providing a hollow tubular element or its tubular body with such wall thickness can help to improve the tubular element's resistance to collapse or deformation, whilst still enabling an end wall to be formed by a folded or flanged end portion of the hollow tubular element.

[0688] The sizing of a hollow tubular element may be equivalent to an upstream element or a support element described in the present disclosure.

[0689] The RTD of a hollow tubular element may be between 0 millimetres H_2O (about 0 Pa) to 20 millimetres H_2O (about 100 Pa), or between 0 millimetres H_2O (about 0 Pa) to 10 millimetres H_2O (about 100 Pa).

[0690] A hollow tubular element may be formed from a paper material, such as paper, paperboard or cardboard. A hollow tubular element may be formed from a plurality of overlapping paper layers, such as a plurality of parallel wound paper layers or a plurality of spirally wound paper layers. Forming a hollow tubular element from a plurality of overlapping paper layers can help to improve the tubular element's resistance to collapse or deformation, whilst still enabling an end wall to be formed by a folded or flanged end portion of a hollow tubular element.

[0691] A hollow tubular element may comprise at least two paper layers. A hollow tubular element may comprise fewer than eleven paper layers.

[0692] Where a hollow tubular element is formed from a paper material, the paper material may have a basis weight of at least 90 grams per square metre. The paper material may have a basis weight of less than or equal to 300 grams per square metre. The paper material may have a basis weight of from 100 to 200 grams per square metre. Providing a hollow tubular element with such wall basis weight can help to improve the tubular element's resistance to collapse or deformation, whilst still enabling an end wall to be formed by a folded or flanged end portion of the hollow tubular element.

[0693] The aerosol-generating device may be a handheld aerosol-generating device.

[0694] The aerosol-generating device may be an electrically-operated aerosol-generating device.

[0695] The aerosol-generating device may comprise a power supply and control electronics.

[0696] The aerosol-generating device may comprise a battery and control electronics.

[0697] The aerosol-generating device may comprise a housing defining a device cavity.

[0698] The device cavity may be configured to receive at least a portion of the aerosol-generating article.

[0699] The device cavity may be configured to receive at least the aerosol-generating section of the aerosol-generating article.

[0700] The device cavity may be substantially cylindrical.

[0701] The device cavity may have a substantially circular cross-section.

[0702] The aerosol-generating device may comprise an external heating element.

[0703] The external heating element may be located around a perimeter of the device cavity.

[0704] The external heating element may be a resistive heating element.

[0705] The external heating element may be a susceptor element.

[0706] The aerosol-generating device may comprise an internal heating element for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0707] The internal heating element may have a pointed end to facilitate insertion of the internal heating element into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

[0708] The internal heating element may be located within the device cavity.

[0709] The internal heating element may be arranged substantially longitudinally within the device cavity. That is, a longitudinal axis of the internal heating element may be approximately parallel to a longitudinal axis of the device cavity.

[0710] The internal heating element may be arranged centrally within the device cavity. The internal heating element may extend along a longitudinal axis of the device cavity.

[0711] The aerosol-generating device may comprise an induction element.

[0712] The induction element may comprise one or more induction coils.

[0713] The induction element may be located around a perimeter of the device cavity.

[0714] The aerosol-generating system may comprise: a consumable aerosol-generating article; and a reusable aerosol-generating device.

[0715] The invention is defined in the claims. However, below there is provided a non-exhaustive list of non-limiting examples. Any one or more of the features of these examples may be combined with any one or more features of another example, embodiment, or aspect described herein.

EX1. An aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material; and an elongate internal heating element located within the aerosol-generating substrate in thermal contact with the plurality of strands of aerosol-generating material.

EX2. An aerosol-generating article according to example EX2, wherein the internal heating element extends between an upstream end of the aerosol-generating section and a downstream end of the aerosol-generating section.

EX3. An aerosol-generating system comprising: an aerosol-generating article according to example EX1 or example EX2; and an aerosol-generating device.

EX4. An aerosol-generating system comprising: an aerosol-generating article comprising: an aerosol-generating section, the aerosol-generating section comprising: an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material; and an aerosol-generating device, wherein the aerosol-generating device comprises: an elongate internal heating element for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

EX5. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element is a susceptor element.

EX6. An aerosol-generating system according to example EX4, wherein the internal heating element is a resistive heater element.

EX7. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of at least 100 milligrams per cubic centimetre.

EX8. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of at least 150 milligrams per cubic centimetre.

EX9. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of at least 200 milligrams per cubic centimetre.

EX10. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the

aerosol-generating substrate has a density of at least 250 milligrams per cubic centimetre.

EX11. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of at least 275 milligrams per cubic centimetre.

EX12. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of less than or equal to 700 milligrams per cubic centimetre.

EX13. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of less than or equal to 650 milligrams per cubic centimetre.

EX14. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of less than or equal to 600 milligrams per cubic centimetre.

EX15. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of less than or equal to 550 milligrams per cubic centimetre.

EX16. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a density of less than or equal to 500 milligrams per cubic centimetre.

EX17. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of at least 120 milligrams.

EX18. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of at least 130 milligrams.

EX19. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of at least 140 milligrams.

EX20. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of at least 150 milligrams.

EX21. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of at least 160 milligrams.

EX22. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of less than or equal to 340 milligrams.

EX23. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of less than or equal to 310 milligrams.

EX24. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of less than or equal to 280 milligrams.

EX25. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of less than or equal to 250 milligrams.

EX26. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating substrate has a mass of less than or equal to 220 milligrams.

EX27. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of at least 0.5 millimetres.

EX28. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of at least 1 millimetre.

EX29. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of at least 2 millimetres.

EX30. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of at least 5 millimetres.

EX31. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 80 millimetres.

EX32. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 50 millimetres.

EX33. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 30 millimetres.

EX34. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 25 millimetres.

EX35. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 20 millimetres.

EX36. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average length of less than or equal to 15 millimetres.

EX37. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of at least 0.1 millimetres.

EX38. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of at least 0.3 millimetres.

EX39. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of at least 0.4 millimetres.

EX40. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of at least 0.5 millimetres.

EX41. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of at least 0.6 millimetres.

EX42. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of less than or equal to 5 millimetres.

EX43. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of less than or equal to 2 millimetres.

EX44. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of less than or equal to 1.5 millimetres.

EX45. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of less than or equal to 1.2 millimetres.

EX46. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average width of less than or equal to 0.9 millimetres.

EX47. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of at least 0.1 millimetres.

EX48. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of at least 0.15 millimetres.

EX49. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of at least 0.18 millimetres.

EX50. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of at least 0.2 millimetres.

EX51. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of less than or equal to 2 millimetres.

EX52. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of less than or equal to 1 millimetre.

EX53. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of less than or equal to 0.6 millimetres.

EX54. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the plurality of strands of aerosol-generating material have an average thickness of less than or equal to 0.3 millimetres.

EX55. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of at least 4 millimetres.

EX56. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of at least 6 millimetres.

EX57. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of at least 8 millimetres.

EX58. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of at least 10 millimetres.

EX59. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of less than or equal to 45 millimetres.

EX60. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of less than or equal to 35 millimetres.

EX61. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of less than or equal to 25 millimetres.

EX62. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a length of less than or equal to 15 millimetres.

EX63. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of at least 0.5 millimetres.

EX64. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of at least 1 millimetre.

EX65. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of at least 1.5 millimetres.

EX66. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of at least 2 millimetres.

EX67. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of at least 2.5 millimetres.

EX68. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 8 millimetres.

EX69. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 7 millimetres.

EX70. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 6 millimetres.

EX71. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 5 millimetres.

EX72. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 4.5 millimetres.

EX73. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 4 millimetres.

EX74. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 3.5 millimetres.

EX75. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element has a width of less than or equal to 3 millimetres.

EX76. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.05.

EX77. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.06.

EX78. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.08.

EX79. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.09.

EX80. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.10.

EX81. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.11.

EX82. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.12.

EX83. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is at least 0.13.

EX84. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 4.

EX85. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 3.

EX86. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 2.

EX87. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 1.8.

EX88. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 1.6.

EX89. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 1.5.

EX90. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 1.4.

EX91. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the internal heating element is less than or equal to 1.3.

EX92. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.04.

EX93. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.07.

EX94. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.10.

EX95. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.12.

EX96. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.15.

EX97. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.20.

EX98. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is at least 0.25.

EX99. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-

generating material to a length of the internal heating element is less than or equal to 7.

EX100. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 4.

EX101. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 1.

EX102. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 0.8.

EX103. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 0.7.

EX104. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 0.6.

EX105. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the internal heating element is less than or equal to 0.5.

EX106. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is at least 0.1.

EX107. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is at least 0.2.

EX108. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is at least 0.3.

EX109. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is at least 0.4.

EX110. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is less than or equal to 0.9.

EX111. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is less than or equal to 0.8.

EX112. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is less than or equal to 0.7.

EX113. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a width of the internal heating element to a width of the aerosol-generating section is less than or equal to 0.6.

EX114. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is at least 0.10.

EX115. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is at least 0.15.

EX116. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is at least 0.20.

EX117. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is less than or equal to 0.40.

EX118. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is less than or equal to 0.35.

EX119. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein a ratio of a length of the internal heating element to a total length of the aerosol-generating article is less than or equal to 0.30.

EX120. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 1 percent by weight of aerosol former.

EX121. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 5 percent by weight of aerosol former.

EX122. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 10 percent by weight of aerosol former.

EX123. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 15 percent by weight of aerosol former.

EX124. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 30 percent by weight of aerosol former.

EX125. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 25 percent by weight of aerosol former.

EX126. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 20 percent by weight of aerosol former.

EX127. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 0.5 percent by weight of nicotine.

EX128. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 1.0 percent by weight of nicotine.

EX129. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 1.5 percent by weight of nicotine.

EX130. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises at least 2.0 percent by weight of nicotine.

EX131. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 10 percent by weight of nicotine.

EX132. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 8 percent by weight of nicotine.

EX133. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 6 percent by weight of nicotine.

EX134. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material comprises less than or equal to 4 percent by weight of nicotine.

EX135. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating material is a tobacco material.

EX136. An aerosol-generating article or aerosol-generating system according to any preceding example, aerosol-generating substrate is tobacco cut filler.

EX137. An aerosol-generating article or aerosol-generating system according to any of examples EX1 to EX135, wherein the aerosol-generating material is a homogenised tobacco material.

EX137. An aerosol-generating article or aerosol-generating system according to any of examples EX1 to EX134, wherein the aerosol-generating material is a gel material.

EX138. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating section comprises: a heat transfer enhancement element located within the aerosol-generating substrate in thermal contact with the plurality of strands of aerosol-generating material.

EX139. An aerosol-generating article or aerosol-generating system according to example EX138, wherein the heat transfer enhancement element is in direct contact with the plurality of strands of aerosol-generating material.

EX140. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the heat transfer enhancement element comprises a plurality of discrete thermally conductive elements.

EX141. An aerosol-generating article or aerosol-generating system according to example EX140, wherein the plurality of discrete thermally conductive elements are substantially homogeneously distributed within the aerosol-generating substrate.

EX142. An aerosol-generating article or aerosol-generating system according to example EX140 or example EX141, wherein the heat transfer enhancement element comprises a plurality of thermally conductive particles.

EX143. An aerosol-generating article or aerosol-generating system according to example

EX140 or example EX141, wherein the heat transfer enhancement element comprises a plurality of thermally conductive strands.

EX144. An aerosol-generating article or aerosol-generating system according to any of examples EX138 to EX143, wherein the heat transfer enhancement element comprises an aerosol former.

EX145. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element is in direct contact with the plurality of strands of aerosol-generating material.

EX146. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the internal heating element is in direct contact with the plurality of strands of aerosol-generating material.

EX147. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol generating section of the aerosol-generating article comprises a plurality of internal heating elements located within the aerosol-generating substrate.

EX148. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating article comprises: a downstream section located downstream of the aerosol-generating section.

EX149. An aerosol-generating article or aerosol-generating system according to example EX148, wherein the downstream section comprises a support element abutting a downstream end of the aerosol-generating section.

EX150. An aerosol-generating article or aerosol-generating system according to example

EX149, wherein the support element comprises an opening at an end of the support element.

EX151. An aerosol-generating article or aerosol-generating system according to example EX150, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is at least 0.1.

EX152. An aerosol-generating article or aerosol-generating system according to example

EX150, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is at least 0.5.

EX153. An aerosol-generating article or aerosol-generating system according to example EX150, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is at least 1.

EX154. An aerosol-generating article or aerosol-generating system according to example EX150, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is at least 3.

EX155. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX154, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 20.

EX156. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX154, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 10.

EX157. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX154, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 7.5.

EX158. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX154, wherein a ratio of a width of the opening of the support element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 5.

EX159. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX158, wherein the support element is a hollow tubular downstream element having an end wall defining either the downstream end or the upstream end of the hollow tubular downstream element.

EX160. An aerosol-generating article or aerosol-generating system according to example EX159, wherein the end wall is defined by a flanged end of the hollow tubular downstream element.

EX161. An aerosol-generating article or aerosol-generating system according to example EX159 or example EX160, wherein the opening of the support element is defined through the end wall.

EX162. An aerosol-generating article or aerosol-generating system according to any of examples EX150 to EX161, wherein the opening of the support element is located at the upstream end of the support element.

EX163. An aerosol-generating article or aerosol-generating system according to any preceding example, wherein the aerosol-generating article comprises an upstream section located upstream of the aerosol-generating section.

EX164. An aerosol-generating article or aerosol-generating system according to example EX163, wherein the upstream section comprises an upstream element having a downstream end abutting the aerosol-generating section.

EX165. An aerosol-generating article or aerosol-generating system according to example EX163 or example EX164, wherein the upstream element comprises a non-tubular element.

EX166. An aerosol-generating article or aerosol-generating system according to example EX163 or example EX164, wherein the upstream element comprises an opening at an end of the upstream element.

EX167. An aerosol-generating article or aerosol-generating system according to example EX166, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is at least 0.1.

EX168. An aerosol-generating article or aerosol-generating system according to example
EX166, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is at least 0.5.

EX169. An aerosol-generating article or aerosol-generating system according to example EX166, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is at least 1.

EX170. An aerosol-generating article or aerosol-generating system according to example EX166, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is at least 3.

EX171. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX170, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 20.

EX172. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX170, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 10.

EX173. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX170, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 7.5.

EX174. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX170, wherein a ratio of a width of the opening of the upstream element to an average width of the plurality of strands of aerosol-generating material is less than or equal to 5.

EX175. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX174, wherein the upstream element is a hollow tubular upstream element having an end wall defining either the downstream end or the upstream end of the hollow tubular upstream element.

EX176. An aerosol-generating article or aerosol-generating system according to example EX175, wherein the end wall is defined by a flanged end of the hollow tubular upstream element.

EX177. An aerosol-generating article or aerosol-generating system according to any of examples EX166 to EX176, wherein the opening of the upstream element is located at the downstream end of the support element.

EX178. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device is a handheld aerosol-generating device.

EX179. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device is an electrically-operated aerosol-generating device.

EX180. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device comprises a power supply and control electronics.

EX181. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device comprises a battery and control electronics.

EX182. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device comprises a housing defining a device cavity.

EX183. An aerosol-generating system according to example EX182, wherein the device cavity is configured to receive at least a portion of the aerosol-generating article.

EX184. An aerosol-generating system according to example EX183, wherein the device cavity is configured to receive at least the aerosol-generating section of the aerosol-generating article.

EX185. An aerosol-generating system according to any preceding example wherein the aerosol generating device comprises a plurality of internal heating elements for insertion into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article.

EX186. An aerosol-generating system according to any preceding example, wherein the aerosol-generating device comprises: an induction element.

EX187. An aerosol-generating system according to example EX186, wherein the induction element comprises one or more induction coils.

EX188. An aerosol-generating system according to example EX186 or example EX187, wherein the induction element is located around a perimeter of the device cavity.

[0716] FIG. **1** shows an aerosol-generating article **10** in accordance with a first embodiment of the first aspect of the invention. The aerosol-generating article **10** is substantially cylindrical and has a total length of 45 millimetres and an external diameter of 7.2 millimetres.

[0717] The aerosol-generating article **10** comprises an aerosol-generating section **12** and a downstream section **14**. The downstream section **14** is located downstream of the aerosol-generating section **12**. The upstream end of the aerosol-generating section **12** corresponds to the upstream end of the aerosol-generating article **10**. The downstream end of the downstream section **14** corresponds to the downstream end of the aerosol-generating article **10**. The aerosol-generating section **12** has a length of 14 millimetres. The downstream section has a length of 31 millimetres.

[0718] The aerosol-generating section **12** comprises an aerosol-generating substrate **16** and a susceptor element **18** located within the aerosol-generating substrate **16**.

[0719] The aerosol-generating substrate **16** comprises 180 milligrams of tobacco cut filler. The tobacco cut filler is circumscribed by a wrapper (not shown). The tobacco cut filler comprises a plurality of strands of tobacco lamina. The tobacco cut filler comprises 90 percent by weight of tobacco lamina. The glycerine content of the tobacco cut filler is 18 percent by weight. The cut width of the tobacco cut filler is 1 millimetre. The aerosol-generating substrate has a density of 325 milligrams per cubic centimetre.

[0720] The susceptor element **18** is arranged longitudinally within the aerosol-generating substrate **16**. As shown in FIG. **1**, the susceptor **18** is positioned centrally within the aerosol-generating substrate **16** and extends along the longitudinal axis of the aerosol-generating section **12**. The susceptor element has a length of 12 millimetres, a width of 5 millimetres and a thickness of 60 micrometres. The ratio of the cut width of the tobacco cut filler to the width of the susceptor element **18** is 0.2.

[0721] The downstream section **14** comprises a support element **20** and a mouthpiece element **22**.

[0722] The support element **20** is located immediately downstream of the aerosol-generating section **12**. The upstream end of the support element **20** abuts the downstream end of the aerosol-generating section **12**. The support element has a length of 24 millimetres. As shown in FIG. **1**, the support element **20** is a hollow tubular element. The hollow tubular element has an internal diameter of 6.7 millimetres. The hollow tubular element is a hollow cylindrical cardboard tube. The thickness of the peripheral wall of the hollow cylindrical cardboard tube is 0.25 millimetres. The hollow tubular element defines an internal cavity or lumen that extends from the upstream end of the hollow tubular element to the downstream end of the hollow tubular element. The internal cavity is substantially empty. In use, airflow through the internal cavity defined by the hollow tubular element is substantially unrestricted. The hollow tubular element does not substantially contribute to the overall RTD of the aerosol-generating article **10**. The RTD of the support element **20** is 0 millimetres H_2O.

[0723] The aerosol-generating article **10** comprises a ventilation zone **24** at a location along the downstream section **14**. The distance between the ventilation zone and the downstream end of the downstream section **14** is 18 millimetres. The distance between the ventilation zone and the upstream end of the aerosol-generating section **12** is 27 millimetres. As shown in FIG. **1**, the ventilation zone is at a location along the support element **20**. The ventilation zone **24** comprises a circumferential row of perforations. The perforations extend through the peripheral wall of the hollow cylindrical cardboard tube. In use, the perforations allow air flow from the exterior of the aerosol-generating article **10** into the internal cavity defined by the hollow tubular element.

[0724] The mouthpiece element **22** is located immediately downstream of the support element **20**. The upstream end of the mouthpiece element **22** abuts the downstream of the support element **20**. The downstream end of the mouthpiece element **22** corresponds to the downstream end of the aerosol-generating article **10**. The mouthpiece element **22** has a length of 7 millimetres. The mouthpiece element **22** is a cylindrical segment of low-density, cellulose acetate tow circumscribed by a wrapper (not shown). The RTD of the mouthpiece element **22** is 8 millimetres H_2O.

[0725] The aerosol-generating article **10** comprises an upstream wrapper (not shown) circumscribing the aerosol-generating section **12** and an adjacent upstream portion of the support element **20** of the downstream section **14**. The upstream wrapper has a length of 24 millimetres.

[0726] The aerosol-generating article **10** also comprises a downstream wrapper (not shown) circumscribing the mouthpiece element **22** and an adjacent downstream portion of the support element **20** of the downstream section **14**. The downstream wrapper has a length of 26 millimetres. The downstream wrapper overlies a downstream portion of the upstream wrapper.

[0727] The perforations of the ventilation zone **24** extend through the upstream wrapper and the downstream wrapper.

[0728] FIG. **2** shows an aerosol-generating article **30** in accordance with a second embodiment of the first aspect of the invention. The aerosol-generating article **30** shown in FIG. **2** is similar to the aerosol-generating article **10** shown in FIG. **1** and described above. Accordingly, the aerosol-generating article **30** shown in FIG. **2** will be described only insofar as it differs from the aerosol-generating article **10** shown in FIG. **1**.

[0729] The aerosol-generating article **30** shown in FIG. **2** differs from the aerosol-generating article **10** shown in FIG. **1** in that it comprises an upstream section **32**. The upstream section **32** is located upstream of the aerosol-generating section **12**. The upstream end of the upstream section **32** corresponds to the upstream end of the aerosol-generating article **30**. The upstream section has a length of 5 millimetres.

[0730] The upstream section **32** comprises an upstream element **34**. The upstream element **34** is located immediately upstream of the aerosol-generating section **12**. The downstream end of the upstream element **34** abuts the upstream end of the aerosol-generating section **12**. The upstream end of the upstream element **34** corresponds to the upstream end of the aerosol-generating article **30**. The upstream element has a length of 5 millimetres. The upstream element **34** is a cylindrical segment of cellulose acetate circumscribed by a wrapper (not shown). The RTD of the upstream element is 30 millimetres H_2O.

[0731] The aerosol-generating article **30** shown in FIG. **2** also differs from the aerosol-generating article **10** shown in FIG. **1** in that the aerosol-generating section **12** has a length of 12 millimetres.

[0732] The aerosol-generating article **30** shown in FIG. **2** also differs from the aerosol-generating article **10** shown in FIG. **1** in that aerosol-generating substrate **16** comprises 150 milligrams of tobacco cut filler. The glycerine content of the tobacco cut filler is 17 percent by weight. The cut width of the tobacco cut filler is 0.7 millimetres. The aerosol-generating substrate has a density of 316 milligrams per cubic centimetre.

[0733] The aerosol-generating article **30** shown in FIG. **2** also differs from the aerosol-generating article **10** shown in FIG. **1** in that susceptor element has a length of 12 millimetres, a width of 4 millimetres and a thickness of 60 micrometres. The ratio of the cut width of the tobacco cut filler to the width of the susceptor element **18** is 0.175. The susceptor element **18** is positioned centrally within the aerosol-generating substrate **16** and extends along the longitudinal axis of the aerosol-generating section **12** from the upstream end of the aerosol-generating section **12** to the downstream end of the aerosol-generating section **12**.

[0734] The aerosol-generating article **30** shown in FIG. **2** also differs from the aerosol-generating article **10** shown in FIG. **1** in that the downstream section has a length of 28 millimetres and the support element **20** has a length of 21 millimetres.

[0735] FIG. **3** shows an aerosol-generating article **40** in accordance with a third embodiment of the first aspect of the invention. The aerosol-generating article **40** shown in FIG. **3** is similar to the aerosol-generating article **30** shown in FIG. **2** and described above. Accordingly, the aerosol-generating article **40** shown in FIG. **3** will be described only insofar as it differs from the aerosol-generating article **30** shown in FIG. **3**.

[0736] The aerosol-generating article **40** shown in FIG. **3** differs from the aerosol-generating article **30** shown in FIG. **2** in that the upstream element **34** is a hollow tubular element. The hollow tubular element has an internal diameter of 5.1 millimetres. The hollow tubular element is a hollow cylindrical cellulose acetate tube circumscribed by a wrapper (not shown). The thickness of the peripheral wall of the hollow cylindrical cellulose acetate tube is 1 millimetre. The hollow tubular element defines an internal cavity that extends from the upstream end of the hollow tubular element to the downstream end of the hollow tubular element. The internal cavity is substantially empty. In use, airflow through the internal cavity defined by the hollow tubular element is substantially unrestricted. The hollow tubular element does not substantially contribute to the overall RTD of the aerosol-generating article **10**. The RTD of the upstream element is 1 millimetre H_2O.

[0737] The aerosol-generating article **40** shown in FIG. **3** also differs from the aerosol-generating article **30** shown in FIG. **2** in that the aerosol-generating substrate **16** comprises 210 milligrams of tobacco cut filler. The glycerine content of the tobacco cut filler is 18 percent by weight. The cut width of the tobacco cut filler is 0.6 millimetres. The aerosol-generating substrate has a density of 442 milligrams per cubic centimetre. The ratio of the cut width of the tobacco cut filler to the width of the susceptor element **18** is 0.15.

[0738] FIG. **4** shows an aerosol-generating system **100** in accordance with an embodiment of the second aspect of the invention. The aerosol-generating system **100** comprises the aerosol-generating article **40** in accordance with the third embodiment of the first aspect of the invention shown in FIG. **3** and an aerosol-generating device **110**.

[0739] The aerosol-generating device **110** comprises a housing **112**. The housing **112** defines a device cavity **114** configured to receive the aerosol-generating article **40**. The aerosol-generating device comprises an induction element **116**. The induction element **116** is located around a perimeter of the device cavity **114**.

[0740] As shown in FIG. **4**, the aerosol-generating system **100** is configured such that the ventilation zone **24** at a location along the support element **20** of the downstream section **14** of the aerosol-generating article **40** is exposed when the aerosol-generating article **40** is received within the device cavity **116** of the aerosol-generating device **110**.

[0741] The aerosol-generating device **110** further comprises a power supply in the form of a battery (not shown), such as a rechargeable lithium ion battery, and control circuitry (not shown). The control circuitry controls the supply of electrical power from the battery to the induction element **116**.

[0742] In use, a fluctuating or alternating electromagnetic field produced by the induction element **116** induces eddy currents in the susceptor element **18** in the aerosol-generating section of the aerosol-generating article **40**. This causes the susceptor element **18** in the aerosol-generating section of the aerosol-generating article **40** to heat up.

[0743] A user draws on the mouthpiece element **22** of the aerosol-generating article **40**. The aerosol-generating system **100** is configured such that when a user draws on the mouthpiece element **22**, air is drawn into the aerosol-generating article **40** through the upstream end of the aerosol-generating article **40**. The drawn air passes downstream through the internal cavity of the upstream element **34** of the upstream section **32** of the aerosol-generating article **40** to the aerosol-generating section **12** of the aerosol-generating article **40**.

[0744] The aerosol-generating substrate **16** of the aerosol-generating section **12** of the aerosol-generating article **40** is heated by conductive heat transfer from the susceptor element **18**. Heating of the aerosol-generating substrate **16** releases volatile and semi-volatile compounds from the tobacco cut filler, which form an aerosol that is entrained in the drawn air as it flows through the aerosol-generating substrate **16**. The drawn air and entrained aerosol pass through the internal cavity of the support element **20** of the downstream section **14** of the aerosol-generating article **40**, where they cool and condense. The cooled aerosol then passes through the mouthpiece element **22** of the downstream section **14** of the aerosol-generating article **40** into the mouth of the user.

[0745] FIG. **5** shows an aerosol-generating article **210** for use in an aerosol-generating system in accordance with the third aspect of the invention. The aerosol-generating article **210** shown in FIG. **5** is similar to the aerosol-generating article **10** shown in FIG. **1** and described above. Accordingly, the aerosol-generating article **210** shown in FIG. **5** will be described only insofar as it differs from the aerosol-generating article **10** shown in FIG. **1**.

[0746] The aerosol-generating article **210** shown in FIG. **5** differs from the aerosol-generating article **10** shown in FIG. **1** in that it does not comprise a susceptor element **18** within the aerosol-generating substrate **16** of the aerosol-generating

section **12**. FIG. **6** shows an aerosol-generating article **220** for use in an aerosol-generating system in accordance with the third aspect of the invention. The aerosol-generating article **220** shown in FIG. **6** is similar to the aerosol-generating article **210** shown in FIG. **5** and described above. Accordingly, the aerosol-generating article **220** shown in FIG. **6** will be described only insofar as it differs from the aerosol-generating article **210** shown in FIG. **5**.

[0747] The aerosol-generating article **220** shown in FIG. **6** differs from the aerosol-generating article **210** shown in FIG. **5** in that the support element **20** is a hollow cylindrical cellulose acetate tube having an internal diameter of 5.1 millimetres. The thickness of the peripheral wall of the hollow cylindrical cellulose acetate tube is 1 millimetre.

[0748] FIG. **7** shows an aerosol-generating article **240** for use in an aerosol-generating system in accordance with the third aspect of the invention. The aerosol-generating article **240** shown in FIG. **7** is similar to the aerosol-generating article **40** shown in FIG. **3** and described above. Accordingly, the aerosol-generating article **240** shown in FIG. **7** will be described only insofar as it differs from the aerosol-generating article **40** shown in FIG. **3**.

[0749] The aerosol-generating article **240** shown in FIG. **7** differs from the aerosol-generating article **40** shown in FIG. **3** in that it does not comprise a susceptor element **18** within the aerosol-generating substrate **16** of the aerosol-generating section **12**.

[0750] The aerosol-generating article **240** shown in FIG. **7** also differs from the aerosol-generating article **40** shown in FIG. **3** in that the support element **20** is a hollow cylindrical cellulose acetate tube having an internal diameter of 5.1 millimetres. The thickness of the peripheral wall of the hollow cylindrical cellulose acetate tube is 1 millimetre.

[0751] FIG. **8** shows an aerosol-generating system **400** in accordance with a first embodiment of the third aspect of the invention. The aerosol-generating system **400** comprises the aerosol-generating article **210** shown in FIG. **5** and an aerosol-generating device **410**.

[0752] The aerosol-generating device **410** shown in FIG. **8** is similar to the aerosol-generating device **110** shown in FIG. **4** and described above. Accordingly, the aerosol-generating device **410** shown in FIG. **8** will be described only insofar as it differs from the aerosol-generating device **110** shown in FIG. **4**.

[0753] The aerosol-generating device **410** shown in FIG. **8** differs from the aerosol-generating device **110** shown in FIG. **4** in that it comprises an internal heating element **418** located within the device cavity **114**. The internal heating element **418** is a susceptor element.

[0754] The internal heating element **418** is substantially cylindrical. The internal heating element **418** has a length of 12 millimetres and a diameter of 2 millimetres. As shown in FIG. **8**, the internal heating element **418** is positioned centrally within the device cavity **114** of the aerosol-generating device **410** and extends along the longitudinal axis of the device cavity **114**.

[0755] In use, a fluctuating or alternating electromagnetic field produced by the induction element **116** located around the perimeter of the device cavity **114**. induces eddy currents in the internal heating element **418** located within the device cavity **114**. This causes the internal heating element **418** to heat up.

[0756] The internal heating element **418** of the aerosol-generating device **410** may be provided with a pointed end (not shown) to facilitate insertion of the internal heating element **418** into the aerosol-generating substrate **16** of the aerosol-generating section **12** of the aerosol-generating article **210**.

[0757] The ratio of the cut width of the tobacco cut filler in the aerosol-generating section **12** of the aerosol-generating article **210** to the diameter of the internal heating element **418** of the aerosol-generating device **410** is 0.5.

[0758] A user draws on the mouthpiece element **22** of the aerosol-generating article **210**. The aerosol-generating system **400** is configured such that when a user draws on the mouthpiece element **22**, air is drawn into the aerosol-generating article **210** through the upstream end of the aerosol-generating article **210**. The drawn air passes downstream through the aerosol-generating section **12** of the aerosol-generating article **400**.

[0759] The aerosol-generating substrate **16** of the aerosol-generating section **12** of the aerosol-generating article **210** is heated by conductive heat transfer from the internal heating element **418** of the aerosol-generating device **410**. Heating of the aerosol-generating substrate **16** releases volatile and semi-volatile compounds from the tobacco cut filler, which form an aerosol that is entrained in the drawn air as it flows through the aerosol-generating substrate **16**. The drawn air and entrained aerosol pass through the internal cavity of the support element **20** of the downstream section **14** of the aerosol-generating article **210**, where they cool and condense. The cooled aerosol then passes through the mouthpiece element **22** of the downstream section **14** of the aerosol-generating article **210** into the mouth of the user.

[0760] FIG. **9** shows an aerosol-generating system **500** in accordance with a second embodiment of the third aspect of the invention. The aerosol-generating system **500** comprises the aerosol-generating article **210** shown in FIG. **5** and an aerosol-generating device **510**.

[0761] The aerosol-generating device **510** shown in FIG. **9** is similar to the aerosol-generating device **410** shown in FIG. **8** and described above. Accordingly, the aerosol-generating device **510** shown in FIG. **9** will be described only insofar as it differs from the aerosol-generating device **410** shown in FIG. **8**.

[0762] The aerosol-generating device **510** shown in FIG. **9** differs from the aerosol-generating device **410** shown in FIG. **9** in that it the internal heating element **518** is a resistive heating element rather than a susceptor element.

[0763] The aerosol-generating device **510** shown in FIG. **9** also differs from the aerosol-generating device **410** shown in FIG. **9** in that it does not comprise an induction element **116** located around the perimeter of the device cavity **114**.

[0764] In use, electrical current in the internal heating element **518** located within the device cavity **114** causes the internal heating element **518** to heat up. The aerosol-generating substrate **16** of the aerosol-generating section **12** of the aerosol-generating article **210** is heated by conductive heat transfer from the internal heating element **518** of the aerosol-generating device **510**.

[0765] The specific embodiments and examples described above illustrate, but do not limit, the invention. It is to be understood that other embodiments of the invention may be made and the specific embodiments and examples described herein are not exhaustive.

[0766] In particular, in the specific embodiments and examples described above the aerosol-generating substrate is tobacco cut filler comprising a plurality of strands of

tobacco lamina. However, it is to be understood that other embodiments of the invention may be made in which the aerosol-generating substrate comprises a plurality of strands of other aerosol-generating material. For example, other embodiments of the invention may be made in which the aerosol-generating substrate comprises a plurality of strands of homogenised tobacco material or a plurality of strands of nicotine-containing gel material.

[0767] For the purpose of the present description and of the appended claims, except where otherwise indicated, all numbers expressing amounts, quantities, percentages, and so forth, are to be understood as being modified in all instances by the term "about". In this context, therefore, a number A is understood as A±10 percent of A. Within this context, a number A may be considered to include numerical values that are within general standard error for the measurement of the property that the number A modifies. The number A, in some instances as used in the appended claims, may deviate by the percentages enumerated above provided that the amount by which A deviates does not materially affect the basic and novel characteristic(s) of the claimed invention. Also, all ranges include the maximum and minimum points disclosed and include any intermediate ranges therein, which may or may not be specifically enumerated herein.

1. An aerosol-generating system, comprising:

an aerosol-generating article comprising:

an aerosol-generating section comprising an aerosol-generating substrate comprising a plurality of strands of aerosol-generating material,

wherein the aerosol-generating substrate has a density of between 100 milligrams per cubic centimetre and 700 milligrams per cubic centimetre; and

an aerosol-generating device comprising an elongate internal heating element configured to be inserted into the aerosol-generating substrate of the aerosol-generating section of the aerosol-generating article,

wherein the aerosol-generating substrate is a star anise material, and

wherein a ratio of an average width of the plurality of strands of aerosol-generating material to a width of the elongate internal heating element is between 0.05 and 4.

2. The aerosol-generating system according to claim **1**, wherein the plurality of strands of aerosol-generating material have an average width of between 0.3 millimetre and 2 millimetres.

3. The aerosol-generating system according to claim **1**, wherein the elongate internal heating element has a width of between 0.5 millimetre and 5 millimetres.

4. The aerosol-generating system according to claim **1**, wherein the ratio of the average width of the plurality of strands of aerosol-generating material to the width of the elongate internal heating element is between 0.06 and 3.

5. The aerosol-generating system according to claim **1**, wherein the ratio of the average width of the plurality of strands of aerosol-generating material to the width of the elongate internal heating element is between 0.13 and 1.5.

6. The aerosol-generating system according to claim **1**, wherein the aerosol-generating substrate has a mass of between 120 milligrams and 340 milligrams.

7. The aerosol-generating system according to claim **1**, wherein the aerosol-generating substrate has a mass of between 160 milligrams and 220 milligrams.

8. The aerosol-generating system according to claim **1**, wherein a ratio of an average length of the plurality of strands of aerosol-generating material to a length of the elongate internal heating element is between 0.1 and 1.

9. The aerosol-generating system according to claim **1**, wherein the plurality of strands of aerosol-generating material have an average length of between 1 millimetre and 25 millimetres.

10. The aerosol-generating system according to claim **1**, wherein a ratio of the width of the elongate internal heating element to a width of the aerosol-generating section is between 0.1 and 0.8.

11. The aerosol-generating system according to claim **1**, wherein the aerosol-generating material comprises between 15 percent by weight and 30 percent by weight of aerosol former.

12. The aerosol-generating system according to claim **1**, wherein the aerosol-generating substrate has a density of between 275 milligrams per cubic centimetre and 500 milligrams per cubic centimetre.

13. The aerosol-generating system according to claim **1**, the aerosol-generating article further comprising an upstream section located upstream of the aerosol-generating section, the upstream section comprising an upstream element having a downstream end abutting the aerosol-generating section.

14. The aerosol-generating system according to claim **1**, the aerosol-generating article further comprising a downstream section located downstream of the aerosol-generating section, the downstream section comprising a support element having an upstream end abutting the aerosol-generating section.

15. The aerosol-generating system according to claim **14**, the aerosol-generating article further comprising a ventilation zone at a location along the downstream section.

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