

According to a first aspect of the invention, ~~there is provided a smoking article is described, the article comprising:~~ an aerosol generating substrate; a mouthpiece in axial alignment with the aerosol generating substrate, the mouthpiece comprising one or more segments, wherein at least one segment is a filter segment incorporating a particulate flavourant material; a substantially transparent wrapper circumscribing the mouthpiece along at least a part of the length of the mouthpiece; and an outer wrapper circumscribing the mouthpiece, wherein ~~the.~~ The outer wrapper overlies the substantially transparent wrapper and comprises at least one cut-out portion extending around less than the full circumference of the smoking article ~~mouthpiece~~ and exposing an area of the substantially transparent wrapper, through which an underlying portion of the filter segment of the mouthpiece ~~incorporating~~ including the particulate flavourant material is visible.

The term 'substantially transparent' is used to describe a material which allows at least a significant proportion of incident light to pass through it, so that it is possible to see through the material. In the present invention, the substantially transparent wrapper allows sufficient light to pass through it that the mouthpiece is visible through the wrapper. The substantially transparent wrapper may be completely transparent. Alternatively, the wrapper may have a lower level of transparency whilst still transmitting sufficient light that the mouthpiece is visible through the wrapper.

The thickness of the substantially transparent wrapper is preferably at least 25 micrometers, and more preferably between 25 micrometers and 75 micrometers. The basis weight of the substantially transparent wrapper is preferably at least 40 grams per square meter (gsm), and more preferably between 40 gsm and 80 gsm. Suitable materials for use as the substantially transparent wrapper of the smoking articles according to the present invention include but are not limited to cellophane and polypropylene. Different grades, thicknesses and basis weights of suitable substantially transparent materials are commercially available from various sources. For example, Innovia Films Ltd. makes a variety of different grades of such materials.

In some cases, the substantially transparent wrapper may be tinted or coloured, or may have a repeating pattern or other type of graphic applied thereto. For example, the substantially transparent wrapper may have a pattern embossed on the surface. The embossed pattern lowers the surface area of the substantially transparent wrapper that contacts the lips of a consumer, reducing any unappealing mouth feel of the substantially transparent wrapper. In some cases, the image of the area of the mouthpiece that is visible through the cut-out portion in the outer wrapper will be visually altered by the substantially transparent wrapper.

In smoking articles according to an embodiment of the present invention, a portion of the mouthpiece including the particulate flavourant material is visible to the consumer through the window formed by the cut-out portion in the outer wrapper and the underlying area of the substantially transparent wrapper. The outer wrapper does not need to be formed of a transparent material

In certain preferred embodiments, the particulate flavourant material may include particles of a sorbent or cellulosic material impregnated with a liquid flavourant. In some preferred embodiments, the particulate flavourant material may comprise particles of plant leaf, as described in EP-A-1,958,523. For example, the filter segment may include leaf from tobacco, green tea, peppermint, spearmint, laurel, eucalyptus, basil, sage, verbena and tarragon. In addition, portions of mint plants may also be used. The term 'mint' refers to plants that belong to the genus *Mentha*. The plant material may alternatively be in the form of a seed, root, bark or flower, such as those typically used as spices.

If desired, the particulate flavourant material may be coloured, for example through the addition of a suitable dye or pigment. For example, the particulate flavourant material may be of a colour that corresponds to the flavour provided by the material, such as a green colour for a mint flavour.

The mouthpiece of smoking articles according to an embodiment of the present invention may alternatively include a particulate material that does not comprise a flavourant, such as beads or granules of a cellulosic material or a sorbent.

Smoking articles according to an embodiment of the present invention may be filter cigarettes or other smoking articles in which tobacco material or another combustible material is combusted to form smoke. Alternatively, smoking articles according to an embodiment of the present invention may be articles in which material is heated to form an aerosol, rather than combusted. In one type of heated smoking article, tobacco material or another aerosol forming material is heated by one or more electrical heating elements to produce an aerosol. In another type of heated smoking article, an aerosol is produced by the transfer of heat from a combustible or chemical heat source to a physically separate aerosol forming material, which may be located within, around or downstream of the heat source.

In certain preferred embodiments of the present invention, the aerosol generating substrate of the smoking article comprises a tobacco rod and the mouthpiece comprises a filter including one or more filter segments. Preferably, the substantially transparent wrapper and the outer wrapper both circumscribe the one or more filter segments along at least a part of the length of the filter such that an underlying portion of the filter including the particulate flavourant material is visible through the cut-out portion in the outer wrapper. In one particularly preferred embodiment, the outer wrapper is a tipping paper which joins the tobacco rod to the filter.

Where the mouthpiece of smoking articles according to the invention comprises a filter, the filter may be formed of a single segment or may be a multi-segment filter comprising two or more filter segments which are connected in a longitudinal direction. Where two or more filter segments are provided, the filter segments may be of the same construction and materials as each other but more preferably have a different construction, or contain different filtration

wrapper. The particulate material within the cavity is therefore visible to the consumer. In such embodiments, the hollow cavity is preferably provided between two plugs of a filtration material.

Preferably, between 40% and 100% of the volume of the cavity is filled with particulate material, more preferably between 60% and 80% of the volume of the cavity. Cavity filters according to the second aspect of the invention may be produced using known machinery and techniques for producing charcoal filters. In one such technique, two plugs of filtration material are placed on a substantially transparent wrapper material with a space between them. The space between them is at least partially filled with the particulate material, and then the substantially transparent wrapper is wrapped around the plugs, forming a cavity between the plugs that is at least partially filled with the particulate material. A detailed process is described, for example, in EP-A-1,571,933. Machinery for performing these manufacturing methods is available from Filtrona International Ltd., Great Britain.

The mouthpiece may further comprise at least one sorbent capable of removing at least one gas phase constituent from mainstream smoke drawn through the filter. Preferably, the at least one sorbent is selected from the group consisting of activated carbon, carbon beads, active aluminium, zeolites, sepiolites, molecular sieves and silica gel.

Smoking articles according to an embodiment of the present invention may include a variety of different types of filter segments or combinations of filter segments, including those described above as well as other types of filter segments that would be known to the skilled person, such as segments including restrictors and segments that are used for adjusting the resistance to draw (RTD).

Preferably, the at least one cut-out portion in the outer wrapper is provided at least 10 mm from the mouth end of the smoking article. This spacing helps to avoid any contact between the lips of the consumer and the area of the substantially transparent wrapper that is exposed through the cut-out portion, during smoking.

Preferably, at least one circumferential row of perforations is provided at a location along the smoking article, wherein the perforations extend through the substantially transparent wrapper, if present at that location, and the outer wrapper. This provides ventilation to the smoking article, so that the mainstream smoke is mixed with ambient air during smoking. The substantially transparent wrapper will typically be non-porous and so where the substantially transparent wrapper underlies the location at which the perforations are provided, the perforations must extend through the substantially transparent wrapper as well as the outer wrapper. Where the mouthpiece comprises a filter, the circumferential rows of perforations are preferably provided at a location along the filter.

Preferably, the at least one circumferential row of perforations is located upstream of the cut-out portion in the outer wrapper. The term "upstream" is used to describe the relative

positions of features of the smoking articles according to the invention in relation to the direction of mainstream smoke or air drawn from the aerosol generating substrate through the mouthpiece during use. The upstream location of the perforations advantageously minimises the deposition of particulate matter onto the substantially transparent wrapper underlying the cut-out portion, which could otherwise affect the visibility of the filter through the cut-out portion in the outer wrapper.

Where the mouthpiece comprises a filter, preferably, the perforations are provided between 9 mm and 20 mm from the mouth end of the filter. More preferably, the perforations are provided approximately 12 mm from the mouth end of the filter. This prevents the blocking or occlusion of the perforations by the consumer's lips during smoking.

The present invention further provides a method of producing a smoking article according to an embodiment of the present invention, as described above, the method comprising: providing a plurality of discrete, wrapped filters wrapped with a substantially transparent wrapper, the filters comprising one or more filter segments; providing a rod of wrapped tobacco; providing a sheet of outer wrapper having a succession of cut-out portions therein; disposing one of the wrapped filters in axial alignment with one of the tobacco rods; and wrapping the sheet of outer wrapper around at least a portion of a wrapped filter and at least a portion of an adjacent tobacco rod such that the outer wrapper attaches the wrapped filter to the tobacco rod and the cut out portion overlies the substantially transparent wrapper.

The cut-out portions in the outer wrapper may be provided using any suitable means, including for example laser cutting or rotary die-cutting or punching methods. Suitable apparatus for laser cutting includes the High-Speed Laser Die Cutting Machine or Finecut-Plus-Rotary™ System from Spartanics of Illinois, USA. Suitable apparatus for rotary die-cutting or rotary punching includes the Small Web Punching Machine from Schober GmbH of Germany. The cutting of the outer wrapper to provide the cut-out portions is preferably carried out on a continuous sheet of the wrapper material, prior to the cutting of the material to form discrete outer wrappers for each smoking article. However, it may also be possible to use certain cutting techniques with which the cut-out portions can be formed in the outer layer only, once the tipping material is in place around the mouthpiece.

The cutting of the outer wrapper to provide the cut-out portions may be carried out online on a cigarette maker, by incorporating cutting apparatus at any position on the machine after the outer wrapper has been unwound and before the outer wrapper is wrapped around the smoking article components.

Alternatively, the cutting of the outer wrapper to provide the cut-out portions may be carried out offline from the cigarette maker, using separate apparatus which may be provided at the same or a different location to the cigarette maker. In this case, the steps of the method of

the present invention can be carried out using standard wrapping techniques and apparatus to apply the novel arrangement of the substantially transparent wrapper and outer wrapper with cut-out portions.

5 The spacing of the cut-out portions in the outer wrapper can be adjusted according to the number and desired position of cut-out portions in each smoking article.

The continuous sheet of tipping material is cut to form discrete, individual outer wrappers for individual smoking articles, each having the cut-out portion provided in the desired position. The cutting of the outer wrapper may take place before the outer wrapper is wrapped around the smoking article. Alternatively, the smoking articles can be formed two at a time in a known
10 manner. For example, a filter rod comprising the filter segments for more than one filter may have a tobacco rod placed at both ends of the filter rod. A piece of outer wrapper tipping material may be wrapped around the filter rod and an adjacent portion of both of the tobacco rods. In this process, the cut-out in the outer wrapper is positioned to overlie the portion of the filter that is desired to be visible. After wrapping, the piece of outer wrapper tipping material and
15 the filter rod are cut to form the two adjacent smoking articles.

A suitable vision system, including for example one or more cameras, is preferably used to ensure registration of the cut-out portions in the desired position on the filter of the smoking articles.

Where circumferential lines of perforations are provided in the outer wrapper and the
20 substantially transparent wrapper (where present at the position of the perforations), the perforations are preferably provided online using a known laser technique. The position of the perforations is registered so that the perforations are at least 9 mm and preferably at least 12 mm from the mouth end of the smoking article.

According to a second aspect of the invention, there is also provided use of an outer
25 wrapper on a smoking article comprising an aerosol generating substrate and a mouthpiece, wherein the outer wrapper comprises at least one cut-out portion extending around less than the full circumference of the mouthpiece.

The invention will now be further described with reference to the following drawings in which:

30 Figure 1 shows a smoking article according to a first embodiment of the present invention;

Figure 2 shows the smoking article of Figure 1 with the filter unwrapped;

Figure 3 shows a plan view of the outer wrapper of the smoking articles shown in Figures 1 and 2 (not to scale);

35 Figure 4 shows a smoking article according to a second embodiment of the present invention with the filter unwrapped; and