SMOKING ARTICLE WITH A MOUTH END CAVITY AND VENTILATION

The present invention relates to a smoking article having a mouth end cavity defined by a hollow tube segment.

Filter cigarettes typically comprise a cylindrical rod of tobacco cut filler surrounded by a paper wrapper and a cylindrical filter axially aligned in an abutting end-to-end relationship with the wrapped tobacco rod. The cylindrical filter typically comprises a filtration material circumscribed by a paper plug wrap. Conventionally, the wrapped tobacco rod and the filter are joined by a band of tipping wrapper, normally formed of an opaque paper material that circumscribes the entire length of the filter and an adjacent portion of the wrapped tobacco rod. Smoking articles having a cavity at the mouth end of their filter section have also been proposed.

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

As noted above, in some cases, a smoking article may have a cavity at the mouth end of the filter. Such mouth end cavities are typically formed by extending the plug wrap, the tipping paper, or both the plug wrap and the tipping paper of the filter beyond the most downstream segment of filtration material. However, typical plug wraps may not provide sufficient strength when the length of the mouth end cavity is increased. There is therefore a risk of deformation of such mouth end cavities as the length of the cavity is increased.

It would therefore be desirable to provide a filtered smoking article having a mouth end cavity of increased length, which is less likely to be vulnerable to deformation. At the same time, it would be desirable to provide such a filtered smoking article that could be manufactured using standard apparatus and techniques, without the requirement for significant changes to existing machines and methods. Furthermore, it would be desirable to provide such a filtered smoking article, without undesirably altering the general smoking experience for a consumer.

According to a first aspect of the present invention, there is provided

a smoking article comprising: a tobacco rod; and a filter connected to the tobacco rod by a tipping wrapper, the filter comprising: a hollow mouth end portion formed by a hollow tube segment that is disposed at the mouth end of the filter; and a filtration portion upstream of the hollow mouth end portion, the filtration portion comprising one or more filter segments; wherein the hollow mouth end portion defines a cavity at the mouth end of the filter providing an unrestricted flow channel that extends from the downstream end of the filtration portion to the mouth end of the filter, wherein the length of the hollow mouth end portion is at least about 25 percent of the overall filter length and wherein the smoking article comprises a ventilation zone comprising at least one circumferential row of perforations provided at a location around the filtration portion, wherein the length of the hollow tube segment is at least about 10 mm, and wherein the hollow tube segment is formed from a plurality of overlapping paper layers.

As used herein, the terms "upstream" and "downstream" are used to describe the relative positions of elements, or portions of elements, of the smoking article in relation to the direction in which a consumer draws on the smoking article during use thereof. Smoking articles as described herein comprise a downstream end and an opposed upstream end. In use, a consumer draws on the downstream end of the smoking article. The downstream end, which is also described as the mouth end, is downstream of the upstream end, which may also be described as the distal end.

The expression "unrestricted flow" is used throughout this specification to indicate that the hollow tube segment internally defines a channel having a substantially constant cross-sectional area for the smoke and air to flow through. Further, the expression "unrestricted flow channel" is used throughout this specification to indicate that the hollow tube segment does not contain any object which may cause a local restriction of the flow of the smoke and air. In other words, the hollow tube segment is empty. Thus, the cross-sectional area available for the smoke and air to flow through is substantially constant along the whole length of the hollow tube segment and flow of smoke and air through the hollow tube segment is substantially unobstructed.

The expression "overall filter length" is used throughout this specification to refer to the sum of the length of the various components forming the filter. Thus, the expression "overall filter length" should be construed as referring at least to the sum of the length of the hollow tube segment and the length of the first filter segment. Similarly, if the smoking article comprises more than one filter segments upstream of the hollow tube segment, the expression "overall filter length" should be construed as referring to the sum of the length of the hollow tube segment and the length of each of the other filter segments in the smoking article.

The hollow mouth end portion may be formed by a plug wrap circumscribing the one or more segments of the filtration portion, and extending downstream of the filtration portion to define the cavity at the mouth end. In such embodiments, the plug wrap preferably has a basis weight of at least about 70 grams per square metre, preferably at least about 80 grams per

square metre. The plug wrap may have a basis weight of between about 120 grams per square metre and about 70 grams per square metre, preferably of between about 80 grams per square metre and about 100 grams per square metre. Most preferably, the plug wrap has a basis