SMOKING ARTICLE WRAPPER HAVING A WINDOW

The present invention relates to a wrapper for a smoking article, the wrapper formed from a sheet material having a window. The present invention also relates to smoking articles comprising such a wrapper.

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.

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 a flavour generating substrate, such as tobacco. Known heated smoking articles include, for example, electrically heated smoking articles and smoking articles in which an aerosol is generated by the transfer of heat from a combustible fuel element or heat source to a physically separate aerosol forming material. During smoking, volatile compounds are released from the aerosol forming substrate by heat transfer from the fuel element 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. Smoking articles in which a nicotine-containing aerosol is generated from a tobacco material, tobacco extract or other nicotine source, without combustion or heating, are also known.

Sometimes it is desirable to provide a smoking article wrapper, such as a tipping wrapper, with an aperture extending therethrough, so that the aperture forms a window to permit a consumer to view the underlying portion of the smoking article. However, the present inventors have recognised that providing such a window in the wrapper reduces tension in the wrapper in certain directions in the vicinity of the window. The result is that the wrapper may tend to lift away from the underlying smoking article in the vicinity of the window. This problem is exacerbated by the fact that it is impractical to locate any adhesive between the wrapper and the underlying smoking article in the vicinity of the window without the adhesive creeping into the window itself. Such lifting of wrappers having a window is undesirable since it creates a portion of the wrapper which may become caught on production line machinery and it reduces the perceived quality of the product. It would therefore be desirable to provide a wrapper for a smoking article, the wrapper having a window arranged such that lifting of the wrapper away from the smoking article is reduced or eliminated.

According to one aspect, there is provided a smoking article comprising: an aerosol generating substrate;a mouthpiece; and a wrapper wrapped around at least a portion of the

mouthpiece and at least a portion of the aerosol generating substrate to secure the mouthpiece to the aerosol generating substrate, wherein the wrapper comprises: a sheet material extending in a first direction in which the wrapper is wrapped around the mouthpiece and the aerosol generating substrate, and a second direction perpendicular to the first direction; and a window in the sheet material, the window having a perimeter; wherein any linear segment of the perimeter forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres; wherein any curved portion of the perimeter having a continuum of tangents each forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres; wherein such linear segments and curved portions of the perimeter are spaced apart by a distance of at least 0.5 millimetres along the length of the perimeter; wherein the perimeter includes at least one linear segment forming an angle of less than 10 degrees with respect to the second direction and having a length of less than 0.5 millimetres; and wherein the window has a width of at least about 2 millimetres.

According to another aspect, there is provided a wrapper for a smoking article, the wrapper comprising: a sheet material extending in a first direction in which the wrapper is wrapped around a smoking article and a second direction perpendicular to the first direction; and a window in the sheet material, the window having a perimeter; wherein any linear segment of the perimeter forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres; wherein any curved portion of the perimeter having a continuum of tangents each forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres; wherein such linear segments and curved portions of the perimeter are spaced apart by a distance of at least 0.5 millimetres along the length of the perimeter; wherein the perimeter includes at least one linear segment forming an angle of less than 10 degrees with respect to the second direction and having a length of less than 0.5 millimetres; and wherein the window has a width of at least about 2 millimetres. ~~The present invention provides~~There is also disclosed a wrapper for a smoking article, the wrapper comprising a sheet material extending in a first direction in which the wrapper is wrapped around a smoking article and a second direction perpendicular to the first direction. The wrapper further comprises a window in the sheet material, the window having a perimeter. Any linear segment of the perimeter forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres, and any curved portion of the perimeter having a continuum of tangents each forming an angle of less than 10° with respect to the second direction has a length of less than 0.5 millimetres. Such linear segments and curved portions of the perimeter are spaced apart by a distance of at least 0.5 millimetres along the length of the perimeter.

The term "window" is used herein to mean any aperture, opening or cut-out extending through the sheet material. Although the window may be formed using conventional methods such as die cutting, the window is preferably formed using laser cutting.

The sheet material extends in a first direction and a second direction perpendicular to the first direction. The first direction is the direction of wrapping, that is, the direction in which the wrapper is wrapped when wrapped around a smoking article. Once wrapped, the second direction is parallel to the longitudinal axis of the smoking article.

The term "perimeter" is used herein to mean the inside edge of the sheet material that delimits the window. Therefore, the perimeter is a closed loop. The perimeter is formed from one or more line segments, which may be linear, curved, or a combination of the two. For example, an ellipse may be formed from a single curved line segment and a square is formed from four linear line segments.

Each line segment of the perimeter forms two angles with respect to the second direction. For example, as shown in Figure 1, which illustrates a portion of a wrapper 10 having a window 12, the linear line segment 14 forms a first angle 16 and a second angle 18 with respect to the second direction 20. Similarly, a series of tangents to the curved line segment 22 will each form a first angle 16 and a second angle 18 with respect to the second direction 20. For clarity, only a single tangent 26 is shown in Figure 1; however, the skilled person will appreciate that a tangent can be drawn at any point along a curved line segment such that any curved line segment will have an associated series of tangents along its length. Such a series of tangents is referred to herein as a "continuum of tangents". The term "continuum of tangents" may be used to refer to a series of tangents along the entire length of a curved line segment or a continuous subset of such tangents along only part of the curved line segment. As used herein, the term "curved portion" may refer to an entire curved line segment, or only a part of such a line segment.