

NOVEL FILTER SEGMENT COMPRISING A SUBSTRATE LOADED WITH A SMOKE-MODIFYING AGENT

The present invention relates to a filter segment comprising at least one smoke-modifying agent for use in a filter of a smoking article and to a filter and a smoking article comprising such a filter segment.

Filter cigarettes generally comprise a rod of tobacco cut filler surrounded by a paper wrapper and a cylindrical filter aligned in end-to-end relationship with the wrapped tobacco rod and attached thereto by tipping paper. Typically, filter cigarettes are ventilated and allow for the entry of atmospheric air into the cigarette elsewhere than through its front area (that is the end of the cigarette to be lit). In use, the entry of ventilating air dilutes the mainstream smoke in each puff. The higher the level of ventilation, the greater the dilution of the mainstream smoke drawn through the cigarette filter.

In conventional ventilated filter cigarettes, the filter may consist of a single segment of filtration material, typically cellulose acetate tow, wrapped in porous plug wrap. Alternatively, the filter may be a multi-segment filter comprising two or more segments of filtration material for the removal of particulate and gaseous components of the mainstream smoke. To enhance or modify the flavour of the mainstream smoke, it is also known to provide filter cigarettes and other smoking articles with single and multi-segment filters that include flavourants.

For example, US-A-4,281,671 describes a tobacco smoke filter comprising a rod of tobacco smoke filtering material, such as cellulose acetate tow, a thread passing longitudinally through the body of the rod, and a smoke-modifying agent, such as a flavouring material, carried by the thread. In use, the flavouring material or other smoke-modifying material becomes entrained in smoke passing through the filter. Other filters for smoking articles comprising flavour-bearing threads or yarns have also been described in the art.

Known flavour-bearing threads for use in filters are typically formed from cotton or cellulose acetate. There is a need for an improved carrier for smoke-modifying agents for use in filters for smoking articles such as cigarettes.

In accordance with a first aspect of the present invention, there is provided a filter segment for use in a filter of a smoking article, the filter segment comprising a non-laminar substrate loaded with at least one smoke-modifying agent, wherein the non-laminar substrate is located within the body of the filter segment and is formed from filter plug wrap having an air permeability of at least about 3000 Coresta units.

In accordance with a second aspect of the present invention, there is provided a bobbin of thread for use in the manufacture of a filter segment according to the first aspect of the present invention, wherein the thread is formed from filter plug wrap having an air permeability of at least about 3000 Coresta units and has a diameter of between about 0.5 mm and about 3 mm.

In accordance with a third aspect of the present invention, there is provided a filter for a smoking article comprising a filter segment according to the first aspect of the present invention.

In accordance with a fourth aspect of the present invention, there is provided a multi-segment filter for a smoking article comprising a filter segment according to the first aspect of the present invention at the mouth end thereof.

In accordance with a fifth aspect of the present invention, there is provided a smoking article comprising a filter according to the third and fourth aspect of the present invention.

In accordance with a sixth aspect of the present invention, there is provided the use of filter plug wrap having an air permeability of at least about 3000 Coresta units as a non-laminar substrate for at least one smoke-modifying agent within the body of a filter segment for a filter for a smoking article.

In accordance with a seventh aspect of the present invention, there is provided a method of modifying smoke produced by a smoking article comprising a filter, the method comprising providing a non-laminar substrate formed from filter plug wrap having an air permeability of at least about 3000 Coresta units loaded with at least one smoke-modifying agent within the body of a filter segment of the filter.

According to the present invention there is provided a filter segment for use in a filter of a smoking article, the filter segment comprising a non-laminar substrate loaded with at least one smoke-modifying agent, wherein the substrate is located within the body of the filter segment and is formed from filter plug wrap having an air permeability of at least about 3000 Coresta units.

The air permeability in Coresta units is the amount of air in cubic centimetres that passes through one square centimetre of the filter plug wrap in one minute at a constant pressure difference of one kilopascal (that is, 1 Coresta unit corresponds to an air permeability of $1 \text{ cm}^3/\text{min.cm}^2$ at a pressure differential of 1 kPa).

CLAIMS:

1. A filter segment ~~(16)~~ for use in a filter ~~(14)~~ of a smoking article ~~(10, 20, 20, 40, 50)~~, the filter segment ~~(16)~~ comprising a non-laminar substrate ~~(20)~~ loaded with at least one smoke-modifying agent, wherein the non-laminar substrate ~~(20)~~ is located within the body of the filter segment ~~(16)~~ and is formed from filter plug wrap having an air permeability of at least about 3000 Coresta units.
2. A filter segment ~~(16)~~ according to claim 1 wherein the non-laminar substrate ~~(20)~~ is formed from filter plug wrap having an air permeability of between about 5000 Coresta units and about 30000 Coresta units.
3. A filter segment ~~(16)~~ according to claim 2 wherein the non-laminar substrate ~~(20)~~ is formed from filter plug wrap having an air permeability of between about 6000 Coresta units and about 24000 Coresta units.
4. A filter segment ~~(16)~~ according to claim 1, 2 or 3 wherein the non-laminar substrate ~~(20)~~ is formed from filter plug wrap having a grammage of between about 10 g/m² and about 80 g/m².
5. A filter segment ~~(16)~~ according to any of claims 1 to 4 wherein the non-laminar substrate ~~(20)~~ is loaded with menthol.
6. A filter segment ~~(16)~~ according to any preceding claim wherein the non-laminar substrate ~~(20)~~ is coloured.
7. A filter segment ~~(16)~~ according to any preceding claim wherein the non-laminar substrate ~~(20)~~ is a thread formed from one or more strips of filter plug wrap.
8. A filter segment ~~(16)~~ according to claim 7 wherein the non-laminar substrate ~~(20)~~ has a diameter of between about 0.5 mm and about 3 mm.
9. A filter segment ~~(16)~~ according to claim 7 or 8 wherein the non-laminar substrate ~~(20)~~ extends axially within the body of the filter segment ~~(16)~~.

10. A bobbin of thread for use in the manufacture of a filter segment ~~(16)~~ according to any preceding claim, wherein the thread is formed from filter plug wrap having an air permeability of at least about 3000 Coresta units and has a diameter of between about 0.5 mm and about 3 mm.
11. A filter ~~(14)~~ for a smoking article ~~(10, 20, 30, 40, 50)~~ comprising a filter segment ~~(16)~~ according to any of claims 1 to 9.
12. A multi-segment filter ~~(14)~~ for a smoking article ~~(30, 50)~~ comprising a filter segment ~~(16)~~ according to any of claims 1 to 9 at the mouth end thereof.
13. A smoking article ~~(10, 20, 30, 40, 50)~~ comprising a filter ~~(14)~~ according to claim 11 or 12.
14. Use of filter plug wrap having an air permeability of at least about 3000 Coresta units as a non-laminar substrate ~~(20)~~ for at least one smoke-modifying agent within the body of a filter segment ~~(16)~~ for a filter ~~(14)~~ for a smoking article ~~(10, 20, 30, 40, 50)~~.
15. A method of modifying smoke produced by a smoking article ~~(10, 20, 30, 40, 50)~~ comprising a filter ~~(14)~~, the method comprising providing a non-laminar substrate ~~(20)~~ formed from filter plug wrap having an air permeability of at least about 3000 Coresta units loaded with at least one smoke-modifying agent within the body of a filter segment ~~(16)~~ of the filter ~~(14)~~.