

It would therefore be desirable to provide an additional means for identifying release of the fluid. It would be especially desirable to provide a solution that enables a consumer to use a sense other than smell or taste to determine release of the fluid.

It would also be desirable to provide a means that enables release of the fluid to be indicated to the consumer in a manner that remains visible.

According to an aspect of the present invention, there is provided a smoking article comprising a mouthpiece, a colour change segment and a rupturable, fluid-containing capsule, wherein the colour change segment is adapted to interact with the fluid from the rupturable fluid-containing capsule such that, upon interaction, the colour change segment shows a colour change when the capsule is ruptured, wherein the smoking article comprises a permeable outer wrapper which is in a first region covered with an impermeable coating, such that the first region is impermeable, wherein a second region, which is not covered by the impermeable coating, is permeable, and wherein the impermeable coating is varnish.

Thus, according to embodiments of the invention there is provided a smoking article comprising a mouthpiece with a colour change segment and a rupturable, fluid-containing capsule, wherein the colour change segment is adapted to interact with the fluid from the rupturable fluid-containing capsule such that, upon interaction the colour change segment shows a colour change visible from the outside of the smoking article when the capsule is ruptured.

A colour change provides a completely different way for a consumer to confirm the release of the fluid and has the further advantage that it is independent of the consumer's capacity to identify the release through a taste or flavour change.

The phrase "colour change segment" denotes a portion of the smoking article that changes colour when in contact with the fluid from the rupturable fluid-containing capsule. The colour change may comprise the generation of a colour that is different from the surrounding portion of the smoking article, the disappearance of a colour that is the same as the surrounding portion of the smoking article, the change from opaque to transparent of a segment, the change from transparent to opaque of a segment, the appearance of a motif, logo or other image, the change of a segment from any colour or mixture of colours to another colour or mixture of colours irrespective of whether these are the same or different from the surrounding portion of the smoking article or any other detectable change that comprises the appearance, disappearance or change of the colour or of a logo, image or motif of the portion of the smoking article. The colour change segment is preferably a segment of the mouthpiece, such as a filter segment, or a wrapper, such as a inner or outer wrapper.

The phrase "colour change" denotes the result that is visible in the colour change segment when the fluid contacts the segment.

The colour change preferably occurs in an outside layer of the smoking article. Where there are multiple layers, the colour change may occur in a layer that is not the outermost layer. This has the advantage that fluid that interacts with the colour change segment is preferably prevented from coming into direct contact with the consumer's lips or fingers.

Thus it is especially desirable that the outermost layer is an impermeable layer. This further reduces the chance of the fluid from coming into direct contact with the consumer's lips or fingers. Thus, it is especially preferred that the impermeable layer is water impermeable.

The colour change segment preferably comprises part of a layer, the layer thus undergoing a colour change in a localized portion when it comes into contact with a certain fluid.

Preferably the colour change segment comprises at least a part of one of the outside layers of the mouthpiece.

The mouthpiece in which the colour change segment is located may be opaque or transparent. It is preferred that the mouthpiece is opaque. This allows the consumer to see more easily the colour change since an opaque background provides greater contrast than a transparent background.

The term "opaque" is used to describe a material which prevents at least a significant proportion of incident light from passing through, so that it is not possible to see through the material. Preferably, "opaque" denotes a total percentage light transmission of about 40% or less, more preferably about 30% or less, even more preferably about 25% or less, most preferably 15% or less, as measured using a Hunterlab Colorquest XE Spectrophotometer.

The outer layer of the mouthpiece may be a wrapper, which is at least partially wrapped around at least part of the mouthpiece.

Smoking articles according to embodiments of the invention comprising a mouthpiece and a colour change segment may be in the form of filter cigarettes or other smoking articles in which tobacco cut filler or other smokable material is combusted to form smoke. The Embodiments of the invention additionally encompasses smoking articles in which tobacco material or another aerosol-generating substrate is heated to form an aerosol rather than combusted and smoking articles in which an aerosol, in particular a nicotine-containing aerosol, is generated from a tobacco material, tobacco extract, or alternative nicotine source or another aerosol generating substrate, without combustion or heating.

In the following description, the term 'mainstream smoke' is used to describe both mainstream smoke produced by combustible smoking articles, such as filter cigarettes, and mainstream aerosols produced by non-combustible smoking articles, such as heated or non-heated smoking articles of the types described above.

As used herein, the terms 'upstream' and 'downstream' are used to describe the relative position of portions or components of mouthpieces and smoking articles according to embodiments of the invention in relation to the direction of mainstream smoke drawn through the mouthpieces and smoking articles during use thereof. For example, in a mouthpiece where the colour change segment is upstream of a mouth end segment, mainstream smoke is drawn first through the colour change segment and then through the mouth end segment.

As used herein, the term 'length' denotes the dimension in the longitudinal direction of flavour release segments, mouthpieces and smoking articles according to embodiments of the invention.

In a preferred aspect, the mouthpiece comprises a filter and the colour change may occur in the filter.

Thus, when the fluid is released from the capsule, the consumer sees a colour change on the outside of the filter, and therefore knows that the fluid has been released. The release of fluid may be triggered by applying a pressure on the filter, such as by squeezing the filter, so that the capsule breaks and releases the fluid.

Preferably, the colour change may be effected in a predetermined area, such that a predetermined form, such as a trademark, logo or other motif is visible to the consumer.

In one aspect, the fluid of the capsule is coloured. Thus, the fluid itself can initially contain the desired colourant which is visible by the consumer when the fluid is released from the capsule. In this case, it is preferred that the colour change segment comprises a material that can absorb the coloured fluid and so change colour.

In another aspect, the fluid may interact with a colourant provided in the colour change segment. Thus, the fluid, which may not itself comprise a colourant, interacts with, and thereby activates a colourant provided in the colour change segment, such that a colour change is visible to the consumer. This provides the benefit, that only colourant in some areas of the filter element has to be provided, while the released fluid from the capsule is not coloured in other regions of the filter element.

In yet another aspect, neither the fluid nor the colour change segment comprise a colourant but their interaction generates a colour when the fluid and the colour change segment come into contact with each other.

The capsule may be a rupturable fluid reservoir comprising about 0.1 ml to about 1.0 ml of a fluid. Suitable capsules are preferably spherical or ellipsoidal. Preferred diameters are from about 2.9 mm to about 6.2 mm.

In a preferred aspect, the colour change segment may be provided on a wrapper that circumscribes at least a portion of the mouthpiece. A smoking article according to embodiments of the invention may comprise more than one wrapper. In such an embodiment, the colour change segment may be provided on the inside of an outer wrapper.

In some embodiments, the capsule may comprise an additive, which modifies the characteristics of the smoke of the smoking article. Such additives may comprise flavours, neutralizing agents, or other smoke modifiers, such as chemical reagents. Additionally, the additives may also include diluents, solvents or processing aids. In a preferred embodiment, the additives may include one or more flavours, such as liquid or solid flavours and flavour formulations or flavour-containing materials. Suitable flavours include, but are not limited to, menthol, mint, such as peppermint and spearmint, cocoa, licorice, citrus and other fruit flavours, gamma octalactone, vanillin, ethyl vanillin, breath freshener flavours, spice flavours

wrapped around the inner wrapper. The partial permeability of the outer wrapper may be achieved by treating only a portion of the outer wrapper with an anti-staining varnish. Thus, the untreated portion of outer wrapper is permeable and absorbs the fluid and, thus, a colour change will be effected on the outside of the outer wrapper. In this embodiment, the colour change is effected, when the fluid is dispersed through permeable inner wrapper and is then absorbed by the permeable portion of the outer wrapper. Thus, the permeable portion of the outer wrapper will change its colour, and the consumer sees that the flavour has been delivered.

Mouthpieces for use in an embodiment of the invention may be single segment mouthpieces or filters.

Alternatively, mouthpieces for use in an embodiment of the invention may be multi-component mouthpieces comprising one or more segments in addition to the colour change segment.

Mouthpieces for use in an embodiment of the invention may comprise one or more segments upstream of the colour change segment.

Alternatively or in addition, mouthpieces for use in an embodiment of the invention may comprise one or more segments downstream of the colour change segment. This advantageously reduces the chance that the fluid that interacts with the colour change segment comes into direct contact with a consumer's mouth.

Mouthpieces for use in the smoking articles according to an embodiment of the invention may comprise one or more additional segments comprising fibrous filtration materials, such as cellulose acetate tow.

The mouth end segment of the mouthpiece may comprise a hollow tube or recess. The hollow tube or recess may be formed when the mouthpiece is attached to a rod of smokeable material by, for example, tipping paper to form a smoking article according to an embodiment of the present invention. Preferably, the recess further comprises a cylindrical element that adds structural strength to the tube, for example a paper or carton tube that is overwrapped by the tipping material. Recess filters are well known in the art, for example, in European patent application WO-A-2004/089124.

The mouthpiece may comprise a restrictor segment. A restrictor segment affects the resistance to draw and other fluid dynamics of the smoking article and also affects the formation of carbon monoxide and carbon dioxide. Restrictors in smoking articles are known in the art, for example from the International patent application WO-A2-2008/059377.

The mouthpieces may comprise a mouth end segment downstream of the colour change segment comprising a plug of cellulose acetate tow or other fibrous filtration material.

Mouthpieces for use in an embodiment of the invention may include one or more additional segments comprising sorbents (for example, activated carbon or silica gel), plant material (for example, tobacco lamina), flavorants and other smoke modifying agents.

The one or more additional segments may be used to achieve a desired overall plasticiser content in the mouthpiece.

Alternatively or in addition, the one or more additional segments may be used to achieve a desired overall resistance to draw (RTD) of the mouthpiece.

Mouthpieces for use in an embodiment of the invention may have a resistance to draw (RTD) of, for example, between about 100 mm WG (water gauge) and about 180 mm WG as measured in accordance with ISO 6565:2002.

Mouthpieces for use in an embodiment of the invention may have an external diameter of, for example, between about 5 mm and about 8.5 mm.

Mouthpieces for use in an embodiment of the invention may have a length of, for example, between about 20 mm and about 50 mm.

Where mouthpieces for use in an embodiment of the invention comprise a mouth end segment downstream of the colour change segment, the length of the mouth end segment may be, for example, between about 3 mm and about 15 mm, for example between about 6 mm and about 12 mm.

Where the mouth end segment comprises a hollow tube or recess, the length of the mouth end segment may be, for example, between about 3mm and about 8 mm.

Mouthpieces for use in an embodiment of the invention may be incorporated into a wide variety of different types of smoking articles. For example, mouthpieces for use in an embodiment of the invention may be incorporated into combustible smoking articles, such as filter cigarettes, comprising a wrapped rod of tobacco cut filler or other smokable material, which is combusted during smoking.

Alternatively, mouthpieces for use in an embodiment of the invention may be incorporated into non-combustible, heated smoking articles of the type described above in which material is heated to form an aerosol, rather than combusted. For example, mouthpieces for use in an embodiment of the invention may be incorporated into heated smoking articles comprising a combustible heat source and an aerosol-generating substrate downstream of the combustible heat source, such as that disclosed in WO-A-2009/022232. Mouthpieces for use in an embodiment of the invention may also be incorporated into heated smoking articles comprising non-combustible heat sources, for example chemical heat sources or electrical heat sources.

Alternatively, mouthpieces for use in an embodiment of the invention may be incorporated into non combustible smoking articles of the type described above in which an aerosol is generated from an aerosol generating substrate without combustion or heating, such as those described in WO-A-2008/121610 and WO-A-2010/107613.

In one embodiment, smoking articles according to an embodiment of the invention may comprise a wrapped rod of tobacco cut filler or other smokable material attached to the mouthpiece by a tipping paper.

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