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(54) **SMOKING ARTICLE WITH CONTROLLED FLAVOR RELEASE**

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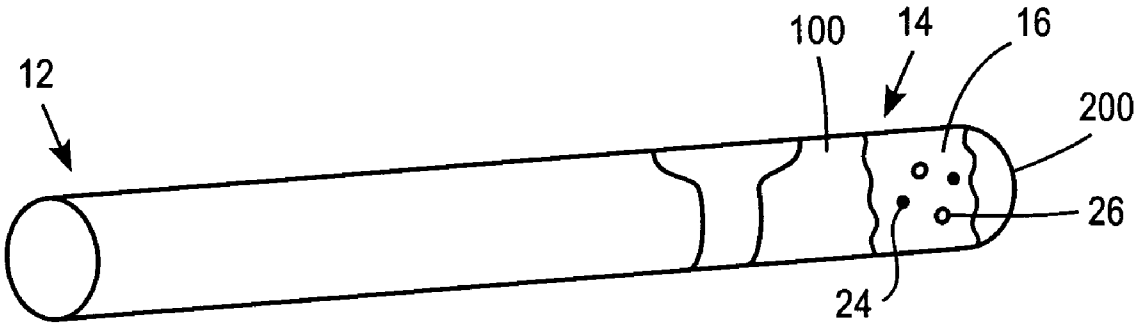
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(57) **ABSTRACT**

Provided are smoking articles with a controlled flavor release product. The controlled flavor release product includes a first time-release flavorant and a second time-release flavorant. The controlled flavor release product is a film or a lip balm type formulation that is applied to the downstream end of a smoking article.



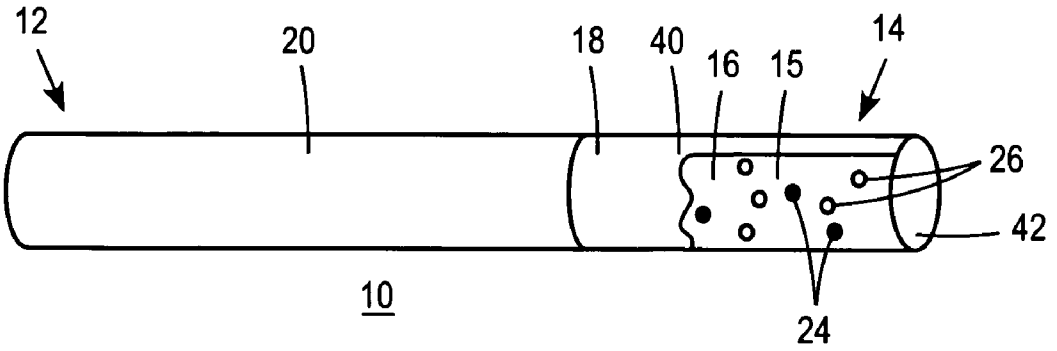


FIG. 1

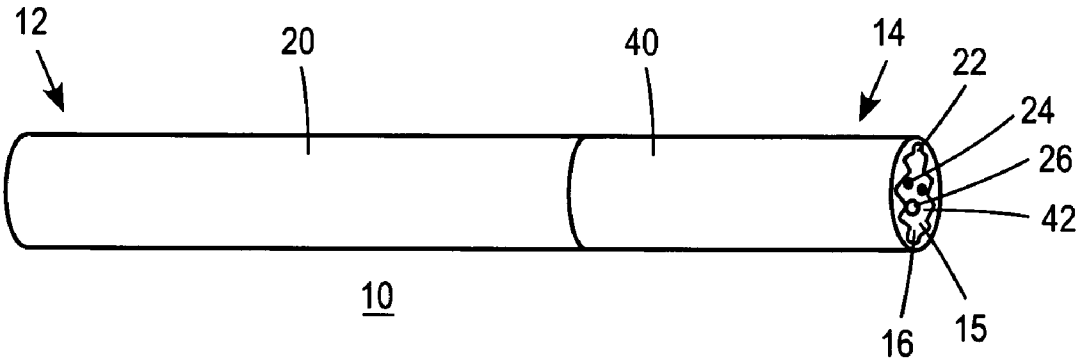


FIG. 2

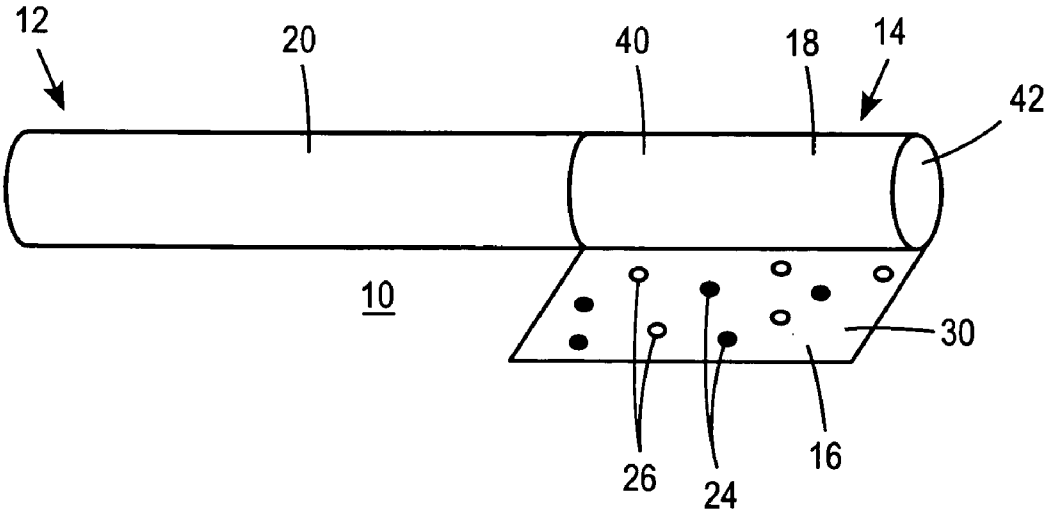


FIG. 3

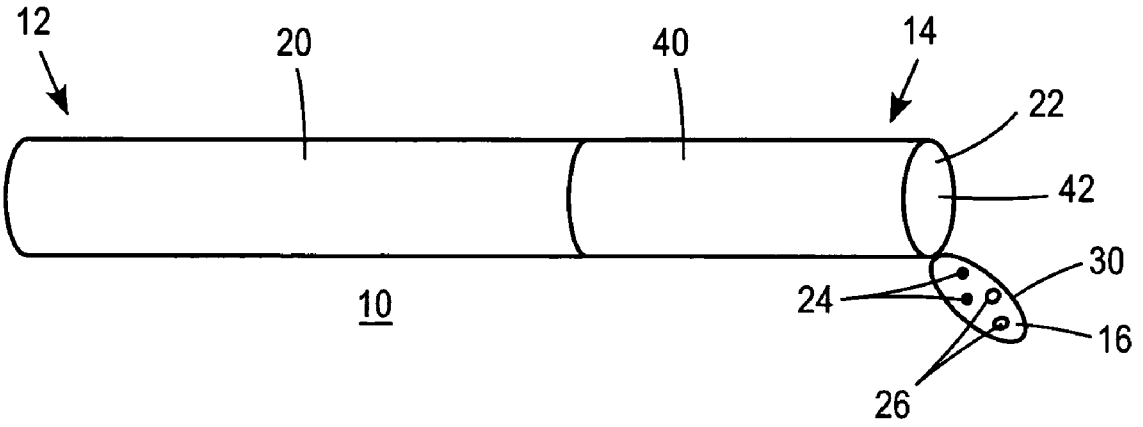


FIG. 4

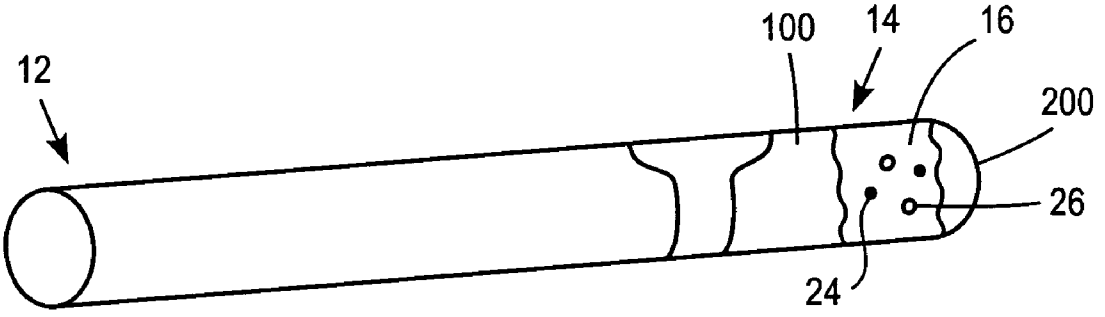


FIG. 5

SMOKING ARTICLE WITH CONTROLLED FLAVOR RELEASE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims priority under 35 U.S.C. §119(e) to U.S. provisional Application No. 60/929,010, filed on Jun. 8, 2007, the entire content of which is incorporated herein by reference.

BACKGROUND

[0002] Flavorants are frequently added to tobacco products, including smoking articles or smokeless, oral tobacco products, to achieve desirable organoleptic sensations. Typically, the flavors are added to the tobacco material or filter component.

BRIEF DESCRIPTION OF THE FIGURES

[0003] FIG. **1** is an illustration of a smoking article including a controlled flavor release product in the form of a lip balm type formulation coating the tipping paper.

[0004] FIG. **2** is an illustration of a smoking article including a controlled flavor release product in the form of a lip balm type formulation coating the end of the smoking article.

[0005] FIG. **3** is an illustration of a smoking article including a controlled flavor release product in the form of a film coating the tipping paper.

[0006] FIG. **4** is an illustration of a smoking article including a controlled flavor release product in the form of a film coating the end of the smoking article.

[0007] FIG. **5** is an illustration of a filterless smoking article including a controlled flavor release product.

DETAILED DESCRIPTION

[0008] As described herein, smoking articles include a controlled flavor release product that provides prolonged and varied organoleptic sensation.

[0009] Provided is a controlled flavor release product including at least a first time-release flavorant and a second time-release flavorant. Additional time-release flavorants may also be included.

[0010] Preferably, the first time-release flavorant and the second time-release flavorant contain different flavorants. In an embodiment, the first time-release flavorant and the second time-release flavorant contain the same flavorant. Also preferably, the first time-release flavorant and the second time-release flavorant are released at different times during smoking to provide continuous enjoyment and a variety of flavors.

[0011] In a preferred embodiment, the first time-release flavorant and the second time-release flavorant are incorporated into controlled release microcapsules. The microcapsules may be embedded in a format to create a controlled flavor release product. Each microcapsule can contain the first time-release flavorant, the second time-release flavorant or both.

[0012] In another embodiment, the microcapsules form the controlled flavor release product that can be used in a smoking article. Preferably, the controlled flavor release product includes at least a first time-release flavorant and a second time-release flavorant.

[0013] Suitable microcapsules for controlled release of flavorants are those developed by Salvona LLC of Dayton, N.J. (e.g. MultiSal™ and NanoSal™).

[0014] MultiSal™ is a free flowing powder matrix with high concentrations of functional ingredients encapsulated in nanospheres. NanoSal™ is a liquid formula encapsulated in solid, hydrophobic nanospheres. Each microcapsule can incorporate different oil based flavors for controlled delivery over time. The microcapsules provide enhanced bioadhesive properties such that the flavorants bind to mucous in the mouth cavity to prolong flavor enjoyment. The microcapsules may also be designed to target specific areas of the mouth.

[0015] In a preferred embodiment, the controlled flavor release product has controlled diffusion mechanisms. The first time-release flavorant and the second time-release flavorant may be released by the same or different mechanisms at the same or different times. Additional time-release flavorants may be used, and may be triggered by different methods at different times.

[0016] In one embodiment, the first time-release flavorant and the second time-release flavorant are released by exposure to moisture from the lips or mouth. In another embodiment, heat from igniting the smoking article or from the user's mouth may cause the release of the first time-release flavorant and the second time-release flavorant. In yet another embodiment, the first time-release flavorant and the second time-release flavorant are released by a change in pH. The change in pH may occur when the controlled flavor release product is placed in an environment such as a human's mouth. Alternatively, a substance may be added to a microcapsule that changes the pH and causes the release of another microcapsule.

[0017] Preferably, the first time-release flavorant and the second time-release flavorant are embedded in a format to create a controlled flavor release product. In a preferred embodiment, the controlled flavor release product is in the form of a lip balm type formulation. The lip balm type formulation may be made of a wax with the first time-release flavorant and the second time-release flavorant embedded therein. In another embodiment, the controlled flavor release product is in the form of a film having a first time-release flavorant and a second time-release flavorant embedded therein. The films can be formed by conventional means known in the art, and may be dissolvable and/or disintegrable.

[0018] In an embodiment, the first time-release flavorant may include a different flavorant than the second time-release flavorant so that the user is provided with at least two flavors during the smoking experience. Also, since the first time-release flavorant and the second time-release flavorant are released at separate times, the organoleptic sensations are prolonged thereby providing the user with more flavor over a longer period of time.

[0019] Suitable flavorants for use in the controlled flavor release product include, without limitation, mint, such as peppermint and spearmint, vanillin, chocolate, licorice, citrus and other fruit flavors, spice flavors, such as cinnamon, methyl salicylate, linalool, bergamot oil, geranium oil, lemon oil, ginger oil, tobacco flavors and other agents commonly used to impart flavor and aroma to tobacco products.

[0020] Other suitable flavors and aromas may include flavor compounds selected from the group consisting of an acid, an alcohol, an ester, an aldehyde, a ketone, a pyrazine, combinations or blends thereof and the like. Suitable flavor compounds may be selected, for example, from the group con-

sisting of phenylacetic acid, solanone, megastigmatrienone, 2-heptanone, benzylalcohol, cis-3-hexenyl acetate, valeric acid, valeric aldehyde, ester, terpene, sesquiterpene, nootkatone, maltol, combinations thereof and the like.

[0021] Additives such as chemesthesis agents may also be included in the controlled release flavor product. Suitable chemesthesis agents include, without limitation, capsaicin, tannins, mustard oil, wintergreen oil, cinnamon oil, allicin, quinine, citric acid, and salt.

[0022] In one embodiment, complimentary flavors may be chosen for the first time-release flavorant and the second time release flavorant to provide a combined flavor. For instance, a cherry vanilla flavor may be provided by choosing a cherry flavorant for the first time-release flavorant and a vanilla flavorant for the second time-release flavorant. In an embodiment, the release of the first time-release flavorant and the second time-release flavorant can overlap so that the complimentary flavorants can be enjoyed together.

[0023] The term "smoking article" includes cigarettes, pipes, cigars, and cigarillos. Non-traditional cigarettes such as cigarettes using electrical smoking systems are also included in the definition of smoking articles or cigarettes generally.

[0024] A traditional cigarette typically contains two sections, a tobacco-containing portion sometimes referred to as the tobacco rod, and a filter portion which may be referred to as a filtration zone. Tipping paper typically surrounds the filter, which forms the mouth end of the cigarette. The tipping paper overlaps with the tobacco rod in order to hold the filter and tobacco rod together. The tobacco rod includes a paper wrapper in which the tobacco is wrapped and an adhesive holding the seams of the paper wrapper together. The tobacco rod has a first end which is integrally attached to the filter and a second end which is lit or heated for smoking the tobacco. When the tobacco rod is lit or heated for smoking, the smoke travels from the lit end downstream to the filter end of the tobacco rod and further downstream through the filter.

[0025] The "upstream" and "downstream" relative positions between filter segments and other features are described in relation to the direction of mainstream smoke as it is drawn from a tobacco rod and through a multi-component filter during a puff.

[0026] In a preferred embodiment, the smoking article is a cigarette. The cigarette may contain tobacco material, a filter, and a controlled flavor release product. In an embodiment, the cigarette may also contain at least one sorbent.

[0027] The term "sorbent" as used herein refers to an adsorbent, an absorbent, or a substance that can function as both an adsorbent and an absorbent. Preferred sorbents include various forms of activated carbon, molecular sieves, such as zeolites, and mixtures thereof.

[0028] Examples of suitable types of tobacco materials that may be used include, but are not limited to, flue-cured tobacco, Burley tobacco, Maryland tobacco, Oriental tobacco, rare tobacco, specialty tobacco, blends thereof and the like. The tobacco material may be provided in any suitable form, including, but not limited to, tobacco lamina, processed tobacco materials, such as volume expanded or puffed tobacco, processed tobacco stems, such as cut-rolled or cut-puffed stems, reconstituted tobacco materials, blends thereof, and the like. Tobacco substitutes may also be used.

[0029] In an embodiment, the tobacco material can include humectants, such as glycerin, sweeteners and/or at least one non-tobacco flavorant dispersed throughout the tobacco material.

[0030] As illustrated in FIG. **1**, a smoking article **10** has an upstream end **12** and a downstream end **14**. The smoking article **10** includes a filtration zone **40** that lies at the downstream end **14**. The filtration zone **40** includes a filter **42** surrounded by a portion of tipping paper **18**. The filtration zone **40** is attached to a tobacco rod **20**. In one embodiment, the filter **42** is made of cellulose acetate fibers. The smoking article **10** preferably includes a controlled flavor release product **16**. In one embodiment, the controlled flavor release product **16** includes a first time-release flavorant **24** and a second time-release flavorant **26**.

[0031] Preferably, the controlled flavor release product **16** coats the tipping paper **18** that surrounds the filter **42** at the downstream end **14** of the smoking article **10**. Also preferably, the controlled flavor release product **16** is in the form of a lip balm type formulation **15**. The lip balm type formulation **15** may be made of a wax with the first time-release flavorant **24** and the second time-release flavorant **26** embedded therein.

[0032] In another embodiment, as seen in FIG. **2**, the controlled flavor release product **16** is in the form of a lip balm type formulation **15** that coats the end **22** of the filter **42** of the smoking article **10**. The lip balm type formulation **15** is transferred to a user's mouth upon contact with the downstream portion **14**.

[0033] In one embodiment, as illustrated in FIG. **3**, the smoking article **10** has an upstream end **12**, a downstream end **14**, a tobacco rod **20**, a filtration zone **40**, including a filter **42** covered with tipping paper **18**, and a controlled flavor release product **16**.

[0034] Preferably, the controlled flavor release product **16** is in the form of a film **30**. The film **30** is formed by conventional means known in the art. In a preferred embodiment, the film **30** is dissolvable or disintegrable. Preferably, a first time-release flavorant **24** and a second time-release flavorant **26** are embedded in the film **30**. The film **30** is wrapped around the tipping paper **18** and adhered thereto.

[0035] In another embodiment, as shown in FIG. **4**, the smoking article **10** has an upstream end **12**, a downstream end **14**, a tobacco rod **20**, a filtration zone **40** including a filter **42** covered with tipping paper **18**, and a controlled flavor release product **16**. Preferably, the controlled flavor release product **16** is in the form of a film **30** that is affixed to the end **22** of the filter **42**.

[0036] In a preferred embodiment, the film **30** is adhered to the tipping paper **18** or the end **22** of the filter **42** by any known adhesive. For instance, the film **30** may be glued onto the tipping paper **18**.

[0037] In one embodiment, the smoking article **10** does not include a filtration zone. As seen in FIG. **5**, the smoking article **10** may be a cigar without a filtration zone or a filterless cigarette. The controlled flavor release product **16** may coat the downstream end **14** of the wrapper **100** or the end **200** of the smoking article **10**. In an embodiment, the controlled flavor release product **16** may be a film that is wrapped around the downstream end **14** of the smoking article **10**.

[0038] Also provided is a method for manufacturing a smoking article including a controlled flavor release product.

[0039] In a preferred embodiment, the method for manufacturing includes contacting a wrapper with a controlled

flavor release product, surrounding tobacco with the wrapper, and sealing the wrapper to form a smoking article. The method may also include sealing a filter to the rod and then cutting the rod to a specified length.

[0040] In another embodiment, the method for manufacturing a smoking article having a controlled flavor release product includes coating a tipping paper with the controlled flavor release product and wrapping a filter with the tipping paper. The coating may take place by dipping or brushing on the controlled flavor release product. The method may also include the step of fitting the filter to a tobacco rod to form a cigarette.

[0041] In yet another embodiment, the method includes coating the end of a filter with a lip balm type formulation having an embedded first time-release flavorant and a second time-release flavorant. The filter may be made by conventional methods known in the art and attached to a tobacco rod to form a cigarette. The end of the filter is then coated by dipping, spraying, or otherwise applying the lip balm type formulation to the end of the cigarette.

[0042] In a preferred embodiment, the method includes adhering a film having an embedded first time-release flavorant and a second time-release flavorant to the end of a filter of a smoking article. The film is cut to an appropriate size and adhered to the end of the filter.

[0043] In another embodiment, the method includes adhering a film having an embedded first time-release flavorant and a second time-release flavorant to the tipping paper of a smoking article. The film is formed or cut to about the size of the tipping paper and adhered thereto.

[0044] In another embodiment, the method includes adhering a film having an embedded first time-release flavorant and a second time-release flavorant to the wrapper of a smoking article.

[0045] Variations and modifications of the foregoing will be apparent to those skilled in the art. Such variations and modifications are to be considered within the purview and scope of the claims appended hereto.

What is claimed is:

1. A controlled flavor release smoking article comprising:

a tobacco rod;

a downstream end; and

a controlled flavor release product including

a first time-released flavorant delivered at a first time and triggered by a first mechanism; and

a second time-released flavorant delivered at a second time and triggered by a second mechanism;

wherein the controlled flavor release product contacts the downstream end of said smoking article.

2. The controlled flavor release smoking article of claim **1**, wherein said first time-release flavorant and said second time-release flavorant are released by a first mechanism and a second mechanism selected from the group consisting of the addition of moisture, a change of pH, a temperature increase, and combinations thereof.

3. The controlled flavor release smoking article of claim **1**, wherein said first time-release flavorant and said second time-release flavorant are incorporated into at least one microcapsule.

4. The controlled flavor release smoking article of claim **1**, wherein said controlled flavor release product is a film.

5. The controlled flavor release smoking article of claim **4**, wherein said film is dissolvable and/or disintegrable.

6. The controlled flavor release smoking article of claim **4**, wherein said film is adhered to said downstream end.

7. The controlled flavor release smoking article of claim **1**, wherein said controlled flavor release product is a lip balm type formulation.

8. The controlled flavor release smoking article of claim **5**, wherein said lip balm type formulation comprises a wax.

9. The controlled flavor release smoking article of claim **1**, wherein said controlled flavor release product is applied to an outside surface of said downstream end of said smoking article.

10. The controlled flavor release smoking article of claim **1**, wherein said first time-release flavorant and said second time-release flavorant are selected from the group consisting of menthol, mint, chocolate, licorice, fruit flavors, tangerine, citrus, cherry, gamma octalactone, vanilla, ethyl vanillin, breath freshener flavors, spice flavors, cinnamon, methyl salicylate, linalool, bergamot oil, geranium oil, lemon oil, ginger oil, tobacco flavors, smoothing or refreshing active compounds, bitter agents, and combinations thereof.

11. The controlled flavor release smoking article of claim **1**, wherein said smoking article is a cigar, a cigarette, or a cigarillo.

12. The controlled flavor release smoking article of claim **1**, wherein said tobacco material includes (a) at least one humectant; (b) at least one sweetener; and (c) at least one non-tobacco flavorant.

13. The controlled flavor release smoking article of claim **1**, wherein said first time-released flavorant and said second time-released flavorant each include the same flavorant.

14. The controlled flavor release smoking article of claim **1**, wherein said first time-released flavorant and said second time-released flavorant each include different flavorants.

15. The controlled flavor release smoking article of claim **1**, wherein said first time-released flavorant and said second time-released flavorant include a chemesthesis agent.

16. The controlled flavor release smoking article of claim **1**, wherein the time release of said second time-released flavorant overlaps release of said first time-released flavorant.

17. A method of making a controlled flavor release smoking article comprising:

contacting a downstream end of a smoking article with a controlled flavor release product,

wherein said controlled flavor release product contains a first time-release flavorant and a second time-release flavorant.

18. The method of claim **17**, wherein said controlled flavor release product is a lip balm type formulation.

19. The method of claim **17**, wherein said controlled flavor release product is a film.

20. The method of claim **17**, wherein said first time-release flavorant and a second time-release flavorant include the same or different flavorants.

* * * * *