Title: WRAPPER FOR SMOKING MATERIAL RODS

Abstract: The present invention relates to wrappers (4) for smoking material rods. More particularly, the present invention relates to wrappers for smoking material rods, wherein the wrappers comprise a single sheet having two or more plies (10, 11) and one of the plies contains absorbent material and flavourant. The present invention also relates to a method of preparing the wrapper and to smoking articles comprising the wrapper.
Wrapper For Smoking Material Rods

Field of the invention
The present invention relates to a wrapper for a smoking material rod and also to a method of making a smoking material rod wrapper.

Background
Wrappers for smoking articles in which the wrapper is formed as a single sheet are well known. For example EP-A-O 407 022 discloses a wrapper for smoking articles in which the wrapper comprises a single paper sheet formed from two or more discrete webs, the webs being combined while at least one of the webs is still in the wet stage of formation before drying. Further, EP-A-O 475 580 discloses a wrapper for smoking articles, the wrapper comprising a single paper sheet having two or more plies, each ply being formed from a paper stock and wherein the paper stocks are applied to each other while at least one of the stocks is unformed. In both EP-A-O 407 022 and EP-A-O 475 580 one of the plies may contain carbon.

Flavourant materials such as menthol have been applied to smoking articles to modify the smoke and taste characteristics thereof. Flavourant materials have been added to smoking articles by various methods, for example, by spraying a flavourant-containing solution onto tobacco or by applying flavourant material to the cigarette paper. However, due to the volatile or semi-volatile nature of many flavourant materials a significant amount of the flavourant material is lost through evaporation during the manufacture and storage of the smoking articles. Further, during smoking, more flavourant material is volatilised by the smoke in the initial puffs, resulting in uneven provision of the flavourant material to the smoker.

In order to prevent loss or premature volatilisation of the flavourant material various substances have been utilised to encapsulate the flavourant material. A number of flavourant encapsulation techniques involve encapsulation of a flavourant material within a polysaccharide coating. For example, EP-A-O 490 559 discloses a filament comprising a core of flavourant material and polysaccharide binder with a coextensive alginate sheath coating. It is, however, difficult to insert such a filament into a cigarette using conventional
high speed machinery. The control of flavour delivery to the smoker at specific stages during smoking is also not easily achieved using such filaments due to a necessity for precise positioning of the flavourant material in a cigarette.

A further encapsulation technique for smoking article involves microencapsulation of a flavourant material, and incorporation of the microcapsules into a tobacco blend. Disadvantages of such a technique include the difficulty in attaining an even distribution of microcapsules in the smoking article if desired, or alternatively, the difficulty in precisely positioning the microcapsules in a specific location in a smoking article.

WO 2005/082180 discloses smoking articles comprising a rod of smokable material, a wrapper about the rod of smokable material and a web material comprising an adsorbent material and a flavourant, the web material being positioned between the rod of smokable material and the wrapper and preferably being adhered to the wrapper using an adhesive. The adsorbent material may be carbon. In WO 2005/082180 a filler material such as calcium carbonate and a burn additive such as citrate are preferably used. The presence of such filler and burn additive are often desirable to control sparking problems associated with the use of the carbon-containing web.

Summary of the invention

According to the present invention there is provided a smoking material rod wrapper which comprises a single sheet comprising two or more plies, wherein a first ply comprises fibrous material, and a said second ply comprises adsorbent material, fibrous material and flavourant.

Applicant has found that a single sheet comprising at least two plies, wherein one of the plies contains adsorbent material and flavourant, can be formed in which the flavourant is stabilised by the adsorbent material such that the flavourant is not released prior to smoking of a smoking material rod enwrapped in such sheet, and in which the presence of filler and burn additive may not be required in order to control sparking problems.
Further, since the single sheet can be produced having a thickness similar to that of conventional cigarette papers, it can be used in conventional cigarette manufacturing machinery for producing smoking articles.

A still further advantage of forming a wrapper for a smoking material rod (e.g. a cigarette) as a single sheet is that it can be formed remote from the smoking material rod making machine. For example, it can be formed and then transported to the smoking material rod manufacturer, as for a conventional cigarette paper. This is advantageous as it reduces the complexity of the manufacturing machinery required by the smoking material rod manufacturer since the smoking material rod manufacturer does not require machinery to manufacture the sheet itself. As such, the invention can allow the smoking rod manufacturer to produce improved smoking rods without requiring any modification or replacement of their existing machinery.

A still further advantage of single sheet comprising at least two plies, wherein one of the plies contains carbon and flavourant wrapper, is that, when used to enwrap a smoking material rod it potentially enables certain smoke constituents generated by the smoking material rod during use to be reduced.

The use of a wrapper according to the present invention enables issues with regard to ashing characteristics and sparking to be avoided or reduced.

Although the sheet may comprise more than two plies, the sheet may be a double ply sheet, i.e. has only two plies.

The fibrous material present in the first and/or second ply is preferably a fibrous cellulosic material. More preferably, the fibrous cellulosic material is in the form of a paper material. The fibrous material may, for example, be present in the second ply in an amount of up to 40 gsm. The fibrous material may, for example, be present in the second ply in an amount of up to 20 gsm. The total amount of fibrous material in the sheet may be at least 17 gsm. The total amount of fibrous material in the wrapper may be up to 60 gsm.
The flavourant may be selected from the following compound types: menthol (natural and/or synthetic), alcohols, esters, ketones, lactones, essential oils, aldehydes and heterocyclic compounds. A number of other flavourants may be suitable. One flavourant is menthol.

The single sheet may comprise one or more burn additive. Examples of suitable burn additives include citrates such as sodium citrate and potassium citrate, acetates and phosphate compounds. The one or more burn additive may comprise sodium citrate or potassium citrate. The one or more burn additive may be tri-potassium citrate. The one or more burn additive may be present in the first and/or second ply. The one or more burn additive may, for example, be present in an amount of at least 0.5% by weight based on the weight of the sheet. The one or more burn additive may, for example, be present in an amount of up to 1% by weight based on the weight of the sheet. The one or more burn additive may be present in an amount of from 0.5 to 1% by weight based on the weight of the sheet.

The one or more adsorbent material present in the second ply may be selected from one or more of the following: zeolite, sepiolite, clay, activated alumina, mineral, resin, and carbon. The adsorbent material may be carbon. The adsorbent particularly may be activated carbon. Any form of activated carbon may be used. Activity of carbon is measured in percent carbon tetrachloride (CTC), a measurement well known in the art. The activated carbon may have an activity level (CTC) of from 60 to 130, and preferably from 80-120, and may suitably be approximately 100. The one or more adsorbent may, for example, be in granular, powder or particulate form. The adsorbent material may, for example, be present in the second ply in an amount of up to 40 gsm.

Put another way, the second ply may be a carbon paper.

The total amount of adsorbent material in the sheet may, for example, be up to 40 gsm.

The first and/or second ply may comprise one or more filler material. A non-exhaustive list of suitable filler materials includes calcium carbonate, titanium dioxide, magnesium oxide, calcium sulphate, clays and kaolins. The one or more filler material may comprise
calcium carbonate. The one or more filler material may, for example, be present in the second ply in an amount of up to 25 gsm. The one or more filler material may, for example, be present in the first ply in an amount of up to 15 gsm. The total amount of filler material in said sheet may, for example, be at least 8 gsm. The total amount of filler material in the wrapper may, for example, be up to 40 gsm.

The wrapper may have a thickness of at least 45µm. The wrapper may have a thickness of up to 250 µm.

The second ply extends over at least a part of one surface of the first ply. In embodiments of the present invention, the second ply extends over the whole of one surface of the first ply. It is to be understood that, in the situation where more than two plies are present in the single sheet, the second ply may be separated from the first ply by one or more additional plies.

In embodiments of the present invention, the second ply comprises one or more diluent.

The one or more flavourant may be added to the adsorbent material prior to forming the second ply. For example, the flavourant may be added to the adsorbent material by spraying.

Alternatively, the one or more flavourant may be added to the second ply after formation of that ply. A further alternative is wherein the one or more flavourant is added to said second ply after formation of the wrapper.

For example, the flavourant may be added to the second ply using a flavour applicator means, for instance as a stream or streams of flavourant. Suitably, the plurality of streams of flavourant is applied to the second ply in a line or in an array. When applied in an array, the array may comprise two lines of streams of flavourant, one of the lines being offset from the streams of flavourant in an adjacent line. Suitably, the flavourant is applied to the surface of the second ply as 1 to 30 streams of flavourant, and preferably as 4 to 18 streams of flavourant.
If the flavourant is solid at room temperature, it is heated to maintain the flavourant in the molten liquid state during application to the adsorbent or to the second ply, and may be heated to a temperature of 40 to 45°C.

The wrapper may be formed by any suitable method provided that the resultant wrapper comprises a single sheet. As used herein the term "single sheet" refers to a sheet in which the plies thereof are integral in the sense that the plies are not merely placed adjacent to one another or adhered to one another using such as adhesive (i.e. as in the case of WO 2005/082180).

In embodiments of the present invention, the wrapper is formed by combining the two or more plies to form the single sheet while at least one of the plies is in the wet stage of formation prior to drying. For example, when the wrapper is a double ply sheet, the plies may be combined while one of the plies is in the wet stage of formation prior to drying, or while both of the plies are in the wet stage of formation prior to drying.

Accordingly, the present invention also provides a method of preparing a wrapper according to the invention, which method comprises combining said plies while at least one of said plies is still in the wet stage of formation prior to drying.

An apparatus suitable for use in preparing the wrapper may, for example, be a multi-wire paper making machine such as a double wire paper making machine. Such machines are known in the art of paper making.

After combining the plies the formed sheet is typically dried.

The present invention further provides a smoking article as defined in the claims.

In embodiments of the smoking article the second ply of the wrapper is located on the smoking material rod side of said wrapper since this will be more aesthetically pleasing to the majority of smokers. That is, the second ply, which contains the adsorbent material, will be located between the first ply and the smoking material rod such that the second ply will not be visible to the smoker. This allows the adsorbent material to be relatively
proximate to the flow of smoke through the smoking article, thereby allowing greater interaction with constituents of the smoke than would be the case if the second ply were an outer ply. Thus, the removal of vapour phase constituents is enhanced. This also allows the outward appearance of the plug wrap not to be affected, or to be affected less, by the content of the second ply. This is particularly useful in the case where the adsorbent material in the second ply is carbon.

The smoking material may be a tobacco-containing smoking material or a non-tobacco-containing smoking material. The smoking material may be a tobacco-containing material, or a tobacco material. Suitably, the tobacco material comprises one or more of stem, lamina and tobacco dust. An example, of a tobacco material is one containing one or more of the following tobacco types: Virginia or flue-cured tobacco, Burley tobacco, Oriental tobacco, reconstituted tobacco and stem. The smoking material may comprise a blend of tobacco material.

In embodiments of the present invention the smoking article comprises a filter element located at one end of the rod of smoking material.

The filter element may be a multiple filter comprising multiple sections such as, for example, a dual or triple filter. Suitable filters are well known to those skilled in the art. A filter element may contain one or more adsorbent material for the reduction of vapour phase constituents of smoke. Such filters known in the art include Dalmation filters in which particulate adsorbent material is interspersed in fibrous filter material, for example fibrous cellulosic material, and cavity filters in which a cavity portion of the multi-segment filter contains one or more adsorbent material. When the second ply is positioned near to the mouth end of the smoking article, it has been found that the flavourant is released from the second ply during smoking of the smoking article without being adsorbed by the adsorbent material of the filter and without adversely affecting the ability of the adsorbent in the filter to reduce vapour phase constituents of the smoke.

The one or more adsorbent material, when present in the filter of the smoking article, may be one or more of the following: zeolite, sepiolite, clay, activated alumina, mineral, resin, or carbon, particularly activated carbon.
In embodiments of the smoking article of the present invention the smoking article comprises a filter element comprising a filter rod and the filter rod comprises one or more adsorbent material. The filter rod may comprise a cellulose acetate mouth end section and a Dalmatian rod section, containing the adsorbent material, located at the smoking material rod end of the filter element. Alternatively, the filter rod may be a cavity filter comprising two end sections and a central cavity containing said adsorbent material.

The filter element may alternatively comprise a filter plug of homogeneous filtration material, a plug wrap overwrapping the filter plug, circumferentially spaced grooves extending longitudinally of the filter plug, and a ventilating tipping paper interconnecting the filter element to a tobacco rod, a number of grooves being open on the side of the tobacco rod and extending continuously only over a part of the length of the filter element, and hence not up to the mouth end of the filter element, which grooves are axially aligned with respect to the filter axis, in which axially extending grooves ventilating air enters via overlying ventilating tipping paper, and any mouth extending groove not being ventilated.

The filter element may, for example, be attached to the smoking material rod by means of a tipping paper. The tipping paper may enwrap the whole of the filter element and extend part of the way along the smoking material rod. Alternatively, the tipping paper may be a narrow strip of material which extends over only a part, for example a small part, of the length of the filter element and smoking material rod.

By practice of the present invention there may be provided one or more of the following:

- a wrapper in which flavourant is incorporated and stabilised therein such that the flavourant is not released prior to smoking of a smoking material rod enwrapped in such wrapper;

- a wrapper in which the addition of filler material such as chalk and/or the addition of burn additive such as citrate to the adsorbent-containing ply in order to control sparking issues may be avoided, or reduced;

- a wrapper which may be used in forming a smoking article and which enables a reduction in the vapour phase constituents and tar, generated during smoking of the smoking article, delivered to the mouth of the smoker.
- a wrapper that can be produced having a thickness similar to that of conventional cigarette papers, such that the wrapper can be used in conventional smoking article (e.g. cigarette) manufacturing machinery for producing smoking articles and thereby avoid the cost of additional machinery;

- a wrapper that can be produced remote from the smoking article making machine, this being advantageous as it reduces the complexity of the manufacturing machinery required by the smoking article manufacturer because the smoking article manufacturer does not require machinery to manufacture the sheet itself; and

- a wrapper in which the inclusion of filler material and/or burn additive, often required in order to control sparking problems associated with the use of carbon in smoking article wrappers, may be avoided.

**Brief description of the drawings**

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a cross-section longitudinally through a smoking article including a wrapper according to the invention;

Figure 2 shows two plies used to make the wrapper of the smoking article of Figure 1;

Figure 3 shows a cross-section through the smoking article of Figure 1 along line x-x; and

Figure 4 shows a flow chart of a process of making the 2-ply wrapper of Figure 2.

**Detailed description**

Figure 1 shows a smoking article 1 in longitudinal cross-section. The smoking article 1 comprises a rod 2 of smokable material enwrapped by a wrapper 4. The filter 3 is positioned at a mouth end of the smoking article 1. The filter 3 is enwrapped by a plug wrap 5. The filter 3 is attached to the rod of smokable material 2 by a tipping paper 6. The wrapper 4 is a single sheet of paper made by pressing two plies of paper together, as is described below. The thickness of the wrapper 4 is similar to that of conventional cigarette papers.

The plug wrap 5 extends for the entire length of the filter 3 in the longitudinal axis of the smoking article 1. The plug wrap 5 thus enwraps all of the radial surface of the filter 3.
The wrapper 4 extends for the entire length of the smokable rod 2 in the longitudinal axis of the smoking article 1. The wrapper 4 thus enwraps all of the radial surface of the smokable rod 2.

The wrapper 4 and the plug wrap 5 meet at the boundary of the filter 3 and the smokable rod 2. The wrapper 4 and the plug wrap 5 do not overlap one another. The wrapper 4 and the plug wrap 5 are at least partially enwrapped by the tipping paper 6. The tipping paper 6 may extend over the whole length of the filter 3 and a part of the length of the smokable rod 2. Alternatively, the tipping paper 6 may extend over only a part of the filter 3 and a part of the length of the smokable rod 2.

The plug wrap 5 may be omitted. In this case, the tipping paper 6 extends over the whole length of the filter 3 and a part of the length of the smokable rod 2 and thus also serves the function of the wrap plug 5.

The filter 3 may alternatively comprise a filter plug of homogeneous filtration material, a plug wrap overwrapping the filter plug, circumferentially spaced grooves extending longitudinally of the filter plug, and a ventilating tipping paper interconnecting the filter element to a tobacco rod, a number of grooves being open on the side of the tobacco rod and extending continuously only over a part of the length of the filter element, and hence not up to the mouth end of the filter element, which grooves are axially aligned with respect to the filter axis, in to which axially extending grooves ventilating air enters via overlying ventilating tipping paper, and any mouth extending groove not being ventilated.

Figure 2 shows two plies which constitute the wrapper 4 of the smoking article 1. The first ply 10 is comprised of fibrous material. The second ply 11 is comprised of adsorbent material, fibrous material and flavourant. In this embodiment, the adsorbent material is carbon. The fibrous material is a fibrous cellulosic material, such as paper. The flavourant may for instance be a menthol flavourant. The two plies 10, 11 are integral in the sense that they are not merely placed adjacent to one another or adhered to one another using such as an adhesive, but are formed as a single sheet. The sheets may be said to be adhered
together by the fibre bonding inherent in the papermaking process. The wrapper 4 is formed using a double-wire process, as described below.

Figure 3 shows a transverse cross-section through the smoking article 1 of Figure 1 along line x-x of Figure 1. This shows the 2-ply wrapper 4 as shown in Figure 1 enwrapping the smokable rod 2. The second ply 11 is the interior ply, adjacent the smokable rod 2. The first ply 10 is the external ply. The outer surface of the first ply 10 corresponds to the exterior surface 1 of the wrapper 4.

The smokable rod 2 comprises a smoking material. The smoking material is a tobacco-containing smoking material or a non-tobacco-containing smoking material. The smoking material may be a tobacco-containing material, or a tobacco material. Suitably, the tobacco material comprises one or more of stem, lamina and tobacco dust. An example, of a tobacco material is one containing one or more of the following tobacco types: Virginia or flue-cured tobacco, Burley tobacco, Oriental tobacco, reconstituted tobacco and stem. The smoking material may comprise a blend of tobacco material.

Upon smoking, the smoking article 1 is ignited at the end furthest from the filter 3. Smoke is drawn along the smokable rod 2 to the smoker. As smoke passes along the smoking article 1, the flavourant is released from the second ply 11 of the wrapper 4 as the temperature becomes sufficient to cause flavourant to be released from the carbon. If the second ply 11 of the wrapper 4 is evenly distributed with flavourant, the flavour experience may be relatively even.

The filter 3 may be a multiple filter comprising multiple sections such as, for example, a dual or triple filter. Suitable filters are well known to those skilled in the art. The filter 3 may include adsorbent material, for instance activated carbon, for the reduction of vapour phase constituents of smoke. Suitable filters include Dalmatian filters in which particulate adsorbent material is interspersed in fibrous filter material, for example fibrous cellulosic material, and cavity filters in which a cavity portion of the multi-segment filter contains one or more adsorbent material, for instance activated carbon. When the second ply is positioned near to the mouth end of the smoking article, it has been found that the flavourant is released from the second ply during smoking of the smoking article without
being adsorbed by the adsorbent material of the filter and without adversely affecting the ability of the adsorbent in the filter to reduce vapour phase constituents of the smoke.

Figure 4 is a flow chart illustrating a method making the 2-ply wrapper 4.

At step S1, the first ply 10 and the second ply 11 are made separately. The first and second plies 10,11 have different compositions. The plies 10, 11 may be of different thicknesses.

The first ply 10 comprises fibrous material and filler.

The fibrous material is a fibrous cellulosic material. Particularly, the fibrous cellulosic material is a paper material.

The filler may be calcium carbonate (chalk), titanium dioxide, magnesium oxide, calcium sulphate, clays or a kaolin. Advantageously the filler is calcium carbonate. The one or more filler material may, for example, be present in the second ply in an amount of up to 25 gsm. The one or more filler material may, for example, be present in the first ply in an amount of up to 15 gsm. The total amount of filler material in said sheet may, for example, be at least 8 gsm. The total amount of filler material in the wrapper may, for example, be up to 40 gsm.

The second ply 11 comprises adsorbent material, fibrous material, and flavourant.

The fibrous material is a fibrous cellulosic material. Particularly, the fibrous cellulosic material is a paper material. The fibrous material is present in the second ply 11 in an amount of up to 40 gsm. The fibrous material is present in first second ply 11 in an amount of up to 20 gsm.

The adsorbent material may be carbon, or it may be another suitable adsorbent. The adsorbent material may be activated carbon. Any form of activated carbon may be used. The activated carbon may have an activity level (CTC) of from 60 to 130, advantageously between 80 and 120, and advantageously approximately 100. The adsorbent material
advantageously is in powder or particulate form, or may be in granular form. The adsorbent material is present in the second ply in an amount of up to 40 gsm.

The flavourant may be any of the following: menthol (natural and/or synthetic), alcohols, esters, ketones, lactones, essential oils, aldehydes and heterocyclic compounds. A different, suitable flavourant may be may used instead. The flavourant is added to the adsorbent material prior to forming the second ply. The flavourant may be added to the second ply 11, after the inclusion of the adsorbent material, by spraying. For example, the flavourant may be added to the second ply using a flavour applicator means, for instance as a stream or streams of flavourant. Suitably, the plurality of streams of flavourant is applied to the second ply in a line or in an array. When applied in an array, the array may comprise two lines of streams of flavourant, one of the lines being offset from the streams of flavourant in an adjacent line. Suitably, the flavourant is applied to the surface of the second ply as 1 to 30 streams of flavourant, and preferably as 4 to 18 streams of flavourant. If the flavourant is solid at room temperature, it is heated to maintain the flavourant in the molten liquid state during application to the second ply 11, and may be heated to a temperature of 40 to 45°C.

Alternatively, the flavourant can be added to the second ply 11 after formation of the two-ply paper.

In some embodiments, the second ply also comprises filler. The filler may be calcium carbonate (chalk), titanium dioxide, magnesium oxide, calcium sulphate, clays or a kaolin. Advantageously the filler is calcium carbonate. The filler material is present in the second ply in an amount of up to 25 gsm.

As well as considering the first and second plies 10, 11 separately, it can be useful to consider the materials and physical characteristics of the resulting paper when determining what compositions to give to the plies 10, 11.

The two-ply sheet has a thickness of at least 45µm. The two-ply sheet has a thickness of up to 250 µm.
The total amount of filler material in the sheet is at least 8 gsm. The total amount of filler material in the sheet is up to 40 gsm.

The total amount of fibrous material in the sheet is at least 17 gsm. The total amount of fibrous material in the sheet is up to 60 gsm.

At step S2, the first and second plies 10, 11 are pressed together so as to form a single sheet of paper using a double-wire paper making machine. Double-wire paper making machines are well known in the art so this step will not be described in detail. The result is a sheet of paper comprising a wet web having the first and second plies 10, 11. The wet web is flat with no creping.

At step S3, the wet web is dried using a series of drying drums to form a sheet of paper.

At step S4, the sheet of paper is size-pressed to add a burn additive, in this example a citrate. Examples of suitable burn additives include citrates such as sodium citrate and potassium citrate, acetates and phosphate compounds. The one or more burn additive may comprise sodium citrate or potassium citrate. Tri-potassium citrate has certain advantages as a burn additive in the case of a two ply wrapper paper. The burn additive is present in an amount of at least 0.5% by weight based on the weight of the paper sheet. The burn additive is present in an amount of up to 1% by weight based on the weight of the paper sheet. Although in this embodiment step 4 is included, the addition of burn additive such as citrate to the second ply 11 may be omitted. Indeed, the use of two-ply wrapper paper reduces the need for the use of burn additives. As such, burn additives can be avoided using the present invention. Alternatively, if they are used, the amount of burn additive can be less than would be conventional to achieve a given burning characteristic.

At step S5, the sheet is again dried, using a series of drying drums. At step S6, the dried sheet is rolled onto a bobbin, for storage and/or transportation.

The dried sheet is then used as a wrapper for smoking articles, e.g. cigarettes, made using a conventional cigarette manufacturing machine. The difference between the resulting cigarettes and conventional cigarettes is the composition of the wrapper.
Claims

1. A smoking material rod wrapper, which comprises a single sheet comprising two or more plies, wherein:
   5 a first ply comprises fibrous material, and
   a said second ply comprises adsorbent material, fibrous material and flavourant.

2. A wrapper according to claim 1, wherein said sheet is a double ply sheet.

3. A wrapper according to claim 1 or claim 2, wherein, in said second ply, said fibrous material is fibrous cellulosic material.

4. A wrapper according to any one of the preceding claims, wherein said single sheet comprises burn additive.

5. A wrapper according to claim 4, wherein said burn additive is a citrate.

6. A wrapper according to claim 4 or claim 5, wherein said burn additive is present in said second ply.

7. A wrapper according to any one of claims 4 to 6, wherein said burn additive is present in an amount of at least 0.5% by weight based on the weight of said sheet.

8. A wrapper according to any one of claims 4 to 7, wherein said burn additive is present in an amount of up to 1% by weight based on the weight of said sheet.

9. A wrapper according to any one of the preceding claims, wherein said fibrous material in said first ply is fibrous cellulosic material.

10. A wrapper according to any preceding claim, wherein said adsorbent material is carbon.
11. A wrapper according to claim 10, wherein said carbon is activated carbon.

12. A wrapper according to claim 11, wherein said activated carbon has an activity level (CTC) of 60-130, or 80-120, or approximately 100.

13. A wrapper according to any one of the preceding claims, wherein said second ply comprises filler material.

14. A wrapper according to claim 13, wherein said filler material comprises calcium carbonate.

15. A wrapper according to claim 13 or claim 14, wherein said filler material is present in said second ply in an amount of up to 25 gsm.

16. A wrapper according to any one of claims 13 to 15, wherein the total amount of filler material in said sheet is at least 8 gsm.

17. A wrapper according to any one of the preceding claims, wherein said second ply comprises diluent.

18. A wrapper according to any one of the preceding claims, wherein said two or more plies are combined to form said single sheet while at least one of the plies is in the wet stage of formation prior to drying.

19. A wrapper according to claim 18, wherein the plies are combined while both of said plies are in the wet stage of formation prior to drying.

20. A smoking article comprising:
   a rod of smoking material; and
   a wrapper according to any one of claims 1 to 19 enwrapping said rod of smoking material.
21. A smoking article according to claim 20, wherein said second ply of said wrapper is located on the smoking material rod side of said wrapper.

22. A smoking article according to claim 20 or claim 21, which comprises a filter element located at one end of the rod of smoking material.

23. A smoking article according to claim 22, wherein said filter element comprises carbon.

24. A smoking article according to claim 23, wherein said carbon is activated carbon.

25. A smoking article according to claim 23 or claim 24, wherein said filter element comprises a cellulose acetate mouth end section and a dalmation rod section containing said carbon at the smoking material rod end of the filter element.

26. A smoking article according to claim 23 or claim 24, wherein said filter element is a cavity filter comprising two end sections and a central cavity containing said carbon.

27. A smoking article according to any one of claims 20 to 26 which is a cigarette.

28. A method of making a smoking material rod wrapper, comprising combining a first ply comprising fibrous material, and a said second ply comprising adsorbent material, fibrous material and flavourant into a single sheet.

29. A method according to claim 28, which comprises combining said plies while at least one of said plies is still in the wet stage of formation prior to drying.

30. A method of according to claim 28 or claim 29, comprising combining said two or more plies using a multi-wire paper making machine to form said wrapper.
31. A method according to claim 30, wherein said sheet is a double ply sheet and said multi-wire paper making machine is a double wire paper making machine.

32. A method according to any one of claims 28 to 31, comprising, after combination of said plies, drying the formed sheet.

33. A method according to any one of claims 28 to 32, comprising adding said flavourant to the adsorbent material prior to forming said second ply.

34. A method according to any one of claims 28 to 33, comprising adding said flavourant to said second ply after formation of said ply.

35. A method according to any one of claim 28 to 33, comprising adding said flavourant to said second ply after formation of said wrapper.
S1: Make first ply

S2: Use double wire paper making machine to make 2-ply paper

S3: Dry

S4: Size-press to add citrate

S5: Dry

S6: Roll onto bobbin

Figure 4
INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/050951

A. CLASSIFICATION OF SUBJECT MATTER

INV. A24D1/02 . D21F9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A24D D21F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to Claim No.</th>
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D Further documents are listed in the continuation of Box C. [X] See patent family annex.

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  "A" document denoting the general state of the art which is not considered to be of particular relevance
  "E" earlier document but published on or after the international filing date
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