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[54] **METHOD FOR MAKING A NON-TOBACCO SMOKING COMPOSITION**

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[51] **Int. Cl.**..... **A24b 15/00**

[58] **Field of Search**..... 131/2, 15, 17, 140–144

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[57] **ABSTRACT**

A process for the production of a smoking composition comprising impregnation of a alpha cellulose sheet material, with an aqueous solution of a polycarboxylic polymer comprising a carboxylic polysaccharide in the form of sodium alginate, or pectinic acid. The alpha cellulose sheet has a density of about 20g/per square meter and the additive contributes a 2% weight gain to the sheet.

4 Claims, No Drawings

METHOD FOR MAKING A NON-TOBACCO SMOKING COMPOSITION

This invention relates to the production of smoking compositions, particularly but not exclusively a non-tobacco smoking composition, which on smoking gives a low delivery of total particulate matter (TPM). The invention also relates to cigarettes containing such a composition.

Non-tobacco smoking compositions comprising cellulosic material which has been treated, for example, with nitrogen dioxide so as to obtain a reduction in TPM, are known. The basis of the method is understood to be the oxidation of the primary hydroxyl of cellulose to the carboxyl function. The oxidation procedure is claimed to have the effect of reducing the TPM delivery from cellulose paper sheet, whilst "sweetening" the taste of the smoke. However, the oxidation of cellulosic material with nitrogen dioxide involves high investment and operating costs.

It is an object of the invention to provide a simple and economic process for the production of a smoking composition, to serve as a total or partial replacement for tobacco, which gives, on smoking, a low delivery of TPM without having an adverse effect on the taste.

The process according to the invention comprises impregnation of a cellulosic sheet material, preferably paper sheet, with an aqueous solution of a polycarboxylic polymer comprising a carboxylic polysaccharide in the form of sodium alginate, pectinic or pectic acid or like carbohydrate (as an acid or salt), or a polyacrylic acid or a polyacrylic salt.

It has been found that this process markedly reduces the TPM delivery of cigarettes made from the material and that the smoke acridity is modified.

If desired, other substances may be added for modifying smoke and combustion characteristics, for instance, a flame-retarding agent, such as certain sulphates and phosphates of magnesium, aluminium or sodium, for altering the puff number.

Examples of methods for carrying out the invention are as follows:

EXAMPLE 1

A paper sheet of 20g/m² was made on a Fourdrinier machine from alpha cellulose pulp.

A 5g sample of this sheet was sprayed with 10 ml of an aqueous solution of commercial sodium alginate containing sufficient alginate to give a sheet impregnated with 2% by weight of the alginate. The sample was dried and cut into shreds similar to those of cigarette tobacco. Cigarettes weighing 0.9 g and 70 mm long by 25 mm circumference were made and smoked to a 23 mm butt length using a smoking machine which provided standard conditions of one puff per minute of 2 seconds duration and 35 ml volume. The TPM delivery of these cigarettes was found to be 14 mg/cigarette at an average of 4.8 puffs compared with 50 mg/cigarette at 9 puffs for a cigarette made of cellulosic material without the addition of sodium alginate.

EXAMPLE 2

Cigarettes were produced as in Example 1, but from paper sheet material containing 5% of the sodium alginate. The TPM delivery was 5 mg/cigarette at an average puff number of 4.5. (The puff number being the number of puffs to smoke the cigarettes to a butt length of 23 mm under the standard conditions described in Example 1).

EXAMPLE 3

Cigarettes were produced as in Example 1, but containing 15% of the sodium alginate. The TPM delivery was 20 mg/cigarette.

EXAMPLE 4

Cigarettes were produced as in Example 1, except that a solution of sodium alginate was prepared by dissolving analytical grade alginic acid in sodium hydroxide to neutrality and diluting the solution so that 10 ml applied to 5 g of the paper sheet gave a sheet containing 2% sodium alginate. The TPM delivery was 8 mg/cigarette.

EXAMPLE 5

The procedure was as in Example 1, except that a commercial low methoxy pectin (pectinic acid) was dissolved and the viscous solution was painted on, using a brush spreader. Cigarettes made from sheet containing 2% pectin had a TPM delivery of 20 mg/cigarette.

EXAMPLE 6

Cigarettes were produced as in Example 1, except that analytical grade 250 pectin was used. The TPM delivery was 20 mg/cigarette.

EXAMPLE 7

Cigarettes were produced as in Example 1, except that a commercial ammonium salt of polyacrylic acid was applied to give a sheet containing 4.6% of this salt. The TPM delivery was 35 mg/cigarette at an average puff number of 9.

EXAMPLE 8

The sheet material of Example 1 was further treated by adding 5% of sodium phosphate after the application of the sodium alginate. The TPM delivery was reduced to 8 mg/cigarette at an average puff number of 5.0.

EXAMPLE 9

The sheet material of Example 2 was further treated by adding 2% of magnesium sulphate heptahydrate after the application of the sodium alginate. The TPM delivery was 14.5 mg/cigarette at an average puff number of 6.6.

EXAMPLE 10

Example 1 was followed, except that a paper reconstituted tobacco sheet was used instead of the alpha cellulose sheet. The TPM delivery was 24 mg/cigarette compared with 29 mg/cigarette for the untreated sheet. Both kinds of cigarette had the same average puff number.

EXAMPLE 11

A solution of sodium alginate was prepared by dissolving analytical grade alginic acid in sodium hydroxide to neutrality and diluting the solution so that 10 ml applied to 5 g of a paper reconstituted tobacco sheet gave a smoking material containing 2% of sodium alginate. Cigarettes made from this material were found,

on smoking, to give a TPM delivery of 21 mg/cigarette with no change in average puff number.

Other tests were made using paper-sheet samples produced as in Example 1, but with solutions of different sodium-alginate concentrations giving a range of different proportions of carboxyl-containing polymer units (anhydroglucuronic acid sodium salts). Weight proportions tested were from zero to 20% of sodium alginate. From these tests, it appeared that the proportion employed will advantageously be within the approximate range of 0.1% to 20% by weight and preferably within the range of 1% to 10%. The TPM delivery was found to range, in comparison with a minimum of 50 mg/cigarette for the untreated sheet material, from 14 mg/cigarette down to 5 mg/cigarette and up to 12.8 mg/cigarette with a progressive increase in the proportion of carboxyl-containing units.

We claim:

1. A process for manufacturing a smoking composition having a low total particulate matter delivery consisting essentially of:

impregnating an alpha cellulose paper sheet having a density of about 20 grams per square meter with an aqueous solution of a material selected from the group consisting of pectinic acid and sodium alginate to thereby provide a 2% weight gain by impregnation of said sheet on a dry basis;

then drying; and

thereafter shredding said dried and impregnated sheet to provide filler material for cigarettes.

2. A process according to claim **1**, wherein the composition is a non-tobacco composition.

3. A process according to claim **1**, wherein the cellulose sheet is reconstituted tobacco.

4. A smoking composition or cigarette containing the same produced by a process according to claim **1**.

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