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TOBACCO PRODUCTS

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This invention relates to tobacco sheet material and its manufacture. More particularly, the invention relates to tobacco sheet material manufactured from finely divided tobacco and a polysaccharide adhesive.

A number of tobacco sheet material compositions have found recent commercial success as filler material for cigarettes and as binders for cigars. These materials have generally been made either as paper or have utilized plant gums as adhesives such as cellulose or galactomanan material. In the use of these sheets for the outer wrapper of cigars there has been difficulty in making a sheet of proper elasticity to conform to the cigar contours and yet have an appearance resembling natural wrapper leaf.

Therefore, it is an object of this invention to provide a tobacco sheet of elasticity and appearance suitable as a cigar wrapper.

Ethyl hydroxyethyl cellulose, known commercially as "Ethulose" or "Modocoll," is a useful adhesive for the manufacture of tobacco sheet. This material combines well with known tobacco sheet adhesives such as locust bean gum, methyl cellulose and carboxymethyl cellulose in all proportions. The invention includes the use of this material in combination with other gums as well as alone.

Ethyl hydroxyethyl cellulose is made by reacting alkali cellulose with ethylene oxide and ethyl chloride according to the method of Sönnerskog in Svensk Papperstidn, vol. 48, p. 413, 1945. Ethoxyl content range about 17-18% and the ethylene oxide content is about 17.3%.

Ethyl hydroxyethyl cellulose works equally well in different viscosity grades. For example at 20° C. a 2% by weight aqueous solution may have a viscosity from about 200 centipoises to about 2500 centipoises.

Ethyl hydroxyethyl cellulose forms tough films, which have substantial wet strength when treated with cross linking agents such as glyoxal or oxystarch. Oxypolysaccharides are carbohydrate polymers oxidized with periodic acid to produce chains having aldehyde or dialdehyde groups. Wet strength is a property of great significance in a cigar wrapper. The addition of fibers such as paper or tobacco fibers to an aqueous slurry of tobacco and ethyl hydroxyethyl cellulose results in a sheet of even greater strength than the gum alone affords. This gum is unusual in that it is both thermo-gelling and can be readily cross linked.

Various humectants combine well with this adhesive up to about twice the weight percent of adhesive. Ethylene glycols particularly give good flexibility as well as moisture control. These include di, tri and tetra ethylene glycol. Moreover, tetra ethylene glycol has fungistatic properties in tobacco preparations. Tetra ethylene glycol avoids tacky properties caused in polysaccharide gum tobacco compositions by other known tobacco humectants. This is a novel humectant for use in polysaccharide gum tobacco sheet. Other tobacco humectants such as glycerine also work fairly well with ethyl hydroxyethyl cellulose.

Tobacco sheet made with ethyl hydroxyethyl cellulose is suitable not only as cigar wrapper but for all other uses of tobacco sheet such as filler and binder in cigars and filler in cigarettes and pipes.

Tobacco sheet can be made with this material either

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by mixing tobacco particles with the adhesive or by coating tobacco on a layer of adhesive.

The invention is further illustrated by the following examples:

Example 1

According to a preferred form of this invention, three percent by weight ethyl hydroxyethyl cellulose was dispersed in water and allowed to deform at room temperature for twenty-four hours.

166 parts of this preparation were added to 100 parts of a dispersion of five percent by weight cigarette paper pulp in water in a high speed mixing machine.

The fiber was dispersed with moderate agitation until a smooth dispersion of a consistency similar to heavy cream was obtained. To the dispersion were added and mixed:

One and one-half parts by weight of oxystarch;
Ten parts by weight of tri ethylene glycol; and
Thirty parts by weight of tobacco powder. (Connecticut Broadleaf ground to pass a standard 100 mesh screen was used.)

Sufficient water was added to adjust the solids content to fourteen percent by weight and mixing was done without formation of a vortex.

The slurry was spread on a smooth stainless steel surface and dried with hot air. The finished sheet was allowed to absorb moisture from air having a relative humidity of about 65% at 25° C. This sheet was of a uniformly light brown color, non-porous and very pliable. Good cigars were made from this sheet and smoked.

Example 2

Twenty-five pounds of a four percent by weight ethyl hydroxyethyl cellulose aqueous solution were mixed in a high speed mixer. Twenty-five pounds of water were added. One and one-half pounds of tetra ethylene glycol were added. Two and three-quarter pounds of ground tobacco (-80 mesh Havana Seed) were mixed in to form a slurry and paste.

The resulting paste was dried at 350° C. after being spread on a stainless steel surface. This formed a tobacco sheet which was removed when it contained about 20% moisture by weight.

There has thus been described a novel tobacco sheet made with ethyl hydroxyethyl cellulose and tobacco powder.

What is claimed is:

1. A composition of matter comprising in combination finely divided tobacco, ethyl hydroxyethyl cellulose which acts as an adhesive and tetra ethylene glycol which acts as a fungistatic and a humectant.

2. A composition of matter comprising in combination finely divided tobacco, a polysaccharide adhesive gum and tetra ethylene glycol which acts as a humectant.

3. As an article of manufacture, a tobacco sheet comprising finely divided tobacco, a polysaccharide adhesive and tetra ethylene glycol which acts as a humectant.

4. A composition of matter comprising tobacco and tetraethylene glycol which acts as humectant.

5. A composition of matter comprising finely divided tobacco and tetraethylene glycol which acts as humectant.

6. A composition of matter comprising finely divided tobacco, a polysaccharide adhesive and tetraethylene glycol.

7. A composition according to claim 1 which includes a cross linking agent.

8. A method of inhibiting mold in a smoking composition and providing humectant treatment as well, which comprises treating said composition with tetra ethylene glycol.

9. A method of increasing the wet strength of a smoking composition containing ethyl hydroxyethyl cellulose which comprises cross linking said ethyl hydroxyethyl cellulose.

10. A method according to claim 9 wherein glyoxal 5 is used as a cross linking agent.

11. A method according to claim 9 wherein an oxy polysaccharide such as oxy starch is used as a cross linking agent.

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