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W. A. DRUCKER
TOBACCO COMPOSITIONS
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FIG.1

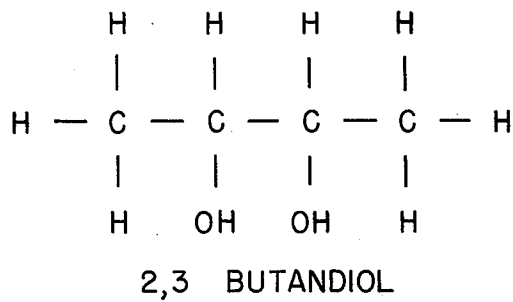


FIG.2

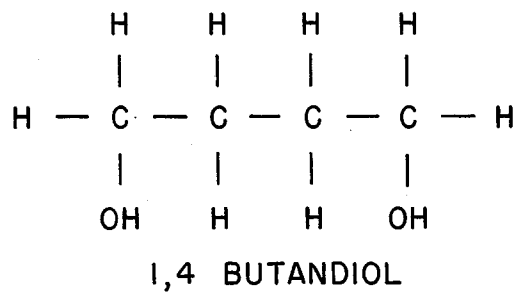
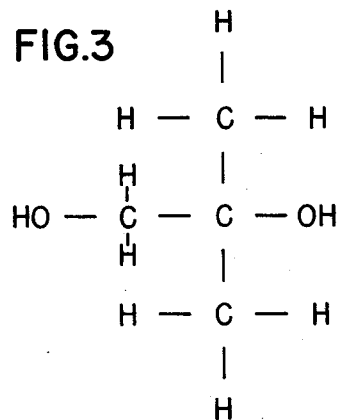


FIG.3



2 METHYL 1,2 PROPANDIOL

INVENTOR.
WILLIAM ANTHONY DRUCKER

BY

William A. Drucker

ATTORNEY

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TOBACCO COMPOSITIONS

William Anthony Drucker, New York, N.Y., assignor to American Machine & Foundry Company, a corporation of New Jersey

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This invention relates to the combination of tobacco with humectant materials. More particularly, the invention relates to tobacco compositions having improved resistance to mold.

Various materials have been used with tobacco as humectants for many years. Probably chief among these has been glycerin or glycerol



a tri-hydroxy alcohol. These materials tend to stabilize the residual moisture in tobacco when atmospheric moisture fluctuates rapidly. Therefore, rapid drying, in particular, is retarded.

Cigarette tobacco has a preferred moisture content between about 8% and 15%; whereas cigar tobacco is generally kept at about 12%-18% moisture.

In addition to influence upon smoking properties, proper moisture content in tobacco avoids brittleness which comes with too little moisture; and gummy, limp material which comes with too much moisture. The physical handling properties are important in the manipulation of tobacco in machinery during the manufacture of cigarettes and cigars.

Unfortunately, the very moisture retained in tobacco promotes the growth of mold in some circumstances. Generally, where there is little air circulation and prolonged storage in damp conditions mold is likely to form on tobacco.

While it is possible to inhibit mold growth by the use of certain chemicals, generally such materials as glycerin do not slow mold growth significantly. In fact, glycerin improves the growth medium. Accordingly, when glycerin is used as a humectant, it is sometimes necessary to use other ingredients for tobacco mold control.

Therefore, it is an object of this invention to combine in a single material suitable for combination with tobacco both humectant and mold inhibiting properties.

It is also an object of this invention to provide smoking articles such as cigars and cigarettes which contain mold inhibiting and humectant properties combined in a single material.

It is a further object of this invention to provide a tobacco sheet, made from finely divided tobacco and an adhesive, which includes a humectant material having mold inhibiting properties.

Another object of this invention is to provide a method of controlling the growth of mold on tobacco.

These and other objects of the invention are set forth in the following description and the accompanying drawing wherein:

FIGURE 1 shows the chemical structure of a preferred material for use in compositions according to this invention;

FIGURE 2 shows another material used in compositions according to this invention;

FIGURE 3 shows another material used in compositions according to this invention.

According to this invention certain glycols, or di-hydroxy alcohols, derived from saturated alkanes having four carbon atoms, have been found to have valuable humectant, preservative and fungestatic or mold inhibiting properties when used in combination with tobacco.

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Useful materials according to this invention include:

2,3 butandiol [$\text{CH}_3(\text{CHOH})_2\text{CH}_3$];
2 methyl 1,2 propandiol [$\text{CH}_3\text{CHOHCOHCH}_3$]; and
1,4 butandiol [$\text{HO}(\text{CH}_2)\text{OH}$].

The humectant materials may be used individually or in combination either with one another or other humectant materials. About 1% to 5% (preferably 3%) by weight of the total tobacco weight may be humectant, although up to 25% may be used in some circumstances.

Although the humectant and mold retarding properties of these glycols are not identical in each of these materials, they are all useful in combination with tobacco. They tend to preserve a fresh flavor and aroma. A preferred use is in tobacco sheet material, although they are also useful in ordinary tobacco products and in smoking articles such as cigars and cigarettes.

These materials give good elasticity to tobacco materials. They may also be used for their mold inhibiting properties and as plasticizers in plastic films, such as cellulose derivatives, used in packaging such foods as cheese.

The following examples illustrate the use of these materials in tobacco sheets.

Example 1

In a preferred method according to the invention, a tobacco sheet was made from finely divided tobacco.

One hundred pounds (dry weight) of flax fibers, such as cigarette paper pulp, and about thirty-six hundred pounds of water were treated in a Jordan refiner until a Canadian Standard freeness of 100 was reached.

A dry mix was prepared from seventy-five pounds of locust bean gum and twenty-five pounds of methyl cellulose, of a type which has a 2% viscosity of 50 centipoises when measured at 25 degrees C. on a Brookfield Viscosimeter, fifty pounds of diatomaceous earth and twenty-five pounds of dialdehyde starch of a type which is at least 90% oxidized.

The dry mix was completely dispersed in the fibers and water.

To the dispersion two hundred pounds of 2,3 butandiol were added as a preservative and mixed.

The total liquid dispersion preparation was diluted with water until it contained 3.5% by weight of total solids.

Eight hundred fifty pounds of tobacco, dry ground to pass an 80 mesh U.S. Standard sieve, were dispersed in the liquid.

The tobacco dispersion was then spread on a stainless steel surface in a thin film with a casting knife and dried.

The tobacco sheet had a breaking strength of about 800 grams/inch width at 20% moisture. The sheet weight (bone dry) was 4.8 grams/square foot. Equilibrium moisture at 80% relative humidity was 24% and at 68% relative humidity was 19%.

Example 2

As a preservative one hundred eighty pounds of 2 methyl 1,2 propandiol were used in place of 2,3 butandiol as in Example 1.

Example 3

In place of 2,3 butandiol of Example 1, two hundred twenty pounds of 1,4 butandiol were used.

Example 4

In place of 2,3 butandiol of Example 1, two hundred pounds of glycerin were used.

All four sheets were inoculated by spraying with a mold spore suspension obtained from a heavily molded tobacco sheet and were incubated at 90% relative humidity and 25 degrees C. It was observed that conspicuous colonies of penicillium type mold formed on only the

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glycerin containing sheet within thirty days. A small amount of mold appeared on the other sheets after sixty days, whereas the glycerin sheet was completely covered with mold after forty-five days.

What is claimed is:

1. A composition of matter comprising tobacco and a glycol selected from at least one of the group consisting of 2,3 butandiol, 1,4 butandiol and 2 methyl 1,2 propandiol said glycol acting as a humectant.

2. A composition of matter comprising tobacco and 2,3 butandiol which acts as a humectant. 10

3. A composition of matter comprising tobacco and 1,4 butandiol which acts as a humectant.

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4. A composition of matter comprising tobacco and 2 methyl 1,2 propandiol which acts as a humectant.

5 5. A method of controlling mold formation on tobacco comprising contacting said tobacco with a glycol selected from the group consisting of 2,3 butandiol, 1,4 butandiol and 2 methyl 1,2 propandiol said glycol acting as a humectant.

6. A cigar containing the composition of claim 1.

7. A cigarette containing the composition of claim 1.

References Cited in the file of this patent

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