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(54) **A process for utilizing tobacco dust.**

(57) A process for employing tobacco fines or dust is disclosed. The tobacco fines are dispersed in an aqueous liquid and applied to tobacco or reconstituted tobacco. In the preparation of reconstituted tobacco, the fines are incorporated into concentrated tobacco extract before the extract is recombined with the reconstituted sheet or into an aqueous carrier. The slurry of fines in extract or other carrier is passed through a homogenizer and then is applied as a coating to the sheet prior to drying and shredding. In application to tobacco strip and other tobacco blend components, the fines are combined with casing and the combination is homogenized to reduce the particle size and produce a uniform distribution. This is then sprayed by the casing applicator system onto the strip; the dried product is no more dusty in subsequent cutting and handling than is the strip without the added fines.

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A PROCESS FOR UTILIZING TOBACCO DUST

This invention pertains to the field of smoking materials. More particularly, the present invention concerns a method for preparing a smoking material with leaf lamina, strip or other tobacco components, or with reconstituted tobacco having tobacco dust or fines incorporated therein.

As a result of treating, handling and shipping tobacco in its various forms, notably cigar wrappers or fillers, cigarettes, and smoking tobacco, tobacco fines or dust is generally formed. This dust, generally less than about one centimeter in size, is recovered from air filters, tobacco screens and other separating systems.

These tobacco fines or dust have commonly been discarded or employed in conjunction with other tobacco by-products, such as stems, stalks and leaf scraps resulting from the stripping of leaf tobacco, in the preparation of reconstituted tobacco material.

One process for making reconstituted tobacco sheets involves casting or forming a paste or slurry of refined tobacco by-products, including dust, onto a moving belt. In such a technique, the employment of very fine tobacco particles is feasible inasmuch as these tobacco dust particles are simply retained on the moving belt, present no manufacturing difficulties and are not lost during the sheet formation. This is not, however, true in a paper-making type process for the preparation of reconstituted tobacco.

More particularly, when employing a paper-making process for preparing reconstituted tobacco, the tobacco dust must generally be discarded or employed elsewhere. This is due to the fact that in the paper-making process, the slurry of refined tobacco by-products is cast from a head box onto a wire screen for forming

the desired sheet. If the screen mesh size is too large, the dust particles simply pass through the wire screen and do not, as a result, become incorporated in the resulting sheet. Conversely, when the screen mesh size is reduced so as to prevent the tobacco dust particles from passing therethrough, the dust considerably slows the drainage of the water through the screen and correspondingly slows the rate of sheet formation by actually plugging and/or clogging the wire screen openings.

Accordingly, although the paper-making type process for making reconstituted tobacco material has many advantages over the alternative casting/moving belt method, particularly, in that a binder is not required to hold the fibers together and a significant amount of solubles can be removed from the tobacco material to be treated separately and later reincorporated in the resulting sheet, and is consequently the preferred method, it nevertheless does suffer from the disadvantage of not being able to efficiently and conveniently employ tobacco dust by-product. However, with increased handling of tobacco, as is the case e.g. with expansion processes, and with increased speed of cigarette makers, larger amounts of dust is generated than in the past. Reconstitution processes are no longer able to assimilate all of the dust and the alternative of discarding as waste is not attractive.

It is also standard practice in the preparation of tobacco strip to apply so-called 'casing', containing flavors, sugars, humectant and the like in solvent, to the strip by spraying. Though some finely pulverized flavor materials have sometimes been added to casing, it has never been known to incorporate tobacco dust into casing. Presumably it is supposed that the dust particles would clog the spray nozzles or associated parts of the systems.

The present invention presents a way of incorporating this material into a smoking product with a minimum of added equipment, which avoids substantially all of the above-noted disadvantages associated with a paper-making type of process in the preparation of reconstituted tobacco containing tobacco dust.

In accordance with the present invention, tobacco dust is dispersed in an aqueous liquid medium and applied to tobacco or reconstituted tobacco. A mixture of the fines or dust with an aqueous medium may be treated to form a uniform dispersion, for example by homogenizing.

The medium may contain dissolved solids, which may assist in retaining the fines or dust on the tobacco or reconstituted product. Such solids may comprise, for example, those substances conventionally present in tobacco 'casing', extracts of tobacco solubles, or gums.

According to a first aspect of the invention, the fines or dust is mixed with casing, which may be processed through a homogenizer to reduce the larger particles, in order that the product will be accepted by whatever applicator is used to put the casing on tobacco strip or filler, usually a spray head. Alternatively, the fines or dust may be ground prior to mixing with the casing. The dried, reordered product is not sticky and generally is no more dusty than the same strip or filler without added fines.

Casing applied to tobacco strip or cut filler is essentially a liquid and is handled as such in conveying and in applying, Thus spray application is the conventional means. The present invention contemplates combining tobacco fines with casing or water and homogenizing the combination into a slurry in order that the product can be handled with the casing applicator already in use (usually a spray system). Alternatively,

the dust may be ground before being combined with the casing or water and subsequently dispersed into a slurry. High shear rate dispersion is preferable such that the dust and liquid combination is placed in turbulence during mixing. The particles for this purpose must preferably be no larger than about 500 microns, and more preferably less than 100 microns in diameter. However, reducing the fines to this size is not essential and satisfactory results may be obtained with particles of 1000 microns and larger with a corresponding decrease in particle size reduction requirements. Larger particles do, however, result in a slurry of increased viscosity when the slurry is homogenized. Conversely the viscosity of a slurry of dry ground tobacco mixed or dispersed in casing decreases with increased particle size. Viscosity is an important factor in the application of the slurry. The viscosity of the slurry generally decreases with increased motion and sheer rate. Preferably, for the effectiveness and ease of application, slurry viscosity as measured on a Haake viscometer should be no greater than three hundred centipoise measured at about 180°F and a shear rate of about 600 (1/sec). Some viscosities in the examples herein were measured at a lower shear rate of about 24 (1/sec) at about 180°F on a Brookfield Model RVT viscometer and are appropriately designated.

Preferably tobacco dust is added to liquid at a proportion of up to two pounds of dust per gallon liquid. Satisfactory results have been obtained with between one tenth to five pounds of added dust per gallon of liquid. The invention, however, is not limited to these proportions.

Upon combination of the tobacco dust with the casing, water or other appropriate aqueous liquid, a portion of the dust will dissolve and a portion will remain dispersed as particulate solids. Thus, the combination of the dust and the liquid produces both a solution and a suspension or dispersion. Subsequent homogenization of the combination to evenly distribute the solids, and in some methods according to the present invention to also reduce the size of the solid tobacco particles, results in a

product referred to herewithin as a homogeneous mixture.

This homogeneous mixture is typically between fourteen and fifty percent solids. The slurry is applied to the tobacco at a rate of preferably between about one and nine gallons slurry per one hundred pounds tobacco with a preferable dust addition of between one and ten weight percent. However satisfactory bulks have been obtained with an application rate of from about one tenth to about thirty gallons per one hundred pounds tobacco with a dust addition of about one tenth to about thirty weight percent.

Of course, the invention is not limited to these rates and any rate may be used. However, at low application rates the process becomes less economical and at high application rates the adhesion of the slurry may be less complete. The result is that when the casing composition is applied to strip or filler, and the cased product dried and further processed, the dusting problem is no greater than had the tobacco dust not been added. A further finding is that the dust particles are so reduced in size that they are not noticeable on the tobacco. Thus, material which might otherwise be wasted is utilized in smoking product without addition of any new non-tobacco ingredient, and without visible change to the product. Filler in the sense used here is intended to embrace rolled cut stem, expanded or not, expanded shreds, and like filler ingredients.

As a supplement to alter the viscosity of the combination, a natural or synthetic gum may be added to the casing provided that it is soluble in the latter. This may increase the viscosity and also improve the binding effect of the casing for the fine tobacco particles.

In another aspect, the invention provides a method for economically utilizing tobacco dust by-products in a paper-making type process for making reconstituted tobacco. This method not only reduces the loss of the dust through the wire screen when the screen openings are too large and further more reduces clogging and/or plugging of the screen openings when these openings are too small, but additionally, the

method of the present invention actually increases the rate of drainage through the wire screen correspondingly increasing the rate of production of the reconstituted tobacco sheet and improving its quality by allowing better refining of the remaining tobacco stem feedstock.

In this aspect, the present invention is directed to a method for employing tobacco dust in the preparation of reconstituted tobacco which comprises admixing tobacco dust with the extract liquor which has been concentrated in steam evaporators after recovery from extraction presses. The mixture is then passed through a homogenizer or mixer to refine and uniformly disperse the particles in the concentrated extract. The viscous product is applied to the reconstituted tobacco web which has been removed from the Fourdrinier wire, and the coated web is then dried in the usual fashion. Final cutting, shredding, and blending into cigarette filler or the like is conventional.

The method for utilizing tobacco dust in the preparation of reconstituted tobacco employing a paper-making process calls for certain modifications in the usual process.

Tobacco dust by-product material is first collected. It may be used totally apart from the Fourdrinier feedstock, or a portion may be sent with the stems while the remainder is kept for the coating preparation. This separated fines fraction is blended with concentrated extract as will be described below.

Meanwhile, the said feedstock, according to the usual process, is diluted with 500 to 700 parts of water per 100 parts of solids and is passed into refiners which beat the stems to form a smooth, well-blended fiber slurry. This is concentrated in an extraction press by removal of about five-sixths of the liquid extract which is sent to the concentrators. Here steam heating vaporizes a portion of the water.

The stock from the press is diluted with white-water from the Fourdrinier to a consistency which is suitable for application to the wire at the headbox of the Fourdrinier. That part of the process is conventional in the extract-recombine papermaking reconstitution process.

The concentrated extract, according to the present invention, is blended with the separated dust fraction in preparation of a coating for reapplication, by any of the following alternatives:

1. The blend of concentrate and fines is homogenized wetmilled in the tobacco extract liquor, as for example in a Gaulin homogenizer or the like; or the dry dust is dry dust is dry milled prior to dispersing with the extract and dispersed into a slurry. High shear rate dispersion is preferable such that the dust and liquid combination is placed in turbulance during mixing;
2. The dust, before blending, is treated with a pectin release agent such as aqueous diammonium phosphate to release the tobacco pectins and the resulting dispersion is blended with the extract (in a more concentrated form to allow for the dilution which results); or
3. The dust is moistened with water and treated with steam to soften and loosen the particles, resulting in a thick paste which is then blended with concentrated extract, and optionally homogenized as under (1) for preparation of a coating composition.

The coating is applied to the formed moving tobacco web ahead of the dryers, at or near the point where the sizing press is located in the basic process. The application may be by a roll coater, reverse roll coater, blade coater, high-pressure spray, or any similar means for applying viscous liquid to a running web. When dry, the reconstituted tobacco sheet is not sticky and does not shed dust before, during, or after cutting, to any greater degree than the conventional reconstitued product.

The maximum acceptable particle size in the coating depends on both adherence of the particle to the web and aesthetics of the coated web. Particles of 1000 microns and larger will adhere. However, particles this large give the coated web a sandpaper like texture and appearance. A smaller particle size gives a corresponding smoother appearance closer to that of leaf.

When the paper-making process does not involve a separate reapplication if the tobacco solubles as discussed above, for example, the process of U.S. Patent 3,415,253, the fines may be dispersed in water in place of extract and applied for one of the three alternative treatments described. The addition of a gum to the water is optional.

The invention will be described in greater detail by reference to a number of examples of its practical application. In these examples, reference is made to several measurements or parameters of significance in the manufacture of tobacco smoking materials.

The term "cylinder volume" is a measure of the relative filling power of tobacco or reconstituted tobacco for making smoking products. Higher cylinder volume means higher filling power, or capacity to make more satisfactory cigarettes with a given unit weight. The term "oven volatiles" describes a measure of the approximate moisture content (or percentage of moisture) in tobacco or reconstituted tobacco. As used throughout this specification, the values employed to characterize tobacco or reconstituted tobacco, in connection with these terms, are determined as follows:

Cylinder Volume (CV)

Tobacco or reconstituted tobacco filler weighing 10.000 g is placed in a 3.358-cm diameter cylinder and compressed by a 1875-g piston 3.335 cm in diameter for five minutes. The resulting volume of filler is reported as cylinder volume. This test is carried out at standard environmental conditions of 24°C and 60% RH; conventionally unless otherwise stated, the sample is preconditioned in this environment for 18 hours.

Oven-Volatiles Content (OV)

The sample of tobacco or reconstituted tobacco is weighed before and after exposure for 3 hours in a circulating air oven controlled at 100°C (212°F). The weight loss as percentage of initial weight is the oven-volatiles content.

Equilibrium OV and Equilibration

The OV after equilibration has significance in comparing properties of smoking materials at the same conditions. Materials are, generally, equilibrated (re-ordered) at conditions which are well known in the trade. Equilibrating is preferably done at standard conditions, which generally involve maintaining the tobacco at a temperature of 24°C (75°F) and 60% RH (relative humidity) for at least 18 hours.

Hot-Water Solubles (HWS)

This is a straightforward measurement of the weight loss from a sample boiled in water for an hour and filtered.

Particle Screen Sizes

"Longs" are defined as filler particles held back by 1.91 mm (0.075-inch) screen openings. "Mediums" are particles which are held back by 0.86 mm (0.034-inch) screen openings. "Shorts" are held back by 0.51 mm (0.020-inch) openings. "Smalls" are held back by 0.28 mm (0.011-inch) openings. "Fines" pass through that screen.

Standard Smoking Procedure

Test smoking by machine was done according to the FTC method as described by Pillsbury et al., J. Assoc. Offic. Anal. Chemists 52: 458-462 (1969).

Example I

Reconstituted tobacco was made by an extract-recombine paper-making process from a stem and fines feedstock containing approximately 37% by weight of fines. This will be considered the

control. In a similar operation approximately 54% of the fines was withdrawn from the feedstock and the web was prepared while the extract liquor was diverted from the sizing press. The fines which had been withdrawn were combined with the extract liquor which had first been concentrated to approximately 45% solubles, and the combination was passed through a Gaulin homogenizer. The product was applied by a blade coater at various loadings to one side of the reconstituted sheet which was then passed through the drying system and shredded as filler. It was observed that the coating did not appreciably impregnate the web, but remained essentially on the surface where applied. Test results and OV and solubles analysis are given in Table I. Some web was also coated on both sides.

Example 2

With a papermaking process all fines were withdrawn from feedstock. They were blended into concentrated extract liquor together with diammonium phosphate to release the pectins from the tobacco material. After thorough blending, the product was coated with the combined material by blade coater on one side of the web and the product dried in the usual way. The reconstituted filler from this process did not show a loss in filling power in spite of the build-up of solids on the sheet.

TABLE I

CHARACTERISTICS OF SIZED AND COATED RECONSTITUTED SHEET BY PAPERMAKING PROCESS

		EXAMPLE 1					EXAMPLE 2
		Control	One-Sided Coating			Two-Sided Coating	One-Sided Coating
	Weight (g/cm^2)*	9.3	9.5	12.1	18.4	14.1	9.9
	Thickness (mils)	9.7	12.3	9.1	15.7	11.7	9.4
	Longs(%)	2.5	1.9	2.0	4.2	2.6	1.8
	Tensile (kg/25.4mm)**	1.85	3.04	2.94	2.05	3.04	2.96
	Equil. OV(%)	13.1	12.1	13.0	13.3	--	12.4
	CV (cc/10g)	36.9	41.7	34.8	31.7	----	40.1
	Hot water solubles	43.0	36.0	46.0	56.0	----	49.0

* g/sq.ft

** kg/in

Example 3

Three similar tests were run, with starting batches of Burley strip weighing from 13.6 to 90.8 kg. (30 to 200 pounds). In each run, one batch was treated with casing in the conventional way. A second portion of casing was blended with 10 parts of tobacco fines per 100 parts of strip to be treated, and the mixture was passed through a Gaulin homogenizer. The product was sprayed on a second batch of Burley strip, the ratio of casing to strip being the same as before. The two batches were dried as in the conventional process to cutting moisture. After cutting, the filler was dried to equilibrium conditions (60% RH/24°C) and subjected to tests and analysis with results shown in Tables II and III. When cigarettes were made from these, losses at the maker were as given in Table IV. The shredded strip was blended as the Burley component in commercial filler and used in making cigarettes; see Table V. Table VI shows sieve comparisons. Cigarettes properties and smoking test results by the standard FTC method are given in Table VII for both blend and all-Burley cigarettes. It will be seen that the tests cigarettes made with Burley according to the process of the invention are comparable in all respects with the conventional (control) cigarettes.

TABLE II

100% Burley

FILLER PREPARATION

	Trial 1		Trial 2	
	Control	Test: Fines and Casing	Control	Test: Fines and Casing
Sprayed Strip OV %	36.2	47.7	----	----
Cutting OV	17.3	25.4	----	21.3
Dryer OV	10.6	14.6	----	12.4
Equilibrium OV	13.0	13.1	12.4	12.6
CV, cc/10g	35.2	35.6	40.8	43.9

TABLE III

100% Burley

SIEVE ANALYSIS BEFORE/AFTER MAKER

	Trial 1		Trial 2	
	Control	Test: Fines and Casing	Control	Test: Fines and Casing
Longs				
Before	35.5	54.4	44.0	51.6
After	----	----	21.9	29.8
Mediums				
Before	50.6	39.0	46.9	41.4
After	----	----	63.4	58.7
Shorts				
Before	8.7	4.1	7.6	5.6
After	----	----	13.0	10.1
Smalls				
Before	0.4	0.4	0.6	0.6
After	----	----	0.8	0.7
Fines				
Before	4.8	2.1	0.9	9.8
After	----	----	0.9	0.7

TABLE IV

100% Burley

MAKER LOSS

	Trial 1		Trial 2	
	Control	Test: Fines and Casing	Control	Test: Fines and Casing
Stems % (winnowers)	2.66	3.1	2.0	3.1
Dust %	1.16	1.14	0.3	0.5

TABLE V

FILLER BLEND PREPARATION

	Trial 2	
	Control	Test: Fines and Casing
Cutting OV %	21.3	21.5
Dryer OV	13.4	13.6
Equilibrium OV	13.9	13.8
CV, cc/10g	34.8	35.9

TABLE VI

SIEVE ANALYSIS BEFORE/AFTER MAKER

	Control	Test
Longs		
Before	47.9	46.2
After	26.1	26.8
Mediums		
Before	45.0	46.8
After	62.1	61.0
Shorts		
Before	6.1	5.8
After	9.9	10.2
Smalls		
Before	0.5	0.6
After	1.2	1.1
Fines		
Before	0.5	0.9
After	0.7	0.8

TABLE VII

CIGARETTE ANALYSIS

	Trial 2 Blend		100% Burley	
	Control	Test: Fines and Casing	Control	Test: Fines and Casing
TPM (mg/cig)	20.9	22.0	21.0	22.5
Nicotine Delivery (mg/cig)	1.11	1.15	1.38	1.30
H_2O (mg/cig)	3.23	3.38	2.84	3.44
RTD (in. H_2O)	4.9	4.8	4.9	4.2
Puff Count (puff/cig)	9.0	9.1	8.7	8.9
Tobacco Rod Weight (g/cig)	0.770	0.754	0.774	0.778
Total Reducing Sugars (%)	----	----	<2	2.0
Cigarette Weight (g)	0.996	1.046	1.003	1.026
Firmness (mm x 10)	32.9	30.9	25.6	26.0

EXAMPLE 4

Tobacco dust having a particle size distribution of 63 percent smaller than 550 microns was mixed with casing at a concentration of 134 kg/m^3 (1.12 pounds dust per gallon) casing, homogenized in a Gaulin Model 15M-8BA homogenizer to obtain a slurry having a distribution of particle size of 95 percent smaller than 125 microns, and being 35 percent solids and mixed with 1/4 parts water per part casing to obtain a viscosity of 2700 cps (Brookfield).

Burley strip was reordered from 15 to 17 percent OV moisture. The homogenized slurry was sprayed onto the burley strip by means of a casing cylinder at a rate of 750 cm^3/kg (9.0 gallons per 100 lbs.) of burley to obtain a tobacco dust add on rate of 7.5 weight percent. Essentially all of the applied dust adhered to the burley strip. The resulting product had a CV of 44.8 cc/10g at an OV of 11.9 percent compared to a control sample which had a CV of 44.9 cc/10g at an OV of 11.7 percent.

EXAMPLE 5

Tobacco dust was mixed with casing at a concentration of 215 kg/m^3 (1.8 pounds per gallon) casing, homogenized in a Gaulin homogenizer to make a slurry being 25 percent solids. The slurry was sprayed on cut stem at a rate of 409 cm^3/kg (4.9 gallons casing mixture to 100 pounds) of cut stem to obtain a resultant fines percentage on the cut stem of 10 weight percent. Essentially all of the applied dust adhered to the cut stem. The resulting product had a CV of 33.4 at an OV of 14. A control had a CV of 35.2 at an OV of 14.

EXAMPLE 6

Tobacco dust was mixed with casing at a concentration of 2.06 pounds per gallon casing, homogenized in a Gaulin homogenizer to make a slurry being 24 percent solids. The slurry was sprayed on the cut stem having an OV of 34.0 at a rate of 3085 cm^3/kg (37 gallons slurry to 100 pounds) of cut stem to obtain a resultant dust content of the cut stem of 8.2 percent. The cut stem was expanded and 66 percent of the applied dust adhered to the expanded cut stem. The resulting product had a CV of 47.2 at an OV of 14 compared to the control having a CV of 46.1 at an OV of 14.

EXAMPLE 7

Tobacco dust was dry ground in a Fitz mill, Model D6, to obtain a distribution of particle size of 95 percent smaller than 300 microns, and a weighted average of 160 microns. The dust was mixed with casing at a concentration of 110 kg/m^3 (0.92 pounds per gallon) casing and dispersed in a Cowles Model IVG dissolver to make a slurry having a viscosity of 900 cps (Brookfield). Burley

strip is reordered to a moisture of 17-18 percent by weight. The slurry was sprayed on the reordered burley strip at a rate of 750 cm^3/kg (9 gallons of slurry to 100 pounds) of burley strip to obtain a dust add on rate of 7.5 weight percent. The Burley strip is dried for 20 minutes at 250-275°F to an OV of 20. Essentially all of the applied dust adhered to the burley strip. The resulting product had a CV of 41.2 versus the control sample CV of 42.1 each at an OV of 12.

EXAMPLE 8

Tobacco dust was dry ground in a Fitz mill, Model D6, to obtain a distribution of particle size of 95 percent smaller than 500 microns, and a weighted average of 240 microns mixed with casing at a concentration of 110 kg/m^3 (0.92 pounds per gallon) casing and dispersed in a Cowles Model IVG dissolver to make a slurry with a viscosity of 1100 cps (Brookfield). Burley strip was reordered to a moisture of 17-18 percent by weight. The slurry was sprayed on the reordered Burley strip at a rate of 750 cm^3/kg (9.0 gallons of slurry to 100 pounds) of Burley strip to obtain a dust add on rate of 7.5 weight percent. The Burley strip was dried for 20 minutes at 121-135°C (250-275°F) to a moisture content of 20 percent. Essentially all of the applied dust adhered to the burley strip. The resulting product had a CV of 44.2 versus the control sample CV of 42.1.

EXAMPLE 9

Tobacco dust having a particle size distribution of 100 percent smaller than 350 microns was mixed with casing at a concentration of 110kg/m^3 (0.92 pounds per gallon) casing, homogenized in a Morehouse Model 715 wet grinder to make a slurry having a distribution of particle size of 95 percent smaller than 125 microns, and having a viscosity of 2600 cps (Brookfield). Burley strip was reordered to a moisture of 17-18 percent by weight. The slurry was sprayed on the reordered burley strip at a rate of 734 cm^3/kg (8.8 gallons of slurry to 100 pounds) of burley strip to obtain a dust add on rate of 7.5 weight percent. The burley strip was dried for 20 minutes at 121-132°C (250-270°F)

to a moisture of 20 percent. Essentially all of the applied dust adhered to the Burley strip. The resulting product had a CV of 41.8 versus the control CV of 42.1.

EXAMPLE 10

Tobacco dust having a particle size distribution of 100 percent smaller than 350 microns was mixed with casing at a concentration of 110 kg/m^3 (0.92 pounds per gallon) casing and homogenized in a Gaulin homogenizer type #80 M3, to make a slurry having a distribution of particle size of 95 percent smaller than 50 microns and having a viscosity of 2600 cps (Brookfield). Burley strip was reordered to a moisture of 12-18 percent by weight. The slurry was sprayed on the reordered Burley strip at a rate of 742 cm^3/kg (8.9 gallons of slurry to 100 pounds) of Burley strip to obtain a dust add on rate of 7.5 weight percent. The Burley strip was dried for 20 minutes at 121-132°C (250-270°F) to a moisture of 20 percent. Essentially all of the applied dust adhered to the Burley strip. The resulting product had CV of 43.0 versus the control sample CV of 42.1.

EXAMPLE 11

Tobacco dust was mixed with water at a concentration of 228 kg/m^3 (1.9 pounds dust per gallon) water, homogenized in a Gaulin homogenizer to obtain a slurry being 17 percent solids. Blended cut filler was reordered to 19 percent moisture. The slurry was sprayed on the reordered blended cut filler at a rate of 80 cm^3/kg (.96 gallons slurry to 100 pounds) of blended cut filler to obtain a dust add on rate of 1.8 weight percent. The filler was dried to 11-14 percent OV. Essentially all of the applied dust adhered to the burley strip. The resulting product and the control sample each had a CV of 36.7, at an OV of 12.5.

EXAMPLE 12

Tobacco dust was mixed with water at a concentration of 174 kg/m^3 (1.45 pounds per gallon) water and homogenized in a Gaulin homogenizer to make a slurry having 13.5 percent solids. Burley strip was dried to an OV of 12.1. The slurry was sprayed on the expanded stem at a rate of 542 cm^3/kg (6.5 gallons of slurry to

100 pounds) of expanded stem to obtain a dust content of 8 weight percent. Essentially all of the applied dust adhered to the expanded stem. The resulting product had a CV of 42.5 at an OV of 14, compared to a control sample CV of 44.3 at an OV of 14.

EXAMPLE 13

Tobacco dust having a particle size distribution of 63 percent smaller than 225 microns was mixed with casing at a concentration of 134 kg/m^3 (1.12 pounds per gallon) casing and homogenized in a Gaulin homogenizer to make a slurry having a distribution of particle size of 95 percent smaller than 125 microns and approximately 25 percent solids. The slurry was diluted with 7 parts water per part casing to obtain an approximate viscosity of 1500 cps (Brookfield). A blend of bright and Turkish (Oriental) tobacco was reordered from 15 to 17 percent OV moisture. The homogenized slurry is sprayed on the reordered bright/Oriental strip at a rate of 646 cm^3/kg (7.74 gallons per 100 pounds) of bright/Oriental strip to obtain a dust add on rate of 7.5 weight percent. Essentially all of the applied dust adhered to the bright/Oriental strip. The resulting product had a CV of 29.0 cc/10g at an OV of 13.1 percent. The control bright/Oriental material had a CV of 29.0 cc/10g at an OV of 13.0 percent.

Any cigarette blend component may be treated in the same way. Alternatively, tobacco fines may be dispersed in water and homogenized, with added gum or a pectin release agent (such as aqueous diammonium phosphate) for tobacco pectins if desired, for application to strip or other tobacco blend component.

CLAIMS

1. A method of utilizing tobacco fines or dust characterized in that the fines or dust are dispersed in an aqueous liquid and applied to tobacco or reconstituted tobacco.

2. A method according to claim 1 wherein the aqueous liquid and fines or dust are homogenized before being applied to the tobacco or reconstituted tobacco.

3. A method according claim 1 or 2 wherein the dispersion is applied by spraying.

4. A method according to any of claims 1 to 3 wherein the dispersion is applied to tobacco strip or expanded tobacco stems.

5. A method according to any of claims 1 to 6 wherein said aqueous liquid is tobacco casing.

6. A method according to claim 1 or 2 wherein the dispersion is applied to wet reconstituted tobacco sheet prior to drying.

7. A method according to claim 6 wherein tobacco component feed stock is slurried in an aqueous medium, refined and formed into sheet, and tobacco fines are dispersed uniformly in a second aqueous medium, applied as a coating to the formed sheet before the sheet is introduced to dryers.

8. A method according to claim 7 wherein the fines are separated from the feed stock before slurrying the remaining feed stock in an aqueous medium.

9. A method according to claim 7 or 8 wherein the dispersion is applied with a coating roll or a coating blade.

10. A method according to any of claims 7 to 9 wherein the second aqueous medium is concentrated liquid phase removed from the refined slurry prior to sheet formation.

11. A method according to any of claims 6 to 10 wherein the fines and the second aqueous medium are homogenized to reduce the dimensions of undissolved fines to less than 50 microns.

12. A method according to any of claims 6 to 10 wherein the dispersion of the fines is brought about by introducing diammonium phosphate with stirring.

13. A method according to any of claims 6 to 12 wherein the feed stock is slurried with water.

14. A method according to any of claims 7 to 13 wherein the sheet is formed on a paper making machine, from which white-water is recovered, and wherein the greater part of the liquid phase is removed from the refined slurry and at least a part of the removed liquid phase is replaced with the white water.

15. A method according to claim 5 wherein tobacco dust having a particle size distribution of about 63 percent smaller than 550 microns is added to tobacco casing at a concentration of about 134 kg dust per m^3 casing (1.12 pounds per gallon), homogenized to obtain a slurry having a tobacco dust distribution of about 95 percent smaller than 125 microns and being about 35 percent solids, diluted with about 0.25 parts water per part casing to obtain a slurry viscosity of about 2700 centipoise; and sprayed on Burley tobacco strip at a rate of about 750 cm^3/kg (9 gallons per 100 pounds) of Burley tobacco strip to obtain a dust add-on of about 7.5 weight percent.

16. A method according to claim 5 wherein tobacco dust is mixed with casing at a concentration of about 215 kg dust per m^3 casing (1.8 pounds per gallon), homogenized to obtain a slurry being about 25 percent solids, and sprayed cut tobacco stem to obtain a dust add-on of about 10 weight percent.

17. A method according to claim 5 wherein tobacco dust is mixed with casing at a concentration of about 240 kg dust per m^3 casing (2 pounds per gallon), homogenized to obtain a slurry of about 24 percent solids and sprayed on cut tobacco stem at a rate of about 3085 cm^2/kg (37 gallons per 100 pounds) of cut stem to obtain a dust add-on of about 8.2 percent, and the sprayed cut stem is thereafter expanded.

18. A method according to claim 5 wherein tobacco dust is dry ground to a particle size distribution of 95 percent smaller than from 300 to 500 microns and a weight average of from 160 to 240 microns, mixed with casing at a concentration of about 108 kg dust per m^3 casing (0.9 pound per gallon) dispersed to obtain a slurry having a viscosity of from 900 to 1100 centipoise, and sprayed on Burley tobacco strip at a rate of about 750 cm^3/kg (9 gallons per 100 pounds) of strip to obtain a dust add-on rate of about 7.5 weight percent.

19. A method according to claim 5 wherein tobacco dust having a particle size distribution of 100 percent smaller than 350 microns is mixed with casing at a concentration of about 108 kg dust per m^3 casing (0.9 pound per gallon), homogenized to obtain a slurry having a distribution of particle size of 95 percent smaller than from 50 microns to 125 microns of a viscosity of about 2600 centipoise, and sprayed on Burley tobacco strip at a rate of about 750 cm^3/kg (9 gallons per 100 pounds) of Burley strip to obtain a dust add-on rate of about 7.5 weight percent.

20. A method according to claim 5 wherein tobacco dust is homogenized with water at a concentration of about 240 kg dust per m^3 water (2 pounds per gallon) to obtain a slurry and, sprayed on blended cut filler at a rate of about 83.4 cm^3/kg (1 gallon per 100 pounds) of cut filler to obtain a dust add-on rate of about 1.8 weight percent.

21. A method according to claim 5 wherein tobacco dust is mixed with water at a concentration of about 179 kg fines per m^3 water (1.5 pounds per gallon), homogenized to obtain a slurry having about 14 percent solids and sprayed on expanded stem at a rate of about 542 cm^3/kg (6.5 gallons per 100 pounds) of expanded stem to obtain a dust content of about 8 weight percent.

22. Tobacco or reconstituted tobacco treated by a method according to any of claims 1 to 21.