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(54) **CIGARETTE WRAPPING PAPER, AND A PAPER-WRAPPED CIGARETTE USING SAID CIGARETTE WRAPPING PAPER**

(57) This cigarette wrapping paper, for wrapping shredded tobacco, has an average thickness of 45-100 μm and is obtained by making paper from pulp that has an average fiber length of 1200-1700 μm and a freeness of 30-65°SR.

AVERAGE THICKNESS AND SPOT INCIDENCE

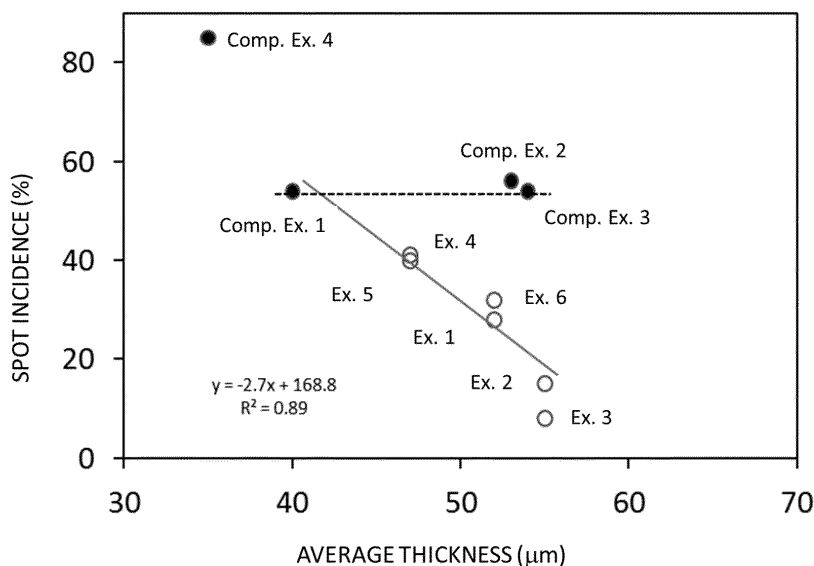


FIG. 1

Description

[Technical Field]

5 **[0001]** The present invention relates to tobacco wrapping paper and to a cigarette using the tobacco wrapping paper.

[Background Art]

10 **[0002]** The outer appearance of cigarettes may in some instances be impaired due to the occurrence of "spots" on the wrapping paper that wraps shredded tobacco leaves in the tobacco rod of the cigarette. Accordingly, techniques are sought that allow averting the occurrence of spotting in wrapping paper of cigarettes.

15 **[0003]** A conceivable cause of spotting in tobacco wrapping paper is seeping, onto the wrapping paper side, of substances contained in the tobacco, at sites where the tobacco wrapping paper and shredded tobacco leaves come into contact with each other during storage of the cigarette. The number of cigarette products containing significant amounts of flavorings in the shredded tobacco leaves has increased recently. These flavorings in the shredded tobacco leaves may seep into the tobacco wrapping paper and give rise to spots.

20 Patent Document 1 discloses the feature of suppressing spotting in tobacco wrapping paper by arranging the inner wrapping paper having a specific air permeability, between the tobacco and the outer wrapping paper that constitute the cigarette. Patent Document 1 indicates that the basis weight of the inner wrapping paper is at most 30 g/m².

Patent Document 2 discloses a method for suppressing spotting in tobacco wrapping paper by forming a first layer by coating wrapping paper with a water repellent made up of a cellulose derivative and drying the wrapping paper, and then forming a second layer by coating the first layer with a cellulose derivative, to form tobacco wrapping paper impregnated with the water repellent.

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[Citation List]

[Patent Documents]

30 **[0004]**

[Patent Document 1] Japanese Patent Application Publication No. H03-151867

[Patent Document 2] US Patent Application Publication No. 2004/0159414

35 [Summary of Invention]

[Technical Problem]

40 **[0005]** In the tobacco wrapping paper of the invention disclosed in Patent Document 1 it is necessary to use two types of wrapping paper, i.e. outer wrapping paper and inner wrapping paper. This is problematic from the viewpoint of the productivity and cost of the cigarette, and also in terms of preserving the taste of the cigarette.

45 **[0006]** The invention disclosed in Patent Document 2 has, as a characterizing feature, double coating of tobacco wrapping paper with a water repellent such as a cellulose derivative. A coating of such a substance does elicit the effect of suppressing spotting, but a comparatively large amount of coating is required in order to achieve a sufficient effect which entails a significant impact on taste quality, combustion quality and aeration properties. This translates therefore into a loss in the degree of freedom of design of the cigarette.

[0007] It is thus found that conventional art resorted to in terms of suppressing spotting in tobacco wrapping paper leaves room for improvement.

50 **[0008]** Such being the case, it is an object of the present invention to provide tobacco wrapping paper in which spotting is suppressed.

[Solution to Problem]

55 **[0009]** As a result of exhaustive research, the inventors found that occurrence of spotting in tobacco wrapping paper arises from the advance, along fibrils that develop in pulp fibers, of components contained in the shredded tobacco leaves and that give rise to spotting. As a result of further research, the inventors found that the above problems can be solved by tobacco wrapping paper having a specific range of average thickness, and being obtained using pulp having specific ranges of average fiber length and freeness, and arrived at the present invention on the basis of that finding. In

particular, the combination of ranges of average fiber length and freeness as prescribed in the present invention differs significantly from ranges in pulp conventionally used in the production of tobacco wrapping paper.

[0010] Specifically, the present invention is as follows.

[1] Tobacco wrapping paper for wrapping shredded tobacco leaves, wherein the tobacco wrapping paper is obtained by papermaking of pulp having an average fiber length of 1200 to 1700 μm and a freeness of 30 to 65°SR, and has an average thickness of 45 to 100 μm .

[2] The tobacco wrapping paper of [1], wherein the tobacco wrapping paper is obtained by papermaking of pulp having an average fiber length of 1300 to 1700 μm and a freeness of 35 to 57°SR, and has an average thickness of 45 to 60 μm and an air permeability of 24 to 110 CORESTA units.

[3] The tobacco wrapping paper of [1] or [2], wherein a film-forming material is added to the face of the tobacco wrapping paper that comes in contact with the shredded tobacco leaves.

[4] A cigarette having shredded tobacco leaves and tobacco wrapping paper for wrapping the shredded tobacco leaves, wherein the tobacco wrapping paper is the tobacco wrapping paper of any one of [1] to [3].

[5] The cigarette of [4], wherein the shredded tobacco leaves contain a flavoring at a content of 7.5 mg/cigarette or higher.

[6] The cigarette of [5], wherein the flavoring is menthol.

[Advantageous Effects of Invention]

[0011] The present invention allows suppressing spotting in tobacco wrapping paper.

[Brief Description of Drawings]

[0012]

[Fig. 1] Fig. 1 is a diagram illustrating a relationship between average thickness and spot incidence in tobacco wrapping paper; and

[Fig. 2] Fig. 2 is a diagram illustrating a relationship between freeness and average fiber length in pulp used to make tobacco wrapping paper, and an evaluation of spot reduction rate.

[Description of Embodiments]

[0013] The present invention will be explained next in detail on the basis of embodiments, examples and so forth. However, the present invention is not limited to the embodiments, examples and so forth below, and may accommodate arbitrary modifications without departing from the gist of the invention.

[0014] In the present invention the term tobacco wrapping paper denotes paper for wrapping shredded tobacco leaves that constitutes a cigarette, not paper for wrapping a filter.

[0015] The tobacco wrapping paper of the present invention is obtained by papermaking of pulp having an average fiber length of 1200 to 1700 μm and a freeness of 30 to 65°SR, and the average thickness of the tobacco wrapping paper is 45 to 100 μm .

[0016] The occurrence of spotting in the tobacco wrapping paper can be suppressed through papermaking using pulp having an average fiber length of 1200 to 1700 μm and a freeness of 30 to 65°SR, and by virtue of the fact that the average thickness of the obtained wrapping paper is 45 to 100 μm .

[0017] As a conceivable underlying reason, the inventors speculated that through papermaking using a specific pulp, such as the above one, and by virtue of the fact that the tobacco wrapping paper has an average thickness lying within a specific range, the structure of fibrils in the pulp fibers within the tobacco wrapping paper becomes unsuitable for migration of spot-generating components by way of the fibrils, and thus such a structure contributes to suppressing spotting.

[0018] More preferably, the average fiber length of the pulp is 1300 to 1700 μm . More preferably, the freeness is 35 to 57°SR.

[0019] The average fiber length in the present invention denotes a length-weighted average value of fibers contained in the pulp to be used. The average fiber length is measured by optical automated analysis (JIS P8226-2) using unpolarized light for a fiber count of 20,000 or greater. The freeness of the pulp in the present invention is measured in accordance with the Schopper-Riegler method (JIS P 8121). The development of fine fibrils is suppressed, as compared with conventional ordinary tobacco wrapping paper, by prescribing the average fiber length and the freeness to lie within the above ranges; it is deemed that, as a result, this makes for unlikelier migration of spot components from the inner paper surface in contact with the shredded tobacco leaves towards the outer paper surface.

[0020] The average thickness of the tobacco wrapping paper in the present invention is a value measured according to the method stipulated in JIS P 8118.

[0021] The pulp that is used for making the tobacco wrapping paper of the present invention is not particularly limited, and examples thereof include for instance pulp having hemp (flax) or wood as starting materials, or a mixture of pulps having the foregoing as starting materials. Specific examples include for instance flax pulp.

[0022] The average fiber length and freeness of the pulp that is used can be adjusted by modifying the cooking and beating conditions during preparation of the pulp.

[0023] Known conditions can be used to as the cooking and beating conditions.

[0024] The method for making the tobacco wrapping paper of the present invention may be for instance a wet-type papermaking method that involves preparing a slurry through dispersion, in water, of components including the pulp and so forth described above, followed by papermaking of the pulp using a wet-type paper machine, but the method is not particularly limited thereto.

[0025] The tobacco wrapping paper of the present invention may contain a filler.

[0026] Examples of the filler include for instance calcium carbonate.

[0027] The average thickness of the tobacco wrapping paper of the present invention is 45 to 100 μm . In the underlying concept of the present invention, namely suppressing seeping from the inner paper surface towards the outer paper surface of the tobacco wrapping paper, the thicker the tobacco wrapping paper is, the longer becomes the distance between the front and back paper surfaces, which allows effectively suppressing spotting while securing the strength of the tobacco wrapping paper. For instance, the average thickness may be 45 to 60 μm .

[0028] The average thickness of the tobacco wrapping paper can be adjusted for instance through adjustment of the below-described basis weight, or through calendering described further on.

[0029] In an illustrative implementation, the basis weight of the tobacco wrapping paper of the present invention may be 25 to 40 gsm (g/m^2). Such a basis weight contributes to preserving the strength of the tobacco wrapping paper and the taste of the cigarette.

[0030] The basis weight of the tobacco wrapping paper can be adjusted through adjustment of the content of the above pulp and filler, and/or through adjustment of treatment conditions in the above wet-type paper machine.

[0031] The tobacco wrapping paper of the present invention may contain other additives, so long as the effect of the present invention is not impaired thereby. Examples of such additives include for instance combustion improvers.

[0032] Examples of combustion improvers include hydroxy acid salts. As such hydroxy acid salts there can be used for instance salts of citric acid, malic acid, tartaric acid or the like. For instance sodium salts and potassium salts can be used as the foregoing salts.

[0033] In an illustrative implementation, the content of the combustion improver may be 0.1 to 5wt%, preferably 0.5 to 2wt%, with respect to the weight of the tobacco wrapping paper, from the viewpoint of preserving an appropriate combustion performance of the cigarette.

[0034] The tobacco wrapping paper of the present invention is preferably set to have 24 to 110 CORESTA, so long as the degree of freedom in cigarette production and the degree of freedom in design are not impaired.

[0035] The term air permeability in the present invention denotes the air flow rate through aeration (passage) of air per minute and per cm^2 , when air is caused to pass at a constant pressure of 1 kPa from one face (2 cm^2) of the paper.

[0036] The tobacco wrapping paper of the present invention may be processed, using a film-forming material, on the side coming into contact with the shredded tobacco leaves. Known materials can be used as such film-forming material. Examples include for instance alginic acid and salts thereof (for instance a sodium salt), pectin, polyvinyl alcohol, cellulose derivatives such as ethylcellulose, methylcellulose and carboxymethyl cellulose, starch and derivatives thereof (for instance ether derivatives such as carboxymethyl starch, hydroxyalkyl starch, and ester derivatives such as starch acetate, starch phosphate and octenyl succinate starch).

[0037] These film-forming materials can be used as an aqueous solution, ordinarily in the range of 1.0 to 30.0wt%. Such an aqueous solution can be applied, in accordance with an appropriate printing method such as gravure printing, onto the face that comes in contact with the shredded tobacco leaves, and as needed, also onto the reverse face.

[0038] After application of the aqueous solution, the wrapping paper is dried in accordance with a known appropriate method, whereupon a film made up of the above material becomes formed at concrete sites of the wrapping paper, specifically so as to plug pores between fibers that form the wrapping paper, or along the fibers.

[0039] The occurrence of spotting in the tobacco wrapping paper can be better reduced by performing such coating.

[0040] The coating amount may be smaller (for instance, 0.1 to 0.3 gsm) than that used in conventional art. Conventional wrapping paper requires a comparatively large coating amount, which inevitably affects combustion quality and taste quality. Through coating of the base paper of the present invention with a film-forming material, however, there is achieved a synergistic spot reduction effect, and accordingly a significant spot reduction effect can be achieved while keeping to a minimum the impact on the quality of the tobacco, due to performing coating with a small amount of film-forming material.

[0041] The coated shape is not particularly limited. A yet more pronounced spot reduction effect can be achieved by coating the entire surface, in cases where coating is carried out in accordance with a printing method such as above one.

[0042] The tobacco wrapping paper of the present invention allows wrapping shredded tobacco leaves in accordance with a method identical to that of ordinary wrapping paper.

[0043] A cigarette of the present invention is a cigarette having shredded tobacco leaves and tobacco wrapping paper for wrapping the shredded tobacco leaves, wherein the tobacco wrapping paper is the tobacco wrapping paper of the present invention explained above.

[0044] Known tobacco leaves can be used herein as the shredded tobacco leaves. The shredded tobacco leaves can be packed at a packing amount of 0.1 to 0.9 g/cm³. The cigarette of the present invention may have a filter part; herein known cellulose acetate filters, paper filters and the like can be used as the filter utilized in the filter part.

[0045] The shredded tobacco leaves in the cigarette of the present invention may contain a flavoring. Examples of flavorings that the shredded tobacco leaves may contain include for instance phenolic compounds such as vanillin, ethyl vanillin, methyl salicylate, eugenol, isoeugenol, thymol, propenyl guaetol and the like; cyclo and noncycloenol compounds such as maltol, ethyl maltol, methyl cyclopentenone, α -ketofurans and the like, as well as oil-based flavorings such as cyclo and non-cyclo-aliphatic alcohols, for instance menthol.

[0046] The content of the flavoring is preferably 7.5 mg or higher per cigarette. The occurrence of spotting can be suppressed even if a flavoring is incorporated into the cigarette of the present invention in such a content. The degree of freedom in terms of product design and productivity of the cigarette is increased as a result.

[0047] The upper limit of the content of flavoring is not particularly limited, so long as it is an amount incorporated in cigarettes.

Examples

[0048] The present invention will be explained next in more specific terms by way of examples. So long as the invention does not go beyond the gist thereof, however, the invention is not limited to or by the examples below.

Test example 1: Examples 1 to 6, Comparative examples 1 to 3

[0049] Paper was produced using flax pulp having the average fiber length and freeness given in Table 1, to produce tobacco wrapping paper having the average thickness and basis weight thereof adjusted to the values given in Table 1. The average fiber length and freeness were adjusted by modifying cooking and beating conditions, and the average thickness was adjusted by modifying the basis weight of the tobacco wrapping paper, or through a calendering treatment. The items given in Table 1 were achieved using these tobacco wrapping paper types. The tensile strength, air permeability and spot incidence in Table 1 were determined by using the methods below. Fig. 1 illustrates the experimental results given in Table 1 in the form of a diagram of the relationship between average thickness and spot incidence in the tobacco wrapping paper.

[0050] The tobacco wrapping paper samples in Comparative examples 1 to 3 have specifications used in ordinary tobacco wrapping paper.

Determination of spot incidence

[0051] Respective cigarettes were produced by wrapping shredded tobacco leaves having flavoring (menthol) added thereto, using each tobacco wrapping paper above (length of the tobacco rod: 68 mm, diameter 7.9 mm; tobacco leaf type : American blend leaves; packing density of the shredded tobacco leaves : 0.21 g/cm³; flavoring addition amount: 7.8 mg/cigarette). The cigarettes were sealed in a 20-cigarette paper-made tobacco package, and the package was allowed to stand in that sealed state for 28 days under conditions of temperature 22°C and relative humidity 60%. Spot incidence was determined then on the basis of the evaluation criteria below. Spots appearing the tobacco wrapping paper are deemed to arise from seeping of some components contained in the shredded tobacco leaves, and seeping of flavorings added to the shredded tobacco leaves, into the tobacco wrapping paper. Such being the case, spot incidence is influenced by the type of shredded tobacco leaves packed into the tobacco, the packing density, and the type and amount of the flavorings added to the shredded tobacco leaves. The present test experiments were carried out by unifying conditions pertaining to shredded tobacco leaves and flavorings.

[0052] One given cigarette was deemed to have developed spots if the wrapping paper exhibited three or more spots having a maximum diameter of 1 mm or greater, or exhibited one or more spots having maximum diameter of 3 mm or greater. Spot incidence was defined as the proportion of numbers of spots per total number of cigarettes, in 200 observed cigarettes.

[0053] In spotting evaluation, cigarettes for which spot incidence was lower than 35% were defined as "○ (good) ... effective", cigarettes having a spot incidence from 35% to less than 45% were defined as "△ (fair) ... somewhat effective", and cigarettes having a spot incidence of 45% or higher were defined as "× (poor) ... no effect". As pointed out above, spot incidence is affected not only by the specifications of the tobacco wrapping paper, but also by the conditions of the

EP 3 199 702 A1

shredded tobacco leaves and flavorings. In order to simplify the evaluation, therefore, spotting was evaluated within an improvement range with respect to spot incidence in tobacco wrapping paper ordinarily used.

Measurement of tensile strength

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[0054] The tensile strength for a 15-mm width of each tobacco wrapping paper was determined on the basis of the JIS P 8113 standard "Paper and board - Determination of tensile properties".

Measurement of air permeability

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[0055] Air permeability was measured using PPM 1000 by Filtrona Corp.

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[Table 1]

	Average fiber length (μm)	Freeness (°SR)	Thickness (μm)	Basis weight (gsm)	Filler (%)	Tensile strength (N/15 mm)	Air permeability (C.U.)	Surface coating (gsm)	Calendering	Spot incidence (%)	Spotting evaluation
Example 1	1300	57	52	32	26	17	35	-	-	28	○
Example 2	1400	50	55	32	26	16	45	-	-	15	○
Example 3	1400	50	55	32	26	19	27	0.2	-	8	○
Comp. Ex. 1	1300	70	40	26	32	13	60	-	-	54	x
Comp. Ex. 2	1300	70	53	32	32	14	50	-	-	56	x
Comp. Ex. 3	1300	70	54	32	32	15	40	0.2	-	54	x
Example 4	1300	57	47	26	32	13	76	-	-	41	△
Example 5	1400	50	47	26	25	11	98	-	-	40	△
Comp. Ex. 4	1400	50	35	32	26	15	25	-	Yes	85	x
Example 6	1300	57	52	32	32	13	74	-	-	32	○

[0056] The items "calendering" and "surface coating" in Table 1 were carried out in accordance with the procedures below.

Calendering

[0057] The tobacco wrapping paper in Comparative example 4 is obtained by calendering of the tobacco wrapping paper of Example 2 using a calendering apparatus. The above working apparatus comprises a calender roller and a press roller, where the press roller presses against the calender roller at a predetermined linear pressure, specifically a linear pressure of 5.9 N per mm. Calendering is performed by causing the tobacco wrapping paper to pass between the calender roller and the press roller. The average thickness of the tobacco wrapping paper is ordinarily reduced, and air permeability lowered, through calendering.

Surface coating

[0058] A low methoxy pectin solution (1.8 wt%) having an esterification degree of 6 to 12 was applied over the entire surface of one side of each tobacco wrapping paper, using a simple gravure coater. The tobacco wrapping paper of Comparative example 3 was the tobacco wrapping paper of Comparative example 2 coated to an amount of 0.2 gsm. The tobacco wrapping paper of Example 3 was the tobacco wrapping paper of Example 2 coated to an amount of 0.2 gsm. Coating speed was set to 4 m/min. In both Comparative example 3 and Example 3 coating was performed only on the face positioned inward when the paper is made into a cigarette roll.

[0059] Coating was followed by drying at 90°C to 95°C, as heater conditions.

[0060] In Example 1 and Example 6, in which the three primary physical properties of interest in the present invention, namely average fiber length, freeness and average thickness are all identical, there are compared tobacco wrapping papers having a different filler content. Substantially the same result of spot incidence is obtained, even with different filler content, if the three primary physical properties of average fiber length, freeness and average thickness are identical. Accordingly, it was found that spot incidence is not affected by the filler content.

[0061] A comparison between Example 6 and Comparative example 2 revealed that differences in spot incidence arise from large disparities in freeness alone, from among the three primary physical properties of average fiber length, freeness and average thickness which are the focus of the present invention. Comparative example 2, where freeness was 70°SR, exhibited a spot incidence of 56%, whereas Example 1, in which freeness was 57°SR, exhibited a spot incidence of 28%.

[0062] A comparison between Example 2 and Comparative example 4 revealed that average thickness varied depending on whether the tobacco wrapping paper had undergone calendering or not, from among the three primary physical properties of average fiber length, freeness and average thickness which are the focus of the present invention. These comparisons revealed differences in spot incidence in case of significant discrepancies only in average thickness. Comparative example 4, with thickness of 35 μm , exhibited a spot incidence of 85%, whereas Example 2, with average thickness of 55 μm , exhibited a spot incidence of 15%.

[0063] A comparison between Example 1 and Example 4 revealed that average thickness varied with changes in the basis weight of the tobacco wrapping paper, from among the three primary physical properties of average fiber length, freeness and average thickness which are the focus of the present invention. These comparisons revealed differences in spot incidence in case of significant discrepancies only in average thickness. Example 4, with average thickness of 47 μm , exhibited a spot incidence of 41%, whereas Example 1, with average thickness of 52 μm , exhibited a spot incidence of 28%.

[0064] Comparative example 3 is obtained by coating the surface of the tobacco wrapping paper of Comparative example 2 with a small amount of surface coating, with substantially identical average fiber length, freeness and average thickness. Example 3 is obtained by coating the surface of the tobacco wrapping paper of Example 2 with a small amount of surface coating, with identical average fiber length, freeness and average thickness. Tobacco wrapping paper (Comparative example 2) having high spot incidence at the stage of not having yet been surface-coated exhibited virtually no spot incidence reduction effect. On the other hand, tobacco wrapping paper (Example 2), which has a low spot incidence at the stage of not having yet been surface-coated, exhibited a significant reduction in spot incidence derived from application of a small amount of surface coating.

Test example 2

[0065] A slurry was produced by dispersing flax pulp (average fiber length: 1460 μm , freeness: 45°SR) in water, to 0.7wt%. The slurry was subjected to a wet process in a Fourdrinier paper machine, and was dewatered and dried, to yield tobacco wrapping paper having average thickness of 58.1 μm and basis weight of 32.9 gsm.

[0066] Further, a plurality of grades of flax pulp with varying average fiber length and freeness were created by modifying

conditions of cooking and beating of the flax pulp described above. The above flax pulp grades were then made into paper, taking care that the average thickness should not deviate significantly from the above-described 58.1 μm , to produce a plurality of grades of tobacco wrapping paper. The average thickness lay in the range of 51.0 to 58.1 μm .

[0067] Respective cigarettes were then produced by wrapping shredded tobacco leaves having flavoring (menthol) added thereto (length of the tobacco rod: 68 mm, diameter 7.9 mm; tobacco leaf type: American blend leaves; packing density of the shredded leaves: 0.20 g/cm³; flavoring addition amount: 7.5 mg/cigarette), using the above plurality of grades of tobacco wrapping paper. The cigarettes were sealed in a 20-cigarette paper-made tobacco package, and the package was allowed to stand in that sealed state for 28 days under conditions of temperature 22°C and relative humidity 60%. Spot incidence was then determined, and spotting evaluated, in accordance with the evaluation criteria below.

[0068] Spot incidence (%) was calculated in accordance with the same method as in Test 1 described above. As in Test 1 described above, spotting was expressed as "good (○)", "fair (△)" and "poor (×)" within an improvement range with respect to spot incidence of ordinarily used tobacco wrapping paper.

[0069] The results are illustrated in Fig. 2. The horizontal axis in the figure represents the average fiber length of the pulp used in papermaking, and the vertical axis represents the freeness of the pulp used in papermaking.

[0070] It was further found that spot incidence decreased with increasing average fiber length and decreasing freeness of the tobacco wrapping paper.

[0071] It was found that an average fiber length of 1200 μm or greater and a freeness of 65°SR or lower of the pulp used in papermaking were conditions that resulted in a recognizable improvement effect on reducing spot incidence. It was likewise found that an average fiber length of 1300 μm or greater and a freeness of 57°SR or lower of the pulp used in papermaking were conditions that resulted in a more pronounced improvement effect on reducing spot incidence.

[0072] The upper limit of the average fiber length and the lower limit of the freeness of the pulp used in papermaking are set to given ranges not from the viewpoint of spot incidence, but in terms of securing productivity as well as ordinary physical properties, such as air permeability, in the tobacco wrapping paper.

[0073] The tobacco wrapping paper of the present invention allows reducing satisfactorily occurrence of spotting without the need for double cigarette paper or application of a surface coating using a large amount of a coating agent, as is the case in conventional art. Accordingly, it becomes possible to increase the productivity of the tobacco wrapping paper and of cigarettes using the same, while reducing costs. When the tobacco wrapping paper of the present invention is surface-coated, the effect of reducing spotting is increased even if the coating amount of is very small. Using such tobacco wrapping paper allows thus suppressing spotting also in shredded tobacco leaves that contain a flavoring, such as menthol, in amounts greater than ordinary ones.

[0074] The combination of ranges of average fiber length and freeness of the pulp used to produce the tobacco wrapping paper of the present invention differ significantly from those of conventionally used pulp. In the present invention it is important to use pulp having respective specific ranges of freeness and average fiber length, as prescribed in the invention and also that the wrapping paper obtained by papermaking should have a specific thickness.

Claims

1. Tobacco wrapping paper for wrapping shredded tobacco leaves, wherein the tobacco wrapping paper is obtained by papermaking of pulp having an average fiber length of 1200 to 1700 μm and a freeness of 30 to 65°SR, and has an average thickness of 45 to 100 μm .
2. The tobacco wrapping paper according to claim 1, wherein the tobacco wrapping paper is obtained by papermaking of pulp having an average fiber length of 1300 to 1700 μm and a freeness of 35 to 57°SR, and has an average thickness of 45 to 60 μm and an air permeability of 24 to 110 CORESTA units.
3. The tobacco wrapping paper according to claim 1 or 2, wherein a film-forming material is added to the face of the tobacco wrapping paper that comes in contact with the shredded tobacco leaves.
4. A cigarette comprising shredded tobacco leaves and tobacco wrapping paper for wrapping the shredded tobacco leaves, wherein the tobacco wrapping paper is the tobacco wrapping paper according to any one of claims 1 to 3.
5. The cigarette according to claim 4, wherein the shredded tobacco leaves contain a flavoring at a content of 7.5 mg/cigarette or higher.
6. The cigarette according to claim 5, wherein the flavoring is menthol.

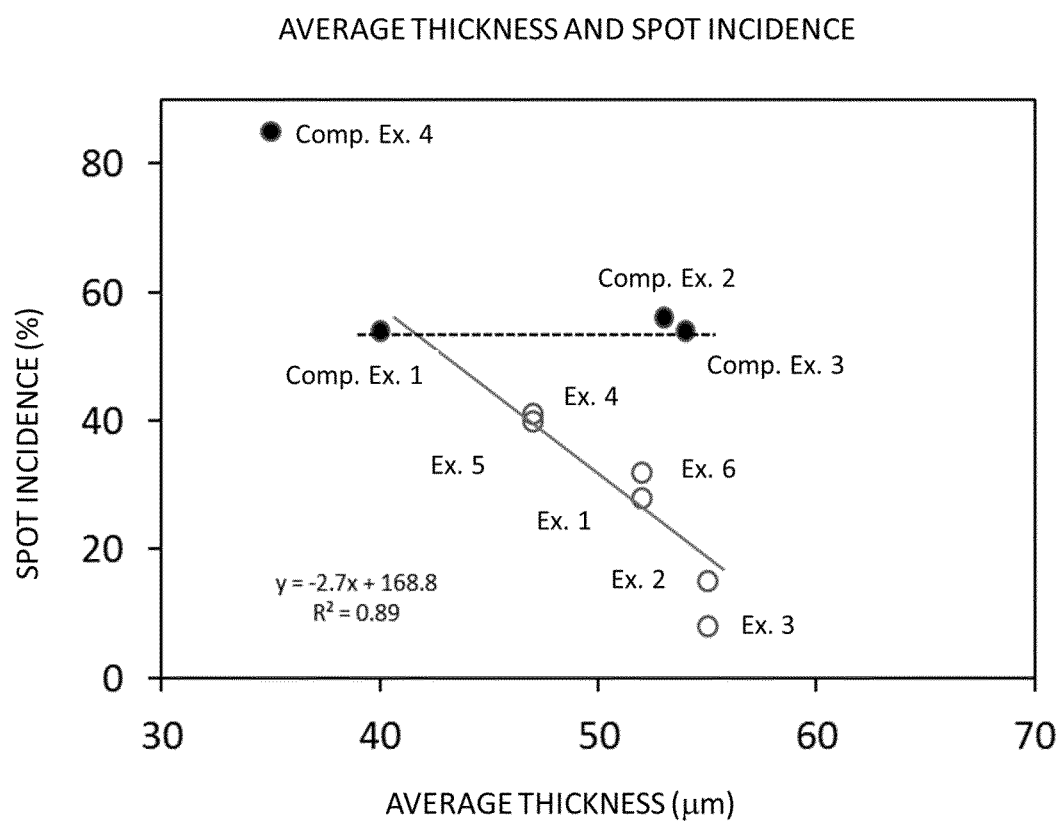


FIG. 1

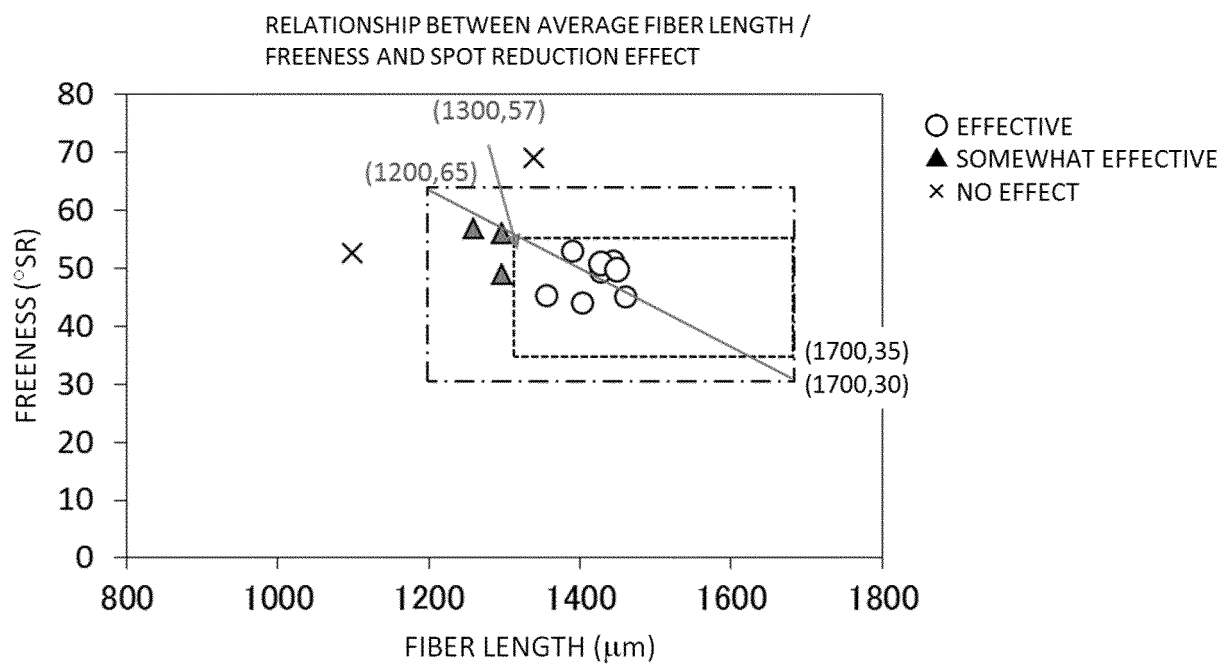


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/081889

A. CLASSIFICATION OF SUBJECT MATTER

D21H27/00(2006.01)i, A24D1/02(2006.01)i

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)

D21B1/00-1/38, D21C1/00-11/14, D21D1/00-99/00, D21F1/00-13/12,
D21G1/00-9/00, D21H11/00-27/42, D21J1/00-7/00, A24D1/00-3/18

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

Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2015
Kokai Jitsuyo Shinan Koho 1971-2015 Toroku Jitsuyo Shinan Koho 1994-2015Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Thomson Innovation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 05-279993 A (Japan Tobacco Inc.), 26 October 1993 (26.10.1993), paragraph [0001]; examples (Family: none)	1-6
A	JP 2005-511902 A (Philip Morris Products, Inc.), 28 April 2005 (28.04.2005), claims 1, 11; paragraphs [0066], [0067] & US 2003/0096061 A1 claims 1, 11; paragraphs [0075], [0076]	1-6

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search
23 February 2015 (23.02.15)Date of mailing of the international search report
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REFERENCES CITED IN THE DESCRIPTION

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