Westinghouse Electric Corporation

Jun 5, 1968

File No.
P D Spec 42331AA thru AC Rev Y or 2118

(Federal CODE IDENT NO. 79500)

ASBESTOS PAPER

1. This specification covers asbestos paper.

P D Spec Designation	Description
42331AA or 2118-1	Commercial grade asbestos paper of uniform quality.
42331AB or 2118-2	Special grade asbestos paper suitable for making laminates.
42331AC or 2118-3	Asbestos paper 42331AB burned to remove organic material. Purchased by brand.

NOTE: UNLESS OTHERWISE SPECIFIED, THE FOLLOWING REQUIREMENTS APPLY ONLY TO 42331AA,AB.

2. No change shall be made in the quality of successive shipments of material furnished under this specification without first obtaining the approval of the purchaser.

MANUFACTURE

3. MANUFACTURE: (42331AB) (3.1) The asbestos fiber and/or the pulp shall be specially processed to defiberize the stock to minimize the size and number of bundles of asbestos fiber which cause hard lumps or particles in the paper.
(3.2) The paper shall be as free from magnetic oxide of iron and other conducting material, serpentine rock and other hard particles as is possible and practical to produce.

NOTE: The paper is intended for use in making molded laminates. The presence of hard particles prevents securing equalized pressure on the molded parts and meeting thickness tolerances.

CHEMICAL PROPERTIES AND TESTS

4. ASBESTOS CONTENT: (4.1) (42331AA) The asbestos content of the paper shall conform to the following:

Thickness, Inches	Asbestos Content, Per cent, Min
0.007, .010, .015, .019, .022, .025	85
.027, .029, .032	90
.063	94

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PLAINTIFF'S EXHIBIT

(4.2) (42331AB) The finished paper shall be composed of a good grade of ferrous asbestos fiber, bleached or unbleached sulfate or sulfite chemical wood pulp and starch in the amounts, as follows:

	Thickness, Inch, Nom		
	0.026		
	Nom	Min	Max
Asbestos Fiber, Per cent	84	82	88
Chemical Wood Pulp, Per cent	10	8	12
Retained Starch, Per cent	6	4	8

(4.3) The asbestos content shall be determined in accordance with ASTM D 315.

(4.4) (42331AB) The determination of starch shall be made in accordance with either ASTM D-591 or Method A, TAPPI T-419.

(4.5) (42331AB) The organic fiber composition shall be determined in accordance with TAPPI T-401.

PHYSICAL PROPERTIES AND TESTS

5. UNIFORMITY: (42331AB) The paper shall be as free as possible from holes, weak spots, creases, wrinkles, hard spots of excessively twisted or matted fiber and other imperfections. Special care shall be taken to furnish paper of uniform texture, density, and finish.

6. FLEXIBILITY: (42331AA) The paper, after conditioning at 65 per cent relative humidity at 21 C (70 F) for not less than 4 hours, shall not develop any surface breaks and cracks either in the machine or cross machine direction of the paper when it is bent back upon itself through 180 degrees around a mandrel of the following diameter:

Thickness, Inches	Mandrel Diameter, Inches
0.007, .010	0.062
.015	.250
.019, .022, .025	.500
.027, .029	.625
.032	.750
.063	1.500

7. TENSILE STRENGTH: (42331AA) (7.1) The tensile strength of the paper shall conform to the following:

	Tensile Strength, Pounds per Inch Width, Min	
Thickness, Inches	Machine Direction	Crosswise Direction
0.007	6	3
.010	15	4
.015	12	4.5
.019, .022	12	5
.025, .027, .029	13	5
.032	13	6
.063	15	8

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(7.2) The average of 5 determinations shall be considered as the tensile strength. The tests shall be made on the samples after they have been heated for 30 minutes at a temperature of 95 to 105 C (203 - 221 F).

(7.3) The tensile strength shall be determined in accordance with ASTM D 202.

8. WEIGHT: (8.1) (42331AA) (0.007 and 0.010 inch thick only) The weight of the paper shall conform to the following:

Thickness, Inches	Weight per 100 Sq Ft, Pounds Nom	Min	Max
0.007	2.30	2.07	2.53
.010	3.50	3.15	3.85

(8.2) (42331AB) The weight of the paper shall conform to the following:

Thickness, Inch, Nom	Weight per 100 Sq Ft, Pounds Nom	Min	Max
0.026	10.5	9.7	11.6

(8.3) The weight in pounds per 100 square feet shall be determined as follows: Three samples each 12 by 12 inches shall be stamped with a steel die or cut to a metal template from the paper diagonally across the roll and positioned approximately as follows: One 5 inches from each edge of the paper and one at the center of the width not less than 5 inches from the others. The samples shall be conditioned for not less than 4 hours in an atmosphere having a relative humidity of 65, plus or minus 2 per cent, at a temperature of 21 to 24 C (70 to 75 F). The samples after conditioning shall be weighed on a balance sensitive to 0.1 per cent of the total weight.

(8.4) The weight in pounds per 100 square feet shall be calculated from the average of the 3 samples.

DIMENSIONS

9. THICKNESS: (9.1) (42331AA) The thickness shall not vary from that specified more than the following:

Thickness, Inches	Permissible Variations, Inches Plus	Minus
0.007, .010	0.001	0.001
.015, .019, .022	.002	.002
.025, .027, .029	.003	.002
.032	.005	.004
.063	.006	.006

(9.2) (42331AB) The thickness of the paper shall be 0.026 inch, plus or minus 10 per cent.

(9.3) The thickness shall be determined in accordance with Method A, ASTM D 202 or Method A, ASTM D 645, with the latter used as the referee test method.

10. WIDTH: (10.1) (42331AA) (10.1.1) (Standard Size Sheet) The width of the paper shall not vary from that specified more than plus or minus 0.25 inch.

(10.1.2) (Tape) The width of the tape shall not vary from that specified more than plus or minus 0.031 inch.

(10.2) (42331AB) The width of the paper shall not vary from that specified more than plus or minus 0.25 inch.

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11. ROLL SIZE: (11.1) (42331AA) (Standard Size Sheet) (11.1.1) (For 0.007 and 0.010 inch thick paper) (For Any Westinghouse Plant except East Pittsburgh, Hampton, Newark and Trafford) The paper shall be furnished in standard commercial size rolls of approximately 100 pounds.

(11.1.2) (For 0.007 and 0.010 inch thick paper) (For East Pittsburgh, Hampton and Trafford Works of Westinghouse Electric Corp only) The diameter of each roll shall not be less than 18 nor more than 26 inches, however, it is desired that the minimum diameter of each roll be not less than 22 inches.

(11.1.3) (For 0.010 inch thick paper) (For Newark Works of Westinghouse Electric Corp only) The diameter of each roll shall be approximately 4 inches.

(11.1.4) (For all other thicknesses) The paper shall be furnished in standard commercial size rolls of approximately 100 pounds.

(11.2) (42331AA) (Tape) The tape shall be furnished in rolls of approximately 150 feet.

(11.3) (42331AB) The paper shall be furnished in rolls, as follows:

Thickness, Inch, Nom	Lineal Feet, Nom	Weight, Pounds
0.026	1500	435 - 520

12. SPLICES: (12.1) (42331AA) The number of splices in rolls having a nominal diameter of 24 inches shall be kept to the minimum and shall not exceed 2 per roll.

(12.2) (42331AA) Rolls having a nominal diameter of 4 inches and standard commercial size rolls shall not contain any splices.

(12.3) (42331AB) The number of splices shall be kept to the minimum and not more than 10 per cent of the number of rolls in any one shipment shall contain a splice and no roll shall contain more than one splice.

(12.4) The splices shall be at right angles to the length of the roll.

(12.5) Each splice shall be made with a lap of more than than 3 inches and shall be as strong as the paper itself. The glue used shall be insoluble in alcohol or benzol-alcohol mixtures and shall not soften at less than 150 C (302 F).

(12.6) Each splice shall be flagged with a piece of colored paper projecting at least one inch from the end of each roll.

(12.7) All tear outs and other defects shall be cut from the roll and the paper shall be spliced at that point, so that any portion of roll will be the full width specified.

13. PUT UP: (13.1) (42331AA) (13.1.1) (For any Westinghouse Plant except Hampton, Newark, and Trafford) (Less than 0.025 inch thick) The paper shall be furnished in rolls wound on a substantial chipboard tube. The tubes shall be in one continuous length and shall have a wall thickness of not less than 0.5 inch. The inside diameter of the tube shall not be less than 2.5 nor more than 3.5 inches. Except for tape, a tight-fitting wooden plug having a 0.75 to 1.25 inch diameter hole shall be inserted in each end of the tube.

(13.1.2) (For Any Westinghouse Plant except Hampton, Newark, and Trafford) (0.025 inch thick and over) The paper shall be furnished in rolls wound on a substantial tube.

(13.1.3) (For Hampton and Trafford Works of Westinghouse Electric Corp only) The paper shall be furnished in rolls wound on a substantial chipboard core having an inside diameter of not less than 3 inches. The core shall be in one continuous length and shall have a wall thickness of not less than 0.5 inch.

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(13.1.4) (For Newark Works of Westinghouse Electric Corp only) The paper shall be furnished on a cardboard paper core.

(13.2) (42331AE) The paper shall be furnished in rolls wound on a substantial chipboard core having an inside diameter of 3 inches. The core shall be in one continuous length and shall have a wall thickness of not less than 1/2 inch.

FINISH

14. FINISH: (42331AB) (14.1) The paper shall not be given a machine or supercalendered finish but shall be wound directly onto the reel of the paper machine after passing over the drying cylinders.

(14.2) The paper shall have a rough finish as approved by the purchaser.

PACKING AND MARKING

15. PACKING: Each roll shall be properly wrapped to insure adequate protection against injury and moisture penetration.

16. MARKING: Each roll shall be plainly marked by labels fastened to the inside of the tube or roll and on the end of the roll on the outside of the wrapper as follows: Purchase Order Number; Asbestos Paper, P D Spec Number and Rev Letter; Thickness and Width of Paper; Length of Roll; Weight of Roll; Date of Manufacture; Name of Manufacturer.

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