Designation: D 3656 – 97

Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns

This standard is issued under the fixed designation D 3656; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers the requirements for vinyl-coated glass yarn insect screening and louver cloth.

1.2 This specification is intended to assist ultimate users by designating the sizes and types of these products that are generally available in the industry.

1.3 This specification shows the terminology and requirements for:

1.3.1 Commercial standard vinyl-coated glass yarn insect screening designed and woven primarily for installation in or on any dwelling, patio, screening enclosure, building, or structure for the purpose of keeping out flies, mosquitoes, and most insects, and

1.3.2 Vinyl-coated glass yarn louver cloth used extensively in soffit and louver vents to keep out most large insects, birds, and airborne litter, while at the same time providing for adequate ventilation and air circulation.

1.4 This specification shows the values in both SI units and inch-pound units. "SI units" is the technically correct name for a system of metric units known as the International System of Units. "Inch-pound units" is the technically correct name for the customary units used in the United States. The values stated in inch-pound units are to be regarded as the standard. The value in SI units are provided for information only.

1.5 The following precautionary caveat pertains only to the test methods portions, Sections 8-19, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 76 Specification for Tensile Testing Machines for Textiles[1]

D 123 Terminology Relating to Textiles[1]

D 578 Specification for Glass Fiber Strands[1]

D 3374 Specification for Vinyl-Coated Glass Yarns[2]

D 3773 Test Methods for Length of Woven Fabric[2]

D 3774 Test Methods for Width of Woven Fabric[2]

D 3775 Test Method for Fabric Count of Woven Fabric[2]

D 3776 Test Methods for Mass Per Unit Area (Weight) of Woven Fabric[2]

D 3786 Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics—Diaphragm Bursting Strength Tester Method[2]

D 4028 Specification for Solar Screening Woven from Vinyl-Coated Fiber Glass Yarn[2]

D 4372 Specification for Flame-Resistant Materials Used in Camping Tentage[2]

D 4909 Test Method for Color Stability of Vinyl-Coated Glass Textiles to Accelerated Weathering

D 4912 Test Method for Fabric Stability of Vinyl-Coated Glass Yarn Insect Screening and Louver Cloth[2]

D 4929 Practice for Operating Light and Water Apparatus (Fluorescent and Condensation Type) for Exposure of Plastics

D 4963 Test Method for Ignition Loss of Glass Strands and Fabrics[2]

E 171 Specification for Standard Atmospheres for Conditioning and Testing Materials[3]

2.2 *AATCC Standards:*[4]

Evaluation Procedure 1, Gray Scale for Color Change

2.3 *Military Standards:*[5]

MIL-STD-105D Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-414 Sampling Procedures and Tables for Inspection by Variables for Percent Defective

2.4 *Federal Standards:*[6]

[1] *Annual Book of ASTM Standards*, Vol 07.01.

[2] *Annual Book of ASTM Standards*, Vol 07.02.

[3] *Annual Book of ASTM Standards*, Vols 08.03 and 15.09.

[4] Available from American Association of Textile Chemists and Colorists, P. O. Box 12215, Research Triangle Park, NC 27709.

[5] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

[6] Available from General Services Administrations, Specification and Consumer Information Distribution Section (WFSIS), Washington Navy Yard, Bldg. 197, Washington, DC 20407.

CCC D-950 Specification, Dyeing and After Treating Processes for Cotton Cloths
Test Method Standard No. 191a, Textile Test Methods, Method 5872 Effect of High Temperature on Cloth Blocking
Standard 595A CHG Not 1, Color Volume 1

3. Terminology

3.1 *Definitions:*

3.1.1 *atmosphere for testing textiles, n—for glass*, air maintained at a relative humidity of at least 48 % and no greater than 67 %, and at a temperature of at least 68°F (20°C) and no greater than 77°F (25°C).

3.1.1.1 *Discussion*—Glass textiles are used in various products, such as reinforced plastics, mat-like material, tire cords, electrical insulation, etc. Each of these materials require different testing atmospheres. It is the intent of the wide spread in testing atmosphere to allow testing of glass textiles in respective laboratories where end product test atmosphere requirements differ. The test atmospheres for respective products should be controlled as specified in Specification E 171. It is the opinion of Subcommittee D13.18 that the physical properties cited in respective specifications would not be affected by the range selected. In any event, the test atmosphere should be stated in the report.

3.1.2 *insect screening, n—in coated glass yarn fabrics*, a woven netting having an approximately even-spaced mesh of 12 by 12 yarns or more per 1 in. (25 mm).

3.1.3 *louver cloth, n—in coated glass yarn fabrics*, a woven netting having an approximately even-spaced mesh of fewer than 12 by 12 yarns per 1 in. (25 mm).

3.1.4 *mesh, n—in coated glass yarn fabrics*, the number of warp yarns or ends per linear 1 in. (25 mm) followed by the number of filling yarns or picks per linear 1 in. (25.4 mm).

3.1.5 For terminology of other textile terms used in this specification, refer to Terminology D 123.

4. Classification

4.1 Vinyl-coated glass yarn insect screening is produced in two basic classes and mesh to afford required strength and insect protection using yarns as directed in Specification D 3374. These two classes are as follows:

4.1.1 *Class 1*—Insect screening woven from vinyl-coated glass yarn having a nominal thickness of 0.0115 in. (0.292 mm).

4.1.2 *Class 2*—Insect screening woven from vinyl-coated glass yarn having a nominal thickness of 0.013 in. (0.330 mm).

4.2 The mesh, width, and colors are listed in Table 1.

4.2.1 For vinyl-coated glass yarn insect screening not listed in Table 1, the mesh, width, and colors shall be agreed upon between the purchaser and supplier.

5. Sampling and Test Specimens

5.1 *Sampling*—On a continual basis, samples are selected randomly from each mesh and tested to insure compliance, unless otherwise agreed upon between the purchaser and the supplier.

5.2 *Test Specimens*—For insect screening or louver cloth appearance, width, and length testing, a roll shall serve as the test specimen. For other properties, take the test specimen(s) from the roll. No specimen shall be taken closer than 1 in. (25 mm) from the edge or 1 yd (.9 m) from the end of the roll.

REQUIREMENTS

6. General Requirements

6.1 *Material*:

6.1.1 *Workmanship*—Insect screening or louver cloth shall be made of high grade material with good workmanship and meet the yarn requirements specified in Specification D 3374. Products may contain a maximum of one defect in the horizontal direction affecting less than 2 lineal in. (50 lineal mm). Examples of defects are listed in Table 2. The quality acceptance levels will be determined by agreement between the purchaser and the supplier.

6.1.2 *Plasticizers*—The material used to coat or impregnate the fibrous glass yarn shall be a compound of polymerized or copolymerized vinyl chloride resin, plasticized with phosphate or phthalate ester plasticizers exclusively, pigmented and stabilized to meet the requirements herein.

6.1.2.1 *Optional Plasticizer*—At the supplier's option, plasticizers other than phosphates and phthalates may be used provided the color is not affected and the coating compound is treated with solubilized copper 8 quinolinolate which is listed as inhibitor (e) in Federal Standard CCC-D-950. The amount of fungicide shall be based on the nonvolatile content of the coating. The coating compound shall be chemically analyzed for copper 8 quinolinolate content in accordance with Federal Standard CCC-D-950.

6.1.3 *Color*—The maximum and minimum shades limits shall be defined by color designations listed in Federal Standard 595A as agreed upon between the purchaser and supplier.

6.1.3.1 The color designated grey shall fall between No. 36492 and No. 36173 as listed in Federal Standard 595A.

6.1.4 *Selvage*—Vinyl-coated glass insect screening and louver cloth may be supplied with or without selvages as agreed between the purchaser and supplier.

6.1.5 *Yarn Splices*—Vinyl-coated glass yarn splices shall be permitted provided they show no tails and do not exceed 1 in. (25 mm) in length. Yarn splices in the insect screening or louver cloth shall not exceed 15 per standard 100 ft (30 m) roll, and no more than one splice shall occur in any 1 ft^2 (930 cm^2) of product.

6.2 *Put-Up*—Vinyl-coated glass yarn insect screening and louver cloth shall be put-up on rolls and in containers whose dimensions shall be agreed upon between the purchaser and the supplier.

7. Physical Requirements

7.1 *Appearance*—Unless otherwise agreed upon between the purchaser and the supplier, a roll shall be defective if it contains two or more defects as described in 6.1.1.

7.2 *Mesh*—The standard average mesh shall be approximately even-spaced as specified in Table 1 $\pm$0.5 mesh per 1 in. (25 mm). There are no tolerance requirements within 0.5 in. (13 mm) of the selvage.

TABLE 1 Generally Available Mesh, Widths, and Colors

Product	Class	Nominal Yarn Diameter, in. (μm)	Standard Construction Warp by Fill Mesh/25.4 mm (Mesh/1 in.)	Standard Widths		Colors
				in.	mm	
Insect screening	1	0.011 (292)	18 × 16	24, 30, 32, 36, 42, 48, 60, 72, 84	610, 762, 813, 914, 1067, 1219, 1524, 1829, 2134	gray, charcoal
	2	0.013 (330)	18 × 14	36, 48, 60, 72, 84, 96, 108	914, 1219, 1524, 1829, 2134, 2438, 2743	gray, charcoal
	2	0.013 (330)	18 × 14	36, 48, 72, 84	914, 1219, 1829, 2134	aqua
	2	0.013 (330)	20 × 20	36, 48, 60, 72, 84	914, 1219, 1524, 1829, 2134	gray, charcoal
Louver cloth	2	0.013 (330)	Less than 12 × 12	6, 8, 12, 24, 36, 48	152, 203, 305, 610, 914, 1219	gray, charcoal

TABLE 2 Examples of Defects[A,B]

Bias or bowed filling:	Slack or tight selvage[A,B]
For widths ≤ 1220 mm (48 in.) ≥ 0.5 in. (13 mm)	Splice–more than one 1 in a 1 ft^2(300 mm^2) area[B]
For widths > 1220 mm (48 in.) ≥ 1.0 in. (25 mm)	Splice more than 1 in. (25 mm) in length[B]
Broken or missing strand (end or pick),[A,B]	Splice not well made and showing tails[B]
Damaged selvage extending into the body of the screening[B]	Spot, stain, or streak[A,B]
Heavy strand[A,B]	Thin strand[A,B]
Jerked-in filling, slough-off, or kinky filling[A,B]	Tight strand (end or pick)[A,B]
Color bands[B]	Uncoated yarns[B]

[A] For definitions of terms used in this table, refer to Terminology D 123.
[B] At normal inspection distance approximately 900-cm (3 ft).

7.3 *Roll Length*—Each roll of insect screening or louver cloth complying with Specification D 3656 shall contain 100 linear ft (30.48 m) −0, +21 ft (−0, +.6 m).

7.4 *Width*—The standard average roll width shall be as specified in Table 1 +0.25 or −0 in. (+7 or −0 mm).

7.5 *Mass per Unit Area*—The minimum average mass per unit area for each class shall be as specified in Table 3.

7.6 *Flame Resistance*—There shall be no propagation of flame along any specimen for longer than 10 s after removal of the flame source and no single specimen may propagate flame along its entire length in any time increment.

7.7 *Fabric Stability*—The yarns shall be bonded at each contact point. The fabric stability of the finished product shall be as specified in Table 3.

7.8 *Bursting Strength*—The minimum average bursting strength of the finished product in its original state and after 480 h of exposure to color stability after accelerated weathering as directed in Section 19 shall be as specified in Table 3.

TABLE 3 Minimum Sample Average Mass and Strength Properties

Property	Insect Screening			Louver Cloth
	Class 1	Class 2		Class 2
	18 × 16 Mesh	18 × 14 Mesh	20 × 20 Mesh	8 × 8 Mesh
Mass per unit area, g/m^2 (oz/yd^2)	102 (3.0)	146 (4.3)	176 (5.2)	68 (2.0)
Fabric Stability, 50 mm, N (2 in., lbf)				
Warp	36 (8)	44 (10)	53 (12)	22 (5)
Fill	27 (6)	36 (8)	44 (10)	22 (5)
Gross bursting strength before and after 480-h exposure[A] kPa (psi)	448 (65)	690 (100)		

[A] After 480-h exposure as directed in Section 17.

7.9 *Stiffness Index*—The minimum and maximum average stiffness values are referenced in Table 4.

7.10 *Color Stability after Accelerated Weathering*—The change from the original color of the standard gray and charcoal, after 480 h of accelerated weathering exposure shall be no greater than step 3, and after 960 h of accelerated weathering exposure shall be no greater than step 2, on the AATCC Gray Scale for evaluating change in color.

NOTE 1—Use of other types of weathering apparatus may give weathering characteristics that are not equivalent to the preferred apparatus.

7.10.1 Exposure periods and acceptable changes in color other than the standard gray and charcoal shall be as agreed upon between the purchaser and the supplier.

7.11 For vinyl-coated glass yarn insect screening and louver cloth not listed in Table 1, the physical properties shall be agreed upon between the purchaser and the supplier except as noted in 6.2.

TEST METHODS

8. Conditioning

8.1 Condition the laboratory samples without preconditioning for a period of at least 5 h in the atmosphere for testing glass textiles, unless otherwise specified.

TABLE 4 Nominal Stiffness

	Stiffness MG[A]	
	Min	Max
Insect screening		
Class 1	40	120
Class 2	60	180
Louver cloth		
Class 2	40	120

[A] These values are for design or informational purposes only.

NOTE 2—In any event, 24 h is considered ample exposure time to bring the samples to moisture equilibrium.

9. Put-Up

9.1 Verify that the rolls and shipping containers conform to the inspection agreement in the purchaser's plant.

10. Appearance

10.1 Before doing any other testing, determine the appearance as directed in the procedure described in Specification D 4028. Count all defects of the types as described in 6.1.1 regardless of their proximity to each other, except where two or more defects represent a single local condition in the screening. In such cases, count only the most serious defect.

11. Mesh

11.1 Determine the mesh as directed in Test Method D 3775. Count the number of warp yarns in 1 in. (25 mm) of fabric width in five randomly designated places across the width of each roll. Count the number of filling picks in 1 in. (25 mm) of fabric length in five randomly designated places in each laboratory sample.

12. Roll Length

12.1 Determine the length for each roll to be tested using the clock method as directed in Test Method D 3773, Option C.

13. Width

13.1 Determine the fabric width as directed in Test Method D 3774, Option A. Measure the width of the screening at five evenly spaced points along the length of the roll. Make no measurements within 1 yd (1 m) of the ends of the roll.

14. Mass per Unit Area

14.1 Determine the mass per unit area of test specimens taken from the roll as directed in Test Method D 3776, Option C.

15. Flame Resistance

15.1 Determine the flame resistance as directed in the procedure for wall and top materials in Test Method D 4372. Test eight specimens from each roll to be tested, with four from the warp and four from the filling direction of the material. Cut the specimens 2.75 by 12 ± 0.062 in. (70 by 305 ± 2 mm) with the long dimension of the specimen in the direction to be tested and with different warp ends in each of the warp specimens and different filling picks in each of the filling specimens.

16. Fabric Stability

16.1 Test 10 specimens from each roll to be tested as directed in Test Method D 4912. Cut the specimens 2 by 5 ± 0.062 in. (50 by 125 ± 2 mm) with the long dimension of the specimen in the direction to be tested and with different warp ends in each of the warp specimens and different filling picks in each of the filling specimens.

17. Bursting Strength

17.1 *General*—Determine the bursting strength as directed in Test Method D 3786 using a Model A, motor-driven, bursting apparatus consisting of the following:

17.1.1 Means for clamping the test specimen between annular, plane surfaces having fine concentric tool marks to minimize slippage. The upper clamping platen shall have a diameter of 3.75 in. (95 mm), a thickness of 0.375 in. (9.5 mm), and a circular opening 1.240 ± 0.001 in. (31.50± 0.025 mm) in diameter. The lower edge of the opening (side in contact with the material) shall have a 0.0025-in. (0.064-mm) radius. The lower clamping surface (diaphragm plate) shall have a thickness of 0.219 ± 0.003 in. (5.56 ± 0.08 mm) with an opening 1.240± 0.001 in. (31.50 ± 0.02 mm) in diameter. The upper edge of the opening (in contact with the material) shall have a 0.016-in. (0.4-mm) radius, and the lower edge of the opening (in contact with the rubber diaphragm) a radius of 0.125 in. (3.2 mm) to prevent cutting the rubber when pressure is applied. The upper clamping ring shall be connected to the clamping mechanism through a swivel joint to facilitate an even clamping pressure. The openings in the two clampings plates shall be concentric to within 0.13 mm (0.005 in.) and their clamping faces shall be flat and parallel.

17.1.2 Prepare a gasket for each the upper and the lower clamping plates having an opening that is 0.062 in. (1.6 mm) larger than the apperture openings of the upper and lower clamping surfaces. The recommended gasket material is 0.062-in. (1.6-mm) No 777 C. I. rubber sheet (hardness of 80 ± 5 Type A Durameter reading). Cement gaskets to the upper and lower plates using a rubber adhesive.

17.1.3 Equip the machine with a Type D or C/R diaphragm requiring a pressure of not less than 23 psi (160 kPa) nor more than 30 psi (210 kPa) to distend to a height of 0.375 in. (9.5 mm) above the diaphragm plate.

17.1.4 A means of forcing liquid into the pressure chamber below the diaphragm at a steady rate of 170 mL/min. This pressure shall be generated by a motor driven piston forcing a liquid glycerin into the pressure chamber of the apparatus.

17.2 *Procedure*:

17.2.1 Cut at least six specimens of sufficient size from each laboratory sampling unit, such that the smallest dimension is at least 4.25 in. (110 mm).

17.2.2 Expose one specimen from each exposure condition in Section 19. Retain one specimen for control (unexposed) test.

NOTE 3—It is advisable to expose extra specimens in case slippage occurs during the bursting test.

17.2.3 After exposure is completed, test both the exposed and unexposed control specimens. Clamp the specimen uniformly with a minimum pressure of 100 psi (700 kPa). Apply the bursting pressure at the specified rate until the specimen ruptures. Record the maximum pressure to rupture the specimen as the gross bursting strength. Reject any tests if slippage in the clamp is observed and replace with another specimen.

17.3 *Precision and Bias*:

17.3.1 *Summary*—In 95 out of 100 cases when comparing two averages of three determinations each, the differences should not exceed 7.7 % of the average when all of the determinations are taken by the same well trained operator using the same piece of test equipment and specimens randomly drawn from the same sample of material but tested at different times. Larger differences are likely to occur under all

other conditions. Sections 17.3.2-17.3.4 explain the basis for this summary and for evaluations made under other conditions.

17.3.2 *Interlaboratory Test Data*[7]—An interlaboratory test was run in 1986 in which randomly drawn specimens of 18-by-16 mesh vinyl-coated glass yarn insect screening were tested in each of four laboratories. Each laboratory used two operators, each of whom tested three specimens of each material at different times. The components of variance expressed as coefficients of variation are listed in Table 5.

17.3.3 *Precision*—For the components of variance reported in Table 5, two averages of observed values should be considered significantly different at the 95 % probability level if the difference equals or exceeds the critical differences listed in Table 6.

TABLE 6 Critical Differences for the Conditions Noted, Vinyl Coated Glass Yarn Insect Screening, Burst Strength, 95 % Probability Level, Percent of Average[A]

Number of Observations in Each Average	Single-Operator Precision	Within-Laboratory Precision	Between-Laboratory Precision
Single-Material Comparisons			
1	10.9	10.9	16.3
3	7.7	7.7	14.3
5	4.9	4.9	13.0
10	3.5	3.5	12.5
Multi-Material Comparisons			
1	22.1	22.1	25.2
3	20.2	20.2	23.5
5	19.8	19.8	23.2
10	19.5	19.5	22.9

[A] To convert the values of the critical differences to percent ignition loss, multiply the critical difference by the average of the two specific sets of data being compared and then divide by 100.

NOTE 4—Since the interlaboratory test included only four laboratories, estimates of between-laboratory precision should be used with special caution.

NOTE 5—The tabulated values of the critical differences should be considered to be a general statement particularly with respect to between-laboratory precision. Before a meaningful statement can be made about any two specific laboratories, the amount of statistical bias, if any, between them must be established, with each comparison based on recent data obtained on specimens taken from a lot of material of the type being evaluated and nearly homogeneous as possible and then randomly assigned in equal numbers to the two laboratories.

17.3.4 *Bias*—Test Method D 3786 when used as directed in Specification D 3656 has no bias since the value of bursting strength for measuring bursting strength of vinyl-coated glass insect screening and louver cloth has no bias because the value of bursting strength can be defined only in terms of a test method.

[7] ASTM Research Report No. D-13-1077. A copy is available from ASTM Headquarters.

TABLE 5 Coefficients of Variation, Vinyl Coated Glass Yarn Insect Screening, Percent of Average, Burst Strength

	Single-Operator Component	Within-Laboratory Component	Between-Laboratory Component
Single-material	3.9	0.0	4.3
Multi-material	10.9	0.0	4.3

18. Stiffness Index

18.1 *Scope*—This test method provides a procedure for evaluating the stiffness of vinyl-coated glass yarn insect screening and louver cloth using a moving vane procedure.

18.2 *Summary of Test Method*—Samples of the vinyl-coated glass yarn insect screening or louver cloth to be tested are secured in a movable clamp. The clamped specimen is moved against a frictionless vane having a known resistance to an applied force. The force required to move the specimen through the vane is used to calculate the stiffness index.

18.3 *Significance and Use*—This method for stiffness is not generally used for acceptance testing. The values obtained are used to assist the fabricator by providing an indication of the capacity to conform to bending during fabrication of window assemblies.

18.3.1 When Specification D 3656 is used for acceptance testing of commercial shipments, such as in an applicable purchase order or contract, the purchaser and the supplier should conduct comparative tests as directed in 18.3.1.1.

18.3.1.1 In cases of a dispute arising from differences in reported test results when using the procedure for stiffness index in Specification D 3656 for acceptance testing of commercial shipments, the purchaser and the supplier should conduct comparative tests to determine if there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens which are as homogeneous as possible and which are from a lot of material of the type in question. The test specimens should then be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using appropriate statistical analysis and an acceptable probability level chosen by the two parties before the testing begins. If a bias is found, either its cause must be found and corrected or the purchaser and the supplier must agree to interpret future test results with consideration of the known bias.

18.4 *Apparatus*—A stiffness index tester consisting of a balanced pendulum or pointer that is center-pivoted and weighted below its center. The pointer shall move parallel to a sine scale graduated in both directions from its center. The tester shall have an arm with a clamp for holding the specimen that is capable of moving in line with the pointer and shall be capable of being rotated left or right by a capacitor-type synchronous motor, geared to operate at a rate equal to 2 rpm. The clamp shall be capable of moving on the arm to allow adjustment of the gage length. The arm and clamp assembly shall be of such length that when positioned directly over the pointer in a vertical position it will provide for a distance of 1 in. (25 mm) between the bottom edge of the clamp and the top edge of the pointer. The tester shall have forward and reverse switchs controlled by two buttons mounted on the base.

18.4.1 The pointer shall be capable of having a mass attached either 1 in. (25 mm), 2 in. (50 mm), or 4 in. (100 mm), as required, directly below the center line of the pointer pivot point.

18.5 *Test Specimens*—Cut three specimens from each roll to be tested 1.0 by 1.5 in. (25 by 38 mm) with the longer dimension parallel to the selvage. Each specimen shall contain the number of ends corresponding to one half the warp mesh. Place specimens on a flat surface until free of distortion prior to testing.

18.6 *Procedure*—Level the test instrument. Set the distance between the lowermost edge of the clamp and the uppermost edge of the pointer while both are in a vertical position to 1 in. (25 mm).

18.6.1 Select and attach an appropriate mass to one of the three positions on the pointer so that the deflection of the pointer is within the scale of the tester for the specimen to be tested. The selected mass shall provide a pointer deflection between 10 and 90 % of the scale for the material to be tested.

18.6.2 Place the specimen in the clamp of the tester, seated fully, and located centrally, so the bottom edge is parallel with the top of the vane of the pointer and overlaps the top edge of the vane by 0.5 in. (13 mm).

18.6.3 Depress the right or left button to force the free end of the specimen against the vane. Record the scale reading at the point the end of the specimen clears the vane. Depress the opposite button to force the free end of the specimen against the vane in the opposite direction and record the scale reading after the end of the specimen clears the vane.

18.6.4 Calculate the average stiffness to the nearest mg.

18.7 *Report*—State that the specimens were tested for stiffness as directed in this specification. Describe the material sampled and the method of sampling used.

18.7.1 Report as the stiffness index, the average stiffness to the nearest milligram for each roll tested.

18.7.2 Report, for the lot average, the average stiffness index for all rolls tested.

18.8 *Precision and Bias*—No justifiable statements can be made either on the precision or on the bias of Specification D 3656 for measuring stiffness since the result merely states whether there is a conformance to criteria for success specified in the procedure.

19. Color Stability to Accelerated Weathering

19.1 Determine the color stability to accelerated weathering as directed in Test Method D 4329, Cycle A, using one appropriate size specimen for a total exposure of 480 h and one appropriate size specimen for a total exposure of 960 h for each roll to be tested.

19.1.1 Rate the specimens for color change after exposure in accordance with AATCC Evaluation Procedure 1.

CONFORMANCE AND INDEXING

20. Conformance

20.1 The purchaser and the supplier may agree on a procedure to establish conformance, including control charts furnished by the supplier or a sequential sampling plan.

20.2 If the test results for one or more characteristics do not conform to the requirements, take a new test specimen. Test the new specimen for the characteristic(s) that did not conform to the requirements in the first test and average the results of the first and second samples as if they were one test of double the original number of specimens. If the new average(s) conform(s) to the specified requirements, the roll shall be considered acceptable.

20.3 If the test results obtained as directed in 20.2, do not conform to the specified requirements, the lot shall be considered unacceptable.

21. Keywords

21.1 appearance; bursting strength; colorfastness; fabric stability; flammability; insect screening; louver cloth; mass per unit area; stiffness; width