



Designation: ~~D579/D579M~~—15 D579/D579M – 24

Standard Specification Practice for Greige Woven Glass Fabrics¹

This standard is issued under the fixed designation D579/D579M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This ~~specification practice~~ covers greige fabrics woven from “E” electrical glass fiber yarns. This ~~specification practice~~ can also be applied to fabrics made of other glass fiber types as agreed upon between the purchaser and the supplier.

1.2 This ~~specification practice~~ specifies the terminology, definitions, general requirements and physical requirements for greige glass fiber fabrics. This ~~specification practice~~ permits the application of organic materials to the glass fiber yarn during manufacture that helps facilitate weaving.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.4 This ~~specification practice~~ is one of a series to provide a substitute for Military Specifications: MIL-Y-1140 Yarn, Cord, Sleeving, Cloth, and ~~Tape-Glass~~; Tape-Glass and MIL-C-9084 Cloth, Glass Finished for Resin Laminates.

1.5 Additional ASTM ~~specifications practices~~ in this series have been drafted and appear in current editions of the Annual Book of ASTM Standards. These include finished glass fabrics, unfinished glass fabrics, glass tapes, glass sleeveings, glass cords, glass sewing threads, and finished laminates made from finished glass fabrics.

1.6 *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~~ safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[D123 Terminology Relating to Textiles](#)

[D578](#)~~D578~~D578M [Specification for Glass Fiber Strands](#)

¹ This specification is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.18 on Glass Fiber and its Products. Current edition approved Feb. 1, 2015; Jan. 1, 2024. Published March 2015; February 2024. Originally approved in 1940. Last previous edition approved in 2010 as D579/D579M – 10. DOI: 10.1520/D0579-15-15. DOI: 10.1520/D0579_D0579M-24.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard’s Document Summary page on the ASTM website.



[D579/D579M Practice for Greige Woven Glass Fabrics](#)

[D1059 Test Method for Yarn Number Based on Short-Length Specimens](#)

[D1423/D1423M Test Method for Twist in Yarns by Direct-Counting](#)

[D1776/D1776M Practice for Conditioning and Testing Textiles](#)

[D1777 Test Method for Thickness of Textile Materials](#)

[D3773/D3773M Test Methods for Length of Woven Fabric](#)

[D3774 Test Method for Width of Textile Fabric](#)

[D3775 Test Method for End \(Warp\) and Pick \(Filling\) Count of Woven Fabrics](#)

[D3776/D3776M Test Methods for Mass Per Unit Area \(Weight\) of Fabric](#)

[D4963/D4963M Test Method for Ignition Loss of Glass Fiber Strands and Fabrics](#)

[D5035 Test Method for Breaking Force and Elongation of Textile Fabrics \(Strip Method\)](#)

[D7018/D7018M Terminology Relating to Glass Fiber and Its Products \(Withdrawn 2021\)³](#)

2.2 *ANSI Standards:*

[ANSI/ASQC Z1.4 Sampling Procedures for Inspection by Attributes⁴](#)

2.3 *Military Standard and Specifications:*

[MIL-Y-1140H Yarn, Cord, Sleeving, Cloth and Tape-Glass⁵](#)

[MIL-C-9084C Cloth, Glass Finished for Resin Laminates⁵](#)

2.4 *Textile Institute Documents:*

[Textile Terms and Definitions⁶](#)

[Woven Cloth Construction⁶](#)

3. Terminology

3.1 For all terminology relating to D13.18, Glass Fibers and Its Products, refer to Terminology [D7018/D7018M](#).

3.1.1 The following terms are relevant to this specification: atmosphere for testing textiles, continuous filament, crowfoot weave, eight-harness satin, greige goods, leno weave, mock leno weave, twelve-harness ~~satin~~satin.

3.2 For all other terms related to textiles, see Terminology [D123](#).

CLASSIFICATION

4. Significance and Use

<https://standards.iteh.ai/catalog/standards/astm/95046a08-32ed-4fa1-9c17-8fa8c6ce0e9/astm-d579-d579m-24>
4.1 This practice lists physical properties of typical ‘E’ glass greige woven glass fabrics by commercial style designation that details fabric count, yarn specifications in tex, fabric weave type, mass per unit area, thickness and breaking force.

4.1.1 The fabric weave type is important. It can affect the performance of the final product depending on its end use in terms of force, durability and aesthetics. This practice details how to recognize specified weaves such as crowfoot, plain, leno, mock leno, eight-harness satin and twelve-harness satin.

4.1.2 This practice also details a method to classify of major and minor fabric defects by appearance. This method for determining fabric appearance is extensively used in trade and considered satisfactory for acceptance testing of commercial shipments. In case of disagreement arising from differences in values reported by the purchaser and the supplier when using this method for acceptance testing, the statistical bias, if any, between the examination station of the purchaser and the examination station of the supplier should be determined with each comparison being based on the examination results of inspection of the same rolls of fabric.

5. Classification

5.1 The designation of a fabric shall be by style numbers that are standard throughout the industry. Generally used style numbers are listed in numerical order in [Table 8](#).

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁵ Available from ~~Standardization Documents Order Desk, Bldg. 4 Section D, DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS~~<http://quicksearch.dla.mil>.

⁶ Available from the Textile Institute, 10 Blackfriars St., Manchester, M3 5DR England.



TABLE 1 Twist Tolerances

Tolerances	
Turns per Centimetre:	
Turns per Centimeter:	
From zero to 0.4, incl	±0.1 turn per centimetre
From zero to 0.4, incl	±0.1 turn per centimeter
Over 0.4 and up to and including 4.0	±0.2 turn per centimetre
Over 0.4 and up to and including 4.0	±0.2 turn per centimeter
Over 4	±5.0 % of the specified average twist
Turns per Metre:	
Turns per Meter:	
From zero to 40, incl	±10 turns per metre
From zero to 40, incl	±10 turns per meter
Over 40 and up to and including 400	±20 turns per metre
Over 40 and up to and including 400	±20 turns per meter
Over 400	±5.0 % of the specified average twist
Turns per Inch:	
From zero to 1, incl	±0.25 turn per inch
Over 1 and up to and including 10	±0.5 turn per inch
Over 10	±5.0 % of the specified average twist

TABLE 2 Tolerances—Mass/Unit Area

Nominal Mass/Unit Area, g/m ² [oz./yd ²]	Permissible Variation, %
136 [4.0] and under	±10
Over 136 [4.0]	±6

TABLE 3 Tolerances—Thickness

Nominal Thickness	Permissible Variations	
	millimetres	millimeters
0.075 and under	±0.013	
Over 0.075 to 0.250	±0.025	
Over 0.250 to 0.380	±0.050	
Over 0.380	±0.075	
	inches	
0.0030 and under	±0.0005	
Over 0.0030 to 0.0100	±0.0010	
Over 0.0100 to 0.0150	±0.0020	
Over 0.0150	±0.0030	

REQUIREMENTS

6. Requirements

The designation of a fabric should be by style numbers that are standard throughout the industry. Generally used style numbers are listed in numerical order in [Table 8](#).

7. Material

7.1 The yarn ~~shall~~ should be continuous filament, unless otherwise specified, free of any free alkali metal salts, such as soda or potash, and foreign particles, dirt, and other impurities.

7.2 Accept the supplier's certification that the material is of the correct grade as specified in Specification [D578/D578M](#). Unless otherwise specified, during testing for strand construction as directed in Section 10, verify that the yarn is continuous filament. Determine the freedom from objectionable impurities during the inspection for fabric appearances as directed in Section [22](#).

8. Fabric Count

8.1 For fabrics listed in [Table 8](#), the nominal fabric count ~~shall~~ should conform to the requirements of [Table 8](#). For fabrics not listed

TABLE 4 Classification of Defects^A

Defect	Description	Major	Minor
Bias or bowed filling	Pick line distortion from horizontal by more than 2.5 % for entire width	X	
Baggy, ridged, or wavy cloth	Clearly noticeable	X	
Cut or tear	6.5 mm [0.25 in.] or more in any direction (body only)	X	
Hole	13 mm [0.5 in.] or more in diameter	X	
	Less than 13 mm [0.5 in.] in diameter		X
Spots, streaks, or stains, foreign inclusions	Clearly noticeable	X	
Tender or weak spot	Clearly noticeable 50 mm [2 in.] or more in combined directions	X	
	Clearly noticeable less than 50 mm [2 in.] but greater than 6.5 mm [0.25 in.] in combined directions		X
Smash	76 mm [3 in.] or more in combined directions	X	
	Less than 76 mm [3 in.] in combined directions		X
Broken, missing ends or picks	2 or more contiguous regardless of length	X	
Floats and skips	50 mm [2 in.] or more in combined directions	X	
	Less than 50 mm [2 in.] in combined directions		X
Light marks	Greater than 6.5 mm [0.25 in.] in width	X	
	2 picks less than nominal pick construction		X
Heavy marks	Puckering clearly noticeable	X	
	2 picks more than nominal pick construction		X
Crease	Hard embedded and folded over on self	X	
Waste	Clearly noticeable over 6.5 mm [0.25 in.] in length	X	
	Clearly noticeable less than 6.5 mm [0.25 in.] in length		X
Weave separation	Clearly noticeable 3 mm [0.125 in.] or more	X	
Brittle or fused area	Any	X	
Selvage Defects	Curled or folded under		X
	Cut or torn less than 6.5 mm [0.25 in.] in length		X
	Cut or torn 6.5 mm [0.25 in.] and over in length	X	
Selvage leno ends out	Greater than 5 m [5 yd] missing (continuously)	X	
	Less than 5 m [5 yd] missing		X
Feather edge	Greater than 5 mm [0.1875 in.] running more than 5 m [5 yd]	X	
	Greater than 5 mm [0.1875 in.] but running less than 5 m [5 yd]		X

^A At a normal viewing distance of 1 m or 3 ft.

TABLE 5 Sample Size Determination for Construction, Mass, Width, and Physical Properties

Lot Size in Units, m or [yd]	Sample Size, Number of Units (Rolls)
800 or less	2
801 up to and including 22 000	3
22 001 and over	5

in Table 8, the nominal fabric count shall be agreed upon between the purchaser and the supplier. The average count of warp ends shall be within two ends of the nominal count, and the average count of the filling picks shall be within two picks of the nominal count.

9. Yarn Designations

9.1 For fabrics listed in Table 8, the yarn designations shall conform to the requirements of Table 8. For fabrics not listed in Table 8, the yarn designations shall be agreed upon between the purchaser and the supplier. The requirements of the individual elements of the designation are specified in Sections 810 – 1214.

9.1.1 In some cases ECE 225 yarn is specified in Table 8. ECD 225 may be substituted with no significant decrease in property performance.

10. Yarn Number

10.1 For fabrics listed in Table 8, the nominal size-free yarn numbers of the yarns designated shall conform to Specification D578/D578M. For fabrics not listed in Table 8, the nominal size-free yarn number shall be agreed upon between purchaser and supplier.

10.2 Determine the yarn number in tex [yards per pound] for both the warp and filling yarns as directed in Test Method D1059.

TABLE 6 Values of b for Critical Differences in Defect Counts, a and b , for Two Test Results

	Probability Level		Probability Level			Probability Level			Probability Level			
	$r = a + b$	90 %	95 %	$r = a + b$	90 %	95 %	$r = a + b$	90 %	95 %	$r = a + b$	90 %	95 %
1				26	8	7	51	19	18	76	30	28
2				27	8	7	52	19	18	77	30	29
3				28	9	8	53	20	18	78	31	29
4				29	9	8	54	20	19	79	31	30
5	0			30	10	9	55	20	19	80	32	30
6	0	0		31	10	9	56	21	20	81	32	31
7	0	0		32	10	9	57	21	20	82	33	31
8	1	0		33	11	10	58	22	21	83	33	32
9	1	1		34	11	10	59	22	21	84	33	32
10	1	1		35	12	11	60	23	21	85	34	32
11	2	1		36	12	11	61	23	22	86	34	33
12	2	2		37	13	12	62	24	22	87	35	33
13	3	2		38	13	12	63	24	23	88	35	34
14	3	2		39	13	12	64	24	23	89	36	34
15	3	3		40	14	13	65	25	24	90	36	35
16	4	3		41	14	13	66	25	24	91	37	35
17	4	4		42	15	14	67	26	25	92	37	36
18	5	4		43	15	14	68	26	25	93	38	36
19	5	4		44	16	15	69	27	25	94	38	37
20	5	5		45	16	15	70	27	26	95	38	37
21	6	5		46	16	15	71	28	26	96	39	37
22	6	5		47	17	16	72	28	27	97	39	38
23	7	6		48	17	16	73	28	27	98	40	38
24	7	6		49	18	17	74	29	28	99	40	39
25	7	7		50	18	17	75	29	28	100	41	39

Probability levels are for two-sided limits. If the observed value of ILm the tabulated value, the two test results should be considered significantly different at the indicated probability level.

iTeh Standards

- a = the larger of two defect counts, each of which is the total count for all specimens in a test result and each of which is based on the same number of specimens,
 b = the smaller of the two defect counts taken as specified for a , and
 $r = a + b$.

When $r > 100$, use the following approximation:

$$b = c - 1 - k \sqrt{c}$$

<https://standards.iteh.ai/catalog/standards/astm/95046a08-32ed-4fa1-9c17-8faf8c6ce0e9/astm-d579-d579m-24>

where:

- b = calculated value of b , rounded to the nearest whole number,
 $c = r/2$, and
 $k = 1.386$ and 1.163 respectively for the 95 % and 90 % probability levels.

11. Filament Diameter

11.1 The nominal filament diameter for yarns in the fabric shall conform to the nominal range for filament diameter average values specified in Table 1 of Specification [D578D578/D578M](#).

11.2 Determine the filament diameter for both the warp and filling yarns as directed in Specification [D578/D578M](#) by using 50 individual filaments from one yarn test specimen from both the warp and filling yarns in each of the swatches in the laboratory sample.

12. Strand Construction

12.1 The basis for specifying strand construction is given in Specification [D578D578/D578M](#). For fabrics listed in [Table 8](#), the construction of the component strands shall conform to the requirements of [Table 8](#). For fabrics not listed in [Table 8](#), the construction of the component strands shall be agreed upon between the purchaser and the supplier.



TABLE 7 95 % Confidence Limits for Number of Defect Counts per Test Result

Observed Count	Lower Limit	Upper Limit
0	0.0	3.7
5	1.6	11.7
10	4.8	18.4
15	8.4	24.7
20	12.2	30.9
25	16.2	36.9
30	20.2	42.8
35	24.4	48.7
40	28.6	54.5
45	32.8	60.2
50	37.1	65.9
60	45.8	77.2
70	54.6	88.4
80	63.4	99.6
90	72.4	110.6
100	81.4	121.6
120	99.5	143.5
140	117.8	165.2
160	136.2	186.8
180	154.7	208.3
200	173.2	229.7

Lower confidence limit for counts = $c[1 - (1/9c) - t(1/9c)^{1/2}]^3$

Upper confidence limit for count = $d[1 - (1/9d) + t(1/9d)^{1/2}]^3$

where:

c = observed number of counts,

d = $c + 1$, and

t = 1.960, the value of Student's t for infinite degrees of freedom, two-sided limits, and the 95 % probability level.

ASTM D579/D579M-24

12.2 Verify the number of singles strands and the number of plied or cabled strands on one test specimen of warp yarn and one specimen of filling yarn while determining the twist direction or twist level.

11. Direction of Twist

11.1 Unless otherwise agreed upon between the purchaser and the supplier, the primary twist in the singles strands shall be “Z” twist and the final twist in the plied yarns shall be “S” twist.

12. Twist Level

12.1 The nominal twist in the component strands and the finished yarns shall conform to the requirements of Table 8 in Specification D578. The tolerances for the primary twist and the final twist shall conform to Table 1 of this document unless otherwise agreed upon between the purchaser and the supplier.

13. Fabric Weave Type

13.1 For fabrics listed in Table 8, the fabric weave type shall conform to the requirements of Table 8. For fabrics not listed in Table 8, the fabric weave type shall be agreed upon between the purchaser and the supplier.

14. Mass Per Unit Area

14.1 For fabrics listed in Table 8, the nominal mass per unit area shall conform to the requirement of Table 8. For fabrics not listed in Table 8, the nominal mass per unit area shall be agreed upon between the purchaser and the supplier. The average mass per unit area for the lot shall conform to the requirements of Table 2.



15. Thickness

15.1 For fabrics listed in [Table 8](#), the nominal thickness shall conform to the requirements of [Table 8](#). For fabrics not listed in [Table 8](#), the nominal thickness shall be agreed upon between the purchaser and the supplier. The average thickness of the fabric in the lot shall conform to the requirements of [Table 3](#), unless specified otherwise.

16. Breaking Force

16.1 For fabrics listed in [Table 8](#), the minimum breaking force shall conform to the requirements of [Table 8](#). For those fabrics in which breaking force is not listed in [Table 8](#), the minimum breaking force shall be agreed upon between the purchaser and the supplier. The average breaking force for the lot shall exceed the specified breaking force, and no individual break shall be less than 80 % of the specified minimum breaking force.

17. Width

17.1 Fabric width shall be agreed upon between the purchaser and the supplier. The fabric width, including both selvages but excluding any feathered edges, shall be no narrower than the specified width and no more than 13 mm [0.5 in.] wider than the specified width.

NOTE 1—During the processing of glass fabrics, the selvages may be slit to minimize tension influences. This slit distance is generally excluded when measuring the fabric width.

18. Length

18.1 The fabric roll length, length between splices, and number of splices per roll shall be agreed upon between purchaser and supplier. All splices must be thermoset unless otherwise agreed upon between the purchaser and supplier.

19. Ignition Loss

19.1 The ignition loss of greige fabric shall be less than 4.0 % unless otherwise agreed upon between the purchaser and the supplier.

20. Fabric Appearance

20.1 The woven greige fabric shall be generally uniform in quality and condition, clean, smooth, and free of foreign particles and defects detrimental to fabrication, appearance, or performance.

20.2 The fabric in the laboratory sample for the fabric appearance shall be examined for the defects listed in [Table 4](#) and the acceptable quality levels (AQLs) are 2.5 major and 6.5 total (major and minor combined) defects per hundred units of fabric unless otherwise agreed upon between the purchaser and the supplier.

20.3 When specified, the warp direction of the fabric shall be marked by blue direction-indicator yarns running warpwise in the cloth and spaced approximately 150 mm [6 in.] apart.

21. Put-Up

21.1 Fabric shall be furnished in rolls and shall be wound on spiral tubes. The tube dimensions shall be as agreed upon between the purchaser and supplier. The maximum number of pieces contained in any roll shall be as specified in [18.1](#).

22. Sampling

22.1 *Lot Size*—A lot shall consist of each 9000 m [10 000 yd] of a single fabric style unless otherwise agreed upon between the purchaser and the supplier.

22.1.1 When small multiple shipments are made from an inspected lot, the shipments may be made without additional inspection as agreed upon between the purchaser and the supplier.



~~22.2 Lot Sample—Take at random as a lot sample the number of rolls of fabric specified in ANSI/ASQC Z1.4 and a single sampling plan, unless otherwise agreed upon.~~

~~22.3 Laboratory Sample—As a laboratory sample, take the following samples:~~

~~22.3.1 For fabric appearance, fabric width, mass per unit area, and fabric length, the rolls in the lot sample serve as the laboratory sample.~~

~~22.3.2 For other properties, take at random from the rolls in the lot sample the number of rolls specified in Table 5. From each roll in the laboratory sample, take a 1 m [1 yd] full-width swatch from the end of the roll after first discarding a minimum of 1 m [1 yd] of fabric from the very outside of the roll. Remove only the outer layer of fabric if the circumference of the roll is less than 1 m [1 yd].~~

~~22.4 Test Specimens—For fabric appearance, fabric width, and fabric length, the rolls in the lot sample serve as test specimens. For other properties, take test specimens from the swatches in the laboratory sample as directed in the respective test methods in this specification.~~

23. Packaging

~~23.1 Each roll of fabric, put up as specified, shall be packaged to afford adequate protection against physical damage during shipment from the supply source to the receiving activity. The supplier may use his standard practice when it meets this requirement.~~

~~23.2 Unless otherwise agreed upon, as when specified in an applicable contract or purchase order, each roll shall be wrapped in polyethylene not less than 0.05 mm [0.002 in.] thick in such a manner as to ensure that the fabric, during shipment and storage, will be protected against damage from exposure to moisture, weather, or any other normal hazard.~~

24. Marking

~~24.1 Each package shall be marked to show the information listed below, unless specified otherwise by the purchaser and the supplier. Characters shall be of such size as to be clearly legible and shall not be obliterated by normal handling to:~~

- ~~<https://standards.iteh.ai/catalog/standards/astm/95046a08-32ed-4fa1-9c17-8fa18c6ce0e9/astm-d579-d579m-24>~~
- ~~100 % Fiber Glass Cloth~~
- ~~Style~~
- ~~Length~~
- ~~Width~~
- ~~Purchase Order Number~~
- ~~Manufacturer's Identification~~
- ~~Finish Designation~~

~~24.1.1 All fabrics will be considered Type “E” electrical unless specified otherwise. If glass type is other than electrical “E,” each package shall be marked accordingly.~~

SAMPLING AND CONDITIONING

25. Conditioning

~~25.1 Condition the laboratory samples without preconditioning, for a period of at least 5 h in the atmosphere for testing glass textiles as directed in Practice D1776, unless otherwise specified.~~

TEST METHODS

26. Material

~~26.1 Accept the supplier's certification that the material is of the correct grade as specified in Specification D578. Unless otherwise~~



specified, during testing for strand construction as directed in Section 30, verify that the yarn is continuous filament. Determine the freedom from objectionable impurities during the inspection for fabric appearances as directed in Section 40.

27. Fabric Count

27.1 Determine the fabric count as directed in Test Method ~~D3775~~, making one count in each direction on each of the swatches in the laboratory sample.

28. Yarn Number

28.1 Determine the yarn number in tex [yards per pound] for both the warp and filling yarns as directed in Test Method ~~D1059~~.

29. Filament Diameter

29.1 Determine the filament diameter for both the warp and filling yarns as directed in Specification ~~D578~~ by using 50 individual filaments from one yarn test specimen from both the warp and filling yarns in each of the swatches in the laboratory sample.

30. Strand Construction

30.1 Verify the number of singles strands and the number of plied or cabled strands on one test specimen of warp yarn and one specimen of filling yarn while determining the twist direction or twist level.

13. Direction of Twist

13.1 Unless otherwise agreed upon between the purchaser and the supplier, the primary twist in the singles strands should be “Z” twist and the final twist in the plied yarns should be “S” twist.

13.2 Verify the direction of twist in each strand of the yarns as directed in Test Method ~~D1423D1423/D1423M~~ in each of five test specimens of warp and filling yarns taken from each of the swatches in the laboratory sample.

14. Twist Level

14.1 The nominal twist in the component strands and the finished yarns should conform to the requirements of Table 8 in Specification ~~D578/D578M~~. The tolerances for the primary twist and the final twist should conform to Table 1 of this document unless otherwise agreed upon between the purchaser and the supplier.

14.2 Determine the twist level in each of the component strands as directed in Test Method ~~D1423D1423/D1423M~~ upon five test specimens of warp yarn and five test specimens of filling yarn from each of the swatches in the laboratory sample.

15. Fabric Weave Type

15.1 ~~Scope~~—This method covers theFor fabrics listed in Table 8 recognition of the six fabric weave types referred, the fabric weave type should conform to the requirements of Table 8. For fabrics not listed in Table 8. The weaves included are: crowfoot, leno, mock leno, plain, eight-harness satin, and twelve-harness satin., the fabric weave type should be agreed upon between the purchaser and the supplier.

15.2 ~~Significance and Use~~—The fabric weave type is important. It can affect the performance of the final product depending on its end use in terms of force, durability and aesthetics. There is a procedure for recognizing specified weaves and it is considered satisfactory for acceptance testing of commercial shipments.

~~33.2.1 The fabric weave type is important. It can affect the performance of the final product depending on its end use in terms of force, durability and aesthetics. This method specifies a procedure for recognizing specified weaves:~~

~~33.2.2 This procedure for recognizing fabric weave type is considered satisfactory for acceptance testing of commercial shipments:~~

15.3 Apparatus:



15.3.1 ~~Rectangular Coordinate Graph Paper.~~ Rectangular coordinate graph paper.

15.3.2 ~~Linen or Magnifying Glass.~~ Linen or magnifying glass.

15.3.3 ~~Marking Pen or Pencil.~~ Marking pen or pencil.

15.4 Procedure:

15.4.1 Place a swatch of the sample on a flat surface, face side up (see Terminology ~~D7018~~D7018/D7018M for definitions relative to Eight and Twelve Harness Satins). Position the swatch with the warp direction extending forward and away from the observer.

15.4.2 Select a starting point on the surface of the fabric where a warp end is raised over a filling pick (raiser yarn).

15.4.3 Denote a filling end raised over a warp end (Sinker yarn) on the face of the fabric by an unmarked block.

15.4.4 Plot the weave construction by first marking a block on the graph paper designating the starting raiser yarn.

15.4.5 Continue plotting from left to right, from the first raiser yarn, showing raiser yarns as marked blocks and sinker yarns as unmarked blocks until a minimum of two repeats of the pattern are observed. In a like manner, plot up from the first raiser yarn until a minimum of two repeats of the pattern are observed corresponding to each designated block in the left-to-right pattern.

15.4.6 Compare the design plot to **Figs. A1.1-A1.6**.

15.4.6.1 Leno and mock leno have a distinct visual appearance and may be identified without plotting.

15.5 Report:

15.5.1 State that the fabric weave type of the rolls of fabric was determined as directed in Section **33.15** of Specification ~~D579~~D579/D579M. Describe the material or product sampled and the method of sampling used.

15.5.2 Report the fabric weave type for each roll including the raiser/sinker pattern in terms of the warp ends up and down.

~~33.6 Precision and Bias—No justifiable statement can be made either on the precision or on the bias of this procedure since the procedure merely determines whether the weave in the test specimen conforms to that specified.~~

~~34. Mass Per Unit Area~~

~~34.1 Determine the mass per unit area of the fabric as directed in Test Method **D3776**, Option A, using each of the rolls in the laboratory sample.~~

16. Mass Per Unit Area

16.1 For fabrics listed in **Table 8**, the nominal mass per unit area should conform to the requirement of **Table 8**. For fabrics not listed in **Table 8**, the nominal mass per unit area should be agreed upon between the purchaser and the supplier. The average mass per unit area for the lot should conform to the requirements of **Table 2**.

16.2 Determine the mass per unit area of the fabric as directed in Test Method **D3776/D3776M**, Option A, using each of the rolls in the laboratory sample.

17. Thickness

17.1 For fabrics listed in **Table 8**, the nominal thickness should conform to the requirements of **Table 8**. For fabrics not listed in **Table 8**, the nominal thickness should be agreed upon between the purchaser and the supplier. The average thickness of the fabric in the lot should conform to the requirements of **Table 3**, unless specified otherwise.