

Skew Change in Fabrics After Home Laundering

Developed in 1994 by AATCC Committee RA42; revised 1995, 2004, 2010, 2012, 2017 (with title change); reaffirmed 1996; editorially revised and reaffirmed 2001; editorially revised 2005, 2008, 2009, 2014. Related to ISO 16322-1, -2.

Foreword

AATCC Test Method (TM) 179 is to be used to evaluate the *change* in fabric skew *after* home laundering. TM207 Seam Twist in Garments Before and After Home Laundering is for evaluation of seam twist *before and after* home laundering. ASTM D3882, Standard Test Method for Bow and Skew of Woven and Knitted Fabrics is only to be used to evaluate fabric skew in its original (*unlaundered*) state. The relationship among results of these methods is unknown; results of one method should not be compared to those of another method.

1. Purpose and Scope

1.1 This test method is used to determine change in skew of woven and knitted fabrics as a result of home laundering.

2. Principle

2.1 Skew change in fabrics, resulting from repeated laundering procedures typically used in the home, is measured using marks applied to fabric specimens, or fabric in garment panels, before laundering.

3. Terminology

3.1 **laundering**, *n.*—*of textile materials*, a process intended to remove soils and/or stains by treatment (washing) with an aqueous detergent solution and normally including rinsing, extraction and drying.

3.2 **skew**, *n.*—a fabric condition resulting when filling yarns or knitted courses are angularly displaced from a line perpendicular to the edge or side of the fabric (see ASTM D123).

4. Safety Precautions

NOTE: These safety precautions are for information purposes only. The precautions are ancillary to the testing procedures and are not intended to be all inclusive. It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Manufacturers MUST be consulted for specific

details such as material safety data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

4.1 Good laboratory practices should be followed. Wear safety glasses in all laboratory areas.

4.2 Detergent may cause irritation. Care should be taken to prevent exposure to skin and eyes.

4.3 Manufacturer's safety recommendations should be followed when operating laboratory testing equipment.

5. Apparatus and Materials (see 14.1)

5.1 Conditioning facilities and drying racks with pull-out, perforated shelves (see 14.2).

5.2 Indelible ink marking pen (see 14.3).

5.3 Right triangle, L-square or marking template.

5.4 Tape or rule marked in millimeters, tenths of an inch or smaller increments.

5.5 Automatic washing machine (see 14.4), or facilities for hand laundering.

5.6 1993 AATCC Standard Reference Detergent (powder) or AATCC High Efficiency (HE) Standard Reference Liquid Detergent. Detergent with or without optical brightener may be used for this test method. (see 14.3 and 14.5).

5.7 Scale with at least 5.0 kg (10.0 lb) capacity.

5.8 Hemmed pieces of bleached cotton sheeting (wash load ballast type 1), or 50/50 polyester/cotton bleached plain weave (wash load ballast type 3), 920 × 920 mm (36 × 36 in.), to be used as ballast making 1.8 ± 0.1 kg (4.00 ± 0.25 lb) or 3.6 ± 0.1 kg (8.00 ± 0.25 lb) wash load weight. (see 14.5).

5.9 Automatic tumble dryer (see 14.4), or facilities for drip, screen or line drying.

5.10 Digital Imaging System (optional, see 14.6).

6. Test Specimens

6.1 Test Specimens from Fabric Samples.

6.1.1 Consider each roll of fabric to be a sample. Randomly select rolls from each production lot as agreed.

6.1.2 Test three specimens from each sample to increase precision of the average. Cut specimens for Marking Method 1 at least 380 × 380 mm (15 × 15 in.) Cut specimens for Marking Method 2 at least 380 × 660 mm (15 × 26 in.)

6.1.3 Where possible, cut specimens from different areas of the fabric so that

each specimen will contain different groups of lengthwise and widthwise yarns. Identify fabric face; mark lengthwise direction on each specimen.

6.1.4 If it is of interest to determine whether the magnitude of the change in skew is different from one side of the fabric to the other, prepare three sets of specimens from each area of interest. Identify area from which each set of specimens was taken; i.e., left-side, center or right-side.

6.15 Test specimens prepared for TM124, Smoothness Appearance of Fabrics after Repeated Home Laundering, and/or TM135, Dimensional Changes of Fabrics after Home Laundering, may also be tested by this method, using Marking Method 1 (see 14.7), or Marking Method 2, provided specimens are cut large enough to accommodate the required markings.

6.2 Test Specimens from Garment Samples.

6.2.1 Consider each garment to be a sample. Randomly select garments from each production lot as agreed.

6.2.2 Test three garments or a total of three areas of two garments to increase precision of the average. Use the largest panels in the garments. Consider each panel to be a test specimen.

6.2.3 Test specimens prepared for TM143, Appearance of Apparel and Other Textile End Products after Repeated Home Laundering, TM150, Dimensional Changes of Garments after Home Laundering and/or TM207, Seam Twist in Garments Before and After Home Laundering may also be tested by this method, using Marking Method 1 or 2.

7. Conditioning

7.1 Prior to marking, condition test specimens as directed in ASTM D1776, Standard Practice for Conditioning and Testing Textiles. Use conditions indicated in Table 1 for Textiles, general and conditioning time as indicated in Table 2 for the appropriate fiber content.

7.1.1 Lay specimens flat, separately, on a screen or perforated shelf of a conditioning rack. For garments normally stored hung, hang separately on hangers to condition. Allow space for air movement on all sides of the garment.

7.2 Specimens will be conditioned again after laundering.

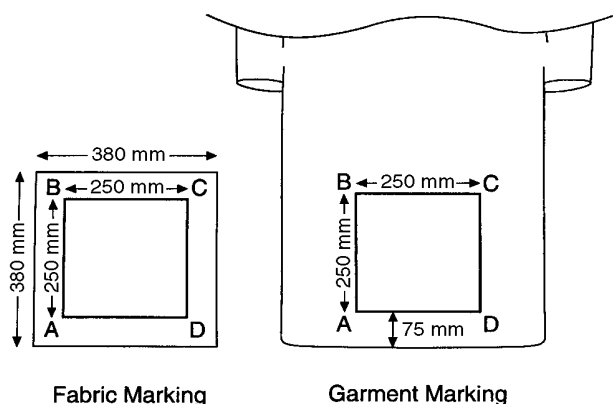


Fig. 1—Method 1: square marking.

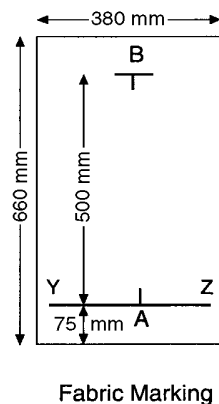


Fig. 2—Method 2: inverted T marking.

8. Marking of Specimens.

8.1 Marking Method 1 (see 14.8).

8.1.1 On each 380 × 380 mm (15 × 15 in.) fabric test specimen or garment panel, mark two 250 mm (10 in.) pairs of benchmarks parallel to the length of the specimen and two 250 mm (10 in.) pairs of benchmarks perpendicular to the length of the specimen. Draw a line through each of the four sets of adjacent benchmarks so that a square is formed. Label corners as A, B, C and D in clockwise direction starting with lower left corner (see Fig. 1). Any alternate size specimens and benchmarks used must be indicated in report (see 14.9).

8.1.2 Flat and circular knit fabrics: Tubular finished knit fabric samples representing goods used in the tubular state; i.e., underwear, sweat shirts, polo shirts, etc., are to be tested in the tubular state. Tubular finished knit fabric samples representing goods used in the slit open width state; i.e., for dresses, slacks, suits, etc., should be slit open and handled flat.

8.2 Marking Method 2.

8.2.1 On a 380 × 660 mm (15 × 26 in.) fabric specimen or garment panel, use a suitable marking device to draw reference line YZ across the width of the specimen panel (see Fig. 2). Line YZ should be approximately 75 mm (3 in.) above the bottom edge (or hem of garment). If the bottom edge or hem is not straight, draw the reference line perpendicular to the vertical axis of symmetry of the specimen. Place bench mark A perpendicular to and midway on Line YZ. Place one leg of a right angle marking device along Line YZ so that the second leg is on a perpendicular upward from Point A. Draw a benchmark parallel to Line YZ 500 mm (20 in.) directly above Point A. Draw another benchmark 480 mm (19 in.) from Point A perpendicular to Line YZ to intersect previous benchmark. Label the intersection of the benchmarks as Point B. If the specimen size is insuffi-

cient to mark a 500 mm (20 in.) length, mark the longest available length which is at least 75 mm (3 in.) below the upper edge of the test specimen. Any alternate size specimen or dimensions of benchmarks must be indicated in the report.

9. Laundering

9.1 Traditional top-loading washing machines.

9.1.1 Select laundering instructions based on intended care label for garment. Refer to temperatures and machine specifications in Monograph (M) 6. Standardization of Home Laundry Test Conditions, Tables I and IIA-D (see 14.4). If alternate wash temperatures or machine specifications are used, note modifications in the test report.

9.1.2 Wash load shall consist of all specimens in the sample, plus enough ballast pieces to make a total load weight of 1.8 ± 0.1 kg (4.00 ± 0.25 lb) or 3.6 ± 0.1 kg (8.00 ± 0.25 lb).

9.1.3 Begin selected wash cycle. During initial fill, add 66 ± 1 g of 1993 AATCC Standard Reference Detergent as directed by washing machine manufacturer's instructions. If detergent is added directly to wash water, mix to dissolve completely before adding wash load.

9.1.4 Add wash load (test specimens and ballast), distributing evenly around center agitator.

9.1.5 For specimens to be drip dried, stop wash cycle before the water begins to drain from the final rinse cycle. For specimens to be tumble, line or screen (flat) dried, allow washing to proceed through the final spin cycle.

9.1.6 After each washing cycle, separate tangled specimens and ballast pieces, taking care to minimize distortion. Proceed to appropriate drying procedure.

9.2 High-efficiency (HE) washing machines.

9.2.1 For HE top-loading washing machines, refer to temperatures and machine specifications in M6, Tables III and IV; for front-loading washing machines, refer to M6, Tables V and VIA-B (see 14.4). If alternate wash temperatures or machine specifications are used, note modifications in the test report.

9.2.2 Wash load shall consist of all specimens in the sample, plus enough ballast pieces to make a total load weight of 1.8 ± 0.1 kg (4.00 ± 0.25 lb) or 3.6 ± 0.1 kg (8.00 ± 0.25 lb).

9.2.3 Add 50 ± 1 mL of AATCC High Efficiency (HE) Standard Reference Liquid Detergent as directed by washing machine manufacturer's instructions.

Add wash load (test specimens and ballast), distributing evenly around center impeller or agitator for top-loading machines. Begin selected wash cycle.

9.2.4 For specimens to be drip dried, stop wash cycle before the water begins to drain from the final rinse cycle. For specimens to be tumble, line or screen (flat) dried, allow washing to proceed through the final spin cycle.

9.2.5 After each washing cycle, separate tangled specimens and ballast pieces, taking care to minimize distortion. Proceed to appropriate drying procedure.

9.3 Hand laundering.

9.3.1 For hand laundering, refer to procedure in M5, Standardization of Hand Laundering for Fabrics and Apparel (see 14.3).

9.3.2 After each washing cycle, proceed to appropriate drying procedure, taking care to minimize distortion.

9.4 Tumble dry.

9.4.1 Refer to tumble dryer exhaust temperatures in M6, Table VII.

9.4.2 Place the washed load (test specimens and ballast) in the tumble dryer, and set the temperature control to generate the selected exhaust temperature.

9.4.3 Allow the dryer to run until the load is fully dry. Remove specimens im-