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Skewness Change in Fabric and Garment Twist Resulting from Automatic Home Laundering

Developed in 1994 by AATCC Committee RA42; revised 1995, 2004, 2010, 2012; reaffirmed 1996; editorially revised and reaffirmed 2001; editorially revised 2005, 2008, 2009, 2014. Related to ISO 16322-1, -2, -3.

1. Purpose and Scope

1.1 This test method determines change in skewness in woven and knitted fabrics or twist in garments when subjected to repeated automatic laundering procedures commonly used in the home. Washing and drying procedures used for shrinkage tests and other home laundering tests are specified for this method.

1.2 For some fabrics the degree of twist of fabric in garments is not solely dependent on its behavior in the unsewn state; it also may be dependent on the manner of garment assembly.

2. Principle

2.1 Change in skewness in fabric or twist in garment specimens resulting from procedures typical of home laundering practices is measured using bench marks applied to the specimens before laundering.

3. Terminology

3.1 **garment twist**, *n.*—a rotation, usually lateral, between different panels of a garment resulting from the release of latent stresses during laundering of the woven or knitted fabric forming the garment. Twist may also be referred to as torque or spirality.

3.2 **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.

3.3 **skewness**, *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 D123-92).

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 inclu-

sive. 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 The 1993 AATCC Standard Reference Detergent and the 2003 AATCC Standard Reference Liquid 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 12.1)

5.1 Indelible ink marking pen (see 12.2).

5.2 Right triangle, L-square (see 12.4), or marking template (see 12.4).

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

5.4 Conditioning/drying racks with pull-out screens or perforated shelves (see 12.8).

5.5 Automatic washing machine (see 12.3).

5.6 1993 AATCC Standard Reference Detergent or 2003 AATCC Standard Reference Liquid Detergent (see 12.6 and 12.14).

5.7 Scale with at least 5 kg (10 lb) capacity.

5.8 Ballast of 920 × 920 ± 30 mm (36 × 36 ± 1 in.) hemmed pieces of bleached cotton sheeting (Wash load ballast type 1) or 50/50 polyester/cotton bleached mercerized plain weave (Wash load ballast type 3) (see 12.14).

5.9 Automatic tumble dryer (see 12.7).

5.10 Facilities for drip drying and line drying.

5.11 Digital Imaging System (see 12.15).

6. Test Specimens

6.1 Sampling and Preparation.

6.1.1 Prior to marking, pre-condition and then condition test specimens as directed in ASTM D1776, Standard Practice for Conditioning and Testing Textiles. Condition each specimen for at least 4 h in an atmosphere of 21 ± 1°C (70 ±

2°F) and 65 ± 2% RH by laying each test specimen separately on a screen or perforated shelf of a conditioning rack. If garments would normally be hung on a hanger, they should be conditioned on a hanger.

6.1.2 Fabrics or garments that are distorted in their unlaundered state due to faulty finishing of the fabric or faulty assembly of garments may give deceptive results when laundered by any procedure. In such cases, it is recommended that specimens not be used, or if used, the results be considered as indicative of these specimens only.

6.2 Test Specimens from Fabric Samples.

6.2.1 Test three specimens of each sample to **increase** precision of the average.

6.2.2 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.

6.2.3 If it is of interest to determine whether the direction of the change in skewness 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.

6.2.4 Test specimens prepared for AATCC Method 124, Smoothness Appearance of Fabrics after Repeated Home Laundering, and AATCC Method 135, Dimensional Changes of Fabrics after Home Laundering, may be used for this test method when marking by Method 1 (see 12.9).

6.3 Test Specimens from Garment Samples.

6.3.1 Test three garment specimens or a total of three areas of two garments to **increase** precision of the average. Use the largest panels in the garments.

6.3.2 Test specimens prepared for AATCC Method 143, Appearance of Apparel and Other Textile End Products after Repeated Home Laundering, and AATCC Method 150, Dimensional Changes of Garments after Home Laundering, may be used for this test method when marking by Method 1.

6.4 Marking of Specimens.

6.4.1 Marking Method 1 (see 12.10).

6.4.1.1 On each 380 × 380 mm (15 × 15 in.) fabric test specimen or garment panel, mark two 250 mm (10 in.) pairs of