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Dimensional Changes of Fabrics after Home Laundering

Developed in 1970 by AATCC Committee RA42; reaffirmed 1973, 2000; revised 1978, 1987, 1995, 2001, 2003 (with title change), 2004, 2010, 2012, 2014, 2015; editorially revised 1982, 1985, 1989, 1990, 1991, 1996, 1997, 2006, 2008; editorially revised and reaffirmed 1992. Related to ISO 3759.

1. Purpose and Scope

1.1 This test method is intended for the determination of dimensional changes of fabrics when subjected to home laundering procedures used by consumers. Four washing temperatures, three agitation cycles, two rinse temperatures and four drying procedures cover the common home care options available to consumers using current laundering machines.

2. Principle

2.1 The dimensional changes of fabric specimens subjected to home laundering care are measured using pairs of benchmarks applied to the fabric before laundering.

3. Terminology

3.1 **dimensional change**, *n.*—a generic term for changes in length or width of a fabric specimen subjected to specified conditions. The change is usually expressed as a percentage of the initial dimension of the specimen.

3.2 **growth**, *n.*—a dimensional change resulting in an increase of length or width of a specimen.

3.3 **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.

3.4 **shrinkage**, *n.*—a dimensional change resulting in a decrease in the length or width of a specimen.

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 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 Automatic washing machine (see 12.2).

5.2 Automatic tumble dryer (see 12.3).

5.3 Conditioning/drying racks with pull-out screens or perforated shelves (see 12.4).

5.4 Facilities for drip drying and line drying.

5.5 1993 AATCC Standard Reference Detergent or 2003 AATCC Standard Reference Liquid Detergent (see 12.11 and 12.12).

5.6 Ballast of 920 × 920 mm (36 × 36 in.) hemmed pieces of bleached cotton sheeting (Wash load ballast type 1), or 50/50 polyester/cotton bleached plain weave (Wash load ballast type 3) (see 12.12).

5.7 Indelible ink marking pen (see 12.5) for use with suitable rule, tape, marking template or other marking device (see 12.6). Sewing thread may be used for making benchmarks.

5.8 Measuring devices.

5.8.1 Tape or rule marked in millimeters, eighths or tenths of an inch.

5.8.2 Tape or ruled template marked directly in percent dimensional change to 0.5% or smaller increment (see 12.6).

5.8.3 Digital Imaging System (see 12.7).

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

6. Test Specimens

6.1 Sampling and Preparation.

6.1.1 Samples from which dimensional change specimens are to be taken should be representative of the fabric processing stage, finishing treatment, research lab trial, pallet, lot or end-product stage.

6.1.2 Fabrics that are distorted in their unlaundered state may give deceptive dimensional change results when laundered by any procedure. In such cases, it is recommended that specimens not be taken from any distorted area of a fabric sample.

6.1.3 Tubular knitted samples should

be slit and handled flat in a single layer. Only circular knitted fabrics produced on body-width machines are to be used as specimens in their tubular form. Circular knitted fabrics made on body-width machines are ones to be used in garments with no side seams. Body-width tubular circular knitted garments and seamless garments (knit-to-wear) should be tested according to AATCC Test Method (TM) 150, Dimensional Changes of Garments after Home Laundering.

6.1.4 Specimens tested in accordance with TM135 may also be used for testing for skewness change in accordance with Options 1 or 2 in TM179, Skewness Change in Fabric and Garment Twist Resulting from Automatic Home Laundering (see 12.8).

6.1.5 If fraying of specimens is expected in laundering (see 12.9).

6.1.6 Prior to marking, 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 $21 \pm 1^\circ\text{C}$ ($70 \pm 2^\circ\text{F}$) and $65 \pm 2\%$ RH by laying each test specimen separately on a screen or perforated shelf of a conditioning rack.

6.1.7 Lay the sample on a flat surface. Do not allow any section of the sample to hang over the edge of the work table. Using a template for the selected test size, mark specimens parallel to the selvage or fabric length direction. Avoid use of the sample area within ten percent of the sample width. Specimens should be taken from areas with different lengthwise and widthwise yarns (see Fig. 1). Identify the length direction of the specimens before cutting them out of the sample. When possible, three specimens from each fabric should be used. One or two specimens may be used when insufficient fabric sample is available.

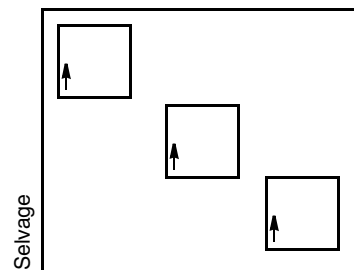


Fig. 1—Diagram for cutting fabric specimens.