

Test Method for Appearance of Flocked Fabrics after Home Laundering and/or Coin-Op Drycleaning

Developed in 1975 by AATCC Committee RR81; reaffirmed 1978, 1989, 2000, 2011; editorially revised and reaffirmed 1983, 1994, 2005; editorially revised 1985, 1986, 1988, 1991, 1993, 1996, 2004, 2008, 2010, 2019 (with title change); revised 2016.

1. Purpose and Scope

1.1 This test method covers a procedure for evaluating the durability of flocked fabric to home laundering or coin-op drycleaning with the use of flock loss and appearance at the edgewear areas of simulated pant leg specimens as the criteria.

2. Principle

2.1 Simulated pant leg specimens are laundered, or drycleaned, then evaluated for appearance and durability.

3. Terminology

3.1 **drycleaning**, n.—the cleaning of fabrics with organic solvents such as petroleum solvent, perchloroethylene or fluorocarbon.

NOTE: The process also includes adding detergent and moisture to the solvent, up to 75% RH, and hot tumble drying to 71°C (160°F).

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 subsequent rinsing, extracting and drying.

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 may cause irritation. Care

should be taken to prevent exposure to skin and eyes.

4.3 All chemicals should be handled with care.

4.4 Drycleaning solvents may be toxic by inhalation, by repeated contact with skin and by ingestion; they should be used only in a well vented atmosphere. Fabric saturated with drycleaning solvents should be dried in an adequately ventilated hood. Use chemical goggles or face shield, impervious gloves and an impervious apron when handling drycleaning solvents.

4.5 An eyewash/safety shower should be located nearby and an organic vapor respirator should be readily available for emergency use.

4.6 Exposure to chemicals used in this procedure must be controlled at or below levels set by governmental authorities (e.g., Occupational Safety and Health Administration's [OSHA] permissible ex-

posure limits [PEL] as found in 29 CFR 1910.1000; see web site: www.osha.gov for latest version). In addition, the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) comprised of time weighted averages (TLV-TWA), short term exposure limits (TLV-STEL) and ceiling limits (TLV-C) are recommended as a general guide for air contaminant exposure which should be met (see 11.1).

5. Apparatus and Materials (see 11.2)

5.1 Patterns for pant leg panels made from 3 mm (0.125 in.) tempered Masonite or other suitable material. See Fig. 1 for panel dimensions.

5.2 Sewing machine—Home type, 301 plain stitch, 8-10 stitches/25 mm (1.0 in.).

5.3 Sewing thread—Good quality general purpose cotton.

5.4 Automatic Washing Machine or

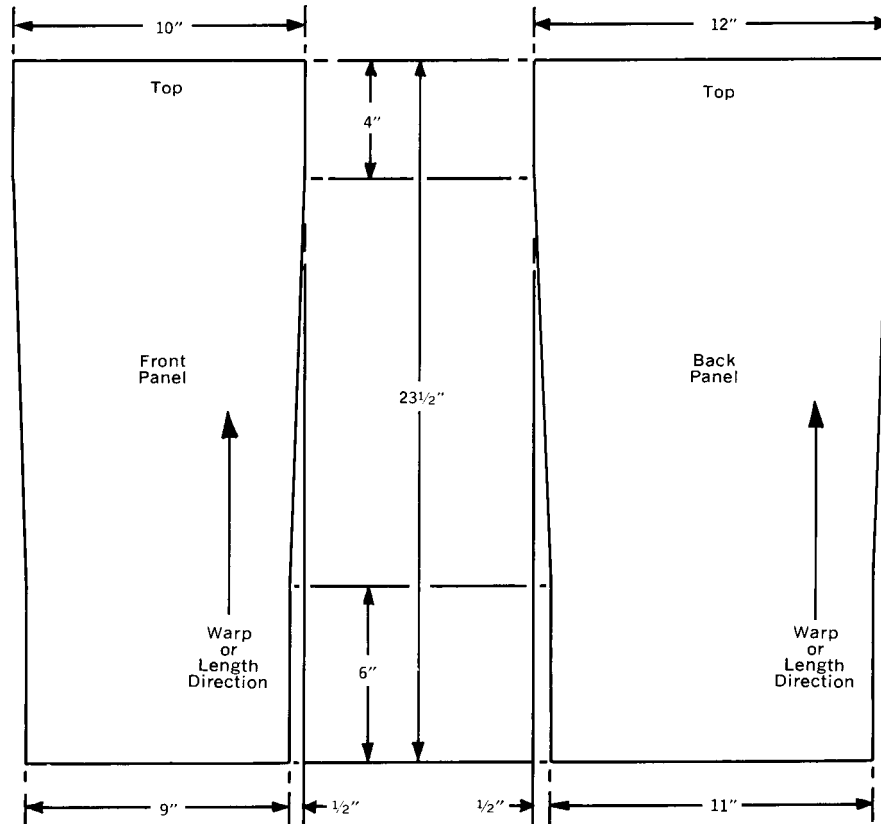


Fig. 1—Simulated pant leg for edgewear evaluation.

equivalent (see 11.5).

5.5 Automatic Dryer or equivalent (see 11.5). Gas or electric with 5-min tumble cooling period at the end of the drying cycle.

5.6 Detergent, low sudsing, 1993 AATCC Standard Reference Detergent (see 11.4).

5.7 Ballast of $920 \times 920 \pm 30$ mm ($36 \times 36 \pm 1$ in.) hemmed pieces of bleached cotton sheeting (Wash load ballast type 1).

5.8 Coin-Op Drycleaning Unit or similar equipment (see 11.6).

5.9 AATCC comparison photographs, set of 5 (see Fig. 2 and 11.3).

6. Test Specimens

6.1 Replicate sets (two sets each for laundering and drycleaning) of simulated pant leg specimens prepared as follows.

6.2 Cut one front and one back panel for each simulated pant leg required, with the longer 600 mm (23.5 in.) dimension in the fabric length direction.

Place a front panel over a back panel with the face sides together and align the lengthwise cut edges on one side. Stitch the two panels together about 16 mm (0.625 in.) in from the cut edges, along with 600 mm (23.5 in.) length, using the 301 stitch, 00-3 cord sewing thread and 8-10 stitches per 25 mm (1.0 in.). Next, align the opposite lengthwise cut edges and stitch together in the same manner as above.

Turn the tubular specimen inside out so that the face side is on the outside.

For pant leg specimens without cuffs, turn in the top and bottom edges to form 51-mm (2-in.) hems and stitch in position about 6 mm (0.25 in.) from the raw edges. Be sure to burst open the side seams (no pressing) before stitching in these areas.

The patterns for the simulated pant leg allow for a cuff at the bottom end. For a cuffed leg, turn in and stitch the top hem as above. At the bottom, turn in a 76 mm (3-in.) length and stitch as above, then turn up the hem to make a 38 mm (1.5 in.) cuff and tack at both side seams.

NOTE 1—Separate test specimens are required for washing and drycleaning.

NOTE 2—Normally creases are not pressed in simulated pant leg specimens made from flocked fabrics. However, if pressed-in creases are desired in flocked fabric specimens, the pressing procedure used should be representative of that used by commercial manufacturers.

7. Procedure

7.1 Laundering (see 11.7)—Wash the test specimens as part of 1.84-kg (4-lb) load, using ballast, if necessary, one of the automatic home type washing machines described in AATCC LP1, and one of the applicable wash temperatures for

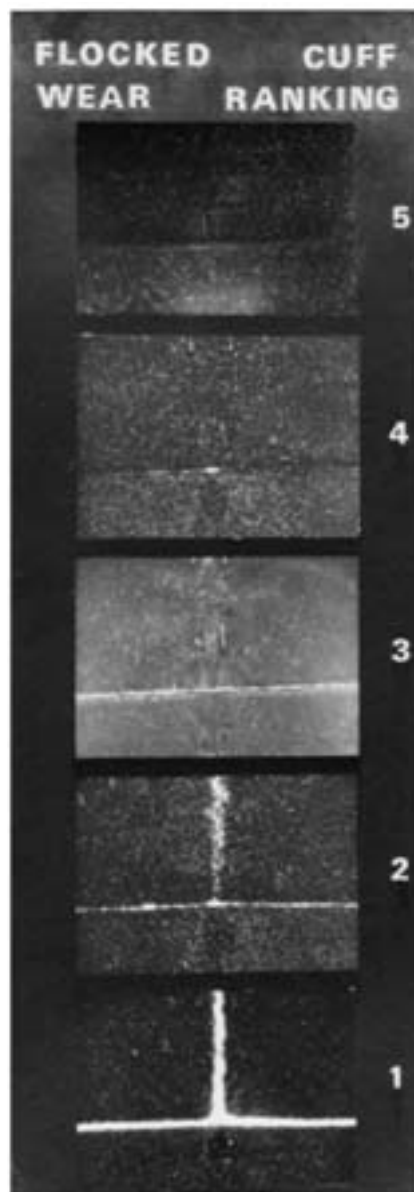


Fig. 2—Photographs for ranking edgewear of flocked fabrics.

the washing machine selected, as shown in AATCC LP1. At the completion of the drying cycle, remove the load from the dryer and separate the pieces.

The above washing and drying procedure is repeated for the specified number of wash/dry cycles. Allow for a 30-min relaxation period between each drying and washing.

7.2 Coin-Op Drycleaning—The test specimens are drycleaned as part of a 1.82-kg (4-lb) load, made up with dummy pieces of drycleanable fabrics. The coin-op unit with perchloroethylene solvent (about 1% charge system) shall be run for the full cycle which includes tumble drying. At the end of each drycleaning cycle, remove the load from the unit, and separate the pieces.

The above drycleaning is repeated for the desired number of cycles. Allow for a 30-min relaxation period between drycleanings.

8. Evaluation

8.1 After the desired number of laundering or drycleaning cycles, specimens are opened and laid flat with the side seam in the center of the examination area.

8.2 Compare the edgewear at hems, cuffs and seams as above prepared with the AATCC comparison photographs and rate using a ranking scale of:

- 5—None
- 4—Slight
- 3—Noticeable
- 2—Considerable
- 1—Severe

8.2.1 Take care to ensure that the rating is based on flock loss and not on flattened or matted pile that can be restored by methods such as brushing. A magnifying glass is often required to make this judgment.

9. Report

9.1 Report the grade determined in 8.2 and also report the number of laundering and/or drycleaning cycles at which the ranking value was obtained.

10. Precision

10.1 *Precision*. Laundering—Intralaboratory repeatability $\sigma \pm 0.20$ ranking unit.

Laundering—Interlaboratory reproducibility $\sigma \pm 0.30$ ranking unit.

Drycleaning—Intralaboratory repeatability $\sigma \pm 0.25$ ranking unit.

Drycleaning—Interlaboratory reproducibility $\sigma \pm 0.60$ ranking unit.

10.2 *Bias*. Appearance of flocked fabrics after repeated home laundering and/or coin-op drycleaning can be defined only in terms of a test method. There is no independent method for determining the true value. As a means of estimating this property, the method has no known bias.

11. Notes

11.1 Available from Publications Office, ACGIH, Kemper Woods Center, 1330 Kemper Meadow Dr., Cincinnati OH 45240; tel: +1.513.742.2020; web site: www.acgih.org.

11.2 For potential equipment information pertaining to this test method, please visit the online *AATCC Buyer's Guide* at www.aatcc.org/bg. AATCC provides the possibility of listing equipment and materials sold by its Corporate members, but AATCC does not qualify, or in any way approve, endorse or certify that any of the listed equipment or materials meets the requirements in its test methods.

11.3 Available from AATCC, P.O. Box 12215, Research Triangle Park NC 27709; tel: