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Test Method for Colorfastness to Flat Abrasion (Frosting): Screen Wire

Foreword

This test method was developed by an industry committee, and was known as the Industry Committee Test. It was first published as "A Proposed Test Method to Evaluate Frosting Potential Caused by Abrasive Wear" in 1965. This method approximates localized color change similar to that produced on some garments over relatively short periods of actual wear in which the garment is exposed to relatively mild abrasive action. To evaluate the effect of relatively severe abrasion action, refer to AATCC TM120.

1. Purpose and Scope

1.1 This test method is intended for evaluating the resistance of colored fabrics to change in shade caused by flat abrasion.

1.2 It can be used for all colored fabrics, but is especially sensitive to the color change of durable-press, cross-dyed blend fabrics, in which one fiber is abraded away faster than another.

2. Principle

2.1 The fabric specimen is mounted over a foam rubber cushion and rubbed multi-directionally against a wire screen mounted on a weighted head. After rinsing and conditioning, specimens are evaluated for color change. Color change is reported as a grade from 5 to 1, with 5 representing no color change and 1 representing the most color change.

3. Referenced Documents

NOTE: Use current versions of all publications unless otherwise specified.

3.1 AATCC EP1, Evaluation Procedure for Gray Scale for Color Change (see 14.1).

3.2 AATCC EP7, Evaluation Procedure for Instrumental Assessment of the Change in Color of a Test Specimen (see 14.1).

3.3 AATCC LP1, Laboratory Procedure for Home Laundering: Machine Washing (see 14.1).

3.4 AATCC TM120, Test Method for Colorfastness to Flat Abrasion (Frosting): Emery (see 14.1).

3.5 ASTM D1776, Standard Practice for Conditioning and Testing Textiles (see 14.2).

3.6 "A Proposed Test Method to Eval-

uate Frosting Potential Caused by Abrasive Wear," Gobeil, N.B. and D'Alessandro, P.L. *American Dyestuff Reporter*, November 22, 1965. 54(24), 42-49 (see 14.1).

4. Terminology

4.1 **abrasion**, n.—the wearing away of any part of a material by rubbing against another surface.

4.2 **frosting**, n.—in textiles, a change of fabric color caused by localized abrasive wear. (Syn: *differential wear*, *fibrillation*).

NOTE: Frosting may be the result of differential wear, as in multicomponent blends in which the fibers do not match in shade, or of the abrasion of single-fiber constructions in which there is a variation in or incomplete penetration of dye.

5. 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. Users MUST consult manufacturers for specific details such as safety data sheets and other manufacturer's recommendations. Consult and follow all applicable OSHA standards and rules.

5.1 Follow good laboratory practices. Wear safety glasses in all laboratory areas.

5.2 Follow manufacturer's safety recommendations when operating laboratory testing equipment.

6. Apparatus and Materials (see 14.3)

6.1 Conditioning facilities and racks with pull-out, perforated shelves for laying specimens flat (see 14.1).

6.2 Stoll—Universal Wear Tester (see 9.2, 9.3 and Fig. 1).

6.3 Frosting unit (see Fig. 2).

6.3.1 Circular frosting specimen holder (see 9.4).

6.3.2 Rubber O ring.

6.3.3 Conical mounting piece.

6.3.4 Side clamps.

6.4 Abradant, stainless steel wire screening, 16 mesh, 0.23 mm wire (see 9.5).

6.5 Towels, for blotting specimens af-



Fig. 1—Universal Wear Tester prepared for frosting test.

ter rinsing.

6.6 Cloth, white cotton, for ironing.

6.7 Hand iron.

6.8 Equipment and environment for evaluating color change.

6.8.1 For visual evaluation, use Gray Scale for Color Change (see 14.1). Refer to AATCC EP1 for additional materials and use of gray scale.

6.8.2 For instrumental evaluation, use a spectrophotometer as specified in AATCC EP7.

7. Specimens

7.1 Cut a minimum of 2 specimens 127 × 127 mm from each sample (see 14.4). Take no specimen from within one-tenth of the width of the fabric from either selvage. Cut specimens with sides parallel to fabric length and width.

7.2 Mark length direction on back side of specimen.

8. Conditioning

8.1 Prior to testing, condition test specimens as directed in ASTM D1776. (Use conditions indicated in Table 1 for Textiles, general. Estimate conditioning time as indicated in Table 2 for the appropriate fiber content.) Lay each swatch or prod-