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Test Method for Colorfastness to Crocking: Crockmeter

1. Purpose and Scope

1.1 This test method determines the amount of color transferred from the surface of colored textile materials and other dyed materials (i.e., leather) to other surfaces by rubbing.

1.2 Test procedures employing white crocking cloth squares, both dry and wet with water, are given.

2. Principle

2.1 A colored test specimen is rubbed with a white crocking test cloth under controlled conditions.

2.2 Color transferred to the crocking cloth is assessed by a comparison with the Gray Scale for Staining (AATCC EP2), the AATCC 9-Step Chromatic Transference Scale (AATCC EP8), or Instrumental Assessment of Degree of Staining (AATCC EP12), and a grade is assigned.

3. Terminology

3.1 **colorfastness**, n.—the resistance of a material to change in any of its color characteristics, to transfer of its colorant(s) to adjacent materials, or both, as a result of the exposure of the material to any environment that might be encountered during the processing, testing, storage or use of the material.

3.2 **crocking**, n.—a transfer of colorant from the surface of a colored yarn or fabric to another surface or to an adjacent area of the same fabric principally by rubbing.

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.

5. Uses and Limitations

5.1 This method is not recommended for use for carpets or for prints where the singling out of areas may be too small using this method (see 14.1 and 14.2).

5.2 Since washing, drycleaning, shrinkage, ironing, finishing, etc. may affect the degree of color transfer from a material, the test may be made before, after, or before and after any such treatment.

5.3 This method is designed for use with an AATCC crocking cloth as described in 14.5. Alternatively, other adjacent textile substrates may be used as agreed between interested parties.

6. Apparatus and Materials (see 14.3)

6.1 Crockmeter (see 14.4 and Fig. 1).

6.2 AATCC Crocking Cloth, cut in 50 ± 1 mm squares (see 14.5).

6.3 AATCC 9-Step Chromatic Transference Scale (AATCC EP8) (see 14.6).

6.4 Gray Scale for Staining (AATCC EP2) (see 14.6).

6.5 White AATCC Textile Blotting Paper (see 14.6).

6.6 Specimen holder for crockmeter.

6.7 Spiral wire clip for securing crocking cloth to crockmeter finger.

6.8 Crockmeter verification fabric, or in-house fabric with known poor colorfastness to crocking properties, that provides repeatable and predictable crocking results.

6.9 Emery paper to provide friction on the base of the crockmeter (see manufacturer's recommendations).

7. Verification

7.1 Verification checks on the opera-

tion of the test and the apparatus should be made routinely and the results kept in a log. The following observations and corrective actions are extremely important to avoid incorrect test results where abnormal crock images can result and influence the rating process (see 14.7).

7.2 Use the crockmeter verification fabric or in-house poor crocking fabric with known predictable and repeatable crocking behavior and conduct three dry and wet crock tests.

7.2.1 A poor circular image with uneven dye pick-up may indicate the crocking finger needs resurfacing (see 14.8).

7.2.2 A double, elongated image may indicate a loose clip (see 14.8).

7.2.3 A stretched and streaked crock image may be due to mounting the crock square diagonally.

7.2.4 Scuff marks to the sides of the specimen indicate the loops of the wire clip are positioned downwards and are not high enough to prevent rubbing the specimen surface.

7.2.5 A streak in the center of the crock cloth image and in the direction of rubbing may indicate damage to the metal base of the device. Contact the manufacturer for recommended solution.

7.2.6 If specimen holder is used, place the holder over the specimen on the tester base. Verify that the holder is not impeding the motion of the finger or coming in contact with it in any way, adjust the holder as necessary to ensure free movement. Without correction, this problem will cause a dark area on one side of the crocking image.

7.2.7 Confirm the wet pick-up techniques (see 10.2).

7.2.8 Replace the abrasive paper on the tester base if it is smooth to the touch in the crocking area compared to the adjacent area, if slippage of the specimen is noticed or if any ridges or bumps are noticed.

7.2.9 In routine testing, observe if multiple streaks are on the crocking image. Position specimen normally with the long dimension oblique to the warp and filling. If the direction of rubbing falls along a twill line or surface pattern, etc., then streaks may occur. If they do occur, slightly adjust the angle for testing.

8. Test Specimens

8.1 Two specimens are used, one each for the dry and the wet tests.

8.1.1 Additional specimens may be used to increase the precision of the aver-



Fig. 1—Crockmeter.