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Test Method for Colorfastness to Crocking: Rotary Vertical Crockmeter

Developed in 1966 by AATCC Committee RA38; revised 1969, 1972, 1994, 1996, 2005, 2013, 2018; reaffirmed 1974, 1977, 1983, 1988, 1989; editorially revised 1981, 1985, 1986, 2002, 2004, 2008, 2011, 2019; editorially revised and reaffirmed 2001, 2010. Technically equivalent to ISO 105-X16.

1. Purpose and Scope

1.1 This test method is used to determine the amount of color transferred from the surface of colored textile materials to other surfaces by rubbing. It is applicable to textiles made from all fibers in the form of yarn or fabric, whether dyed, printed or otherwise colored and especially where the singling out of colored areas smaller than possible to test with the standard crockmeter (AATCC TM8, Test Method for Colorfastness to Crocking: Crockmeter) is required (see 14.1).

1.2 Test procedures employing test squares either dry or wet with water or other liquids are within the scope of this method.

2. Principle

2.1 A test specimen held at the base of the rotary vertical crockmeter is rubbed with standard test squares under controlled conditions (see 14.1).

2.2 Color transferred to the test squares is assessed by a comparison with the Gray Scale for Staining, AATCC 9-Step Chromatic Transference Scale or Instrumental Assessment of Degree of Staining (see 14.2 and 14.3).

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 Since manufacturing processes such as dyeing, finishing, etc., and washing, drycleaning, ironing, etc. may affect the degree of color transfer from a material, the test may be made before or after, any such treatment, depending upon the information desired.

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

6. Apparatus and Materials (see 14.4)

6.1 Rotary vertical crockmeter with 16 ± 0.1 mm diameter finger (see 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 14.2).

6.4 Gray Scale for Staining (AATCC EP2) (see 14.2).

6.5 White AATCC Textile Blotting Paper



Fig. 1—Rotary vertical crockmeter.

per (see 14.2).

6.7 Spiral wire clip for securing crocking cloth to rotary vertical 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.

7. Verification

7.1 Verification checks on the operation 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.

7.2 Use the crockmeter verification fabric or in-house poor crocking fabric with known predictable and repeatable crocking behavior.

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

7.2.2 A double image may indicate a loose clip.

7.2.3 An uneven stained ring around the circumference may indicate that the peg is uneven.

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

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

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

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 average (see 13.1).

8.2 Specimens must exceed the size of the crocking finger such that it is in full contact with the specimen during the complete rotation of the finger. Avoid seams and other raised areas.

8.3 For yarns, knit a piece of fabric, or wind yarn tightly on a suitable sample card/plate.