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Cleaning: Washing of Textile Floor Coverings

Developed in 1972 by AATCC Committee RA57 (as shampooing procedure); revised 1978, 1982, 1995 (to cleaning procedure with title change), 2000; editorially revised 1986, 1998, 2008; editorially revised and reaffirmed 1987; reaffirmed 2005, 2010, 2014.

1. Purpose and Scope

1.1 This test method is a laboratory procedure designed to simulate changes that occur in washing of a textile floor covering during cleaning.

1.2 This method is recommended only for small specimens with dimensions not exceeding the capacity of commercially-available laboratory equipment.

1.3 This test method may be used on soiled, as well as unsoiled, textile floor coverings.

1.4 This wet cleaning procedure can be used for the evaluation of:

- wetfastness durability and permanency of antimicrobial properties
- colorfastness behavior
- permanency of finishes and other topical treatments to the pile of textile floor coverings before, during or after manufacturing
- cleanability
- dimensional stability

1.5 This procedure may also be used for the removal of soil or extraneous matter from specimens of textile floor coverings to prepare them for testing.

2. Principle

2.1 A specimen is washed by hand scrubbing using a surfactant cleaning agent solution, rinsed and dried.

3. Terminology

3.1 **carpet**, n.—all textile floor coverings not designated as rugs.

3.2 **textile floor covering**, n.—an article having a use-surface composed of textile material and generally used for covering floors.

3.3 **use-surface**, n.—of *textile floor covering*, the part of a textile floor covering directly exposed to foot traffic.

3.4 **washing**, n.—in *testing textile floor coverings*, a specific wet cleaning process involving the use of detergent and scrub brush to remove soil and/or extraneous matter residing in the pile fibers.

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 All chemicals should be handled with care.

4.3 Eye protection should be used when mixing, handling or applying the detergent and detergent solutions.

4.4 Gloves or protective hand cream are recommended for handling detergents and solutions.

4.5 Observe operating procedures and precautions by the manufacturer of the extraction machine. Liquid under pressure and high vacuum, can cause excessive splashing of liquids and/or hose "kick back."

4.6 Special care should be used at the nip point of the wringer. Follow the safety guidelines of the manufacturer.

5. Apparatus and Materials (see 10.1)

5.1 **Cleaning Agent**: Sodium lauryl sulfate type of surfactant. AATCC Standard Detergent [see AATCC Test Method (TM) 171, Carpets: Cleaning of; Hot Water Extraction Method] can be used. A 1.0% solution of this surfactant should have a pH of 8.0 ± 0.5 (see 10.2).

5.2 **Scrub Brush**: A brush with stiff nylon or polypropylene bristles approximately 25 mm long. The width of the brush should be approximately 50 mm; the length preferably no less than one dimensional length of the test specimen, 200 mm.

5.3 **Extraction Unit**: A laboratory wringer, padder or hydro-extractor.

5.4 **Drying Unit**: Circulating air-type oven recommended.

6. Test Specimens

6.1 Textile floor covering samples, finished with back coating, approximately 200×200 mm square.

7. Procedure

7.1 Thoroughly wet out each specimen by soaking for 1 min in clean, tap water at $50 \pm 3^\circ\text{C}$. Extract excess water by passing through a laboratory wringer or hydro-extractor.

7.2 Secure the specimen to the floor by a suitable means (double-stick tape) or use the scrub block (see Fig. 1) to secure during the hand scrubbing process.

7.3 For every 645 mm^2 of pile surface, apply 0.30 mL of the 1.0% solution of sodium lauryl sulfate preheated to $50 \pm 3^\circ\text{C}$ to the face fibers. For example, a 200×200 mm specimen would require approximately 20 mL of this cleaning solution. Hand scrub *the entire surface of the pile* in specimen with the scrub brush, using 5 full strokes in each direction. A full stroke implies motion forward and backward in this case. Scrub 5 strokes along one dimension and repeat with 5 strokes across the specimen.

7.4 Thoroughly rinse each specimen with clean tap water at $50 \pm 3^\circ\text{C}$. Remove excess water by squeezing through a lab wringer or hydro-extracting.

7.5 Place each specimen in the oven (see 5.4) set at $105 \pm 5^\circ\text{C}$. Do not remove specimen until dry.

7.6 Cool down the specimen after drying before test work is allowed to proceed. Conditioning at standard laboratory temperature and relative humidity is recommended. Also, a Scrub Block can be used to secure the specimens during the hand scrubbing process (see 10.3 and Fig. 1).

8. Evaluation

8.1 This is a washing procedure which is not evaluated.

8.1.1 Specimens cleaned according to this procedure are suitable substrates for evaluating the effect of washing on colorfastness, cleanability, dimensional change and the durability of finishes, topicals and antimicrobial treatments. State that the test specimens were cleaned according to TM138. Report the number of wash cycles (see 7.1, 7.2, 7.3 and 7.4) performed.

9. Precision and Bias

9.1 Precision and Bias statements are not applicable because data are not generated by this test method.