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Smoothness Appearance of Fabrics after Repeated Home Laundering

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Foreword

This test method and its accompanying three-dimensional smoothness appearance replica set were developed for evaluation of woven fabrics with a durable-press finish. It is common industry practice to use the method and scales for evaluation of other textile materials although some specimens may have different appearance characteristics due to different fabric constructions.

Standard laundering procedures remain consistent to allow valid comparison of results. Standard procedures represent, but may not exactly replicate, current consumer practices, which vary over time and among households. Alternate laundering procedures and machine parameters may be found in Laboratory Procedure (LP) 1, Home Laundering: Machine Washing, (see 12.3).

1. Purpose and Scope

1.1 This test method is intended to determine the smoothness appearance of fabrics after being subjected to home laundering procedures. Several washing and drying procedures provide standard parameters to represent common home care options.

1.2 Any washable fabric (woven, knitted or nonwoven) may be evaluated for smoothness appearance using this method.

2. Principle

2.1 Fabric specimens are subjected to standard home laundering practices. Appearance of specimens is evaluated in a standard viewing area by visually comparing the specimen smoothness after laundering with grades represented by AATCC Three-Dimensional Smoothness Replicas. Results are reported as a smoothness appearance (SA) grade of 1 to 5, with 1 representing the least smoothness and 5 representing the most smoothness (no wrinkles).

3. Terminology

3.1 **ballast**, *n.*—*in procedures for processing or testing of textiles*, material that is used to bring the total weight or volume of the textiles to an amount specified in the procedure.

3.2 **durable press**, *adj.*—having the ability to retain substantially the initial shape, flat seams, pressed-in creases and unwrinkled appearance during use and after laundering or drycleaning.

3.3 **grade**, *n.*—the number assigned to a test specimen resulting from comparison to a scale.

3.4 **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 rinsing, extracting and drying.

3.5 **laundering creases**, *n.*—sharp folds or lines running in any direction in a washed or dried specimen. NOTE: Laundering creases are an unintended result of restricted movement of specimens in a washer or the dryer.

3.6 **smoothness appearance**, *n.*—*in fabrics*, the visual impression of planarity of a specimen quantified by comparison with a set of reference standards.

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 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 Manufacturer's safety recommendations should be followed when operating laboratory testing equipment.

5. Uses and Limitations

5.1 This test method is designed to be used only for evaluating the appearance of washable fabrics after home laundering.

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5.2 In general, it is preferable to conduct the test under relatively severe laundering conditions. It is recognized that special cycles or features are available on current washing machines and dryers to achieve improved performance on certain items; e.g., gentle cycles with reduced agitation to protect delicately constructed items, and durable press cycles, with cool-down or cold rinses and reduced spin speeds, to minimize wrinkling.

5.3 Prints and patterns may mask the mottiness present in fabrics. The evaluation process is, however, based on the visual appearance of specimens including such effects.

5.4 The Smoothness Appearance Replicas were cast from woven fabrics. It is understood that the replicas do not duplicate other fabric possibilities (knits, non-wovens). The replicas are to be used as guides that represent various levels of fabric smoothness.

5.5 Small specimen sizes will occasionally result in wrinkles or creases. These may not be characteristic of actual performance, in use. 5.6 The interlaboratory reproducibility of the results of this test method depends upon mutual agreement by users of the method on the washing and drying conditions as outlined in Tables I-IV.

6. Apparatus and Materials (12.1)

6.1 Steam or dry iron with appropriate fabric temperature settings.

6.2 Standard washing machine (see Table I, 12.2), for machine washing.

6.3 Wash tub, 9.5-L, for hand washing.

6.4 White towels, large enough to accommodate test specimen, any weight, for hand washing.

6.5 Standard tumble dryer (see Table IV, 12.2) or facilities for drip, screen or line drying.

6.6 Conditioning facilities and conditioning/drying racks with pull-out, perforated shelves (see 12.3).

6.7 Scale with at least 5-kg or 10-lb capacity.

6.8 AATCC 1993 Standard Reference Detergent (see 12.3).

6.9 Laundering ballast, Type 1 or Type 3 (see Table V).

6.10 Evaluation area, as described in Appendix A.

6.11 AATCC Three-Dimensional Smoothness Appearance Replicas, set of six (see Fig. 1 and 12.3).