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Test Method for Soil Release: Household Soils

1. Foreword

1.1 This test method measures the ability of fabrics to release household soils during home laundering. Standard laundering procedures represent, but may not exactly replicate, current consumer practices, which vary by sample, over time and among households.

Alternate soils or care procedures may be addressed by modifications of this method or other methods, including AATCC TM130, Test Method for Soil Release: Oily Stain Release.

In this method, a soil is forced into the fabric before laundering. To evaluate a fabric's ability to repel oils, use AATCC TM118, Test Method for Oil Repellency: Hydrocarbon Resistance.

2. Purpose and Scope

2.1 This test method is designed to measure and evaluate the ability of fabrics and garments to release typical household soils during home laundering.

2.2 The method is applicable to textile fabrics suitable for home laundering, particularly those with soil-release finishes. It is not applicable to yarns and fibers.

2.3 This method is not intended to evaluate differences or efficacy in commercial detergents or laundering equipment.

3. Principle

3.1 A soil is applied to a test specimen. The soil is allowed to dwell for a specified period of time to set. The soiled specimen is then laundered in a prescribed manner and any residual stain is evaluated by comparison with a stain release scale showing a graduated series of stains.

3.2 Results are reported as a grade from 5 to 1, with 5 representing no residual stain and 1 representing the most residual stain.

4. Referenced Documents

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

4.1 AATCC LP1, Laboratory Procedure for Home Laundering: Machine Washing (see 17.1).

4.2 AATCC LP4, Laboratory Procedure for Synthetic Soil (see 17.1).

4.3 AATCC TM118, Test Method for Oil Repellency: Hydrocarbon Resistance (see 17.1).

4.4 AATCC TM130, Test Method for

Soil Release: Oily Stain Release Method (see 17.1).

4.5 AATCC TM133, Test Method for Colorfastness to Heat: Hot Pressing (see 17.1).

4.6 ASTM D1776, Standard Practice for Conditioning and Testing Textiles (see 17.2).

4.7 ASTM E1402, Standard Guide for Sampling Design (see 17.2).

5. Terminology

5.1 **soil**, n.— dirt, oil or other substances not normally intended to be present on a substrate such as a textile material.

5.2 **stain**, n.— a local deposit of soil or discoloration on a substrate that exhibits some degree of resistance to removal, as by laundering or drycleaning.

5.3 **soil release**, n.—the degree to which a soiled substrate approaches its original, unsoiled appearance as a result of a care procedure.

6. Safety Precautions

6.1 The safety precautions specified in the method are ancillary to the testing procedures and are not intended to be all inclusive.

6.2 It is the user's responsibility to reference applicable safety data sheets, use safe and proper techniques, and wear appropriate personal protective equipment in handling materials in this standard.

6.3 Users MUST consult manufacturers for specific details such as safety data sheets, equipment operating instructions, and other recommendations. Consult and follow all applicable health and safety regulations (e.g., OSHA standards and rules).

7. Limitations

7.1 Standard laundering conditions are not intended to replicate consumer care for all samples. By laundering all samples under the same conditions, this method provides a relative measure of soil release properties. The method may be modified to use recommended care for a particular sample, but results should not be compared with those for samples laundered under different conditions.

7.2 Specimens prepared for this method should not be used for dimensional change or appearance evaluation. Specimens for this method should be laundered separately from specimens for dimensional change or appearance. Al-

though specimen dimensions are the same for these methods, oily stains may interfere with evaluation of other properties.

8. Apparatus and Materials (see 17.3)

8.1 Conditioning facilities and racks with pull-out, perforated shelves for laying specimens flat (see 17.1).

8.2 AATCC Blotting Paper (see 17.1).

8.3 Glassine paper (see 17.1).

8.4 Timer.

8.5 Cylindrical weight, 6.4 cm (2.5 in.) diam., 2.268 ± 0.045 kg (5.0 ± 0.1 lb) (stainless steel is preferable, see 17.1). Multiple weights are recommended to efficiently process multiple samples.

8.6 Dropper, capable of dispensing 20 drops per milliliter (for liquid soils).

8.7 Syringe, oral type, plastic, 10 mL (for thick/solid soils).

8.8 100% cotton cloth, white, for blotting soils.

8.9 Automatic washing machine (see AATCC LP1-2021 Table I, 17.4).

8.10 Tumble dryer, normal cycle: maximum exhaust temperature $68^{\circ}\text{C} \pm 6^{\circ}\text{C}$ ($155^{\circ}\text{F} \pm 10^{\circ}\text{F}$), cool down time ≤ 10 min. or facilities for drip/line/flat drying (see 17.4).

8.11 1993 AATCC Standard Reference Detergent (powder, with optical brightener) (see 17.1).

8.12 Balance with at least 5.0-kg (10.0-lb) capacity.

8.13 Laundering ballast, Type 1 (see AATCC LP1-2021 Table II, 17.5).

8.14 Water hardness test kit, residential use (see 17.6).

8.15 Evaluation area, as described in Appendix A.

8.16 AATCC Stain Release Scale (see 17.1).

8.17 Typical household soils (see Table I).

9. Sampling

9.1 Test results are valid only when the samples are statistically representative (see ASTM E1402).

9.2 Sampling must be random. Every unit of product must have a mathematically equal chance of becoming a sample; and every portion of each sample must be equally likely to become a test specimen.

9.3 All specimens must be alike within the variations due to pure chance. There must be no differences within samples assignable to known causes.