

Standard Laboratory Practice for Home Laundering Fabrics Prior to Flammability Testing to Differentiate Between Durable and Non-Durable Finishes

Developed in 1991 by AATCC Committee RA88; editorially revised 1997.

1. Purpose and Scope

1.1 This monograph recommends a standard laboratory practice to determine the effect of five home launderings, with detergent, in combination with other laundering additives, on the flammability performance of fabrics which are being evaluated before sale. It is not intended as a guideline for cleaning those items sold as flame resistant. Many flammability tests and regulations have a laundering requirement either to determine the durability of the flame resistant performance or to establish the flammability classifications of textiles (16 CFR Part 1610) before and after laundering (see 4.1). Some of these tests or regulations incorporate one AATCC procedure or another. Organizations have established different procedures, often not well documented. Hence the need for an AATCC recommended standard laboratory practice which allows the test method to match the potential home care practices of the consumer and to differentiate between durable and nondurable flame resistant fabric treatments.

1.2 This laboratory practice is intended to represent a rigorous home laundering. Consequently, 60°C (140°F) is selected as the laundering temperature and 29°C (85°F) as the rinse temperature (see 4.2). The 1993 AATCC Standard Reference Detergent is the detergent recommended. TIDE, a commonly used detergent, may be used (see 4.3). In case of dispute the affected parties should use 1993 AATCC Standard Reference Detergent. Most other detergents are rather similar with respect to pH and other factors which might affect flammability performance.

1.3 Soap products are known to degrade the flammability performance of some flame resistant fabrics, hence some flame resistant products have a care label recommending against the use of soap in

laundering. Soaps interfere with the flammability performance by leaving a deposit on the fabric and not by removing any durable flame resistant chemical additive. Laundering additives may be incorporated if the parties agree (4.4 and 4.5). Consistent with the rigorous home laundering cycle concept, a drying cycle set on Normal [67°C (154°F) stack temperature] is specified after each home wash cycle.

2. Recommended Practice

2.1 Fill washer with water at $60 \pm 3^\circ\text{C}$ ($140 \pm 5^\circ\text{F}$). Select a lukewarm rinse setting of $29 \pm 3^\circ\text{C}$ ($85 \pm 5^\circ\text{F}$) (see 4.6).

2.2 Add detergent (see 4.7).

2.2.1 When using 1993 AATCC Standard Reference Detergent: Add 66 ± 1 g of 1993 AATCC Standard Reference Detergent per wash.

2.2.2 When using TIDE: Add the recommended amount of TIDE detergent specified on the detergent container. Record type and amount of TIDE used.

2.3 Add the fabric(s) to be tested along with ballast load to bring the load weight to 2.7 ± 0.06 kg (6.0 ± 0.13 lbs). Keeping load weight constant is necessary for testing the effects of products such as detergent and laundering additives.

2.4 Set the timer dial on the washer for a Normal or Cotton/Sturdy 12 min cycle, and start the wash cycle.

2.5 Upon completion of the entire cycle, place the load (fabric and ballast) in a home type dryer (see 4.6). Dry at the High setting [$67 \pm 6^\circ\text{C}$ ($154 \pm 10^\circ\text{F}$)] for 45 min and time the cycle. When dryer sheet softeners are being used as the softener type, place the recommended number of sheets in the dryer at this time.

2.6 A total of five home laundering sequences should be run. Five cycles have been shown to differentiate between nondurable and durable fabric flame resistant finishes as well as allow the fabric to come to equilibrium with the fabric softener, bleach and detergent.

3. Additives

3.1 The effects of additives on flammability performance may be evaluated by using this standard practice. Additives should be appropriate for the fabric to be evaluated.

3.1.1 Follow package recommendations for product amount to add and when to add (see 4.8).

3.1.2 Test each additive separately in conjunction with Section 2.

4. Notes

4.1 The Consumer Product Safety Commission regulates clothing and textile flammability under the Flammable Fabrics Act. This voluntary industry standard was mandated as CS191-53 and was codified as 16 CFR 1610.

4.2 A typical hot water temperature in the home is 49°C (120°F).

4.3 TIDE is a registered trademark of Procter & Gamble Co., Cincinnati OH 45217.

4.4 This procedure may be used to evaluate the effect of any home laundering additive on fabric flammability performance and may be used as the basis for home laundering recommendations with regard to such additives. In the event a home laundering recommendation has been made for a flame resistant fabric, regarding either use, or nonuse, of any home laundering additive, that recommendation shall be followed in the application of this standard laboratory practice.

4.5 If a softener is likely to affect the raised surface of a fabric, a softener should be used in this procedure.

4.6 Contact AATCC, P.O. Box 12215, Research Triangle Park NC 27709; tel: 919/549-8141; fax: 919/549-8933; e-mail: orders@aatcc.org, for model number(s) and source(s) of approved washer(s) and dryer(s). Any other washer which is known to give comparable results may be used.

4.7 Overusing detergent can create excess suds in laundering and combine with the fabric softener to form an undesirable residue in the rinse.

4.8 Washing recommendations regarding either use, or nonuse, of any home laundering additives are to be observed in application of this standard laboratory practice.