



Standard Test Method for Controlled Laundering Test Using Naturally Soiled Fabrics and Household Appliances¹

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1. Scope

1.1 This test method covers a testing technique that may be used for comparing the cleaning and whitening or brightening performance of home laundering products or home laundering procedures. This testing is done on naturally soiled family items in home laundering equipment in a laboratory under controlled conditions on a paired comparison basis. As many as four detergents have been put into order by evaluating the set of matched garments two at a time.

1.2 There is no single assessment that will give the overall performance of laundry product. A single test can only predict how products compare under the particular conditions chosen for evaluation and cannot be expected to reflect their comparative performance under the many other possible conditions of use. A series of assessments is always necessary in order to evaluate the many aspects of product performance. While there are laboratory methods of measuring individual aspects of performance (for example, redeposition, solubility), it is necessary to conduct confirming tests under controlled but practical home laundering conditions to simulate consumer experience more closely.

1.2.1 Among the variables that can affect the performance of home laundering products or procedures and that shall be considered in designing tests for their evaluation are: type of fiber, fabric construction, fabric finish, types of items to be washed, load size, kind and level of soils or stains, water hardness, water temperature, pretreatments, the presence of various laundering aids, the concentration of products in the laundering solution, sequence of addition of products, water, laundry, wash time, rate and type of agitation, spin speed, drying or ironing methods, and conditions under which the items are judged.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ This test method is under the jurisdiction of ASTM Committee D-12 on Soap and Other Detergents and is the direct responsibility of Subcommittee D12.25 on Consumer Standards.

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2. Referenced Documents

2.1 ASTM Standards:

D 1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely Illuminated Opaque Materials²

D 3050 Guide for Measuring Soil Removal from Artificially Soiled Fabrics (Not Suitable for Detergent Ranking)³

E 97 Test Method for Directional Reflectance Factor, 45-deg, 0-deg, of Opaque Specimens by Broad-Band Filter Reflectometry²

E 179 Guide for Selection of Geometric Conditions for Measurements of Reflection and Transmission Properties of Materials²

E 284 Terminology of Appearance²

E 313 Practice for Calculating Yellowness and Whiteness Indices from Instrumentally Measured Color Coordinates²

2.2 ANSI Standards:⁴

L14.175 Reflectance, Blue and Whiteness of Bleached Fabric

Z224.1 (AHAM HLW-1) AHAM Household Washer Performance Evaluation Procedure

3. Summary of Test Method

3.1 This test method consists of comparing matched loads of laundry through a series of soiling and washing cycles. The washings are performed by using predetermined concentrations of the two or more detergents or two or more laundry additives, or both, and predetermined but identical water temperatures and water hardness conditions in the same machine or in matched machines. If more than one machine is used, it is recommended that the loads and machines be rotated. The laundry bundle from each family is separated into two or more matched loads. All loads are to have been soiled in the same time period by each family. A judgment of relative performance is made at the end of each laundering cycle. It is generally necessary to continue for at least ten cycles to ascertain whether or not a significant difference exists.

3.2 This multicycle test may minimize or exaggerate the true relationship of the several detergents. Repeat tests shall be made to confirm or deny results that are questionable for any reason whatsoever.

² Annual Book of ASTM Standards, Vol 06.01.

³ Annual Book of ASTM Standards, Vol 15.04.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.