



Designation: D 5548 – 99

Standard Guide for Evaluating Color Transfer or Color Loss of Dyed Fabrics in Laundering¹

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1. Scope

1.1 This guide covers evaluating the effect of dyestuff color transfer or color loss from dyed fabrics. It is designed as a laboratory screening test to aid in the formulation of detergent products or in the comparison of two or more products.

1.2 There is no single assessment that will give the overall performance of a 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. It is necessary to conduct confirming tests under controlled but practical home-laundering conditions to simulate consumer experience.

1.3 The values stated in either inch-pound or SI units are to be regarded separately as the standard. The values given in parentheses are for information only.

1.4 *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.*

2. Referenced Documents

2.1 ASTM Standards:

D 459 Terminology Relating to Soaps and Other Detergents²

D 1776 Practice for Conditioning Textiles for Testing³

E 97 Test Method for Directional Reflectance Factor, 45-deg, 0-deg, of Opaque Specimens by Broad-Band Filter Reflectometry⁴

E 179 Guide for Selection of Geometric Conditions for Measurement of Reflection and Transmission Properties of Materials⁴

2.2 AATCC Methods:

Evaluation Procedure 6 Instrumental Color Measurement⁵
Evaluation Procedure 7 Instrumental Assessment of the Change in Color of a Test Specimen⁵

3. Terminology

3.1 Definitions:

3.1.1 See Terminology D 459.

3.1.2 *laundering, n*—a process intended to remove soils or stains, or both, by treatment (washing) with an aqueous detergent solution and normally including subsequent rinsing, extraction, and drying.

3.1.3 *rinse, v or n*—a process or treatment in an aqueous medium for the purpose of removing extraneous matter from textile materials.

4. Summary of Guide

4.1 Three fabrics are chosen that exhibit varying degrees of color loss or transfer. A nylon fabric is dyed with a heavy concentration of a red dye that will exhibit the greatest amount of color loss or transfer. Two cotton fabrics are dyed with blue dyes, which provide a light and intermediate level of color loss and transfer. A bleached undyed cotton fabric is washed in the same bucket as the dyed fabrics to act as a receptacle for the fugitive dyestuff.

4.2 The evaluation is performed in a laboratory washer under standardized conditions. It is possible to rank one or more detergents using instrumental readings and determining the ΔE values.

5. Apparatus

5.1 *Laboratory Washer*—A laboratory-scale, agitator-type washing machine.⁶

5.2 *Photoelectric Colorimeter*.

5.3 *Fabrics*:

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

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² *Annual Book of ASTM Standards*, Vol 15.04.

³ *Annual Book of ASTM Standards*, Vol 07.01.

⁴ *Annual Book of ASTM Standards*, Vol 06.01.

⁵ Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709.

⁶ The sole source of supply of the laboratory washer known to the committee at this time is the Terg-O-Tometer, available from United States Testing Company, 1415 Park Avenue, Hoboken, NJ 07030. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.