



Designation: ~~D6613-02 (Reapproved 2007)~~ Designation: D 6613 – 08

## Standard Practice for Determining the Presence of Sizing in Nylon or Polyester Fabric<sup>1</sup>

This standard is issued under the fixed designation D 6613; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 Using a color scale of 1 to 5, this practice describes the procedures for determining the presence and relative amount of sizing in fabrics made of undyed nylon or non-cationically dyeable polyester yarns prepared with a cationically dyeable sizing

1.2 Procedures and apparatus other than those stated in this standard may be used by agreement of purchaser and supplier with the specific deviations from the standard acknowledged in the report.

1.3 *This practice may involve hazardous materials, operations, and equipment. This practice 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 practice to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D 123 Terminology Relating to Textiles

D 6799 Terminology Relating to Inflatable Restraints

2.2 *American Association of Textile Chemists and Colorists (AATCC):*

AATCC AATCC Evaluation Procedure # 8<sup>3</sup>

### 3. Terminology

3.1 *Definitions:*

3.2 For definitions of other textile terms used in this standard, refer to Terminology D123 and Terminology D6799. Definitions:

3.2 For all terminology relating to D13.20, Inflatable Restraints, refer to Terminology D 6799.

3.2.1 The following terms are relevant to this standard: extractable matter, sizing.

3.3 For all other terms related to textiles, see Terminology D 123.

### 4. Summary of Practice

4.1 Test specimens of undyed nylon or polyester fabric are cationically dyed at room temperature. The resulting depth of color of the dyed fabric is indicative of the presence and relative amount of cationically dyeable sizing in the fabric.

4.2 The color of the dyed fabric is matched to a color on an AATCC chromatic scale to determine the level of sizing in the fabric.

### 5. Significance and Use

5.1 The depth of color achieved in dyeing fabric according to this practice is relative to the amount of sizing in the fabric. This practice employs a chromatic staining scale from 1 to 5 which is inversely proportional to the relative amount of sizing in the fabric. A light color stain indicates a low concentration of sizing and warrants a high numerical rating, while a dark color stain indicates a high concentration of sizing and warrants a low numerical rating.

5.2 The accuracy of this practice depends upon the ability of the testing personnel to match the color of the stain to the colors in the AATCC 9 Step Chromatic Transference Scale.

### 6. Apparatus

6.1 *Stainless Steel or Glass Beaker* with a capacity of 1000 ml.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.20 on Inflatable Restraints . Current edition approved July 1, 2007-2008. Published August 2007-July 2008. Originally approved in 2000. Last previous edition approved in 2002-2007 as D 6613-02(2007).

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from AATCC P.O. Box 12215, Research Triangle Park, N.C. 27709.

6.2 *Glacial Acetic Acid.*

6.3 *AATCC 9 Step Chromatic Transference Scale*<sup>3</sup>.

6.4 *Ventilated Forced Air Drying Oven* capable of maintaining  $350^{\circ} \pm 5^{\circ}\text{F}$  ( $177 \pm 3^{\circ}\text{C}$ ).

6.5 *100% concentration of Sevron 4G or equivalent Basic Red 14 Dyestuff.*

6.6 *Fine Mesh Sieve* Fine mesh sieve with a count of per inch  $100 \times 100$ .

## 7. Conditioning

7.1 Neither preconditioning nor conditioning is necessary.

## 8. Sampling

8.1 Determining residual size is a destructive test and therefore necessitates sampling procedures if used in conjunction with lot acceptance of commercial shipments.

8.2 *Lot Sample*

8.2.1 For acceptance testing, the lot size is the quantity of fabric finished in one production day or as agreed between purchaser and supplier.

8.2.2 Unless otherwise agreed by purchaser and supplier, take as a lot sample all of the rolls in a commercial shipment. Consider the rolls to be the primary sampling units.

8.3 *Laboratory Sample*

8.3.1 An entire roll of fabric or a full-width cut end from the end of a roll within a lot sample constitutes a laboratory sample.

8.4 *Test Specimens*

8.4.1 Test specimens are the pieces of fabric that actually undergo testing. Select specimens from the end of each roll of fabric in the laboratory sample, as indicated in the material specification or equivalent.

8.4.2 Unless otherwise agreed upon or specified take two 5 in  $\times$  5 in (12 cm  $\times$  12 cm) specimens from the fabric roll to be tested.

## 9. Procedure

9.1 Prepare Acid Rinse Solution of 0.25% Acetic Acid solution by mixing  $2.5 \pm 0.1$  g glacial acetic acid in  $1000 \pm 10$  g water.

9.2 Prepare Dye Solution by dissolving  $1 \pm 0.1$  g of 100% concentration of Sevron Red 4G or other Basic Red 14 dyestuff in  $1000 \pm 10$  g of water.

9.3 Place specimen in oven preheated to  $177 \pm 3^{\circ}\text{C}$  ( $350 \pm 5^{\circ}\text{F}$ ) for a minimum of 3 min.

9.4 Immerse specimen for  $10 \pm 1$  sec in a 10:1 ratio of acid rinse solution.

9.5 Immerse rinsed and drained specimen in dye solution for  $30 \pm 5$  sec at room temperature.

9.6 Remove specimen from dye solution and rinse for  $60 \pm 5$  sec under warm tap water at  $40\text{--}50^{\circ}\text{C}$  ( $105\text{--}120^{\circ}\text{F}$ ).

9.7 Visually compare the residual color of the specimen to the AATCC 9 Step Chromatic Transference Scale in accordance with AATC Evaluation Procedure # 8 and report a class rating as follows:

Class 1– Heavily stained

Class 2– Considerably stained

Class 3– Noticeably stained

Class 4– Slightly stained

Class 5– Negligible to no stain

9.8 Repeat procedure with second specimen.

## 10. Report

10.1 State that the test was conducted in accordance with Test Method D 6613 for determining the residual size content of inflatable restraint fabrics.

10.2 If deviation from Practice D 6613 occurred, any reference to this standard shall state: “Testing was performed in accordance with ASTM Practice D 6613, with the following changes.”

10.3 The purchaser and supplier shall determine the exact form of the test report. Unless otherwise specified, the form shall provide the following information:

10.3.1 Fabric designation,

10.3.2 Lot identification,

10.3.3 Date of report,

10.3.4 Name of person certifying report,

10.3.5 Relevant specification,

10.3.6 Number of specimens used in each test,

10.3.7 Tests performed and class rating assigned,

10.3.8 Laboratory conditions if other than standard,

10.3.9 Deviations from standard procedures and apparatus.