Association of Textile, Apparel & Materials Professionals

AATCC takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this test method. Users of this test method are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This test method is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reaffirmed or withdrawn. Your comments are invited either for revision of this test method or for additional procedures and should be addressed to the AATCC Technical Center. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing, you should make your views known to Diana A. Wyman, Technical Director, at the address shown below.

This test method is copyrighted by AATCC, PO Box 12215, Research Triangle Park, NC 27709 USA. Individual reprints (single or multiple copies) of this method may be obtained by contacting AATCC at the above address or tel: 919-549-3526; fax: 919-549-8933, or e-mail: orders@aatcc.org.

AATCC License Agreement: This test method is copyrighted by the American Association of Textile Chemists and Colorists (AATCC), PO Box 12215, 1 Davis Drive, Research Triangle Park, NC USA. All rights reserved.

AATCC grants you a license as follows: The right to download one electronic file of this AATCC test method for temporary storage on one computer for purposes of viewing, and/or printing one copy of the AATCC test method for individual use. Neither the electronic file nor the hard copy print may be reproduced in any way. In addition, the electronic file may not be distributed elsewhere over computer networks or otherwise. The hard copy print may only be distributed to other employees for their internal use within your organization.

This test method is not for resale.

Documents
Document Sharing Hub

Copyright The American Association of Textile Chemists and Colorists
Provided by IHS Markit under license with AATCC
No reproduction or networking permitted without license from IHS
Full document details: AATCC 167 2018

Licensee=Hong Kong Polytechnic University/9976803100, User=ERIKSSON, Anna Pernil
Not for Resale, 02/28/2020 02:13:31 MST

Test Method for Foaming Propensity of Disperse Dyes

Developed in 1986 by AATCC Committee RA87; reaffirmed 1987, 1988, 1993, 1998, 2003, 2013, 2018; editorially revised 1989, 1991, 1997, 2010, 2019; reaffirmed and editorially revised 2008.

1. Purpose and Scope

1.1 Foam generation must be controlled in dyeing equipment such as jet machines which operate with high circulation and high agitation of the dye liquor at low bath ratios.

1.2 This test method provides a standard for measuring the foaming properties of disperse dye under controlled conditions and determines the relative contribution of a single disperse dye to generate dyebath foam.

2. Principle

2.1 A quantity of disperse dye is prediluted, preheated and placed in a regular kitchen blender (see 12.1). Using a predetermined blender speed, the dye dispersion is blended for a specific time, transferred to a glass graduated cylinder and the foam and liquid levels are measured.

3. Terminology

3.1 **foam,** n.—a dispersion of a gas in a liquid or solid (see 12.2).

4. Safety Precautions

NOTE: These safety precautions are for information purposes only. The safety precautions are ancillary to the testing procedures and are not intended to be all inclusive. It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Manufacturers must be consulted for specific details such as material data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

4.1 Handle all chemicals carefully. Use chemical goggles or face shield, impervious gloves and an impervious apron when handling the chemicals used in this procedure. An eyewash/safety shower should be located nearby for emergency use.

4.2 Wear safety glasses and a dust mask when handling powdered dyestuff.

4.3 If concentrated acetic acid is diluted to prepare the acetic acid for pH adjustment (7.1.4), use chemical goggles or face shield, impervious gloves and an impervious apron during preparation. Handle concentrated acids only in an adequately ventilated laboratory hood. An eyewash/safety shower should be located nearby for emergency use. CAUTION: Always add acid to water.

4.4 Exposure to chemicals used in this procedure must be controlled at or below levels set by governmental authorities [e.g., Occupational Safety and Health Administration's (OSHA) permissible exposure limits (PEL) as found in 29 CFR 1910.1000; see web site: www.osha.gov for latest version]. In addition, the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) comprised of Time Weighted Averages (TLV-TWA), short term exposure limits (TLV-STEL) and ceiling limits (TLV-C) are recommended as a general guide for air contaminant exposure which should be met (see 12.3).

5. Uses and Limitations

5.1 The test method provides a means of comparing lot-to-lot variation of foam generation in dye shipments versus a control or standard reference sample of the same dye.

5.2 The test procedure is not complex, uses readily available equipment and provides results that correlate with results from other more elaborate lab dye testing equipment.

5.3 The test method offers a specific procedure and set of conditions that are useful for comparative studies by an individual laboratory. Variability between laboratories using different equipment and operators can produce slightly different measurements but will distinguish among low, moderate and high foaming disperse dyes.

5.4 Variables which affect accuracy and reproducibility of the test are specified in the notes (see 12.5, 12.6 and 12.7).

6. Apparatus and Materials

6.1 Equipment:
6.1.1 500 mL glass graduated cylinder.
6.1.2 Kitchen blender (see 12.1).
6.1.3 Glass blender container.
6.1.4 Stopwatch.
6.1.5 pH meter
6.2 Materials:
6.2.1 Distilled water.
6.2.2 Acetic acid, 10% solution.
6.2.3 1993 AATCC Standard Reference Detergent WOB (see 12.4).

7. Preparation

7.1 Prepare dye dispersion.

7.1.1 Weigh out 5 g of 100% strength dye. (For other dye strengths adjust accordingly. Example: 200% strength dye–weigh 2.5 g.)

7.1.2 Paste dye in 25 mL distilled water in a 400 mL beaker.

7.1.3 Further dilute the dispersion with 175mL of distilled water and heat to 50°C (122°F) while stirring.

7.1.4 Dilute dye dispersion to 1 L with distilled water. Using a pH meter, adjust to pH 5.5 ± 0.2 with acetic acid (see 12.5). Final temperature of dispersion should be 30°C (86°F) for the test.

7.2 Prepare detergent solution.

7.2.1 Prepare a 0.5 g/L solution of 1993 AATCC Standard Reference Detergent WOB in tap water at 30°C (86°F) to check for any blender contamination that would prevent foaming.

7.3 Check the blender for contamination.

7.3.1 Pour 200 mL of detergent solution in clean 1.4 L (1.5 qt) capacity container of the blender.

7.3.2 Operate the blender at its highest speed for 30 s and then stop it. Allow the dispersion to stand for 30 s. A minimum of 2.5 cm of foam should be present on top of the solution. If less foam is present, clean the container and repeat the procedure until enough foam is generated (see 12.6).

7.3.3 Thoroughly rinse the blender container and add 200 mL of distilled water.

7.3.4 Operate the blender for 30 s at highest speed and then stop it. No foam should be present after 30 s. If foam is present, rinse the blender container thoroughly and repeat the procedure until no foam is present.

8. Foam Test

8.1 Pour 200 mL of dye dispersion into the blender container. Place a lid on the container.

8.2 Select blender speed which corresponds to the blade speed 14,000-15,000 rpm, usually highest speed of blender (see 12.1).

8.3 Start the stopwatch simultaneously with starting the blender. Hold the container, but not the lid, to prevent any spills.

8.4 After 30 s, stop the blender but allow the stopwatch to continue running.

Documents
Document Sharing Hub
Copyright The American Association of Textile Chemists and Colorists
Provided by IHS Markit under license with AATCC
No reproduction or networking permitted without license from IHS
Full document details: AATCC 167 2018
Copyright © 2019 American Association of Textile Chemists and Colorists
Licensee=Hong Kong Polytechnic University/9970803100, User=ERIKSSON, Anna Pernil
Not for Resale, 02/28/2020 02:13:31 MST