

Colorfastness to Perspiration
AATCC Test Method 15 - 2002

What This Test is Used For:

This test is used to determine the fastness of colored textiles to the effects of acid perspiration (sweat). British methods also call for tests to alkaline perspiration. Our lab contains reagents to simulate either type of perspiration.

How This Test Works:

A colored textile specimen is wet out using a simulated acid perspiration solution. It is placed in contact with a multi-fiber strip, and then both subjected to a fixed mechanical pressure. The specimen is then evaluated for color change using the AATCC Gray Scale for Staining, and the multi-fiber test strip is evaluated for color transfer using the AATCC Chromatic Transference Scale.

Scientific Testing Requirements:

Bring specimens to moisture equilibrium for testing in standard atmosphere for testing textiles according to ASTM D-1776, conditioning Textiles for Testing.

Equipment Needed:

Pre-cut sample 2^{3/8} " x 2^{3/8} "

Petri dish

Simulated Acid Perspiration Solution (2 ingredients)

Simulated Alkaline Perspiration Solution (2 ingredients)

Multi-fiber Test Strip

Plexi-glass plate

Perspiration Tester

AATCC Gray Scale for Staining

AATCC Chromatic Transference Scale

Procedure:

Sample Preparation:

- 1). Cut a 2^{3/8} " x 2^{3/8} " sample. One sample per person.
- 2). Weigh specimen. Record dry weight.
- 3). Fill petri dish with freshly prepared perspiration solution (no more than 3 days old) to a depth of ⁵/₈ ".
- 4). Soak test specimen in solution for 30 ± 2min. with occasional agitation or squeezing.
- 5). Remove specimen from solution. Pass specimen through wringer with multi-fiber strips perpendicular to length of wringer rolls.
- 6). Weigh specimen. Should be 2.25 ± .05 times the original dry weight. (Because certain fabrics may not be able to retain this amount of solution when passing through a wringer, such fabrics may be tested after blotting to the required wet pickup with White AATCC Blotting Paper.)

Loading Perspiration Tester:

- 1). Place the plexi-glass plates in the perspiration tester with specimen/multi-fiber strips evenly distributed between 21 plates. (Place all 21 plates into unit regardless of number of specimens.)
- 2). After all plates are in position, place 8.0lb. weight on top making a total of 10.0lb. under the pressure plate.
- 3). Lock the pressure plate in position by turning the thumb screws.
- 4). Remove the weight and place the unit lying on its side in the oven.

Testing / Evaluation:

- 1). Heat loaded specimen unit in oven at $100^{\circ}\pm 2^{\circ}\text{F}$ for $6\text{hr.}\pm 5\text{min.}$
- 2). Remove from oven. Separate multi-fiber strip from fabric. Place in conditioned atmosphere overnight.
- 3). For specimen, use AATCC gray scale for color change to evaluate results.
- 4). For multi-fiber strip, use AATCC chromatic transference scale.

Report:

- 1). State that the specimens were tested as directed in Test Method 15 - 2002. Describe the material or product sampled, and the method of sampling used. Also state the solution to which the sample has been exposed.
- 2). Report the color change grade in the sample fabric, and the staining grades for each fiber type in the multi-fiber test strip. (Make sure to state which scale was used for each evaluation.)

***Note:** Unsatisfactory perspiration fastness may be due to bleeding or migration of color or it may be due to change in color of the dyed material. It should be noted that objectionable change in color may be encountered with no apparent bleeding. On the other hand, there may be bleeding with no apparent change in color, or there may be both bleeding and change in color.