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# Test Method for Carpet: Liquid Penetration by Spillage

Developed in 2016 by AATCC Committee RA57; reaffirmed and editorially revised 2019.

## 1. Purpose and Scope

1.1 This test method is intended to simulate the actual use of carpets in the field, and evaluates the propensity of the face and back of carpets to be penetrated by a spilled liquid.

1.2 Unless specifically agreed by interested parties, this method is not intended for the evaluation of seams/joints of the carpet. This test method is used to evaluate whether or not a carpet (face and backing) is penetrated by a spilled liquid through the carpet face and backing. The method does not assess seams/joints unless reported. This method is intended to simulate the actual use of carpet in the field.

## 2. Principle

2.1 A colored liquid is spilled from a specified height onto the pile side of a carpet. The test liquid is allowed to stand, undisturbed, on the specimen for approximately 24 h.

2.2 The specimen is evaluated for liquid penetration.

## 3. Terminology

3.1 **blotting paper**, *n.*—any absorbent cloth-like material that is white in color, and will readily absorb small droplets of liquid.

3.2 **carpet backing**, *n.*—materials (fabrics, yarns or chemical compounds) in the carpet other than the face yarns.

3.3 **carpet composite**, *n.*—the finished carpet product, including: face fibers, primary backing, adhesive coating, and secondary backing (if applicable).

3.4 **liquid spillage resistance**, *n.*—for carpet, the ability to prevent the penetration of liquids through the carpet composite.

3.5 **primary backing**, *n.*—for tufted carpet, the substrate into which yarns are inserted.

3.6 **seam**, *n.*—for carpet, a line formed by the junction of any two carpet composite edges.

3.7 **secondary backing**, *n.*—a substrate fabric attached to the back of a carpet with an adhesive binder.

3.8 **spill**, *adj.*—The unintended falling of liquid onto a carpet face.

## 4. Safety Precautions

NOTE: These safety precautions are for information purposes only. The 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 used in this test method. Manufacturers MUST be consulted for specific details such as material safety data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

4.1 Good laboratory practice should be followed. Wear safety glasses in all laboratory areas.

4.2 All chemicals should be handled with care.

4.3 Manufacturer's safety recommendations should be followed when operating laboratory testing equipment.

4.4 Ground all electrical equipment.

## 5. Uses and Limitations

5.1 This test method is not applicable to liquid penetration due to flooding, sub floor leakage, etc. It is not designed to classify a carpet as liquid impervious or to assess the long term effects of liquids on product deterioration or degradation.

5.2 The test is not intended to evaluate broad loom or modular carpet seams unless the seams are specifically tested as agreed between the buyer and seller.

## 6. Apparatus and Materials (see 14.1)

6.1 Glass or plastic laboratory funnel with a  $35 \pm 2$  mm ( $1.43 \pm 0.08$  in.) length tube. The tube inside diameter should be  $10 \pm 2$  mm ( $0.40 \pm 0.08$  in.).

6.2 Methylene Blue dye stuff.

6.3 Glassine paper or equivalent (see 14.2)

6.4 Splash ring guard, at least 150 mm (6 in.) in diameter (not to exceed width of the specimen), with a minimum height of 127 mm (5.0 in.), and made from a non-absorbent material.

6.5 White blotting paper or equivalent (see 14.2).

6.6 Funnel and funnel holding device, capable of centering the funnel over the specimen at a height of  $100 \text{ cm} \pm 0.3 \text{ cm}$  ( $39.4 \pm 0.125$  in.).

## 7. Reagents

7.1 Methylene Blue 0.1% aqueous, diluted with de-ionized water. Prepare

enough to apply 100 mL of solution to every specimen to be tested.

## 8. Preparation of Test Specimens

8.1 Cut three specimens with a minimum dimensions of  $300 \times 300$  mm ( $12.0 \times 12.0$  in.) from the test sample, one from each side of the full width of the carpet, at least 300 mm (12.0 in.) from the edge, and one specimen from the approximate center of the carpet width.

8.2 Prior to testing, remove any loose tufts or fibers from the specimens.

## 9. Conditioning

9.1 Prior to testing, condition test specimens as directed in ASTM D1776, Standard Practice for Conditioning and Testing Textile (see 14.3). After testing, the test specimens shall sit undisturbed for  $24 \pm 2$  h in the standard atmosphere for textiles, prior to evaluation.

9.2 Perform test in standard atmosphere for textiles.

## 10. Procedure

10.1 Position laboratory funnel with the aperture of funnel  $100 \text{ cm} \pm 0.3 \text{ cm}$  ( $39.4 \pm 0.125$  in.) above a flat, level surface on which the test specimen will be placed (see Fig. 1).

10.2 Place the test specimen face up on the level surface. Locate the funnel aperture above the approximate center of the specimen.

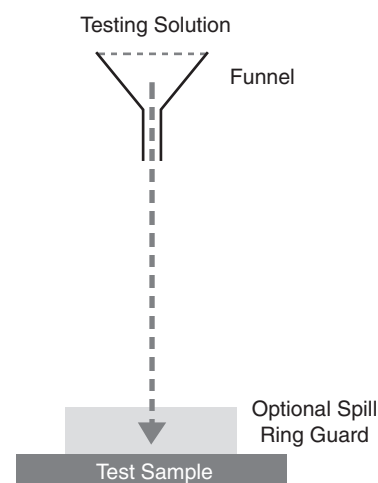


Fig. 1—Relative position of spillage equipment.