SOA S-201 (RS) Test Method for Resoiling of Pre-Spray and In-tank Solutions

1. Scope

1.1. This test method is intended to evaluate the resoiling characteristics of solution residue on carpet.

1.2. This test method is applicable to all Pre-Spray and In-Tank cleaning solutions.

2. Safety

2.1. This practice does not purport to address all 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.

3. References

3.1. ASTM D6540 Standard Test Method for Accelerated Soiling of Pile Yarn Floor Coverings

3.2. AATCC Evaluation Procedure 2 – Gray Scale for Staining

3.3. SOA Test Carpet Specifications

3.4. SOA S-100 Preparation of Solution and Test Method for pH and Optical Brightener

3.5. AATCC LP4 Laboratory Procedure for Synthetic Soil

4. Terminology

4.1. Resoiling - a propensity of cleaning solution residue to attract soil at an accelerated rate.

5. Apparatus and Materials

5.1. Hexapod Tumble Tester Drum – meeting specifications as stated in ASTM D6540
5.2. Tape – double-sided pressure sensitive adhesive, 2.0 in. (50 mm) width
5.3. Vacuum cleaner – upright-type SOA-specified vacuum with a rotating brush
5.4. Polyamide pellets having a maximum size of 2-3 mm
5.5. Weighing scale accurate to 0.01 gram and having a capacity of at least 2000 grams
5.6. Chrome alloy ball bearings 9.5 mm (0.375") diameter
5.7. AATCC Standard Soil as specified in AATCC LP4 Laboratory Procedure for Synthetic Soil
5.8. AATCC Gray Scale for Staining
5.9. Illumination system - Capable of providing a minimum of 1000 (+/- 50) lux (100 lumens/sq. ft) of north sky light or equivalent light source.
5.10. Plexiglass template with three six-inch circle cut-outs for spray application
5.11. Conveyor with a minimum bed length of 10 feet and stroke of 7 feet and minimum bed width of 35 inches. Conveyor must be capable of maintaining specified test speed both forward and reverse. Conveyor must be equipped with brackets to hold the test equipment stationary, exerting no horizontal or vertical force.
5.12. Tachometer used to measure conveyor speed in meters/second (feet/second).
5.13. Carpet mounting platform comprised of the same material as test carpet a minimum of 102 mm (4 inches) wider than the head of control extractor mounted to conveyor plate using double-sided tape.
5.14. Commercial chemical applicator capable of maintaining spray pressure.
5.15. Portable-type (box and wand) extractor specified by CRI.
5.16. Test room – temperature and humidity maintained in standard laboratory conditions, 50 (+/- 5%) relative humidity and 70 (+/- 5) degrees in which all conditioning and testing is done.

6. Test Specimen

6.1. Test carpet description: Residential Cut Pile (See SOA Test Carpet Specifications)
6.2. Cut one sample of the test carpet to fit the inside wall of the Hexapod tester tumble drum. Test samples are 8.5 inches by 37.4 inches. The long dimension should be parallel to the machine direction.
6.3. Mark the test specimen with the test identification number.
6.4. Prepare carpet for testing by clipping selvedge edge and vacuuming to remove loose fibers with the control.
6.5. Vacuum, using 10 passes at 0.55 m/second (1.8 ft/second).
6.6. Condition prepared samples in test room a minimum of 16 hours prior to testing.

7. Preparation of the Soiling Media

7.1. Place 3 (+/- 0.05) grams of the AATCC standard soil for each 1000 (+/- 1) grams of polyamide pellets in the Hexapod tumble tester drum.

7.2. Mix the soil and pellets in the Hexapod tumble tester drum for 20 minutes to ensure a homogeneous mixture of the soil and polyamide pellets.

7.3. The soiled pellets are ready to use.

8. Test Format

8.1. Review COC for additional cleaning instructions prior to following the test method below. Follow cleaning instructions provided in the COC. If no cleaning instructions are provided, follow the test method as written.

8.2. Applying Pre-Spray Solution:

8.2.1. Prepare solution as described in SOA S-100 Preparation of Solution and Test Method for pH and Optical Brightener.

8.2.2. Place plexiglass template on carpet surface to restrict spray to cut-out areas only.

8.2.3. Place carpet on the scale and weigh the carpet prior to pre-spray application. Spray solution evenly across the entire exposed surface of the test carpet until the application rate specified on the COC is achieved. If pre-spray application exceeds the specified application rate, the test carpet is discarded, and a new sample will be prepared.

8.2.4. Allow pre-spray treated carpet to dwell for 10 (+/- 1) minutes prior to extraction. Extraction of pre-spray application.

8.2.5. Mount the portable-type (box and wand) SOA-approved extractor with water only to the conveyor. Ensure the extractor wand head contacts with the carpet.

8.2.6. Leave plexiglass template on carpet surface to restrict extraction of Pre-spray to cut-out areas only.

8.2.7. Set conveyor speed at 1 foot per second.

8.2.8. Operate extractor for 2 wet passes followed by 2 dry passes with the final pass with the direction of the pile.

8.2.9. Remove treated carpet from the mount.

8.2.10. Place treated carpet on conditioning racks to dry for 16 hours not to exceed 72 hours.

9.1. Application of in-tank solution

9.1.1. Prepare solution as described in SOA S-100 Preparation of Solution and Test Method for pH and Optical Brightener.

9.1.2. Place plexiglass template on carpet surface to restrict spray to cut-out areas only.

9.1.3. Mount the portable-type (box and wand) extractor with prepared solution to the conveyor. Ensure the extractor wand head contacts with the carpet.

9.1.4. Set conveyor speed at 1 foot per second.

9.1.5. Mount the carpet on the carpet mounting platform of the test conveyor.

9.1.6. Operate extractor for 2 wet passes followed by 2 dry passes with the final pass with the direction of the pile.

9.1.7. Remove carpet from the mount and place carpet on conditioning racks to dry for 16 hours not to exceed 72 hours.

9.2. Soiling of pre-sprayed and in-tank test carpets

9.2.1. Secure the carpet to the inside wall of the Hexapod tumble tester drum with the pile lay direction if present in the opposite direction of the Hexapod tumble tester drum rotation (double sided tape may be used).

9.2.2. Place 1000 (+/- 2) grams of chrome alloy ball bearings into the Hexapod tumble tester drum. Refer to the test report for SOA-S-200 Cleaning Effectiveness of Pre-Spray and In-Tank Solutions to determine the grams of previously prepared soiled pellets used for testing of cleaning effectiveness and place the same number of grams (+/- 0.2) grams into the Hexapod tumble tester drum for resoil testing.

9.2.3. Start the Hexapod tumble tester drum and allow it to rotate for 30 minutes.

9.2.4. Remove the test carpets and physically remove any loose pellets from the carpet.

9.2.5. Using the vacuum conveyor and control vacuum, vacuum the test carpet using 4 passes in the long direction at 1.8 feet per second. (**Note**: Ensure the last stroke of the vacuum is in the direction of the pile lay.)

10. Evaluation

10.1. Grade each treated carpet circle using the AATCC Gray Scale for Staining in accordance with AATCC EP2 using the untreated carpet outside the circle as the control.

10.2. Step 10.1 shall be completed by three different trained technicians.

11. Report

11.1. Record date pellets were soiled.

11.2. Record the grams of pellets used to soil the carpet.

11.3. Record date carpet was soiled.

11.4. Record the average Gray Scale grade.

11.5. Any deviations from this test method.