SAE INTERNATIONAL

SURFACE VEHICLE RECOMMENDED PRACTICE

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Test Method for Determining Resistance to Fiber Loss, Resistance to Abrasion, and Bearding of Automotive Carpet Materials

RATIONALE

This method has been revised as follows:

Editorial changes to Section 3 (adding comma before “or equivalent”).

Added 3.1.9.

Update description of “diamond wheel reface machine” in 3.3.2 to “diamond tool wheel refacer.”

Editorial changes to 5.1.1 and 5.1.2 (adding comma before “or equivalent”).

1. SCOPE

This test method covers determination of abrasion resistance, fiber loss, and bearding resistance of automotive carpet materials.

2. REFERENCES

There are no referenced publications specified herein.

3. RESISTANCE TO FIBER LOSS BY WEIGHT OF SPECIMEN

3.1 Materials and Equipment Required

3.1.1 Taber abraser with vacuum accessory, or equivalent.

3.1.2 H-18 wheels, or equivalent.

3.1.3 Weights that yield a total load of 1000 g on each of the abrasive wheels.

3.1.4 S-11 abrasive paper refacing discs, or equivalent.

3.1.5 S-37 mounting card, or equivalent.

3.1.6 Calibrated balance.

3.1.7 Clear plastic bag suitable for collecting the fiber.

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3.1.8 Crockmeter cloth (80 x 84 thread count, combed cotton, de-sized and bleached).

3.1.9 Diamond Tool Wheel Refacer (optional).

3.2 Test Specimens

3.2.1 Prepare specimen using a circular die approximately 100 mm in diameter or cut along the circular line on the mounting card. Use a punch to cut a 6 mm diameter hole in the center of the specimen.

3.2.2 An S-37 mounting card may be used to stabilize the specimen if necessary.

3.2.3 Specimens must be conditioned at 23 °C ± 2 °C and 50% ± 5% relative humidity for a minimum of 24 hours.

3.3 Procedure

3.3.1 Mount H-18 wheels and adjust test instrument for a 1000 g load per wheel. Reface abrasive wheels before testing each specimen by running them against the S-11 type abrasive paper refacing disc mounted on the turntable for a minimum of 25 cycles.

3.3.2 If the wheels are out-of-round, crowned or excessively clogged with abraded material, the wheels should be dressed using a diamond tool wheel refacer until the condition is corrected. If there is any doubt about the condition of the wheels, new wheels should be used.

3.3.3 Vacuum or brush the refaced abrasive wheels to remove any loose particles.

3.3.4 Weigh the specimen to the nearest 0.1 g. Record weight as W_1.

3.3.5 When loss fibers need to be collected, cover the vacuum hose with a piece of crockmeter cloth to collect the abraded fiber and insert the hose into the vacuum port of the Taber abraser.

3.3.6 Place the specimen on the turntable. Place the clamp plate over the turntable screw and tighten the nut. Adjust the clamping ring to a snug fit over the specimen and turntable. Press down and hold the clamping ring over the circumference of the turntable. Remove any wrinkles in the specimen by adjusting the specimen edges under the clamping ring. Then tighten the adjusting screw of the ring. Lower the abrasive wheels to the surface of the specimen. Position the vacuum nozzle 3 mm above the surface of the specimen and set vacuum in the range of 60 to 70.

3.3.7 Turn on the vacuum and run the test to the specified number of cycles.

3.3.8 Remove the vacuum hose from the vacuum port if fiber has been collected. Carefully hold the crockmeter cloth and place the collected fiber into the clear plastic bag. Discard the crockmeter cloth.

3.3.9 Remove the specimen from the turntable. Vacuum the specimen with the vacuum hose to remove any loose fiber. Replace the vacuum hose in the Taber abraser.

3.3.10 Weigh the specimen to the nearest 0.1 g. Record the weight as W_2 in grams.

3.3.11 Calculate the fiber loss in grams (W_3) as shown in Equation 1:

$$W_3 = W_1 - W_2 \quad \text{(Eq. 1)}$$

4. ABRASION RESISTANCE

NOTE: Abrasion resistance is a continuation of the fiber loss testing unless otherwise specified.

4.1 Remount the specimen on the abraser and continue to run the test to the specified number of cycles for the abrasion requirements.

4.2 Report results as agreed to by the contractual parties.

5. RESISTANCE TO BEARDING (FUZZING)

5.1 Apparatus and Material Required

5.1.1 Wyzenbeek Wear Tester (or Equivalent)

The hardness of the rubber pads should measure between 55 and 75 when tested with a type "00" durometer on the flat surfaces. Rubber pads which are outside of this range or do not fit snugly in their respective holders should be replaced.

Due to misalignment or wear during use, the following procedure should be performed when necessary. Clean the drum surface with a solvent, insert a piece of 50 grit sandpaper and clamp into position. Lower the arms removing all applied pressure and abrade the rubber pad in 50 cycle increments until they conform to the shape of the drum. Clean the resurfaced rubber pad with a stiff brush. Once a rubber pad has been put through this procedure *do not* remove or use in any other holder without resurfacing.

5.1.2 3-Inch Wide Caging No. 600-0 A (or Equivalent)

NOTE: Variation of the surface roughness of this material has been experienced. This affects the test results. However, a replacement material cannot be determined at the time of this revision of this test method.

5.2 Test Specimens

5.2.1 Test specimens are prepared to the template (Figure 1) dimension in both the machine and cross machine directions. The long dimensions are cut parallel to the warp yarns for warp wise (machine direction) abrasion and parallel to the filling yarns for filling-wise (cross machine direction) abrasion.

5.2.2 Specimens must be conditioned at 23 °C ± 2 °C and 50% ± 5% relative humidity for a minimum of 24 hours.

5.3 Procedure

5.3.1 A new abradant should be used for each set of specimens.

5.3.2 Place the specimen in the clamps with the long dimension parallel to the direction of abrasion. Specimen may be backed with tape if necessary.

5.3.3 Draw the specimen tight enough to bring the weighted tension scale bar into a horizontal position using a 1.35 kg dead weight load.

NOTE: If the specimen stretches during the test bring the scale bar back into a horizontal position by adjusting the screw behind the rear clamp.

5.3.4 Set the weight on the pressure bar at 0.9 kg.

5.3.5 Set the counter to “zero.”

5.3.6 Abrade the specimen for the specified number of cycles.

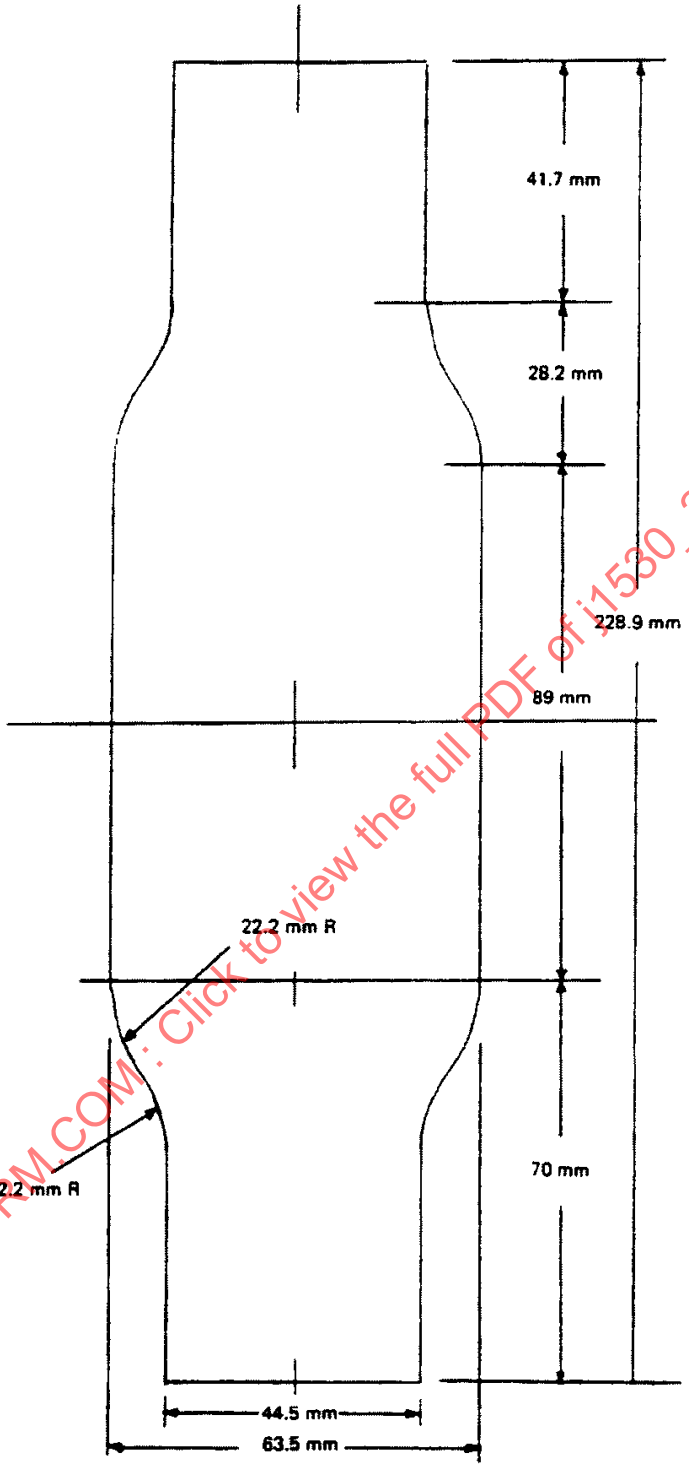

Figure 1 - Test specimen template

5.3.7 Remove the specimen from the wear tester for evaluation.

5.3.8 Report the results as agreed to by the contractual parties.