SAE International™ SURFACE VEHICLE STANDARD

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Test Method for Determining Resistance to Abrasion of Automotive Bodycloth, Vinyl, and Leather, and the Snagging of Automotive Bodycloth

Foreword

NOTE— There are two different tests for wear in this procedure and they are not equivalent. The results from the two test methods (3. Taber and 4. Wyzenbeek) cannot be compared.

1. Scope—These methods of test are applicable for determining the resistance to snagging and abrasion of automotive bodycloth, vinyl and leather.

2. References—There are no referenced publications specified herein.

3. Taber Method

3.1 Materials and Equipment Required

3.1.1 TABER ABRASER MODEL NO. 5150 COMPLETE WITH VACUUM ACCESSORY OR EQUIVALENT

3.1.2 H-18 WHEELS OR EQUIVALENT (FOR SNAGGING TEST)

3.1.3 CS-10 WHEELS OR EQUIVALENT (FOR ABRASION TEST)

3.1.4 DIAMOND WHEEL DRESSER

3.1.5 S-11 ABRASIVE PAPER OR EQUIVALENT

3.1.6 CAMEL'S HAIR BRUSH

3.2 Test Specimens—Test specimens are prepared by folding a 108 x 108 mm specimen (or equivalent circular specimen) once in each direction and then clipping the folded point to produce a small central hole to fit over the turntable clamping screw. Specimens are then conditioned at 21 °C ± 2 °C and 50% ± 5% relative humidity for 24 h.

Unless otherwise specified specimens shall be taken no nearer the selvage edge than 1/10 the width of the material.

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3.3 Procedure

a. Mount the refacing disc holder on the Taber Abraser and fasten to the disc holder a piece of S-11 type abrasive paper.
b. Adjust test instrument for a 1000 g load. Loosen the knurled cap nuts and install the new set of wheels on their respective flanged holders as indicated by the printing on the side of the wheel. The one marked right side fits on the right-hand mounting with printed side out; the same with the left. The nut is then replaced and moderately tightened. Check the wheels for alignment. H-18 type wheels shall be used when testing snagging resistance and CS-10 type wheels shall be used when testing abrasion resistance.
c. Reface abrasive wheels 25 cycles by running them against the S-11 type abrasive paper disc mounted on the refacing disc holder. Remove any rough edges on the wheels by manually sanding lightly with the abrasive paper.
d. The wheels must be refaced before each test run to remove abraded materials from the wheels that collected in the prior test.
e. If the wheels are worn out of round, crowned, or excessively clogged with abraded material, they should be dressed using the diamond refacer until the condition is corrected. In cases of doubt about the condition of the abrasive wheels, new wheels shall be used.
f. Dust the refaced abrasive wheels with a small camel's hair brush and remove the refacing disc holder.
g. With specimen turntable removed from the abraser, place test specimen on the turntable. Adjust the clamping ring to a tight fit over the specimen and holder and press the hold-down ring over the circumference of the holder to pull the test material taut.
h. Remove any wrinkles in the test specimen by adjusting the fabric edges which extend below the clamping ring. Then, tighten the adjusting screw of the ring. Place the washer over the turntable screw and tighten the nut. Trim off the excess test specimen which extends beyond the lower edge of the clamping ring.
i. Lower the abrasive wheels carefully from their upright position to the surface of the test specimen. Set the counter mechanism at zero.
j. Position the vacuum nozzle along the diameter of the turntable 3 mm above the surface of the test specimen and set the vacuum dial in the range of 60 to 70.
k. Turn on the vacuum and start the Taber Abraser.
l. Run the specimen the number of cycles specified and remove for evaluation.
m. 400 cycles shall be run for snagging unless otherwise specified.
n. 1000 cycles shall be run for abrasion of bodycloth unless otherwise specified.

4. Wyzenbeek Method—The Wyzenbeek method can be used to determine the resistance to abrasion of automotive vinyl and leather.

4.1 Apparatus and Material Required

4.1.1 WYZENBEEK WEAR TESTER OR EQUIVALENT—The hardness of the rubber pads should remain between 55 to 75 when tested with a type "00" durometer on the flat surfaces. Rubber pads which 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; after cleaning the drum surface with a solvent, insert a piece of 36 grit sandpaper and clamp into position. Lower the arms removing all applied pressure and abrade the rubber pad for 400 cycles or until they conform to the shape of the drum. Clean the resurfaced rubber pad with a stiff brush and re-insert in the same holder and in the same position. Once a rubber pad has been put through this procedure ***do not*** use in any other holder without resurfacing.

4.1.2 100% Cotton Warp Sateen Fabric; Count 104 X 55, 214 g/m^2 or Equivalent

4.1.3 DOUBLE-FACED TAPE—3M—No. 400 or equivalent.

4.1.4 MASKING TAPE, 76 MM WIDE.

4.2 Test Specimens—Test specimens 63.5 x 230 mm are prepared to template (see Figure 1) size in both warp and fill directions. Condition the test specimens for a minimum of 16 h at 21 °C ± 2 °C and 50% ± 5% relative humidity. Unless otherwise specified, samples shall be taken no nearer the selvage edge than one tenth (1/10) the width of the material. All materials other than rigid, nonstretch materials, shall have the back of the test specimen completely covered with 76 mm masking tape.

4.3 Procedure

4.3.1 Cut the abradent 241 (warp) x 305 (fill) mm and apply one length of double-backed tape in the middle, on the back side of the abradent, parallel to the fill direction. The long floats are on the face side of the abradent.

4.3.1.1 Strip the covered side of the double-backed tape and clamp the fabric on the drum in such a manner that the warp direction is parallel to motion of the drum. When pressing down on the taped portion of the fabric, make sure there is good and uniform adhesion between the drum, the tape, and the fabric. Also, this taped area must be completely free from wrinkles.

4.3.2 Place the specimen in the clamps with the long dimension parallel to the direction of abrasion.

4.3.3 Draw the specimen tight enough to bring the weighted tension scale bar into a horizontal position using a 1.8 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.

4.3.4 Set the weight on the pressure bar at 1.35 kg.

4.3.5 Set the counter to zero.

4.3.6 Abrade the specimen for the required number of cycles.

4.3.7 Remove the specimen from the wear tester for evaluation.

4.3.8 Change the abradent for each set of specimens.

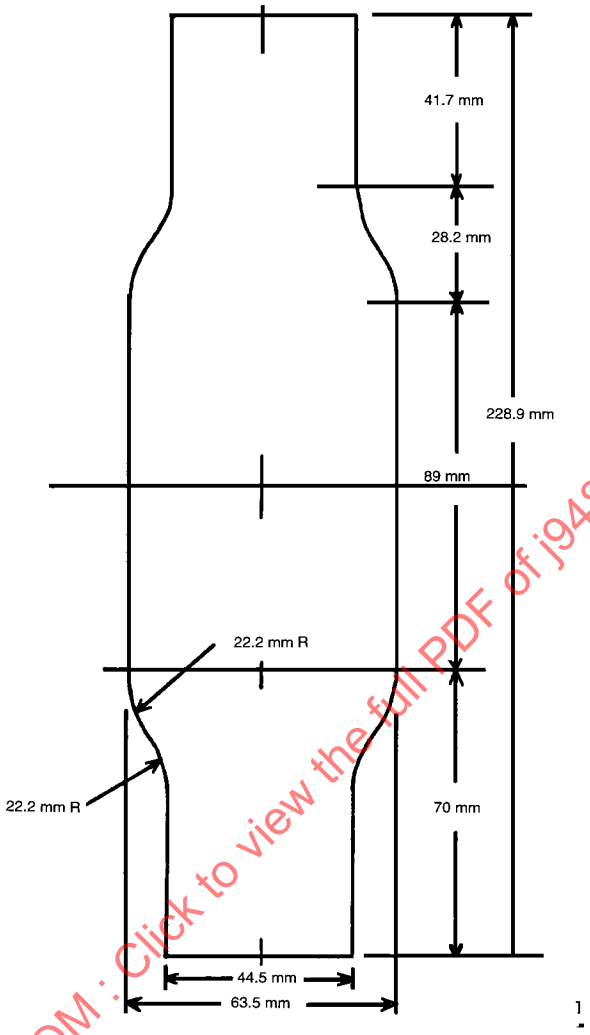

FIGURE 1—TEST SPECIMEN

5. Notes

5.1 Marginal Indicia—The change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

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