The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE RECOMMENDED PRACTICE

An American National Standard

SAE J1355

REAF. MAY93

Issued 1981-03
Reaffirmed 1993-05

Superseding J1355 APR87

TEST METHOD FOR MEASURING THICKNESS OF RESILIENT INSULATING PADDINGS

***Foreword*—**This Reaffirmed Document has been changed only to reflect the new SAE Technical Standards Board Format.

1. ***Scope*—**This SAE Recommended Practice is applicable for determining the thickness of various resilient materials, such as insulating padding used in the automotive industry.

1.1 **Purpose—**This test method is intended to establish a uniform procedure for determining the thickness of various resilient thermal and acoustical insulating pad materials.

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

3. ***Apparatus***

3.1 **Thickness Gauge—**Dial type, with a single point-contact loading foot.

3.2 Ring stand or equivalent device for mounting the thickness gauge.

3.3 **Pressure Plate—**Circular having a diameter of 200 mm (8 in) and a mass of 160 g (5.6 oz). When the size of the specimen is limited to something less than the size recommended in 4.1, the size of the pressure plate shall be reduced so as to maintain the overlap specified in 4.2, and the mass shall be proportionately reduced to maintain a loading force of 50 N/m^2 (1 lbf/ft^2).

NOTE—Thickness readings obtained are affected by plate and sample size. Data obtained from samples and foot sizes other than standard can be used only for comparison with data from other samples of the same size.

4. ***Test Specimen***

4.1 The minimum recommended specimen dimensions should be 250 mm x 250 mm (10 in x 10 in). However, in some instances, sample dimensions may preclude the usage of specimens this large. In these cases, the specimen may be downsized and the size and mass of the pressure plate adjusted accordingly, per 3.3.

4.2 The specimen shall overlap at least 25 mm (1 in) on all sides of the pressure plate to minimize the contributions of edge effects.

QUESTIONS REGARDING THIS DOCUMENT: (412) 772-8512 FAX: (412) 776-0243
TO PLACE A DOCUMENT ORDER; (412) 776-4970 FAX: (412) 776-0790
SAE WEB ADDRESS http://www.sae.org

4.3 Three or more specimens shall be taken from the same lot (roll or articles) and shall be free from folds or distortions.

5. Conditioning

5.1 Tests for material classification and for arbitration purposes shall be made on material conditioned to a constant weight in a controlled atmosphere of 21 °C ± 1 °C (70 °F ± 2 °F) and 50% ± 5% relative humidity. Quality control tests can be conducted on unconditioned specimens unless otherwise specified by the user.

5.2 Lay the specimen on a flat surface for a minimum of 24 h before conducting the test. If the sample is in a compressed state and circumstances will not permit lengthy sample conditioning, the specimen shall be released from compression and allowed to recover for at least 30 min before testing.

6. Procedure

6.1 Mount the thickness gauge on the ring stand and place the assembly on a flat surface large enough to accommodate the specimen.

6.2 Adjust the thickness gauge to read zero on the test surface.

6.3 Place the pressure plate on the test surface and measure its thickness. All measurements shall be accurate to within 0.25 mm (0.01 in). Record this thickness as T_0.

6.4 Remove the pressure plate.

6.5 Place the specimen on the test surface. Gently lay the pressure plate on the specimen so that there is uniform overlap on all sides. Allow the sample to compress for 15 s, then measure the combined thickness of the plate and the specimen. Record this thickness as T_1. (The loading foot of the thickness gauge should rest approximately on the center of the plate.)

7. Report—Calculate the thickness of the specimen using the following formula, and record the dimensions of the specimen tested, and the diameter and mass of the pressure plate:

$$T_2 = T_1 - T_0 \qquad \text{(Eq. 1)}$$

where:

T_0 = Thickness of pressure plate
T_1 = Thickness of specimen and pressure plate
T_2 = Thickness of specimen

The thickness measurement reported will be the average of three or more readings taken on three or more representative samples prepared in accordance with 4.1 and conditioned in accordance with 5.1.

Test results obtained on specimens having only the 30 min recovery period shall be so indicated in the report.

PREPARED BY THE SAE SOUND AND HEAT COMMITTEE