SAE International™

SURFACE VEHICLE STANDARD

SAE J369 | REV. NOV2007

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Superseding J369 MAY2003

Flammability of Polymeric Interior Materials—Horizontal Test Method

RATIONALE

SAE J369 is being revised to remove an unachievable burner pressure requirement in Section 4.2.

1. SCOPE

This SAE Standard pertains to automotive vehicles and off-road, self-propelled work machines used in construction, general purpose industrial, agriculture, forestry, and specialized mining machinery. This standard does not address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish safety and health practices and determine the applicability of regulatory limitations prior to use.

1.1 Purpose

This test method is intended for burning rate measurement of polymeric materials used in the operator and passenger compartments as specified by the applicable standard. SAE J369 is technically equivalent to ISO 3795, ASTM D 5132 and FMVSS 302.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein.

2.1.1 ISO Publication

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 3795 Road vehicles, and tractors and machinery for agriculture and forestry—Determination of burning behaviour of interior materials

2.1.2 ASTM Publication

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 5025 Standard Specification for Laboratory Burner Used in Small-Scale Burning Tests on Plastic Materials

ASTM D 5132 Standard Test Method for Horizontal Burning Rate of Flexible Cellular and Rubber Materials Used in Occupant Compartments of Motor Vehicles

2.1.3 Federal Safety Standard

Available from the Superintendent of Documents, U. S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

FMVSS 302 (49 CFR 571.302) Flammability of Interior Materials—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses

3. CLASSIFICATIONS

3.1 (DNI)

The material does not support the combustion during or following the 15 s ignition period and does not transmit a flame front across either surface to the first scribed line. (No calculation is required.)

Report the results as: DNI.

3.2 (SE/0)

The material ignites on either surface, but the flame extinguishes itself before reaching the first scribed line. (No calculation is required.)

Report the results as: SE/0.

3.3 (SE/NBR)

The material stops burning before it has burned for 60 s from the start of timing, and has not burned more than 51 mm from the point where the timing was started. (No calculation is required.)

Report the results as: SE/NBR.

3.4 (SE/B)

When the leading flame front on either surface progresses beyond the first scribed line, but extinguishes itself before reaching the second scribed line, time and measure its progress to the furthest point where the burning stops and calculate and report the burn rate only if the burned distance exceeds 51 mm or the burn time is 60 s or greater. Report the results as: SE/B. Calculate burn rate.

3.5 (B)

The material burns the full 254 mm.

Report the results as: B. Calculate burn rate.

3.6 (RB)

The material transmits a flame across either surface more than 51 mm beyond the first scribed line at a rate too fast to measure accurately; therefore, no calculation is required. Examples of the materials in this category are extremely thin films that burn rapidly, or napped surfaces that “flash.”

Report the results as: RB.

4. APPARATUS REQUIRED

4.1 Burner

A Tirrill, Bunsen, or equivalent burner with a gas flow regulating valve and a 9.5 mm ± 0.3 mm inside diameter tube, so positioned in the cabinet that the center of the end of the specimen shall be directly above the tip of the flame when the specimen is in place. The burner tube may be mounted on the chamber door provided the alignment on the specimen meets the previous requirements. For more definitive information on the burner see ASTM D 5025.

4.2 Burner Fuel

The gas supplied to the burner shall have a heating value of 37 MJ/m^3 ± 1 MJ/m^3.

4.3 Specimen Holder

Consisting of two identical U-shaped metal frames made from chrome or nickel-plated steel, or other metal that will not corrode. The dimensions for these frames are shown in Figure 1. Lines shall be engraved or scribed on both surfaces of each frame located as shown in Figure 1.

4.4 Specimen Holder Support

The specimen holder shall be supported horizontally so that the top of the burner is 19 mm below the top surface of the lower specimen frame.

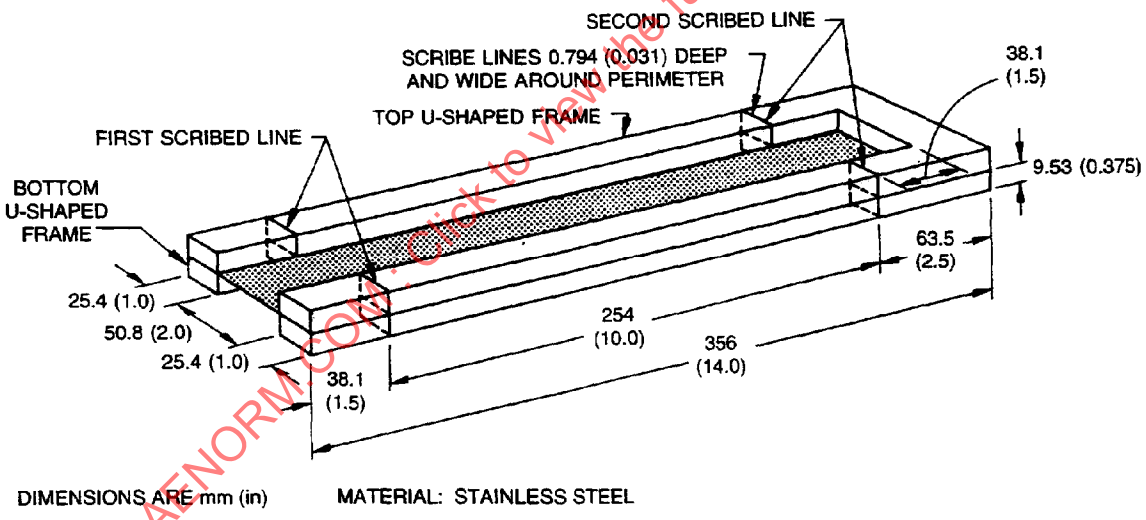

FIGURE 1 - SPECIMEN HOLDER, CONSISTING OF TWO IDENTICAL U-SHAPED FRAMES

4.5 Metal Cabinet

The cabinet (Figure 2) for protecting the specimen from drafts shall be fabricated from noncorroding metal and shall be 381 mm long, 203 mm wide, and 356 mm high. It shall have a removable top and a glass observation window in front. For ventilation, the base shall have five 19 mm diameter holes equally spaced along each side of the cabinet. In addition, there shall be a 13 mm ventilating clearance running around the perimeter of the cabinet just below the top. At one end of the cabinet there shall be a door to permit insertion of the specimen holder and the specimen. A small hole may be drilled in the cabinet to accommodate the tubing that connects the gas line to the burner. The cabinet shall have 10 mm risers to permit the circulation of air.

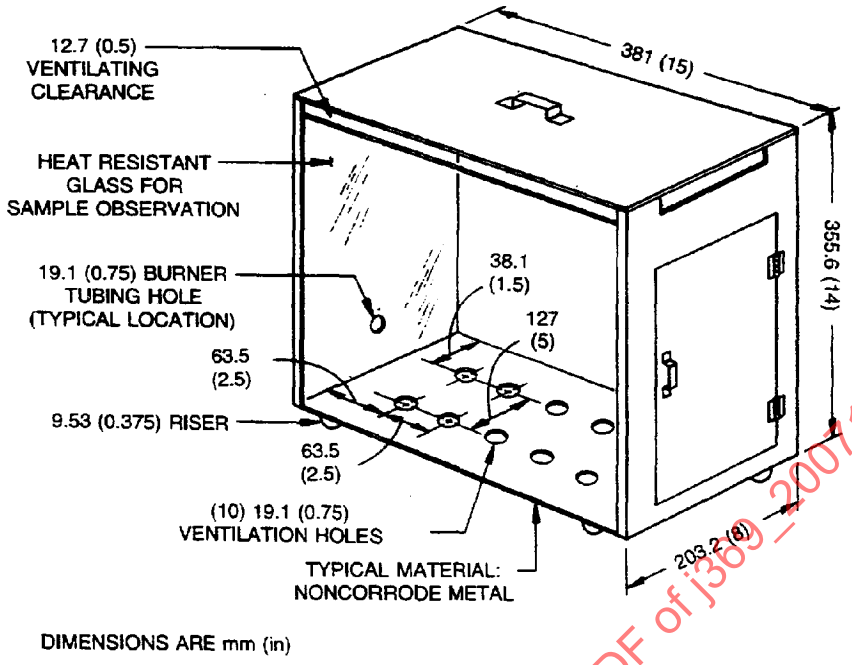

FIGURE 2 - HORIZONTAL FLAMMABILITY CABINET

4.6 Combing Device

A comb at least 110 mm in length with 7 to 8 smooth round teeth per 25 mm.

4.7 Timing Device

A stop watch that will indicate time to 0.1 of a second.

5. TEST SPECIMENS

Test a minimum of 5 specimens, unless otherwise agreed upon by both parties. In all instances, the largest possible specimen size is to be cut from the material up to the standard specimen size of 102 mm x 356 mm x thickness. The minimum width and length shall be 95 mm x 300 mm. Cut specimens from uniform density samples. The maximum thickness of any specimen shall be 13 mm. If any material to be tested exceeds this, it shall be cut to the previous thickness by a mechanical process applied to the side, which does not face the occupant compartment, so that specimen shall include the primary surface of the part. In case of materials made of different composition, which are not composite materials, all the layers within a depth of 13 mm from the surface facing towards the occupant compartment shall be tested individually, as shown in Figure 3. Any material that does not adhere to other material at every point of contact shall be tested separately. Any material that adheres to other material(s) at every point of contact shall be tested as a composite with other material(s). Record the information on specimen preparation in the test report. For composites, laminates, or surface-treated samples, the side nearest to the compartment occupant should be placed facing down during testing. If the material's grain pattern or construction is such that it has a directional effect on the burning rate, testing should be conducted in both the transverse and longitudinal directions. Where the maximum available width of the specimen is 51 mm or less so that the sides of the specimen cannot be held in the two matching U-shaped frames, it is to be supported by the use of.25 mm wires of heat-resistant composition spanning the top surface of the bottom U-shaped frame at 25 mm intervals, as shown in Figure 4. The U-shaped wire frame shall also be used for a specimen that softens and bends at the flaming end.

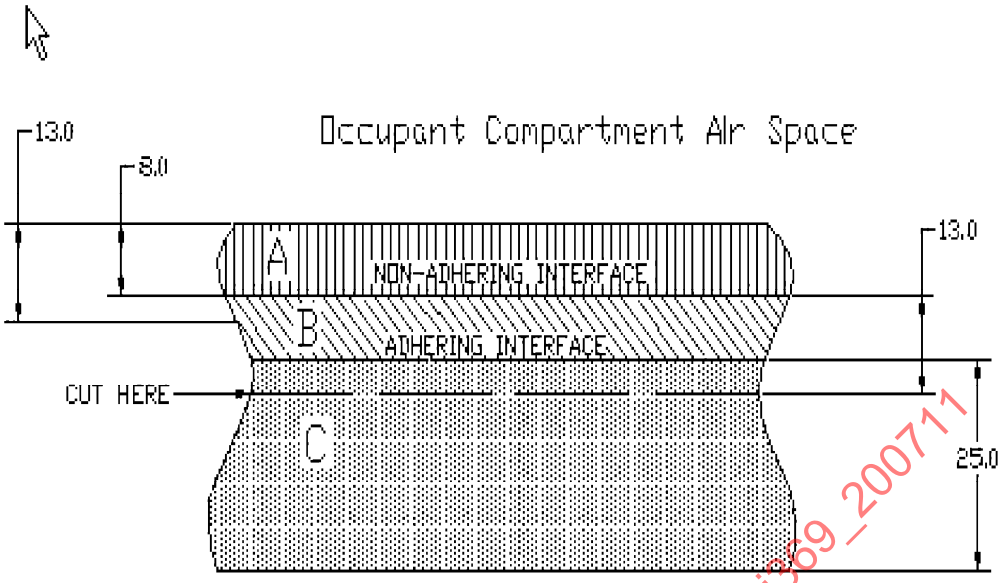

FIGURE 3 - SPECIMEN PREPARATION (ILLUSTRATIVE EXAMPLE)

Material A has a non-adhering interface with material B and is tested separately. Part of material B is within 13 mm of the occupant compartment air space, and materials B and C adhere at every point of contact; therefore B and C are tested as a composite. The cut is in material C as shown, to make a specimen 13 mm thick.

5.1 Selection and Direction

Shall be as specified in the applicable standard.

5.2 Surface Preparation

When materials to be tested contain either a napped or a tufted-type surface, this test specimen shall be placed on a hard, flat surface and combed twice against the nap prior to testing.

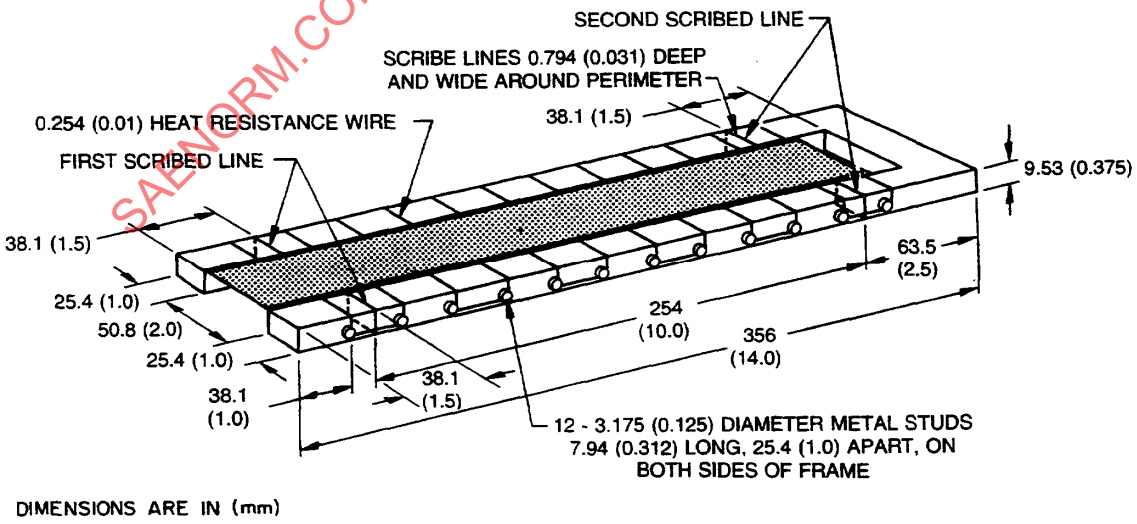

FIGURE 4 - BOTTOM U-SHAPED WIRE FRAME USED FOR SPECIMENS THAT ARE 51 mm OR LESS IN WIDTH OR THAT BURN NONUNIFORMLY USED IN CONJUNCTION WITH EITHER FRAME SHOWN IN FIGURE 1