

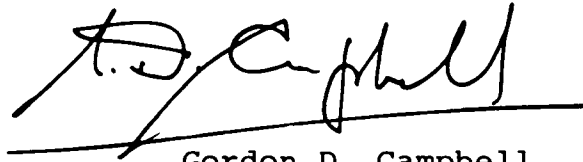
MOTOR VEHICLE SAFETY TEST METHODS

SECTION 302

FLAMMABILITY

1. INTRODUCTION

Subsections 2 to 4 and Figures 1 and 2 of this Section make up test methods referred to in section 302 of Schedule D to the Motor Vehicle Safety Regulations to demonstrate compliance with the requirements of section 302 of Schedule D.



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Ottawa.

2. TEST APPARATUS

2.1 Test Cabinet: The test shall be conducted in a cabinet as illustrated in Figure 1 to protect the specimens from drafts. The cabinet shall be constructed of metal and shall have:

(a) interior dimensions of 381 mm (15 inches) in length, 203.2 mm (8 inches) in depth, and 335.6 mm (14 inches) in height;

(b) a glass observation window in the front;

(c) a closeable opening to permit insertion of the specimen holder;

(d) a hole to accommodate tubing for a gas burner; and

(e) a 12.7 mm ( $\frac{1}{2}$  inch) clearance space around the top of the cabinet, ten 19.1 mm ( $\frac{3}{4}$  inch) diameter holes in the base of the cabinet, and legs to elevate the bottom of the cabinet by 9.5 mm ( $\frac{3}{8}$  inch).

2.2 Specimen holder: The specimen shall be held during testing by inserting it between two matching U-shaped frames of metal stock 25.4 mm (1 inch) in width and 9.5 mm ( $\frac{3}{8}$  inch) in height, the interior dimensions of

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which shall be 50.8 mm (2 inches) in width, by 330.2 mm (13 inches) in length.

2.2.1 In the case of a specimen that softens and bends at the flaming end in a manner that causes erratic burning, the specimen shall be kept horizontal by:

(a) supports consisting of thin, heat-resistant wires, spanning the width of the U-shaped frame under the specimen at 25.4 mm (1 inch) intervals, or

(b) a device consisting of an additional U-shaped frame, of greater width than the U-shaped frame containing the specimen, spanned by 254  $\mu$ m (10-mil) wires of heat-resistant composition at 25.4 mm (1 inch) intervals inserted over the bottom U-shaped frame.

### 3. TEST CONDITIONS

The following conditions shall apply to determining compliance with section 302 of Schedule D to the Motor Vehicle Safety Regulations:

3.1 Prior to testing, each specimen shall be conditioned for 24 hours at a temperature of 21.1 C (70 F) and a relative humidity of 50 percent, and the test shall be conducted under these ambient conditions.

3.2 A bunsen burner with a tube having a 9.5 mm (3/8 inch) inside diameter shall be used; the gas adjusting valve set to provide a flame with the tube vertical, of 38.1 mm (1½ inches) in height, the air inlet to the burner closed and the gas supplied to the burner shall have a flame temperature equivalent to that of natural gas.

3.3 Each specimen of material to be tested shall be a rectangle 101.6 mm (4 inches) in width by 355.6 mm (14 inches) in length, wherever possible, and the thickness of the specimen shall be that of the single or composite material used in the vehicle (Figure 2), except that:

(a) if the material thickness exceeds 13 mm (½ inch), the specimen shall be cut down to that thickness measured from the surface of the specimen closest to the occupant compartment airspace (Figure 2);

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(b) where it is not possible to obtain a flat specimen because of surface curvature, the specimen shall be cut to not more than 13 mm ( $\frac{1}{2}$  inch) in thickness at any point; and

(c) the maximum available length or width of a specimen shall be used where either dimension is less than 355.6 or 101.6 mm (14 or 4 inches), respectively.

3.4 The specimen shall be produced by cutting the material in the direction that provides the most adverse test results and positioned so that the surface closest to the occupant compartment air space faces downward on the test frame.

3.5 Material with a napped or tufted surface shall be placed on a flat surface and combed twice against the nap with a comb having seven to eight smooth, rounded teeth per 25.4 mm (1 inch).

### 4. TEST PROCEDURE

4.1 Subject to subsection (4.2), the specimen shall be mounted so that both sides and one end are held by the U-shaped frame, and one end is even with the open end of the frame.

4.2 Where the maximum available width of a specimen is not more than 50.8 mm (2 inches) so that the sides of the specimen cannot be held in the U-shaped frame, the specimen shall be placed in position on wire supports as described in subsection (2.2.1 (b)) with one end held by the closed end of the U-shaped frame.

4.3 The mounted specimen shall be placed in a horizontal position, in the centre of the cabinet.

4.4 With the flame adjusted as described in subsection (3.2), the bunsen burner and specimen shall be positioned so that the centre of the burner tip is 19.1 mm ( $\frac{3}{4}$  inch) below the centre of the bottom edge of the open end of the specimen.

4.5 The specimen shall be exposed to the flame for 15 seconds.

4.6 Without reference to the period of application of the burner flame, the timing shall begin when the flame from the burning specimen reaches a point 38.1 mm ( $1\frac{1}{2}$  inches) from the open end of the specimen.

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- 4.7 The time that it takes the flame to progress to a point 38.1 mm (1½ inches) from the clamped end of the specimen shall be measured, and if the flame does not reach the specified end point, its progress shall be timed to the point where flaming stops.
- 4.8 The burn rate shall be calculated from the following formula:

$$B = 60 \times \frac{D}{T}$$

where

B = Burn rate in mm (inches) per minute,

D = Length the flame travels in mm (inches), and

T = Time in seconds for the flame to travel D mm (inches).

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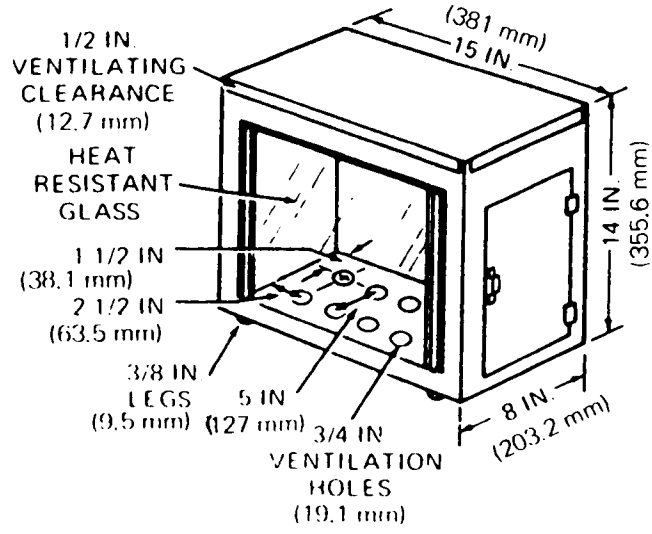


Figure 1

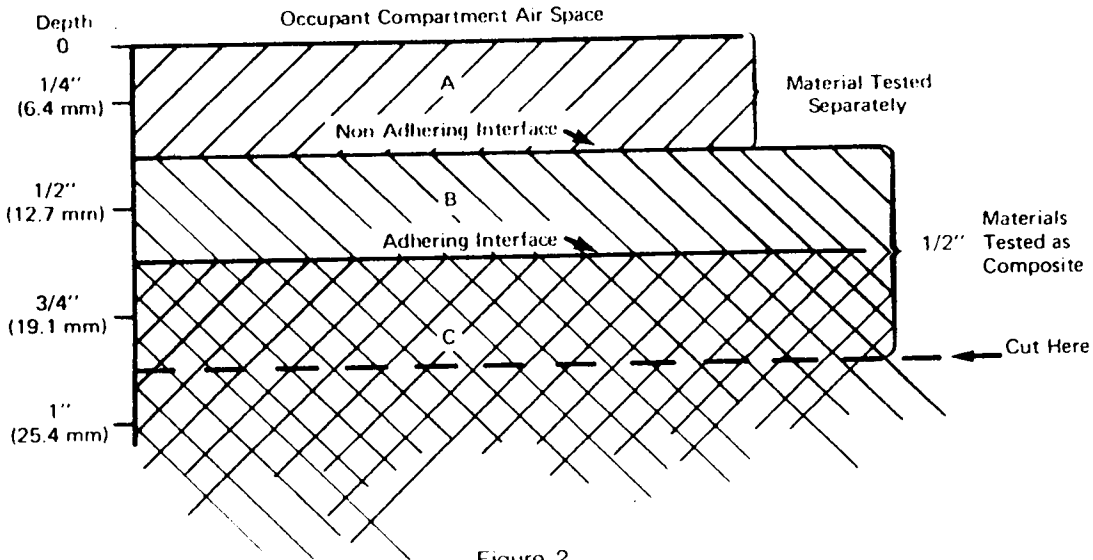


Figure 2