



Progressive Engineering Inc.

CRANE COMPOSITES, INC.

FMVSS and CMVSS 302
Flammability of Interior Materials Test

6/6/2016



This test report contains seven (7) pages, including the cover sheet. Any additions to, alterations of, or unauthorized use of excerpts from this report are expressly forbidden.

2016-1034

1. TITLE

FMVSS and CMVSS 302 Flammability of Interior Materials Test

2. OBJECTIVE

To test the interior finish materials of the motor vehicle per the safety standards mentioned in Section 6 of this report.

Note: Throughout this report, metric units in millimeters are designated in parenthesis next to the english value.

This test report pertains only to the specimens tested. It remains the sole responsibility of the manufacturer to provide a product consistent to that which was tested.

3. TESTED FOR

Crane Composites, Inc.
23525 W. Eames
Channahon, IL 60410

4. TESTING ORGANIZATION

Progressive Engineering Inc.

58640 State Road 15
Goshen, IN 46528
www.p-e-i.com

See IAS Evaluation Report TL-178 for ISO 17025 Accreditation.

5. TESTING PERSONNEL

Director of Testing - Jason R. Holdeman



Technician - Todd Miller



6. REFERENCE STANDARDS

Federal Motor Vehicle Safety Standard (FMVSS) 302 - as stated in the Code of Regulations Title 49, Volume 5, Section S571.302 (10-1-12 Edition).

Canadian Motor Vehicle Safety Standards (CMVSS) Standard 302 - Date Modified: 2012-02-06

7. TEST EQUIPMENT

Pre-Conditioning Room
Burn Chamber (PEI No. 269)
Temperature & Humidity Meter (PEI No. 856) Calibrated on 10/6/2015
Stop Watch (PEI No. 827) Calibrated on 8/20/2015

8. TEST SPECIMEN

See attached data pages for specimen descriptions.

9. TEST SPECIMEN CONSTRUCTION

Test specimens were cut into a 4" x 14" (102 x 356) piece for testing. The material thickness did not have to be cut down.

10. TEST SPECIMEN CONDITIONING

The test specimens were then conditioned at 70 °F (21 °C) and 50% RH for a minimum of twenty-four (24) hours prior to testing.

11. TEST PROCEDURE

- A. Test specimen was mounted in between matching "U" brackets.
- B. Test specimen was then placed in metal cabinet.
- C. Bunsen burner flame was then exposed to end of test sample for fifteen (15) seconds.
- D. The time required for the flame to travel from 1-1/2" (38) in from the open end of the "U" bracket to 1-1/2" (38) in from the closed end of the "U" bracket was measured and recorded.
- E. The rate of burn was then calculated and recorded.

12. TEST RESULTS

See the attached data sheets for test results.

Progressive Engineering Inc.
FMVSS & CMVSS 302 FLAMMABILITY TEST

Client: Crane Composites, Inc.

Sample Description: CAu 065 - RV Sidewall material with an average measured thickness of .066". The specimens were tested in Machine Direction of the material. *Specimen details provided by Carol Sowa of Crane Composites, Inc.*

Samples Received on: 6/2/2016

PRE-CONDITIONING

	Date	Time	Temperature	Rel. Hum.
Start	6/2/2016	1:51	72°F (22°C)	53%
Stop	6/6/2016	7:13	72°F (22°C)	50%

TEST DATA

Ambient Test Conditions: Temp.: 70°F (21°C)
 Rel. Hum.: 50%

Sample Number	Date	Travel Time (s)	Travel Distance	Comments / Observations
1	6/6/2016	600.0 sec	6.8" (171)	The specimens burned producing thick black smoke with no flaming drips.
2	6/6/2016	600.0 sec	6.9" (175)	
3	6/6/2016	600.0 sec	6.8" (171)	
Average:		600.0 sec	6.8" (173)	

TEST RESULTS

Based on the data above the following Burn Rate (B_r) was obtained. Burn rate is defined as "Travel Distance" divided by the "Travel Time" (in minutes)

Average Burn Rate	Pass	Fail
0.68"/min (17)/min	✓	

A PASS is considered a Burn Rate (B_r) of LESS than 4" (102) per minute.

Progressive Engineering Inc.

FMVSS & CMVSS 302 FLAMMABILITY TEST

Client: Crane Composites, Inc.

Sample Description: CAu 065 - RV Sidewall material with an average measured thickness of .066". The specimens were tested in Cross-Machine Direction of the material. Specimen details provided by Carol Sowa of Crane Composites, Inc.

Samples Received on: 6/2/2016

PRE-CONDITIONING

	Date	Time	Temperature	Rel. Hum.
Start	6/2/2016	1:51	72°F (22°C)	53%
Stop	6/6/2016	7:13	72°F (22°C)	50%

TEST DATA

Ambient Test Conditions: Temp.: 70°F (21°C)
Rel. Hum.: 50%

Sample Number	Date	Travel Time (s)	Travel Distance	Comments / Observations
1	6/6/2016	600.0 sec	6.9" (175)	The specimens burned producing thick black smoke with no flaming drips.
2	6/6/2016	600.0 sec	6.9" (175)	
3	6/6/2016	600.0 sec	6.9" (175)	
Average:		600.0 sec	6.9" (175)	

TEST RESULTS

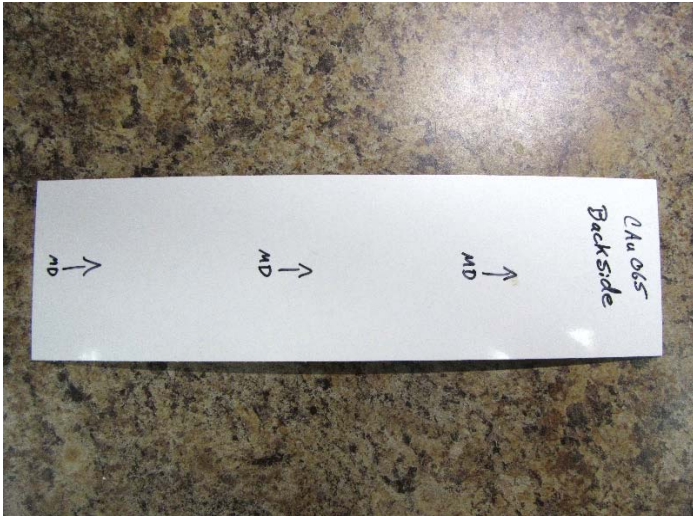
Based on the data above the following Burn Rate (B_r) was obtained. Burn rate is defined as "Travel Distance" divided by the "Travel Time" (in minutes)

Average Burn Rate	Pass	Fail
0.69"/min (17)/min	✓	

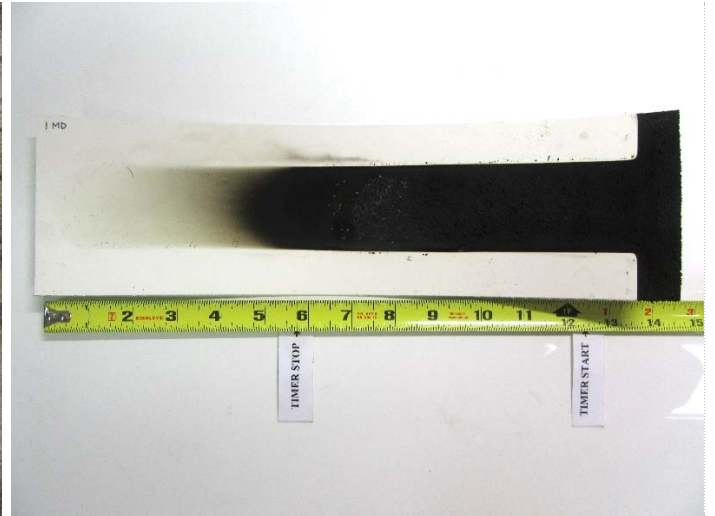
A PASS is considered a Burn Rate (B_r) of LESS than 4" (102) per minute.

Progressive Engineering Inc.

CAu 065 - RV Sidewall Material (Tested in the Material's Machine Direction)



Typical Specimen



Specimen 1MD



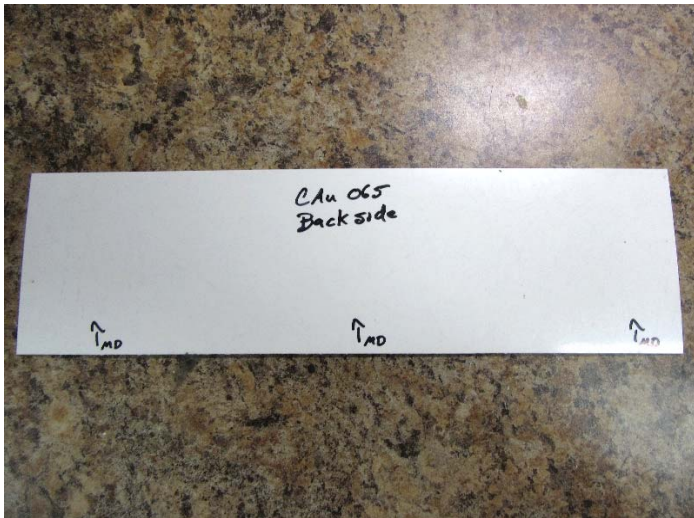
Specimen 3MD



Specimen 4MD

Progressive Engineering Inc.

CAu 065 - RV Sidewall Material (Tested in the Material's Cross-Machine Direction)



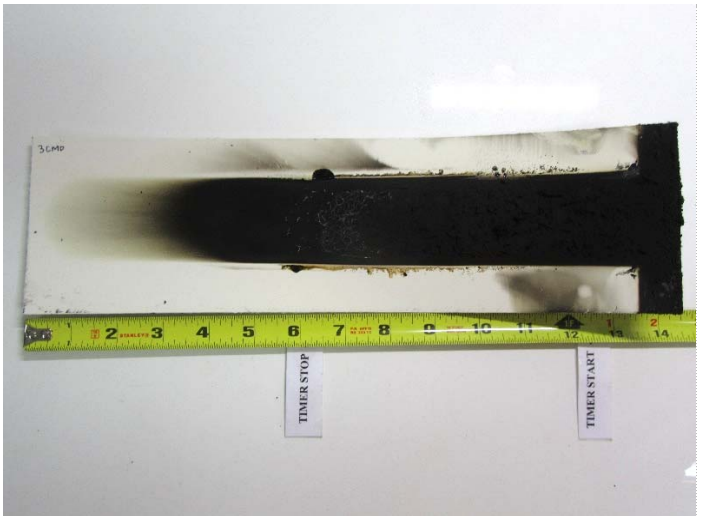
Typical Specimen



Specimen 1CMD



Specimen 2CMD



Specimen 3CMD