Progressive Engineering Inc.

CRANE COMPOSITES, INC.

FMVSS and CMVSS 302
Flammability of Interior Materials Test

10/22/2019

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

2019-6349
(B)

58640 State Road 15 - Goshen, IN 46528
Phone: 574-533-0337 - Fax: 574-533-9736
www.p-e-i.com

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.

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.
594 Territorial Drive
Bolingbrook, IL 60440

4. TESTING ORGANIZATION

Progressive Engineering Inc.

58640 State Road 15
Goshen, IN 46528
www.p-e-l.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 (10-1-16 Edition).

Canadian Motor Vehicle Safety Standards (CMVSS) Standard 302

Transport Canada Technical Standards Document No. 302, Revision 0R

7. TEST EQUIPMENT

A. Pre-Conditioning Room
B. Burn Chamber (PEI No. 269)
C. Digital Timers (PEI No's. 812 and 948)

Note: Devices were calibrated on 8/20/2019. Individual calibration files are kept on file at PEI for each number shown.

8. TEST SPECIMEN

See attached data pages for specimen descriptions.

9. TEST SPECIMEN CONSTRUCTION

The test specimens were cut into a 4" x 14" x 1/2" thick (maximum) piece for testing. (Where ideal specimen size could not be attained, the closest matching specimen size was used or the actual shape of the finished product.)

10. TEST SPECIMEN CONDITIONING

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

11. TEST PROCEDURE

A. Test specimen is mounted in between matching "U" brackets.
B. Test specimen is then placed in metal cabinet.
C. Bunsen burner flame is then exposed to end of test sample for fifteen (15) seconds.
D. The time required for the flame to travel from 1-1/2" in from the open end of the "U" bracket to 1-1/2" in from the closed end of the "U" bracket is measured and recorded.
E. The rate of burn is 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: CCI MAX 050 8211 fiberglass sheet material with an average measured thickness of .048". *Specimen details provided by Carol Sowa of Crane Composites, Inc. The test specimens were oriented in the Machine Direction.*

Samples Received on: 10/18/2019

PRE-CONDITIONING

	Date	Time	Temperature	Rel. Hum.
Start	10/18/2019	10:05	72°F (22°C)	48%
Stop	10/22/2019	7:57	72°F (22°C)	50%

TEST DATA

Ambient Test Conditions: **Temp.:** 74°F (23°C)
Rel. Hum.: 52%

Sample Number	Date	Travel Time (s)	Travel Distance	Comments / Observations
1	10/22/2019	484.0 sec	10.0" (254)	The specimens burned producing lots of dark gray smoke with no flaming drips.
2	10/22/2019	456.0 sec	10.0" (254)	
3	10/22/2019	502.0 sec	10.0" (254)	
	Average:	480.7 sec	10.0" (254)	

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
1.25"/min (32)/min	✔	

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

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FMVSS & CMVSS 302 FLAMMABILITY TEST

Client: Crane Composites, Inc.

Sample Description: CCI MAX 050 8211 fiberglass sheet material with an average measured thickness of .048". *Specimen details provided by Carol Sowa of Crane Composites, Inc. The test specimens were oriented in the Cross-Machine Direction.*

Samples Received on: 10/18/2019

PRE-CONDITIONING

	Date	Time	Temperature	Rel. Hum.
Start	10/18/2019	10:05	72°F (22°C)	48%
Stop	10/22/2019	7:57	72°F (22°C)	50%

TEST DATA

Ambient Test Conditions: **Temp.:** 74°F (23°C)
Rel. Hum.: 52%

Sample Number	Date	Travel Time (s)	Travel Distance	Comments / Observations
4	10/22/2019	534.0 sec	10.0" (254)	The specimens burned producing lots of dark gray smoke with no flaming drips.
5	10/22/2019	530.0 sec	10.0" (254)	
6	10/22/2019	480.0 sec	10.0" (254)	
	Average:	514.7 sec	10.0" (254)	

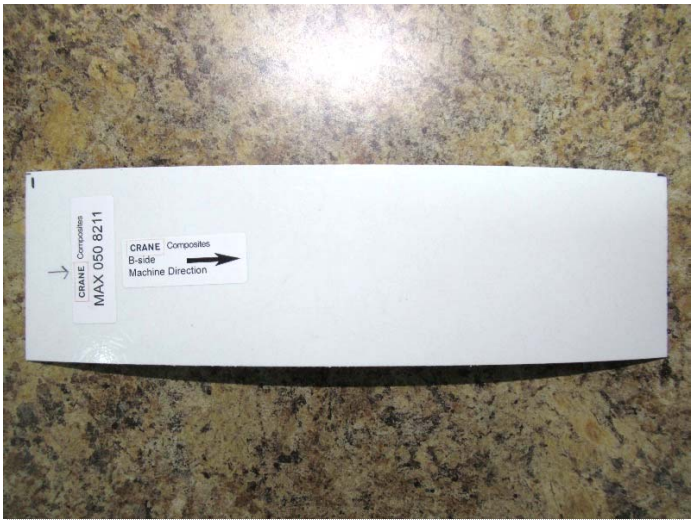
TEST RESULTS

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
1.17"/min (30)/min	✔	

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

CCI MAX 050 8211 Specimens Oriented in the Machine Direction



Typical Specimen (Back Side)

Sample 1 (Face Side/Exposed Side)

Sample 2 (Face Side/Exposed Side)

Sample 3 (Face Side/Exposed Side)

CCI MAX 050 8211 Specimens Oriented in the Cross-Machine Direction

Typical Specimen (Back Side)

Sample 4 (Face Side/Exposed Side)

Sample 5 (Face Side/Exposed Side)

Sample 6 (Face Side/Exposed Side)