
CAN/ULC-S102 Surface Burning Characteristics of "1.0mm High Pressure Laminate Fire Rated"

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Submitted by: Element Fire Testing

Report No. 22-002-071
6 Pages

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1.0 ACCREDITATION

ISO/IEC 17025 for a defined Scope of Testing by the American Association for Laboratory Accreditation (A2LA)

2.0 SPECIFICATIONS OF ORDER

Determine Flame Spread Rating and Smoke Developed Classification based upon triplicate testing conducted in accordance with CAN/ULC-S102-2018, as per Element Quotation No. 22-002-323162 RV1 dated February 24, 2022.

2.1 History of Report Revision

This is the original.

3.0 SAMPLE IDENTIFICATION (Element sample identification number 22-002-S0071)

Laminate material, adhered to a cement board substrate, identified as:
"1.0mm High Pressure Laminate Fire Rated"

4.0 TEST PROCEDURE

The method, designated as CAN/ULC-S102-2018, "*Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results of less than three identical specimens are expressed in terms of Flame Spread Value (FSV) and Smoke Developed Value (SDV). Results of three or more replicate tests on identical samples produce average values expressed as Flame Spread Rating (FSR) and Smoke Developed Classification (SDC).

Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, the test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions.

5.0 SAMPLE PREPARATION

The 1 mm thick laminate material was adhered to a 6 mm thick, fiberglass reinforced cement board substrate using Heavy Duty Contact Cement Adhesive. Each test specimen consisted of a total of three prepared sections of material, each approximately 533 mm in width by 2438 mm in length. The sections were butted together to create the specimen length. Prior to testing, each specimen was conditioned to constant weight at a temperature of $23 \pm 3^{\circ}\text{C}$ and a relative humidity of $50 \pm 5\%$. At the time of test initiation, each specimen was self-supporting.

Testing was performed on: Test #1: 2022-03-01 Test #2: 2022-03-01 Test #3: 2022-03-01

6.0 SUMMARY OF TEST PROCEDURE

The tunnel is preheated to 85°C , as measured by the backwall-embedded thermocouple located 7090 mm downstream of the burner ports, and allowed to cool to 40°C , as measured by the backwall-embedded thermocouple located 4000 mm from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 7315 mm long, 305 mm above the floor. The lid is then lowered into place.

Upon ignition of the gas burners, the flame spread distance is observed and recorded every second. Flame spread distance versus time is plotted. Calculations ignore all flame front recessions and the Flame Spread Values (FSV) are determined by calculating the total area under the curve for each test sample. If the total area under the curve (AT) is less than or equal to 29.7 m·min, $FSV = 1.85 \cdot AT$; if greater, $FSV = 1640 / (59.4 - AT)$.

The Smoke Developed Value is determined by comparing the area under the obscuration curve for the test sample to that of inorganic reinforced cement board and red oak, established as 0 and 100, respectively. The Smoke Developed Value (SDV) is determined by dividing the total area under the obscuration curve by that of red oak and multiplying by 100.

7.0 TEST RESULTS

SAMPLE: "1.0mm High Pressure Laminate Fire Rated"

Test	Approx. Time to Ignition (s)	Maximum Flame Front Distance (m)	Time to Maximum Flame Front (s)	Maximum Air Temperature (°C)	Flame Spread Value (FSV)	Smoke Developed Value (SDV)
1	265	0.00	0	253	0	36
2	242	0.00	0	251	0	38
3	253	0.00	0	257	0	38
Average:					0	37
Rounded Average Flame Spread Rating (FSR):					0	-
Rounded Average Smoke Developed Classification (SDC):					-	35

7.1 Observations of Burning Characteristics

The specimens ignited approximately 242 to 265 seconds after exposure to the test flame. Audible crackling, spalling and delamination was observed in the area of direct test flame impingement.

8.0 RESULTS INTERPRETATION

CAN/ULC-S102 contains no performance criteria of its own. The National Building Code of Canada (NBCC) or other jurisdictional documentation should be referenced to determine the FSR and/or SDC performance criteria that is applicable to the material, for the intended application.



Francis Williams,
Technician.



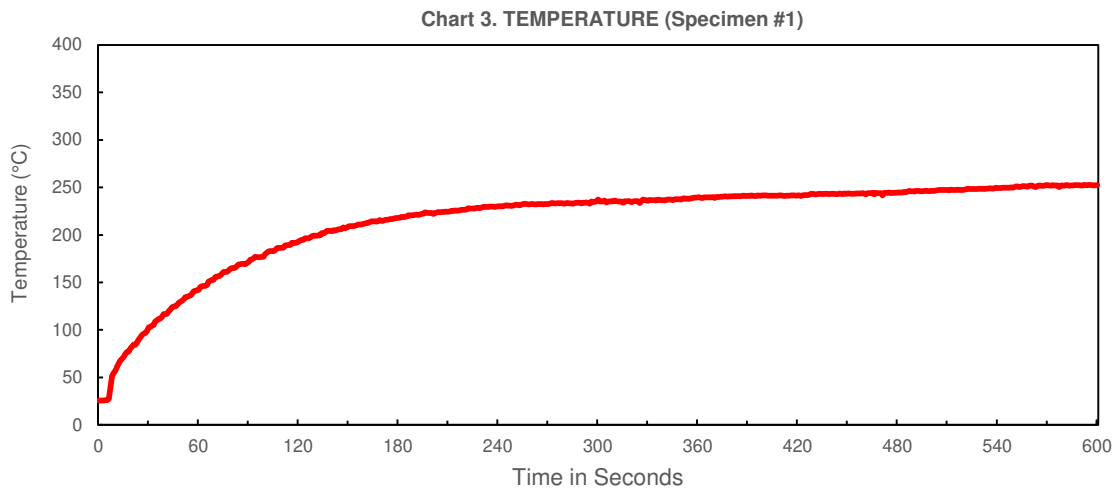
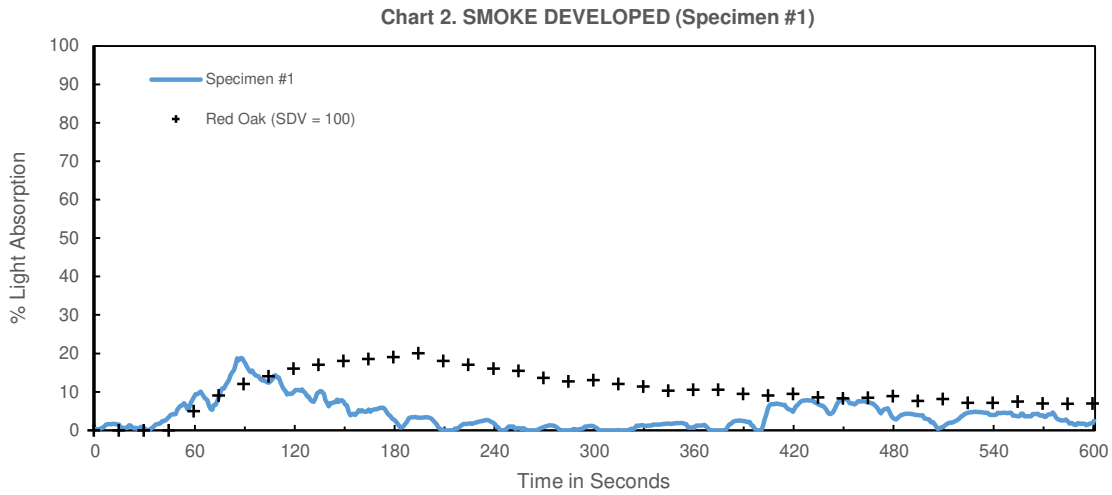
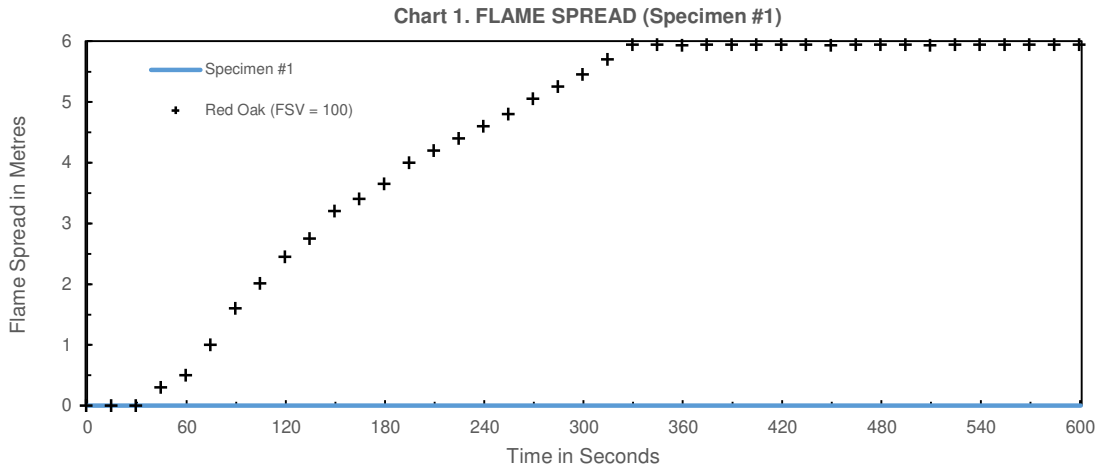
Ian Smith,
Technical Manager.

Note: This report is related only to the sample identified and shall not be reproduced, except in full, without approval. It is covered under Element Materials Technology Canada Inc. Standard Terms and Conditions of Contract, which are accessible at www.element.com, or by calling 1-866-263-9268. In CAN/ULC-S102, individual test data is reported in the form of indices (Flame Spread Value, Smoke Developed Value). As such, measurement uncertainty (MU) cannot be calculated.

10.0 TEST CHARTS

10.1 Test 1 Charts

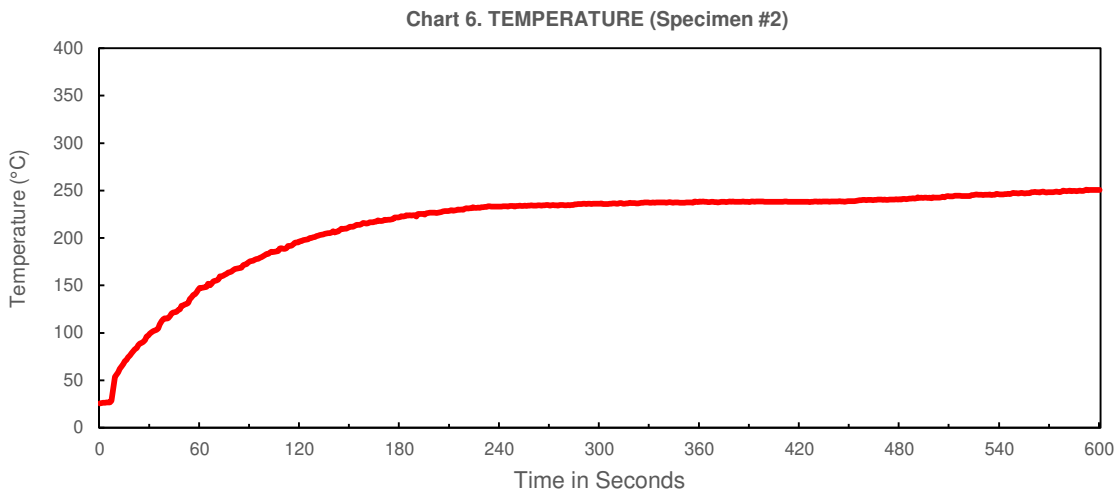
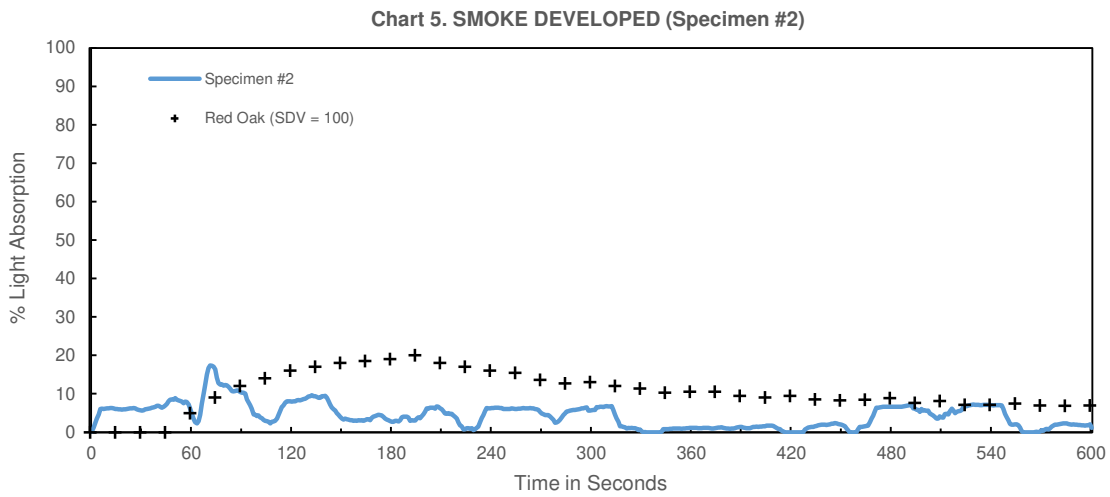
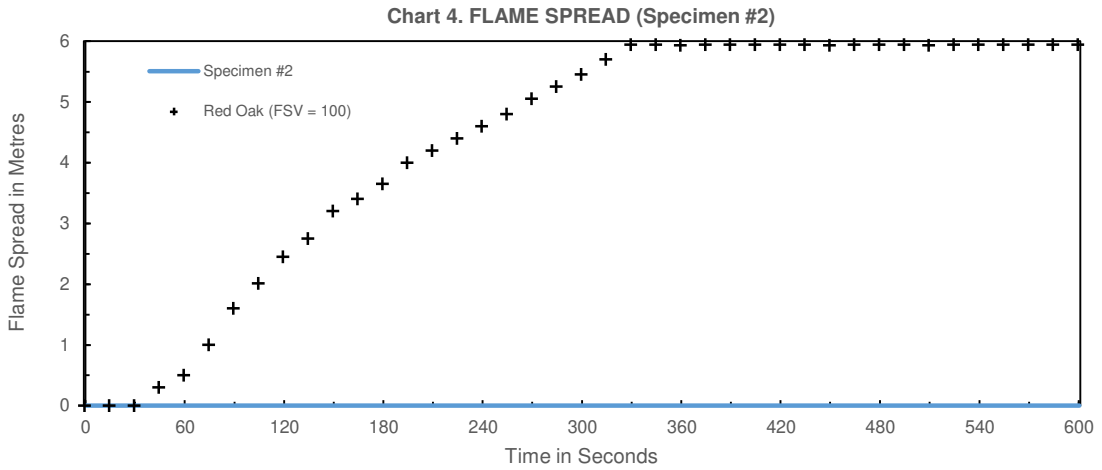
Test 1: "1.0mm High Pressure Laminate Fire Rated"



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
0	36	253

10.2 Test 2 Charts

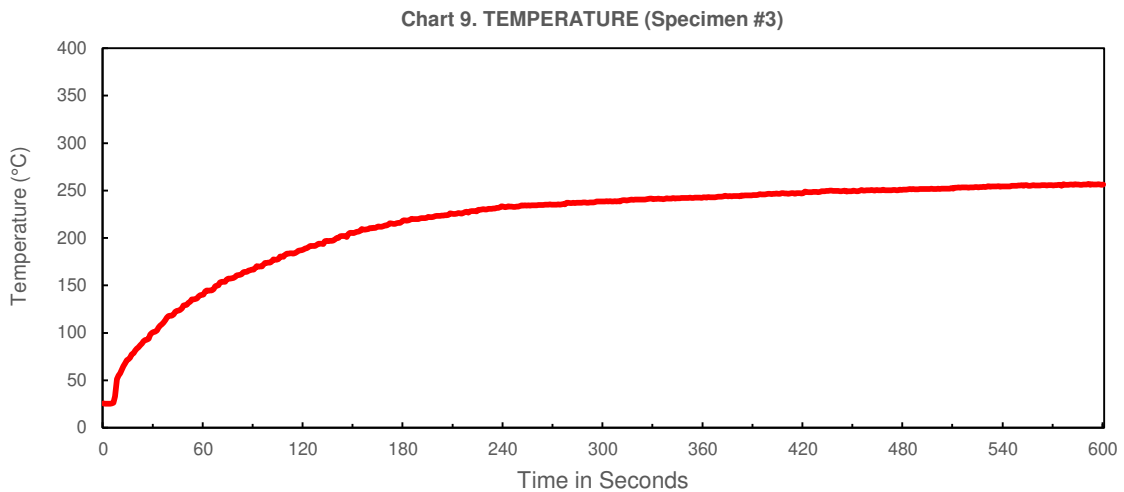
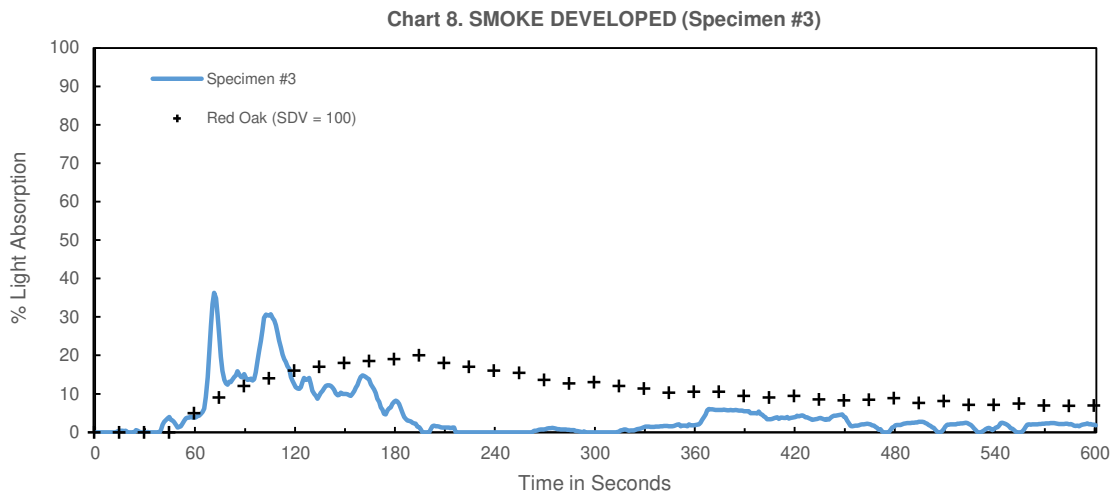
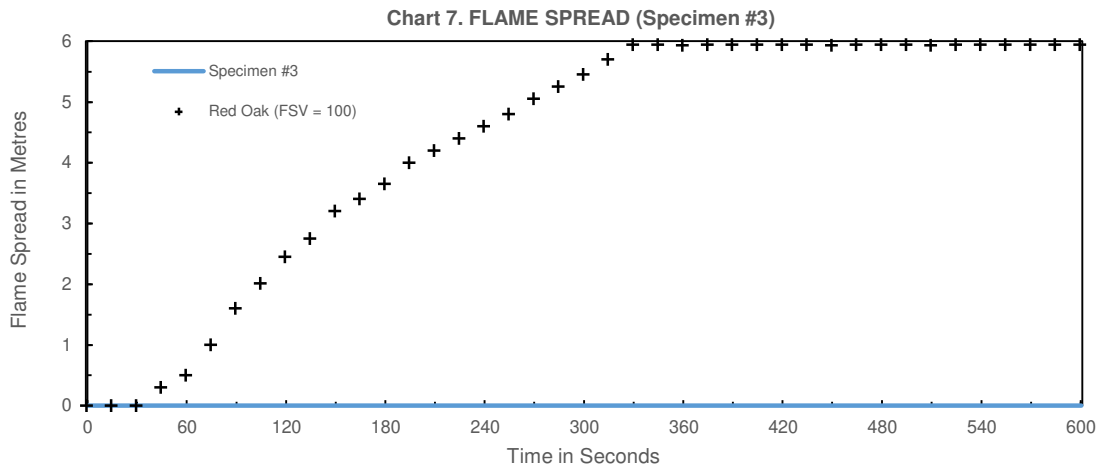
Test 2: "1.0mm High Pressure Laminate Fire Rated"



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
0	38	251

10.3 Test 3 Charts

Test 3: "1.0mm High Pressure Laminate Fire Rated"



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
0	38	257