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Testing. calibrating. advising

CAN/ULC-S102 Surface Burning Characteristics of "Laminate Post Forming Grade 0,8 mm"

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Submitted by:	Exova Warringtonfire North America
Report No.	18-002-147(A) 6 Pages
Date:	April 2, 2018

ACCREDITATION To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

SPECIFICATIONS OF ORDER

Determine Flame Spread and Smoke Developed Values based upon triplicate testing conducted in accordance with CAN/ULC-S102-10, as per Exova Warringtonfire North America Quotation No. 18-002-539,701 RV1 dated February 20, 2018.

SAMPLE IDENTIFICATION (Exova sample identification number 18-002-S0147)

High Pressure Laminate (HPL) material, nominally 0,8 mm in thickness, described as, "VGP as per Standard LD3-2005; not flame retardant", identified as:
"Laminate Post Forming Grade 0,8 mm"

TEST PROCEDURE

The method, designated as CAN/ULC-S102-10, "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.

SAMPLE PREPARATION

The 0.8 mm HPL material was adhered to a 6 mm thick fiberglass reinforced cement board substrate using LEPAGE 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 requisite specimen length. Prior to testing, each specimen was conditioned to constant mass at a temperature of 23 ± 3°C and a relative humidity of 50 ± 5%. At the initiation of testing, each specimen was self-supporting

Testing was performed on: Test #1: 2018-03-28 Test #2: 2018-03-28 Test #3: 2018-03-29

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.

SUMMARY OF TEST PROCEDURE (continued)

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·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.

TEST RESULTS

SAMPLE: "Laminate Post Forming Grade 0,8 mm"

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	26	2.74	96	398	**46**	**18**
2	25	3.97	103	410	**68**	**34**
3	27	3.11	84	297	**53**	**30**
				Average:	56	28
				Rounded Average Flame Spread Rating **(FSR)**:	**55**	-
				Rounded Average Smoke Developed Classification **(SDC)**:	-	**30**

Observations of Burning Characteristics

The specimens ignited approximately 25 to 27 seconds after exposure to the test flame. Audible crackling behavior was observed. Partial delamination was also observed in the area of direct test burner impingement.

Results Interpretation

CAN/ULC-S102-10 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 product under test for the intended application.

Francis Williams,
Technician.

Ian Smith,
Technical Manager.

Note: This report and service are covered under Exova Canada Inc. Standard Terms and Conditions of Contract which may be found on the Exova website (www.exova.com), or by calling 1-866-263-9268.

Test 1 of 3 Sample: "Laminate Post Forming Grade 0,8 mm"

Chart 1. FLAME SPREAD (Specimen #1)

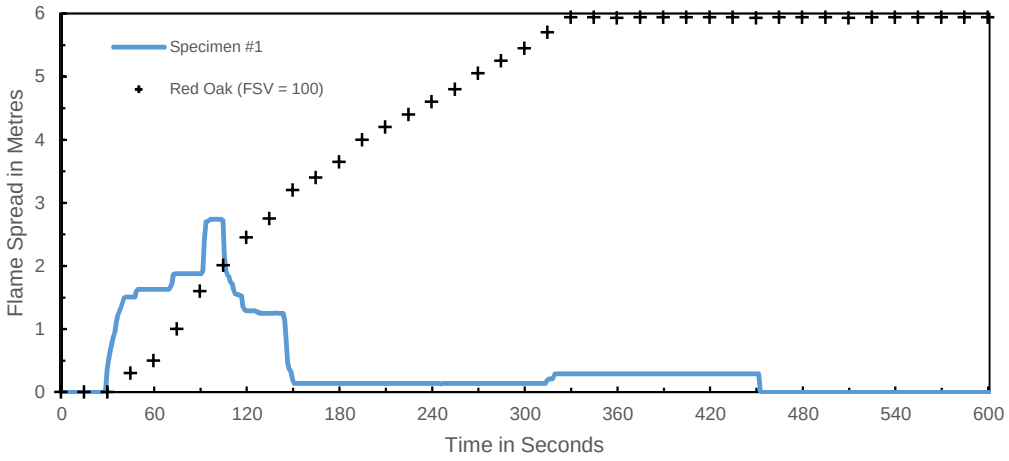


Chart 2. SMOKE DEVELOPED (Specimen #1)

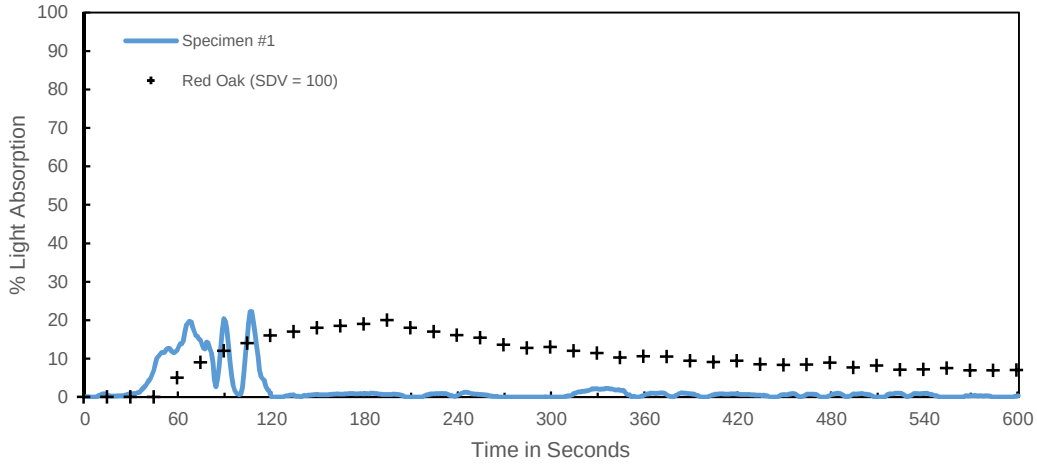
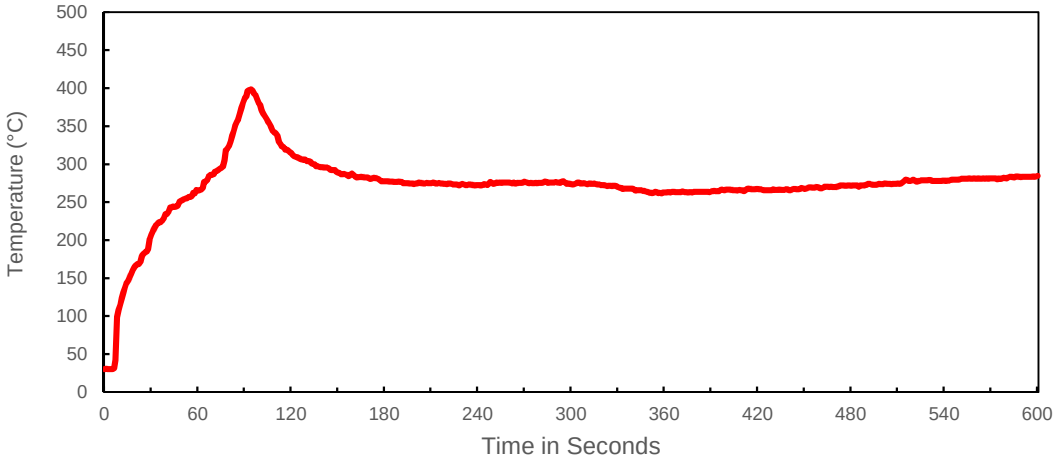


Chart 3. TEMPERATURE (Specimen #1)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
46	**18**	398

Test 2 of 3 Sample: "Laminate Post Forming Grade 0,8 mm"

Chart 4. FLAME SPREAD (Specimen #2)

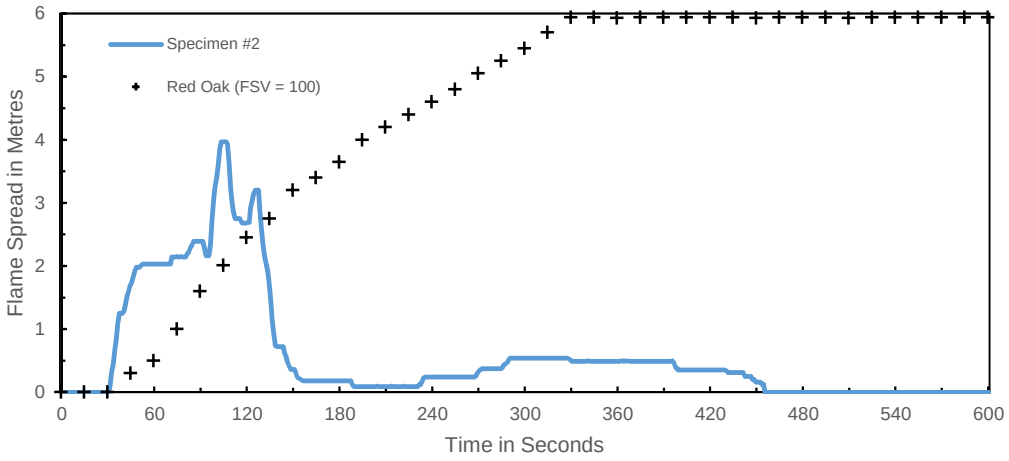


Chart 5. SMOKE DEVELOPED (Specimen #2)

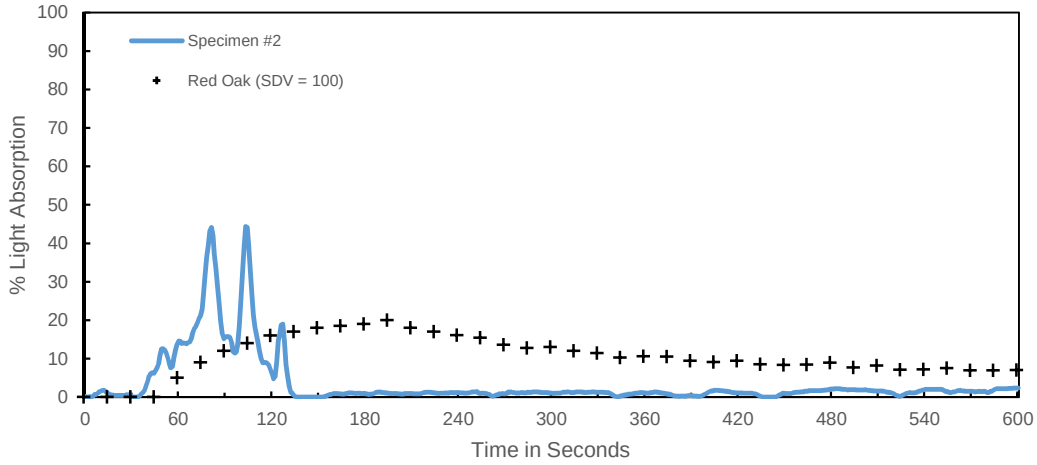
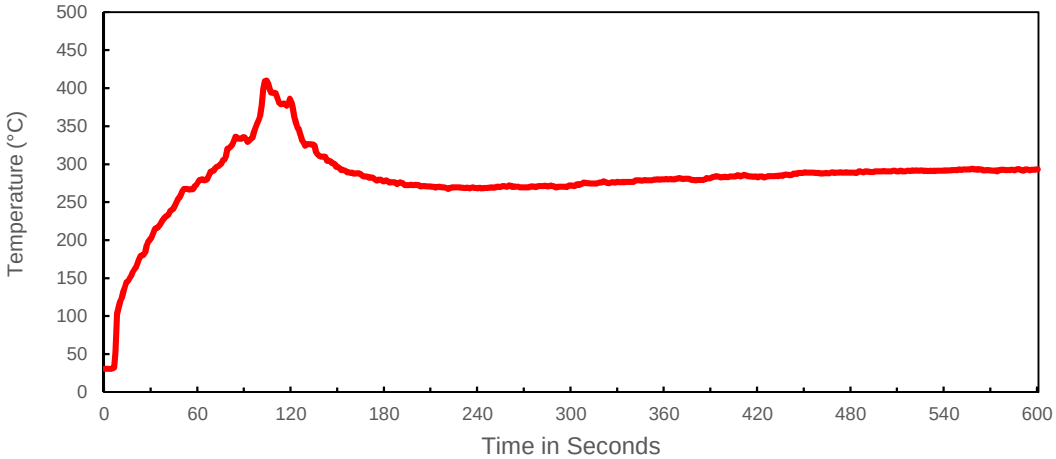


Chart 6. TEMPERATURE (Specimen #2)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
68	**34**	410

Test 3 of 3 Sample: "Laminate Post Forming Grade 0,8 mm"

Chart 7. FLAME SPREAD (Specimen #3)

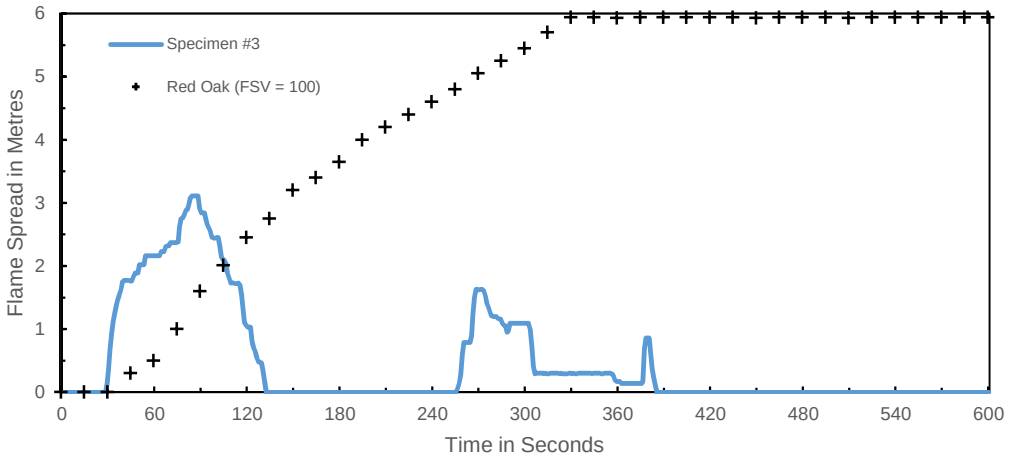


Chart 8. SMOKE DEVELOPED (Specimen #3)

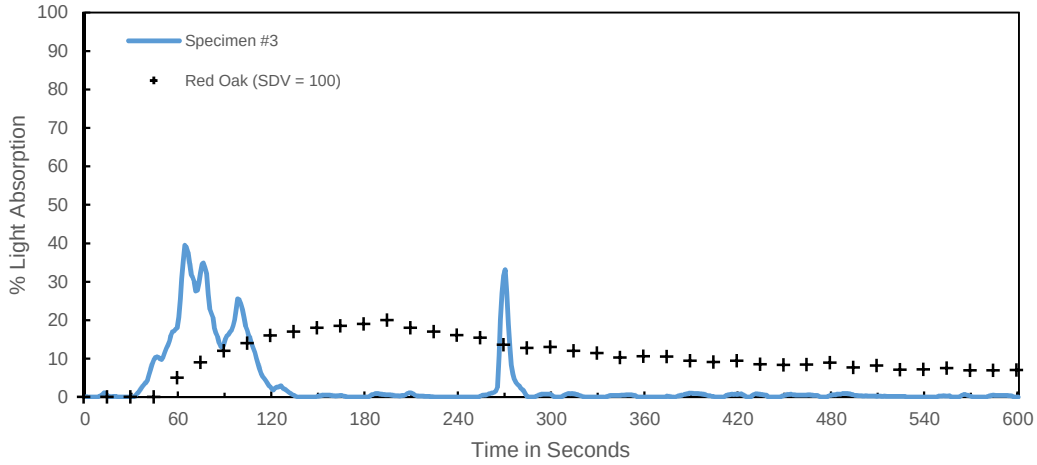
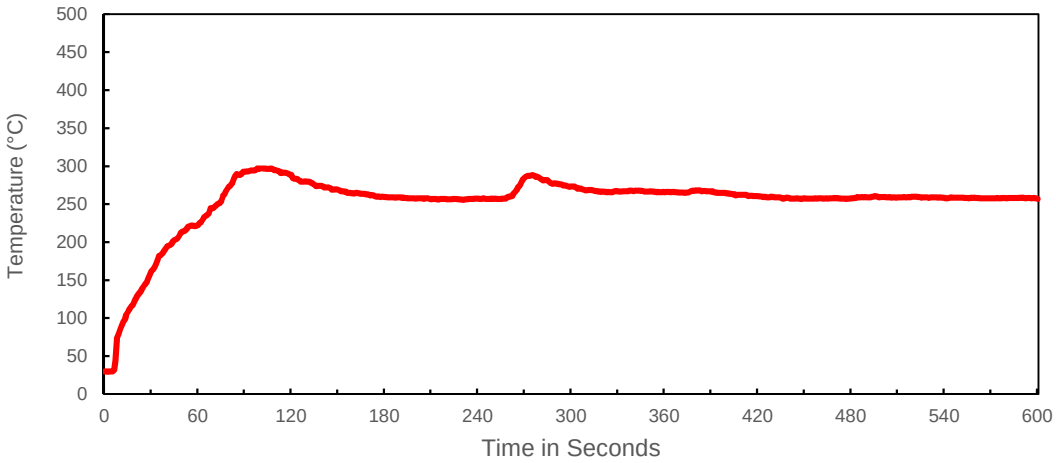


Chart 9. TEMPERATURE (Specimen #3)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
53	**30**	297