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Testing, calibrating, advising

CAN/ULC-S102 Surface Burning Characteristics of "19 mm Softwood Panel with Digital Print"

A Report To: **STAINER Schriften & Siebdruck GmbH & Co. KG**
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Submitted by: Exova Warringtonfire North America

Report No. 17-002-001
6 Pages

Date: January 31, 2017

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

SPECIFICATIONS OF ORDER

Determine the Flame Spread and Smoke Developed Classifications based upon triplicate testing conducted in accordance with CAN/ULC-S102-10, as per Exova Warringtonfire North America Quotation No. 16-002-468,772 dated December 5, 2016.

SAMPLE IDENTIFICATION (Exova sample identification number 17-002-S0001)

Panel material described as, "3-layer spruce panel chipped and brushed", and identified as: "19 mm Softwood Panel with Digital Print"

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

Each test specimen consisted of a total of 3 sections of material, each approximately 19 mm in thickness by 533 mm in width by 2438 mm in length. The sections were butted together during testing to form the requisite specimen length. Prior to testing, each specimen was conditioned to constant mass at a temperature of $23 \pm 3^\circ\text{C}$ and a relative humidity of $50 \pm 5\%$. During testing, the specimens were self-supporting.

The testing was performed on: Test #1: 2017-01-06 Test #2: 2017-01-06 Test #3: 2017-01-06

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 $29.7 \text{ m} \cdot \text{min}$, $\text{FSV} = 1.85 \cdot \text{AT}$; if greater, $\text{FSV} = 1640 / (59.4 - \text{AT})$.

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

TEST RESULTS

<u>SAMPLE</u>		<u>Flame Spread Value (FSV)</u>	<u>Smoke Developed Value (SDV)</u>
"19 mm Softwood Panel with Digital Print"	Test #1	19	122
	Test #2	18	83
	Test #3	<u>23</u>	<u>118</u>
	Average:	20	107

Rounded Average Flame Spread Rating (FSR): **20**

Rounded Average Smoke Developed Classification (SDC): **105**

Observations of Burning Characteristics

- The specimens ignited approximately 31 to 35 seconds after exposure to the test flame.
- The flame fronts advanced to maximum distances of 2.0, 1.5, and 1.5 metres at approximately 540, 461, and 239 seconds into each respective test.

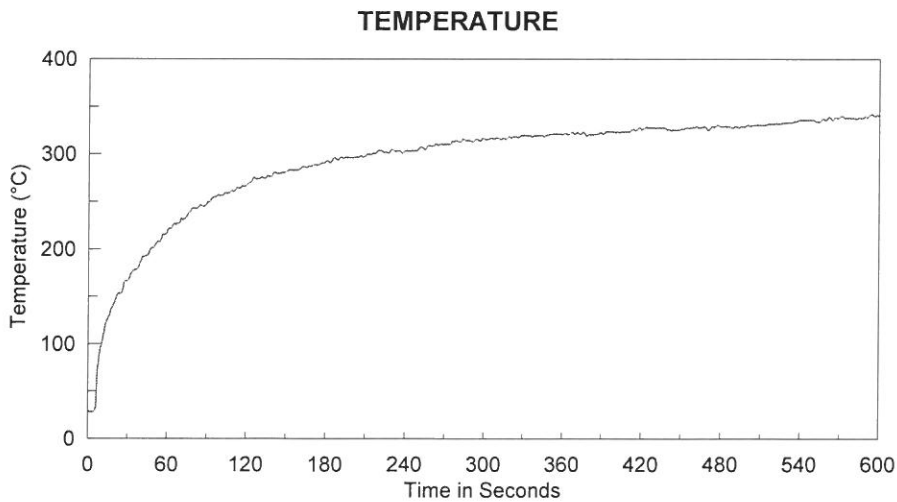
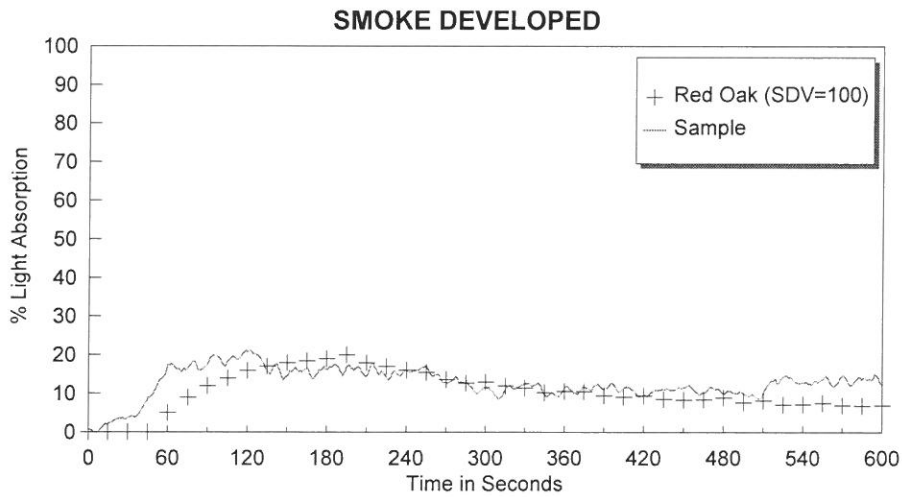
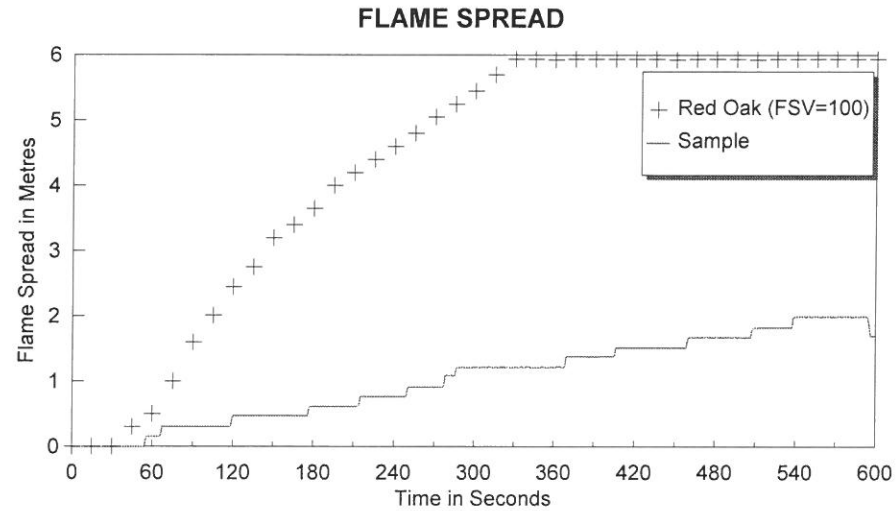

Robert A. Carleton
Technologist.


Ian Smith,
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Sample: "19 mm Softwood Panel with Digital Print"

Test #1 of 3



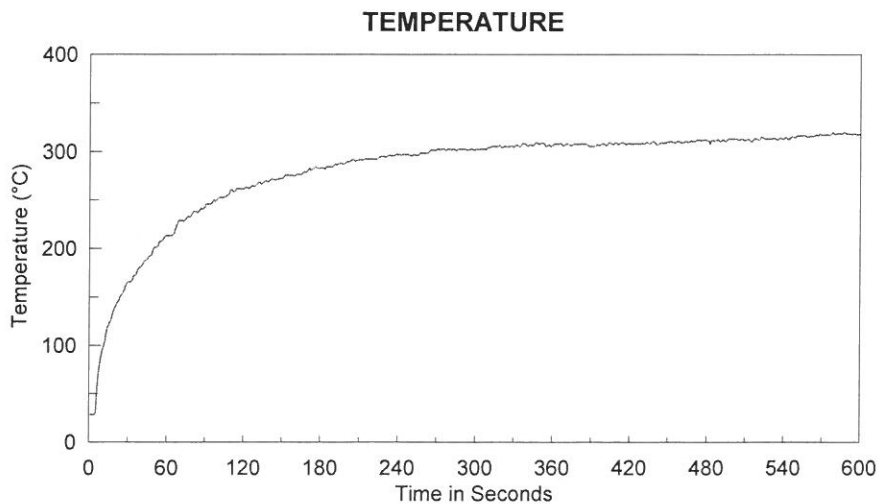
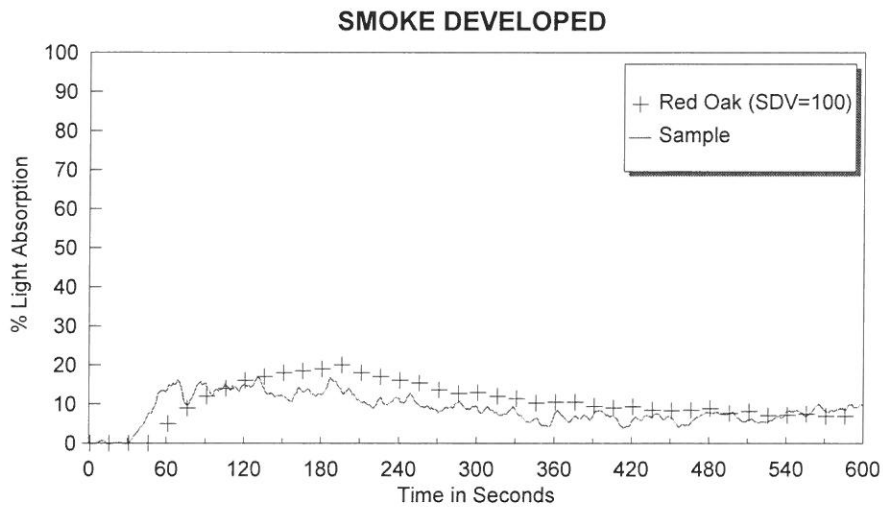
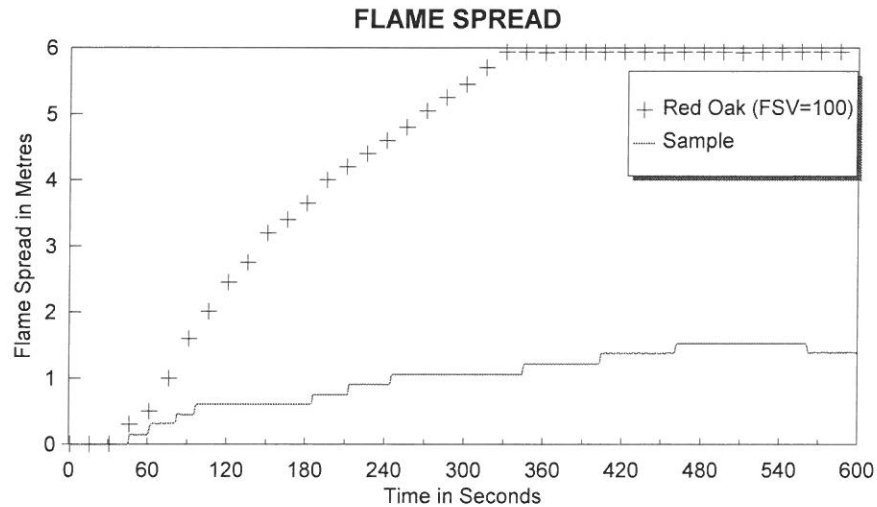
FSV
19

SDV
122

Max. Temp. (°C)
342

Sample: "19 mm Softwood Panel with Digital Print"

Test #2 of 3



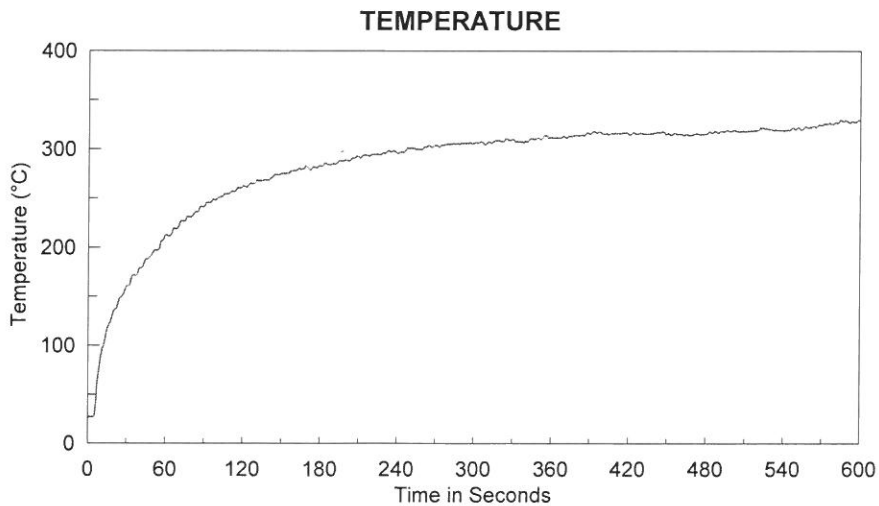
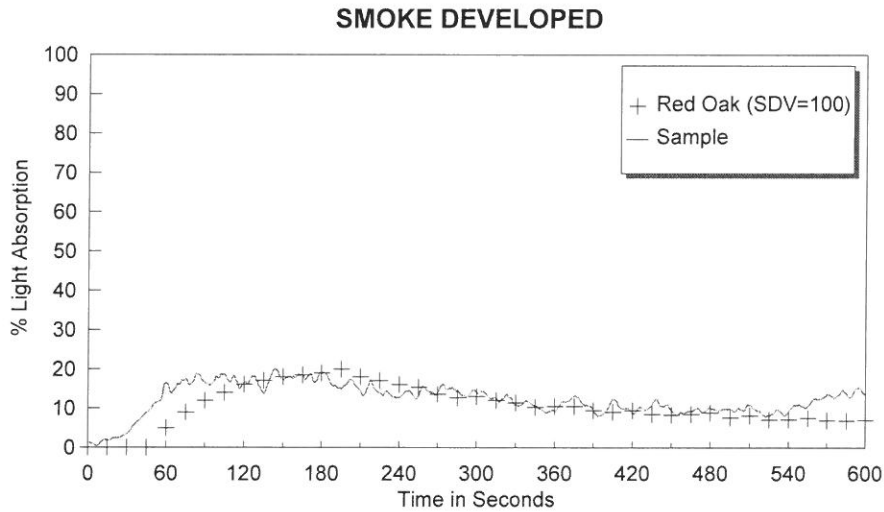
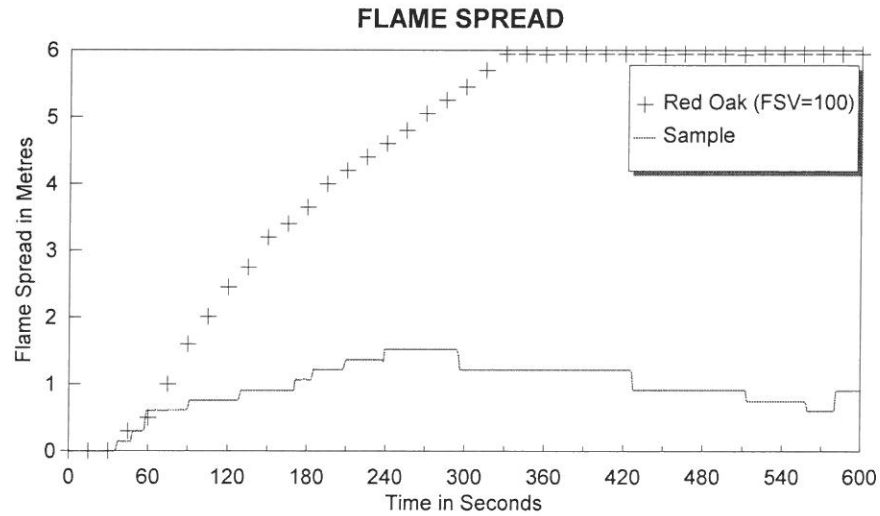
FSV
18

SDV
83

Max. Temp. (°C)
320

Sample: "19 mm Softwood Panel with Digital Print"

Test #3 of 3



FSV
23

SDV
118

Max. Temp. (°C)
330