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CAN/ULC-S102.2 Surface Burning Characteristics of "VE 1004 White 122"

A Report To: **Vision Profile Extrusions**
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Submitted by: Element Fire Testing

Report No. 19-002-209
6 Pages

Date: December 19, 2019

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

SPECIFICATIONS OF ORDER

Determine the Flame Spread Rating and Smoke Developed Classification based upon triplicate testing conducted in accordance with CAN/ULC-S102.2-2018, as per Element Building Science Project No. 19-06-P0035, Element Work Order No. 542714, and Quotation No. 19-006-589172RV2.

SAMPLE IDENTIFICATION (Sample identification number 19-06-P0035)

Material, described as, "Liner Panel Profile", approximately 10 mm in thickness, and identified as: "VE 1004 White 122"

TEST PROCEDURE

The method, designated as CAN/ULC-S102.2-2018, "*Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials*", is designed to determine the relative 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 two sections of material, each approximately 10 mm in thickness by 438 mm in width by 3658 mm in length. The sections were butted together to form the requisite specimen length. Prior to testing, the specimens were conditioned to constant mass at a temperature of $23 \pm 3^{\circ}\text{C}$ and a relative humidity of $50 \pm 5\%$.

Testing was performed on: Test #1: 2019-11-15 Test #2: 2019-11-19 Test #3: 2019-11-19

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 floor of the tunnel so as to form a continuous surface and then the lid is lowered.

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 Value (FSV) is determined by calculating the total area under the curve for the 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.

TEST RESULTS

SAMPLE: "VE 1004 White 122"

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	130	0.63	459	312	3	200
2	118	0.90	162	314	13	180
3	82	1.66	166	310	23	243
Average:					13	208
Rounded Average Flame Spread Rating (FSR):					15	-
Rounded Average Smoke Developed Classification (SDC):					-	210

Observations of Burning Characteristics

The specimens ignited approximately 82 to 130 seconds after exposure to the test flame. Surface blistering and charring was observed. Shrinking and splitting was also observed.

Results Interpretation

CAN/ULC-S102.2 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.

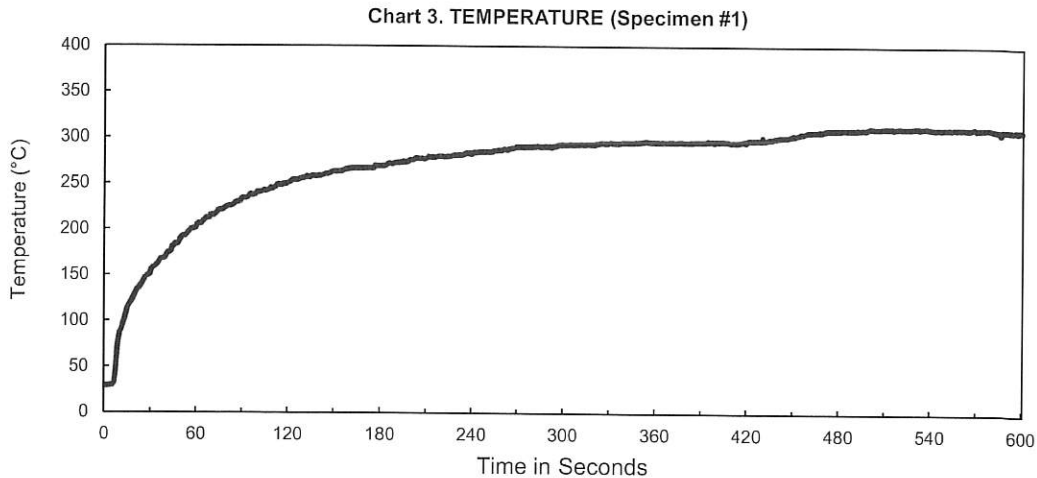
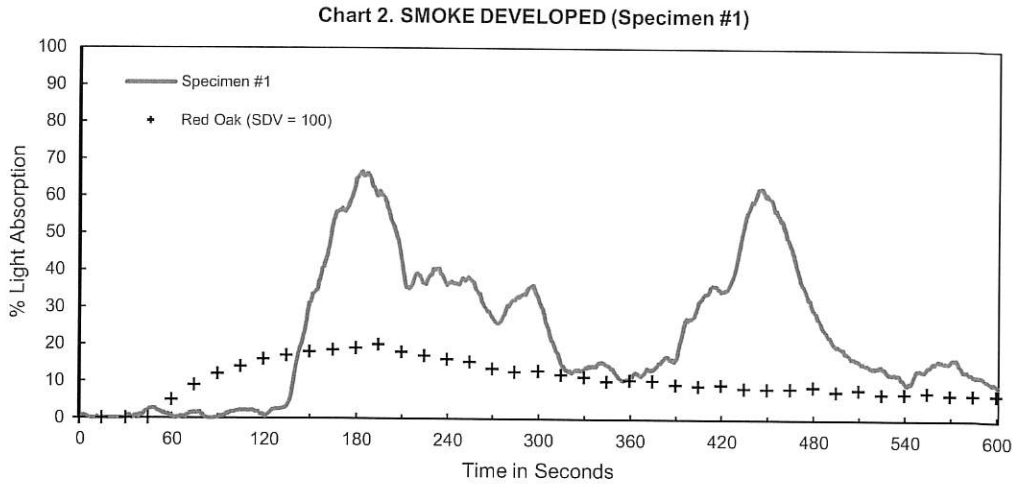
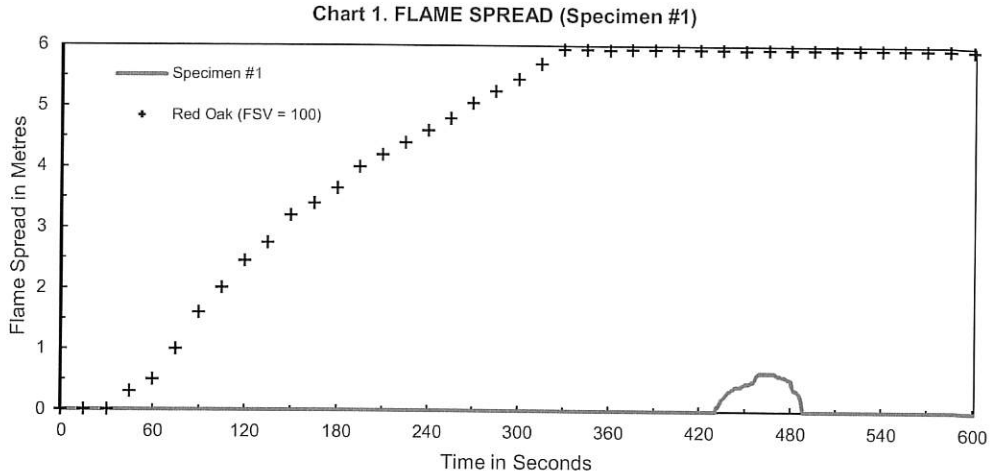


Ian Smith,
 Technical Manager.

Note: This report and service are covered under Element Materials Technology Canada Inc. Standard Terms and Conditions of Contract which may be found on our company's website at www.element.com/terms/terms-and-conditions.

Test 1 of 3

Sample: "VE 1004 White 122"



Flame Spread
Value (FSV)
3

Smoke Developed
Value (SDV)
200

Maximum Air
Temperature (°C)
312

Test 3 of 3

Sample: "VE 1004 White 122"

Chart 7. FLAME SPREAD (Specimen #3)

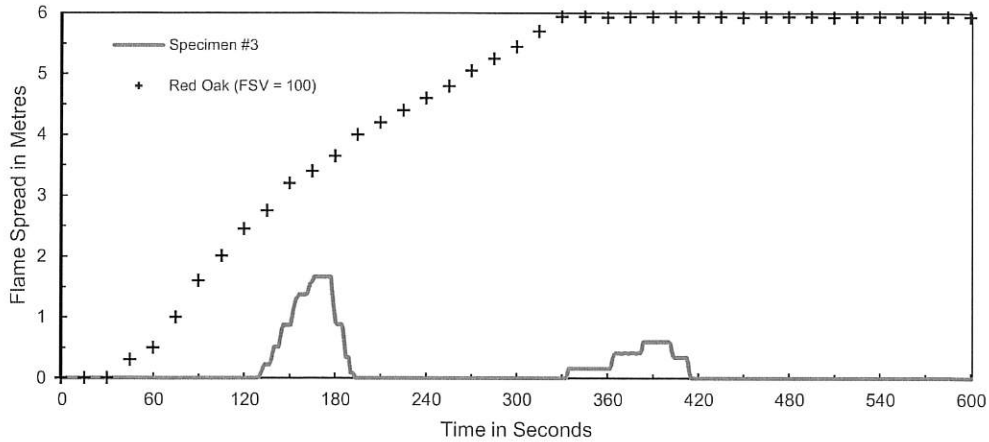


Chart 8. SMOKE DEVELOPED (Specimen #3)

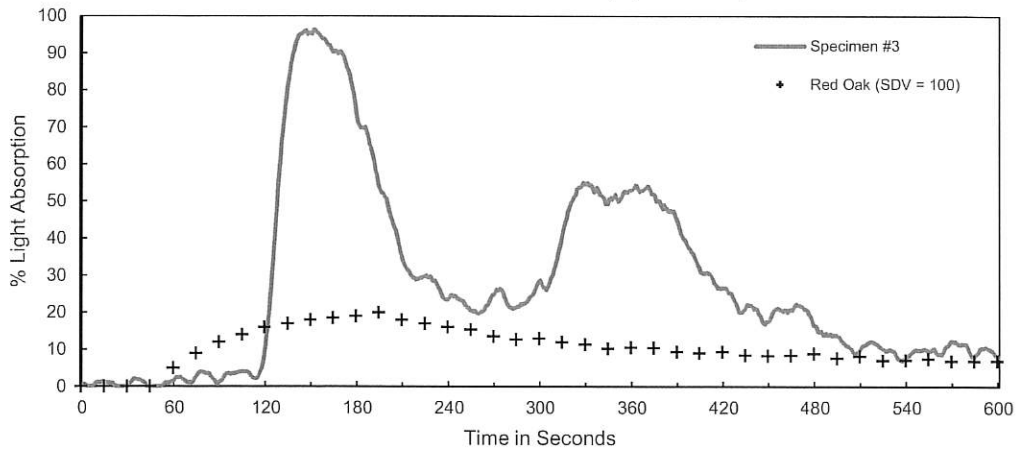
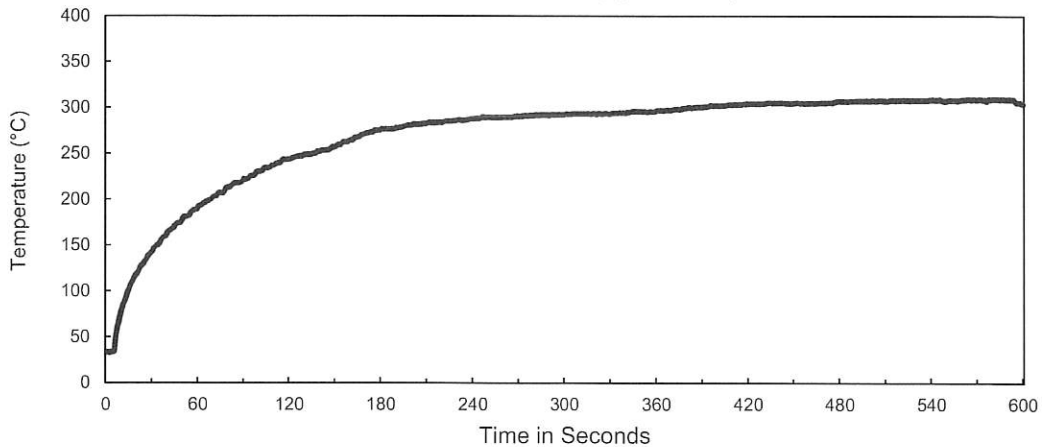


Chart 9. TEMPERATURE (Specimen #3)



Flame Spread
Value (FSV)
23

Smoke Developed
Value (SDV)
243

Maximum Air
Temperature (°C)
310