
CAN/ULC-S102 Surface Burning Characteristics of "APC Acoustic Panel - Pro Acoustic Fabric"

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Submitted by: Element Fire Testing

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6 Pages

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

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. 19-006-79783 dated May 3, 2019.

SAMPLE IDENTIFICATION (Element sample identification number 19-002-S0422)

Panel system described as, "Acoustic panel system with Pro Acoustic Fabric", identified as: "APC Acoustic Panel - Pro Acoustic Fabric"

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.

SAMPLE PREPARATION

Each test specimen consisted of a total of six sections of material, each approximately 51 mm in thickness by 610 mm in width by 1219 mm in length. The sections were butted together to create the total 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 $50 \pm 5\%$. At the time of test initiation, each specimen was self-supporting.

Testing was performed on: Test #1: 2019-07-11 Test #2: 2019-07-11 Test #3: 2019-07-12

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, $FSV = 1.85 \cdot AT$; 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: "APC Acoustic Panel - Pro Acoustic Fabric"

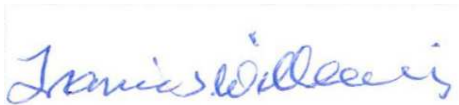
Test	Approx. Time to Ignition (s)	Maximum Flame Front Distance (m)	Time to Maximum Flame Front (s)	Maximum Air Temperature (°C)	Flame Spread Value (FSV)	Smoke Developed Value (SDV)
1	371	0.00	0	336	0	47
2	446	1.14	457	342	5	47
3	382	0.43	421	322	3	60
Average:					3	51
Rounded Average Flame Spread Rating (FSR):					5	-
Rounded Average Smoke Developed Classification (SDC):					-	50

Observations of Burning Characteristics

The specimens ignited approximately 371 to 446 seconds after exposure to the test flame. In each case, melting and dripping behavior was observed. Material that dripped to the floor of the apparatus ultimately ignited (at approximately 371, 446, and 382 seconds respectively).

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. For general reference purposes only, for interior wall and ceiling finish materials, the NBCC most-typically specifies a maximum FSR of 150 and a maximum SDC of 300.



Francis Williams,
Technician.



Ian Smith,
Technical Manager.

Test 1 of 3

Sample: "APC Acoustic Panel - Pro Acoustic Fabric"

Chart 1. FLAME SPREAD (Specimen #1)

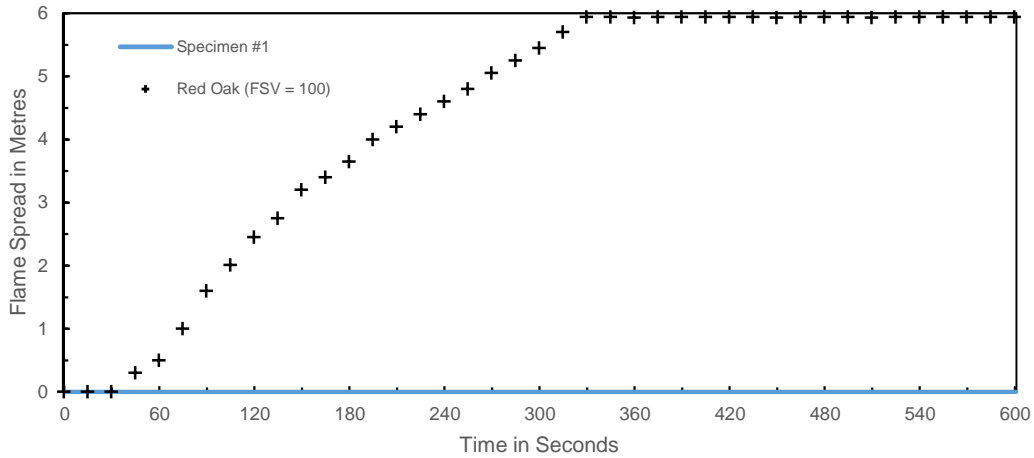


Chart 2. SMOKE DEVELOPED (Specimen #1)

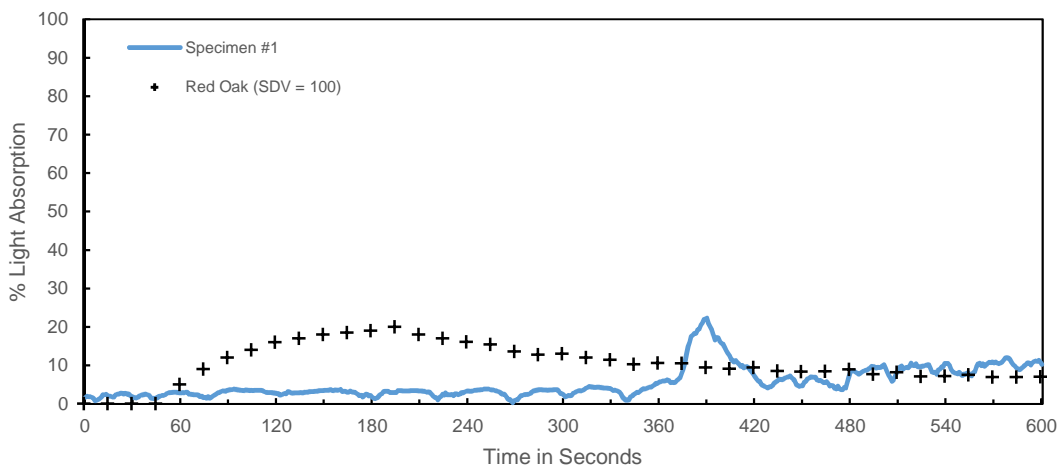
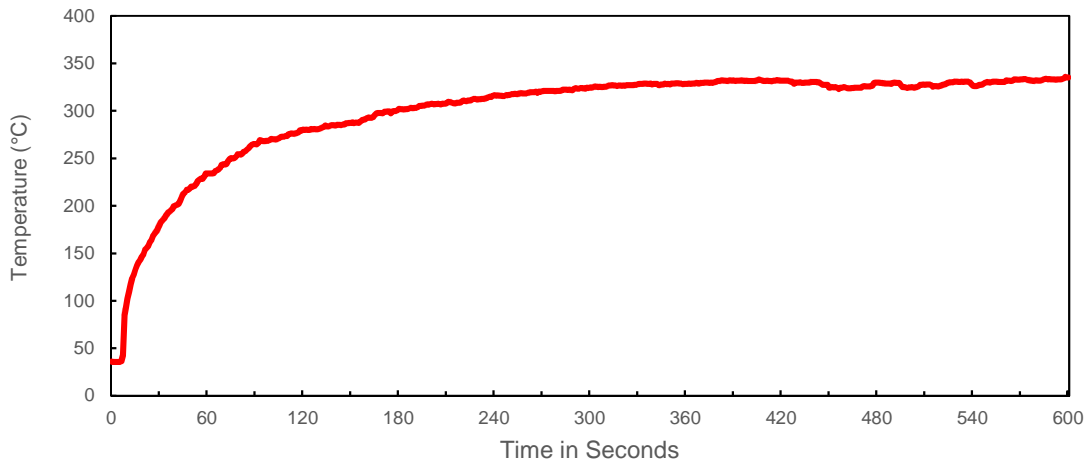


Chart 3. TEMPERATURE (Specimen #1)



Flame Spread
Value (FSV)
0

Smoke Developed
Value (SDV)
47

Maximum Air
Temperature (°C)
336

Test 2 of 3

Sample: "APC Acoustic Panel - Pro Acoustic Fabric"

Chart 4. FLAME SPREAD (Specimen #2)

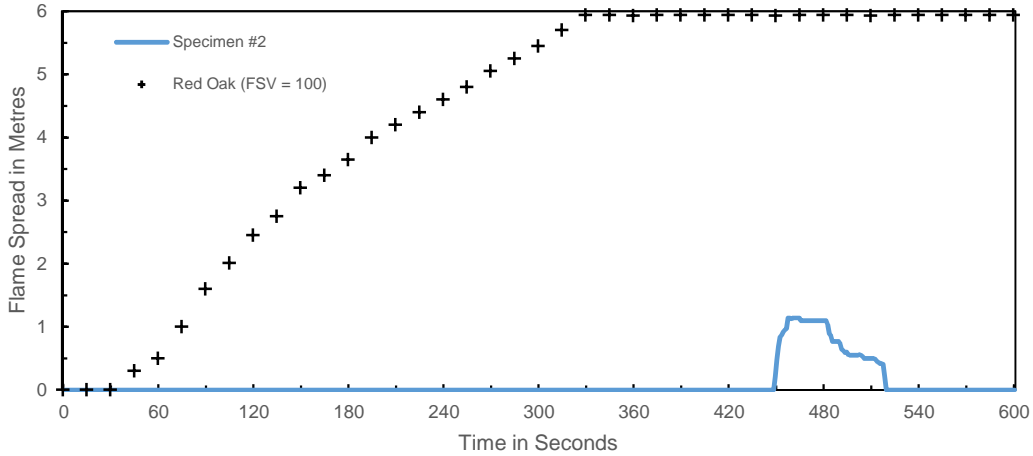


Chart 5. SMOKE DEVELOPED (Specimen #2)

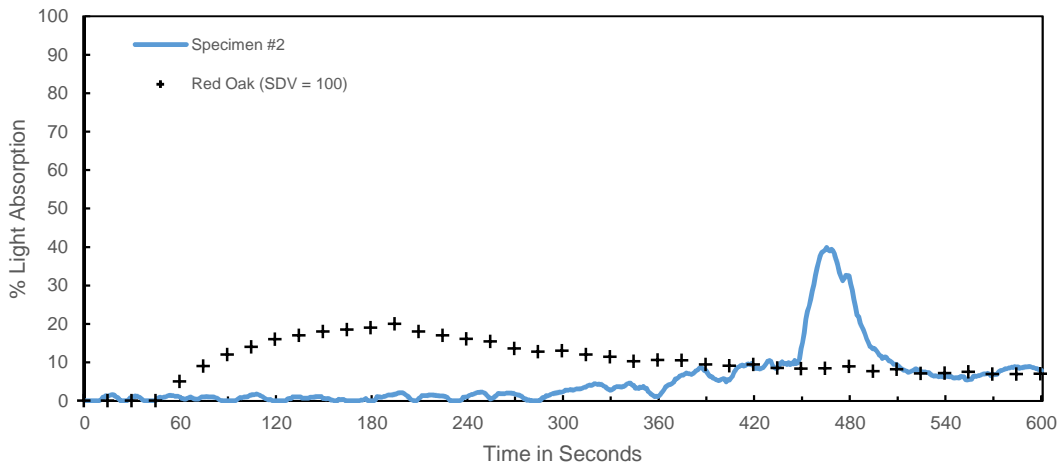
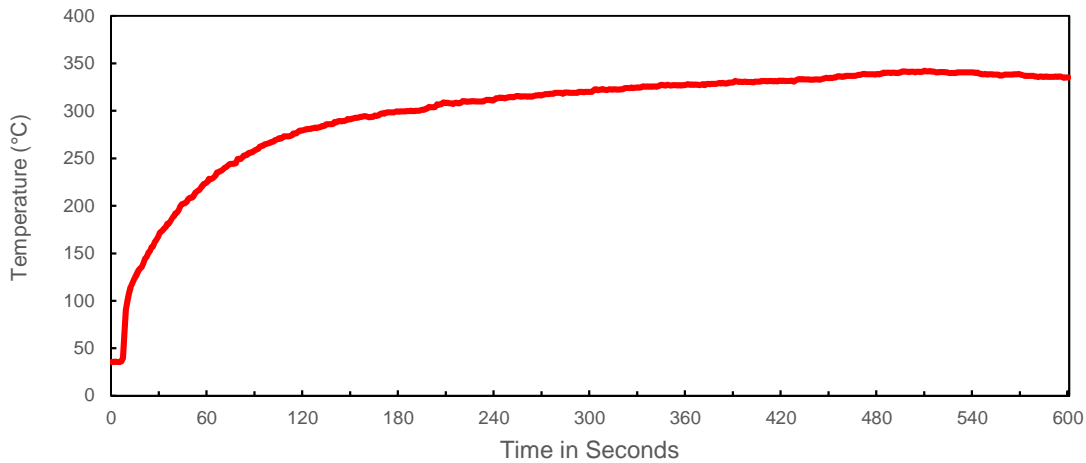


Chart 6. TEMPERATURE (Specimen #2)



Flame Spread
Value (FSV)
5

Smoke Developed
Value (SDV)
47

Maximum Air
Temperature (°C)
342

Test 3 of 3

Sample: "APC Acoustic Panel - Pro Acoustic Fabric"

Chart 7. FLAME SPREAD (Specimen #3)

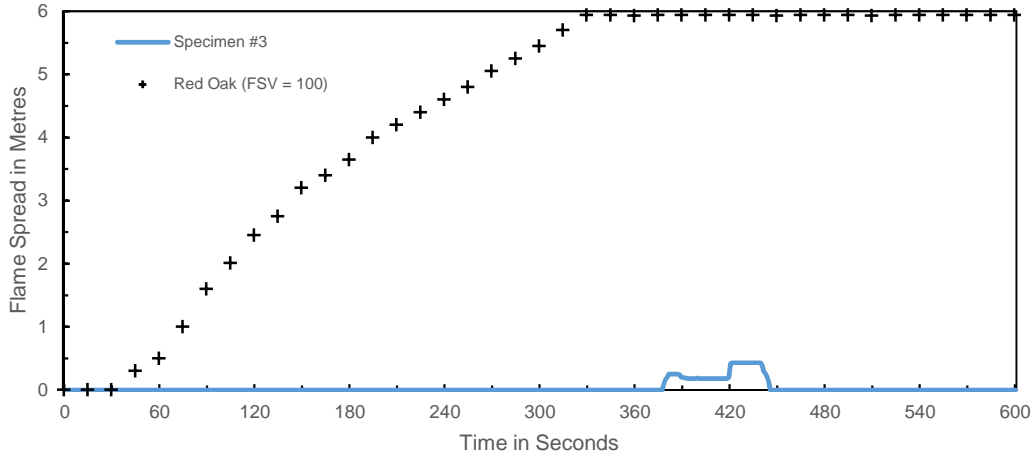


Chart 8. SMOKE DEVELOPED (Specimen #3)

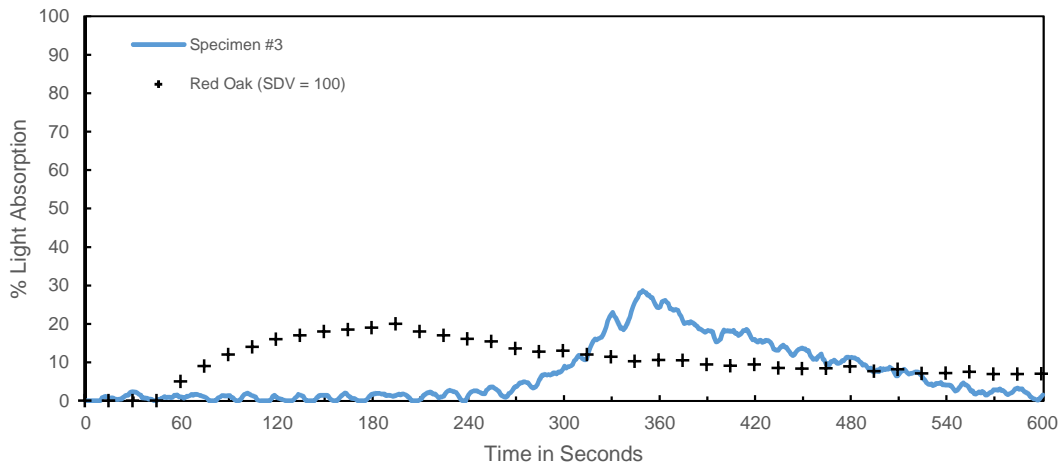
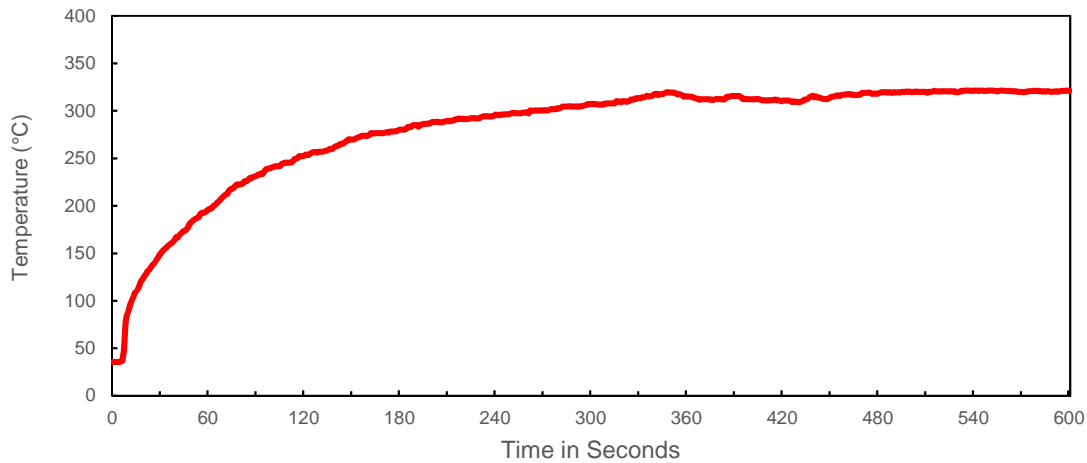


Chart 9. TEMPERATURE (Specimen #3)



Flame Spread
Value (FSV)

3

Smoke Developed
Value (SDV)

60

Maximum Air
Temperature (°C)

322