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## CAN/ULC-S102 Surface Burning Characteristics of "9 mm White ezoBord + 2 mm SG Felt"

A Report To: **Archifibe Inc.**  
6845 Rexwood Road, Unit 7  
Mississauga, ON, Canada  
L4V 1S5

Phone: +1 647-563-3991

Attention: Jack Chen  
E-mail: jack@archifibe.com

Submitted by: Element Fire Testing

Report No. 21-002-307  
4 Pages

Date: July 8, 2021

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

## 2.0 SPECIFICATIONS OF ORDER

Determine the Flame Spread and Smoke Developed Values based upon a single screening test only, conducted in accordance with CAN/ULC-S102-2018, as per Element Quotation No. 21-002-276589 RV1 dated July 5, 2021.

**3.0 SAMPLE IDENTIFICATION** (Element sample identification number 21-002-S0307)

Rigid panel system described as, "Acoustic panel + roll felt 100% PET", identified as:

"9 mm White ezoBord + 2 mm SG Felt"

## 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). FSR and SDC are the values cited by Canadian Building codes.

CAN/ULC-S102 is typically specified for non-flooring materials. However, an exception is often applied for thermoplastics, and other materials which melt or drip, or otherwise disintegrate and continue to burn on the floor of the test chamber. For those materials, CAN/ULC-S102.2 is specified by CAN/ULC-S102. A single, indicative CAN/ULC-S102 test is often performed in order to establish if the material should be tested to CAN/ULC-S102.2 instead.

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 test specimen consisted of a total of 12 sections of material, each approximately 9 mm in thickness by 533 mm in width by 610 mm in length. The sections were butted together to create the total specimen length. Prior to testing, the 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, the specimen was self-supporting and the silver/grey surface was exposed to the test flame.

The testing was performed on: 2021-07-07

## 6.0 SUMMARY OF TEST PROCEDURE

The tunnel is preheated to  $85^{\circ}\text{C}$ , as measured by the backwall-embedded thermocouple located 7090 mm downstream of the burner ports, and allowed to cool to  $40^{\circ}\text{C}$ , 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 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  $29.7 \text{ m}\cdot\text{min}$ ,  $\text{FSV} = 1.85 \cdot \text{AT}$ ; if greater,  $\text{FSV} = 1640 / (59.4 - \text{AT})$ .

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 for red oak and multiplying by 100.

## 7.0 TEST RESULTS

### SAMPLE: "9 mm White ezoBord + 2 mm SG Felt"

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)
28	1.85	585	275	2	95

### 7.1 Observations of Burning Characteristics

The specimen ignited approximately 28 seconds after exposure to the test flame. Melting, dripping, and flaming dripping behaviour was observed. Material that dripped to the floor of the apparatus also ignited (at approximately 525 seconds).

### 8.0 STATEMENT ON MEASUREMENT UNCERTAINTY (MU)

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.



Francis Williams,  
Technician.



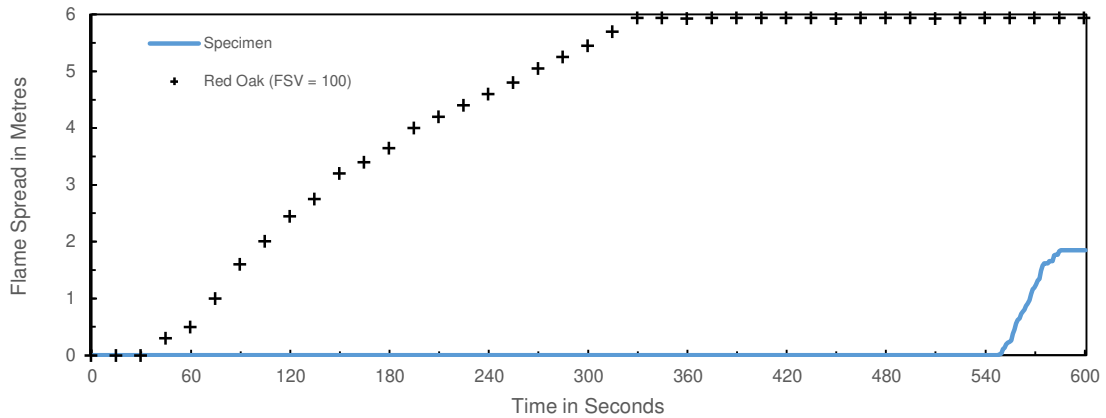
Ian Smith,  
Technical Manager.

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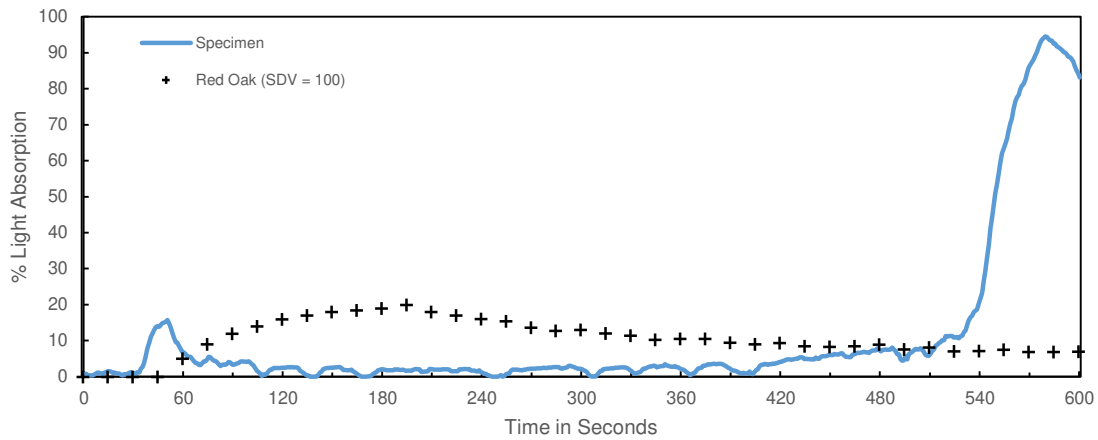
**9.0 TEST CHARTS**

**Sample: "9 mm White ezoBord + 2 mm SG Felt"**

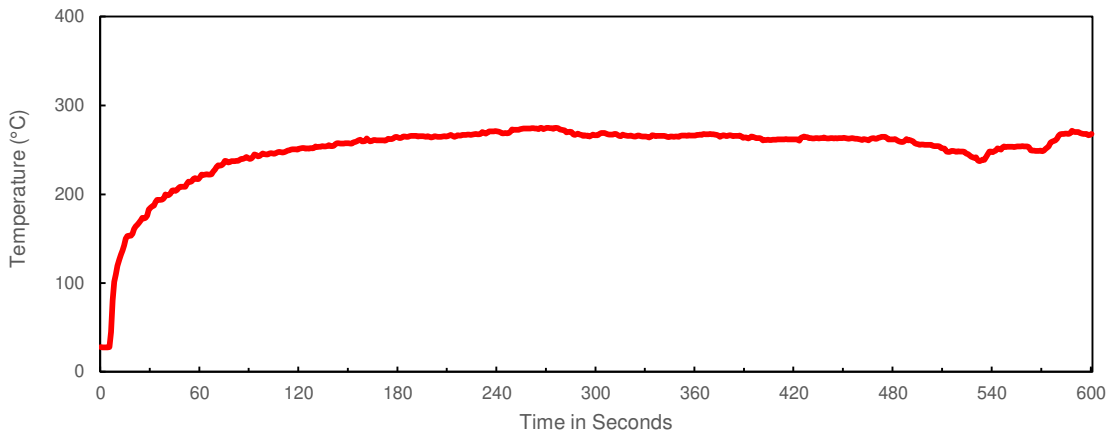
**Chart 1. FLAME SPREAD**



**Chart 2. SMOKE DEVELOPED**



**Chart 3. TEMPERATURE**



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
<b>2</b>	<b>95</b>	<b>275</b>