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ASTM E 84 Surface Burning Characteristics of "CASALIS Acoustic Panel - Trevira CS Fabric"

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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 Indices based upon a single test conducted in accordance with ASTM E 84-19b, as per Element Quotation No. 19-002-114118 RV1 dated September 24, 2019.

SAMPLE IDENTIFICATION (Element sample identification number 19-002-S0707-2)

Panel system described as, "Aluminium frame, mineral wool, fabric Trevira CS", identified as:
"CASALIS Acoustic Panel - Trevira CS Fabric"

TEST PROCEDURE

The method, designated as ASTM E 84-19b "*Standard Method of Test for Surface Burning Characteristics of Building Materials*", is designed to determine the relative surface burning characteristics of materials under specific test conditions, where the material under test is mounted so that it forms the ceiling of a horizontal fire tunnel. A specified airflow is introduced through the tunnel and a specified flame is applied to one end. Observations are then made regarding the rate of flame spread along the specimen. Results are expressed in terms of Flame Spread Index (FSI) and Smoke Developed Index (SDI). There is no established relationship between those two values.

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 test specimen consisted of a total of three sections of material, each approximately 2 inches (51 mm) in total thickness by 21 inches (533 mm) in width by 96 inches (2438 mm) in length. The sections were butted together to create the specimen length. Prior to testing, the specimen was conditioned to constant weight at a temperature of 73 ± 5°F (23 ± 3°C) and a relative humidity of 50 ± 5%. At the time of test initiation, the specimen was self-supporting.

The testing was performed on: 2019-11-21

SUMMARY OF TEST PROCEDURE

The tunnel is preheated to 150 ± 5°F (66 ± 2.8°C), as measured by the floor-embedded thermocouple located 23.25 feet (7087 mm) downstream of the burner ports, and is allowed to cool to 105 ± 5°F (40.5 ± 2.8°C), as measured by the floor-embedded thermocouple located 13 feet (3962 mm) from the burners. The tunnel lid is then raised and the test specimen is placed along the ledges of the tunnel so as to form a continuous ceiling 24 feet (7315 mm) long, approximately 12 inches (305 mm) above the floor. Three 8 foot (2438 mm) sections of 0.25 inch (6 mm) cement board are then placed on the back side of the specimen and 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 Flame Spread Index (FSI) is determined by calculating the total area under the curve for the test sample. If the area under the curve (A) is less than or equal to 97.5 min·ft, then FSI = 0.515·A; if greater, FSI = 4900/(195-A). FSI is then rounded to the nearest multiple of 5.
Smoke Developed Index (SDI) is determined by dividing the total area under the obscuration curve by that established for liquid heptane, and multiplying by 100. SDI is then rounded to the nearest multiple of 5 if less than 200. SDI values over 200 are rounded to the nearest multiple of 50.

TEST RESULTS

SAMPLE: "CASALIS Acoustic Panel - Trevira CS Fabric"

Approx. Time to Ignition (s)	Maximum Flame Front Distance	Time to Maximum Flame Front (s)	Flame Spread Index (FSI)	Smoke Developed Index (SDI)
13	(ft.): 3.9 (m): 1.19	585	**10**	**300**

Observations of Burning Characteristics

The specimen ignited approximately 13 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 189 seconds).

Interpretation of Test Results

Industry documents such as the International Building Code (IBC) or NFPA 101 Life Safety Code refer to ASTM E 84 (UL 723, NFPA 255) test results using the following material classification categories:

	Flame-Spread Index (FSI)	Smoke Developed Index (SDI)
Class 1 or Class A	0 - 25	450 Maximum
Class 2 or Class B	26 - 75	450 Maximum
Class 3 or Class C	76 - 200	450 Maximum

Results Classification (if applicable):	**Class 1 or Class A**



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.

ASTM E 84-19b Test Charts

Sample: "CASALIS Acoustic Panel - Trevira CS Fabric"

Chart 1. FLAME SPREAD

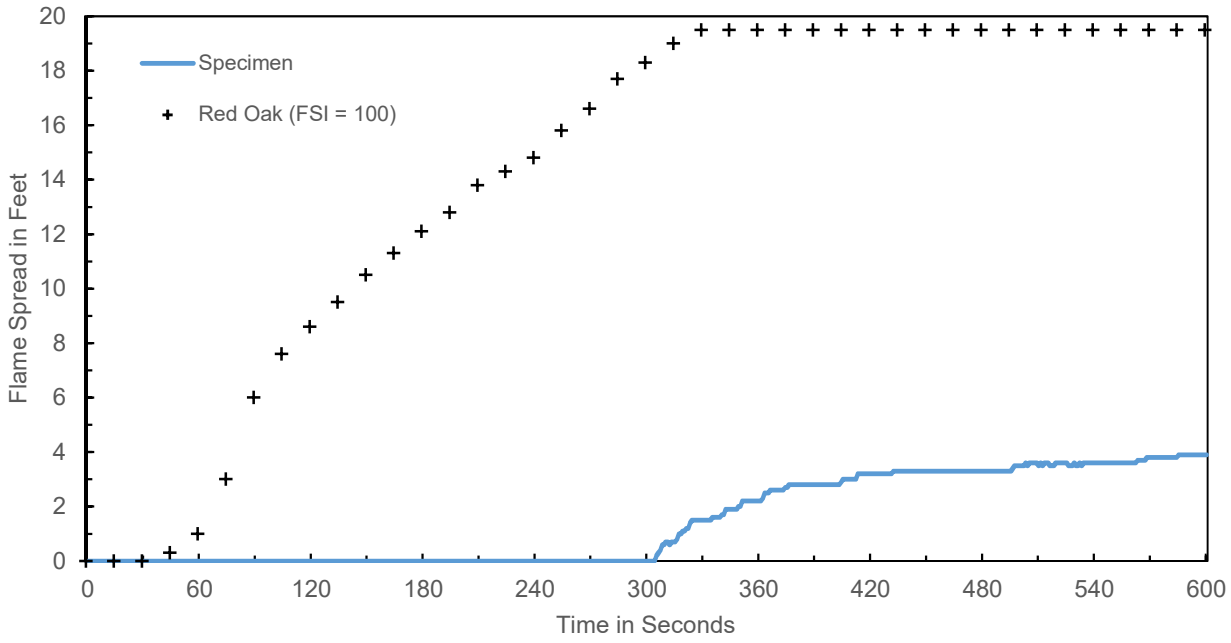
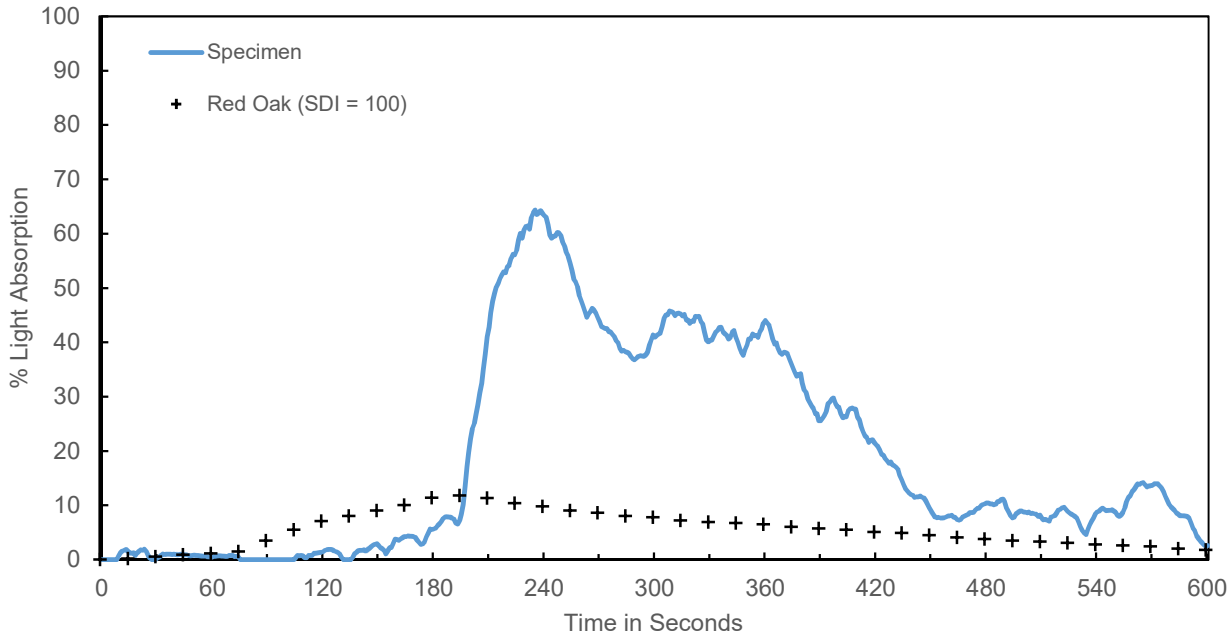


Chart 2. SMOKE DEVELOPED



Calculated Flame Spread (CFS)	Rounded Flame Spread Index (**FSI**)	Calculated Smoke Developed (CSD)	Rounded Smoke Developed Index (**SDI**)	Maximum 23' Air Temperature (°F)
7.6	**10**	284.3	**300**	593