



REPORT NUMBER: G100112159COQ-002
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TEST REPORT

EVALUATION CENTER
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RENDERED TO

Technature
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PRODUCT EVALUATED: Cel™ Acoustic Panels
EVALUATION PROPERTY: Surface Burning Characteristics

Report of testing Cel™ acoustic panels for compliance with the applicable requirements of the following criteria: CAN/ULC S102.2-07, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies.*

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2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Technature, to evaluate the surface burning characteristics of 1 in. thick Cel™ Acoustic panels. Testing was conducted in accordance with the standard methods of CAN/ULC S102.2-07, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies*.

This evaluation began May 6, 2010 and was completed the same day.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client and were not independently selected for testing.

SAMPLE AND ASSEMBLY DESCRIPTION

Upon receipt of the samples at the Intertek Coquitlam laboratory they were placed in a conditioning room where they remained in an atmosphere of $23 \pm 3^{\circ}\text{C}$ ($73.4 \pm 5^{\circ}\text{F}$) and $50 \pm 5\%$ relative humidity.

The samples consisted of porous expanded polypropylene panels measuring 24 in. wide by 4 ft long by 1 in thick with a FR treatment. The panels were cut down to a width of $17 \frac{1}{4}$ in. to accommodate the width of the tunnel floor. The product was identified by the client as "Cel™ Acoustic Panels".

For each trial run, six panels were butted together to form the required 24 ft. sample length on the floor of the tunnel, A layer of 6mm reinforced cement board was placed on the upper ledges of the tunnel, the tunnel lid was lowered into place, and the samples were then tested in accordance with CAN/ULC S102.2-07.

4 Testing and Evaluation Methods

4.1. TEST STANDARD

The results of the tests are expressed by indexes, which compare the characteristics of the sample under tests relative to that of select grade red oak flooring and asbestos-cement board.

(A) Flame Spread Classification:

This index relates to the rate of progression of a flame along a sample in the 25 foot tunnel. A natural gas flame is applied to the front of the sample at the start of the test and drawn along the sample by a draft kept constant for the duration of the test. An observer notes the progression of the flame front relative to time.

The test apparatus is calibrated such that the flame front for red oak flooring passes out the end of the tunnel in five minutes, thirty seconds (plus or minus 15 seconds).

Calculations: (CAN/ULC S102.2-07)

According to the test standard, the flame spread classification is equal to $\frac{5363}{195 - A_t}$

when A_t is the total area beneath the flame spread curve, if this area exceeds 97.5 minute feet. If the area beneath the curve is less than or equal to 97.5 minute feet the classification becomes $0.564 \times A_t$.

(B) Smoke Developed:

A photocell is used to measure the amount of light, which is obscured by the smoke passing down the tunnel duct. When the smoke from a burning sample obscures the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for red oak, which is defined to be 100.

Calculations:

Unrounded Smoke Developed Index = $\frac{10,000 - \text{SmokeIntegration}}{1076} \times 100$

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

(A) Flame Spread

The resultant flame spread classifications are as follows:
(classification rounded to nearest 5)

| 1 in. Thick Cel™ Acoustic Panels | Flame Spread | Flame Spread Classification |
|----------------------------------|--------------|-----------------------------|
| Run 1 | 13 | 10 |
| Run 2 | 8 | |
| Run 3 | 7 | |

(B) Smoke Developed

The areas beneath the smoke developed curve and the related classifications are as follows:
(classification rounded to nearest 5)

| 1 in. Thick Cel™ Acoustic Panels | Smoke Developed | Smoke Developed Classification |
|----------------------------------|-----------------|--------------------------------|
| Run 1 | 200 | 190 |
| Run 2 | 194 | |
| Run 3 | 175 | |

(C) Observations

After ignition the flame proceeded slowly to approximately 6 ft past the original position of the flame front and remained there until the test was completed. This was the case for all three tests.

6 Conclusion

The samples of 1 in thick Cel™ Acoustic panels, submitted by Technature, exhibited the following flame spread characteristics when tested in accordance CAN/ULC S102.2-07, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies*.

A series of three test runs was conducted to conform to the requirements of the National Building Code of Canada.

| Sample Material | Flame Spread Classification | Smoke Developed Classification |
|----------------------------------|-----------------------------|--------------------------------|
| 1 in. Thick Cel™ Acoustic Panels | 10 | 190 |

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK TESTING SERVICES NA LTD.

Tested and
Reported by: 
Greg Philp
Technician – Construction Products Testing

Reviewed by: 
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Reviewer, Fire Testing

GP

APPENDIX A

DATA SHEETS

CAN/ULC S102-07 DATA SHEETS Run 1

Canadian ULCS 102.2

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Client: Technature.
Date: May 6, 2010
Project Number: G100112159
Test Number: 1
Operator: Greg Philp
Specimen ID: 1 in. thick Cel Acoustical Panels

TEST RESULTS

FLAMESPREAD INDEX: 15
SMOKE DEVELOPED INDEX: 185

SPECIMEN DATA . . .

Time to Ignition (sec): 233
Time to Max FS (sec): 412
Maximum FS (mm): 1914.2
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 358
Time to Max Temperature (sec): 445
Total Fuel Burned (cubic metres): 52.6

FS*Time Area (M*min): 7.2
Smoke Area (%A*min): 199.9
Unrounded FSI: 13.3

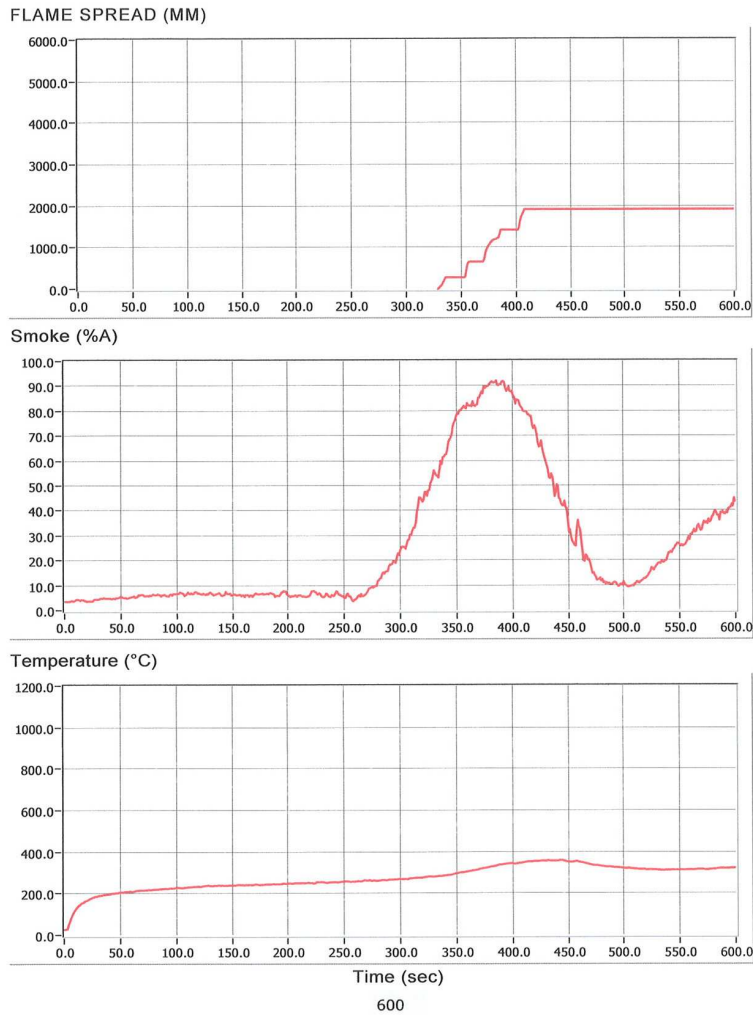
CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 1

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CAN/ULC S102-07 DATA SHEETS Run 2

Canadian ULCS 102.2

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Client: Technature.
Date: May 6, 2010
Project Number: G100112159
Test Number: 2
Operator: Greg Philp
Specimen ID: 1 in. thick Cel Acoustical Panels

TEST RESULTS

FLAMESPREAD INDEX: 10
SMOKE DEVELOPED INDEX: 195

SPECIMEN DATA . . .

Time to Ignition (sec): 230
Time to Max FS (sec): 463
Maximum FS (mm): 1424.5
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 342
Time to Max Temperature (sec): 474
Total Fuel Burned (cubic metres): 52.7

FS*Time Area (M*min): 4.4
Smoke Area (%A*min): 208.5
Unrounded FSI: 8.8

CALIBRATION DATA . . .

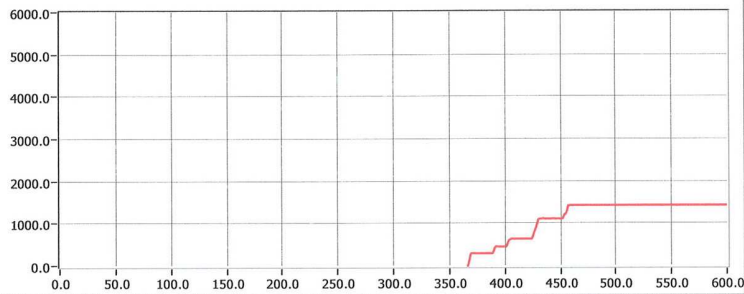
Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 2

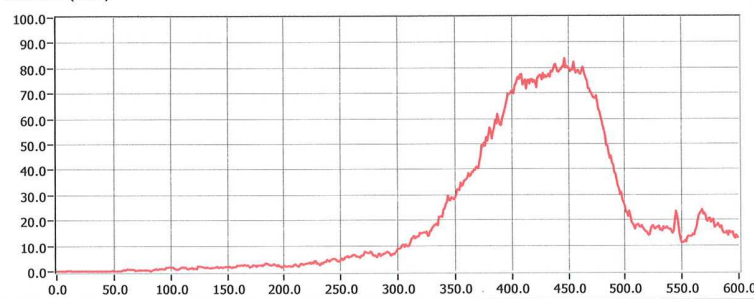
Project No: G100112159

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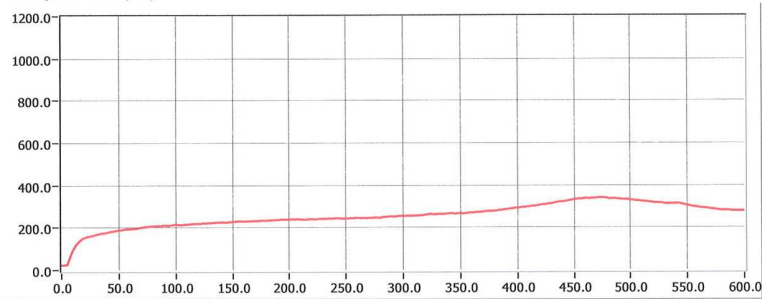
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

CAN/ULC S102-07 DATA SHEETS Run 3

Canadian ULCS 102.2

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Client: Technature.
Date: May 6, 2010
Project Number: G100112159
Test Number: 3
Operator: Greg Philp
Specimen ID: 1 in. thick Cel Acoustical Panels

TEST RESULTS

FLAMESPREAD INDEX: 5
SMOKE DEVELOPED INDEX: 175

SPECIMEN DATA . . .

Time to Ignition (sec): 270
Time to Max FS (sec): 512
Maximum FS (mm): 1366.2
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 346
Time to Max Temperature (sec): 510
Total Fuel Burned (cubic metres): 52.7

FS*Time Area (M*min): 3.7
Smoke Area (%A*min): 188.5
Unrounded FSI: 6.8

CALIBRATION DATA . . .

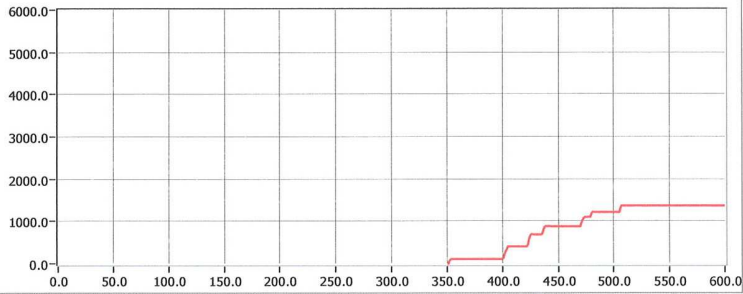
Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 3

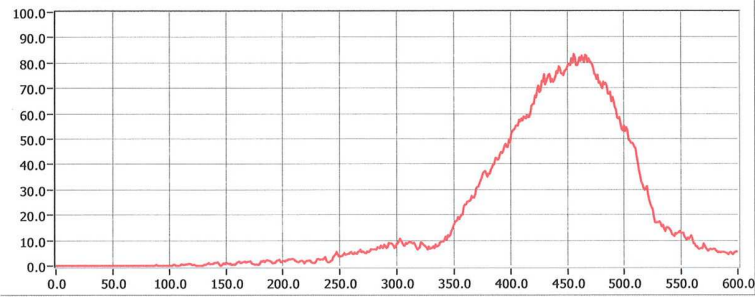
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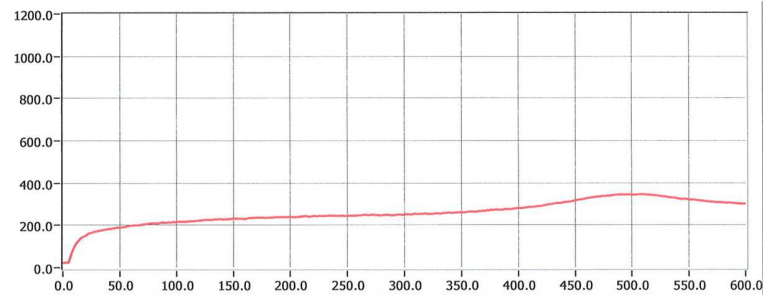
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

REVISION SUMMARY

| DATE | PAGE(S) | SUMMARY |
|-------------|----------------|---------------------|
| May 9, 2010 | -- | Original Issue Date |
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