

TEST REPORT

The Intertek logo consists of the word "Intertek" in a white, sans-serif font, centered within a dark blue rounded rectangular background.

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ORIGINAL ISSUE DATE: May 19, 2009

EVALUATION CENTER
Intertek Testing Services NA Ltd.
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RENDERED TO

Technature
376 Queen Street East
Toronto, Ontario
M5A 1T1

PRODUCT EVALUATED: Recycled Cotton Fiber Acoustical Panels
EVALUATION PROPERTY: Surface Burning Characteristics

Report of testing Recycled Cotton Fiber Acoustical Panels for compliance with the applicable requirements of the following criteria: CAN/ULC S102-07; Method of Test for Surface Burning Characteristics of Building 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 recycled cotton fiber acoustical panels. Testing was conducted in accordance with the standard methods of CAN/ULC S102-07; *Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

This evaluation began May 19, 2009 and was completed May 19, 2009.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client and were not independently selected for testing. The sample materials were received at the Evaluation Center on May 13, 2009.

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 sample material consisted of 24 in. wide by 48 in. long by 1 in. thick panels, identified by the client as "Recycled Cotton Fiber Acoustical Panels". The panels were grey in colour.

For each trial run, six 4 ft. lengths of panel were placed on the upper ledges of the flame spread tunnel and butted together to form the required 24 ft. sample length. A layer of 6mm reinforced cement board was placed on top of the sample, the tunnel lid was lowered into place, and the samples were then tested in accordance with CAN/ULC S102-07.

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 S102-07)

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 = $\frac{10,000 - \text{SmokeIntegration}}{1055} \times 100$

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)

Recycled Cotton Fiber Acoustical Panels	Flame Spread	Flame Spread Classification
Run 1	30	25
Run 2	25	
Run 3	25	

(B) Smoke Developed

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

Recycled Cotton Fiber Acoustical Panels	Smoke Developed	Smoke Developed Classification
Run 1	15	20
Run 2	20	
Run 3	30	

(C) Observations

After ignition the sample product began to flake small pieces onto the tunnel floor. After the test the sample did stay intact. This was the case for all three test runs.

6 Conclusion

The samples of recycled cotton fiber acoustical panels, submitted by Technature, exhibited the following flame spread characteristics when tested in accordance with CAN/ULC S102-07; *Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

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

Sample Material	Flame Spread Classification	Smoke Developed Classification
Recycled Cotton Fiber Acoustical Panels	25	20

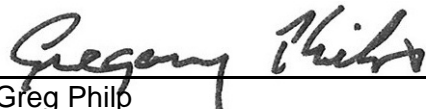
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK TESTING SERVICES NA LTD.

Tested and
Reported by:


Gerry Loverro
Technician – Construction Products Testing

Reviewed by:


Greg Philp
Reviewer, Fire Testing

GL

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APPENDIX A

DATA SHEETS

CAN/ULC S102-07 DATA SHEETS
Run 1
Recycled Cotton Fiber Acoustical Panels

ULCS 102.1

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Client: Technature Inc.
Date: 05/19/09
Project Number: 3180335
Test Number: 1
Operator: Gerry Loverro

Specimen ID: Recycled cotton fiber acoustical panel, 1 inch in thicknes, 2 x 4 in size.

TEST RESULTS

FLAMESPREAD INDEX: 30
SMOKE DEVELOPED INDEX: 15

SPECIMEN DATA . . .

Time to Ignition (sec): 3
Time to Max FS (sec): 52
Maximum FS (mm): 1648.5
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 383
Time to Max Temperature (sec): 581
Total Fuel Burned (cubic metres): 47.70

FS*Time Area (M*min): 15.9
Smoke Area (%A*min): 13.9
Unrounded FSI: 29.5

CALIBRATION DATA . . .

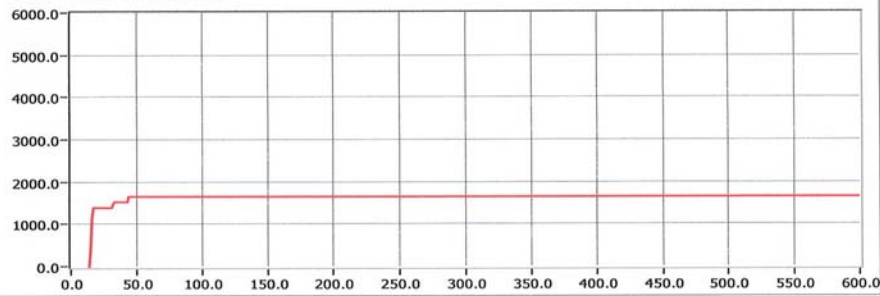
Time to Ignition of Last Red Oak (Sec): 41.0
Red Oak Smoke Area (%A*min): 105.5

CAN/ULC S102-07 DATA SHEETS
Run 1
Recycled Cotton Fiber Acoustical Panels

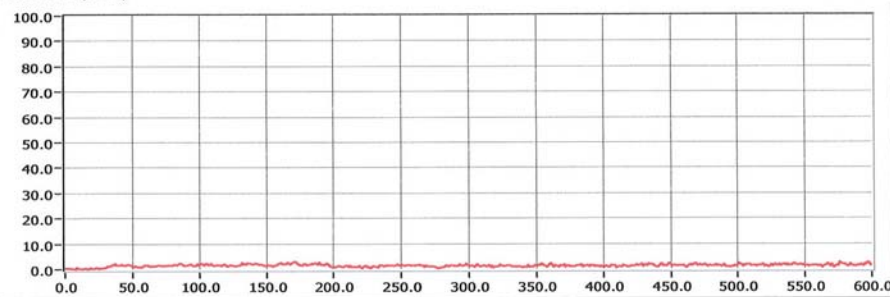
Project No: 3180335

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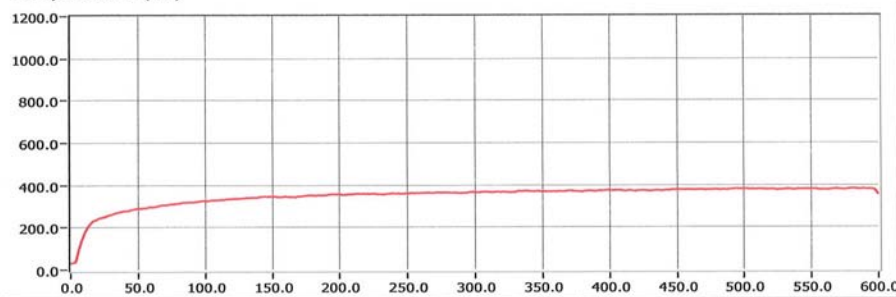
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

CAN/ULC S102-07 DATA SHEETS
Run 2
Recycled Cotton Fiber Acoustical Panels

ULCS 102.1

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Client: Technature Inc.
Date: 05/19/09
Project Number: 3180335
Test Number: 2
Operator: Gerry Loverro

Specimen ID: Recycled cotton fiber acoustical panel, 1 inch in thickness, 2 x 4 in size.

TEST RESULTS

FLAMESPREAD INDEX: 25
SMOKE DEVELOPED INDEX: 20

SPECIMEN DATA . . .

Time to Ignition (sec): 3
Time to Max FS (sec): 561
Maximum FS (mm): 1405.1
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 369
Time to Max Temperature (sec): 532
Total Fuel Burned (cubic metres): 47.80

FS*Time Area (M*min): 13.7
Smoke Area (%A*min): 22.2
Unrounded FSI: 25.3

CALIBRATION DATA . . .

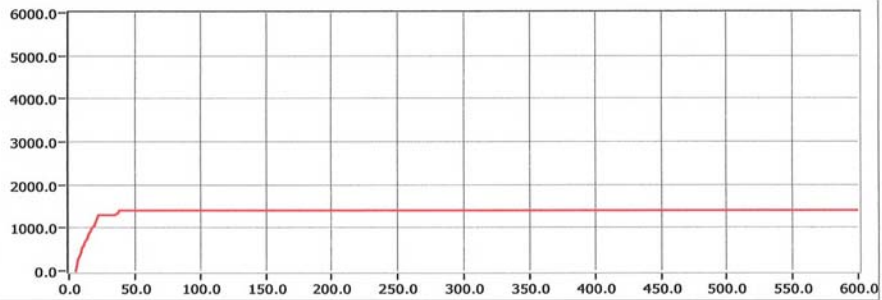
Time to Ignition of Last Red Oak (Sec): 41.0
Red Oak Smoke Area (%A*min): 105.5

CAN/ULC S102-07 DATA SHEETS
Run 2
Recycled Cotton Fiber Acoustical Panels

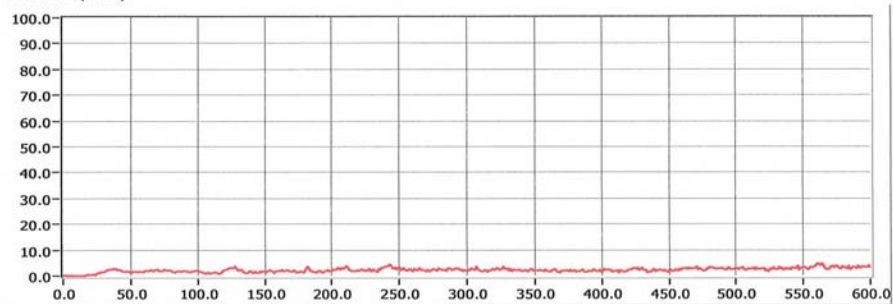
Project No: 3180335

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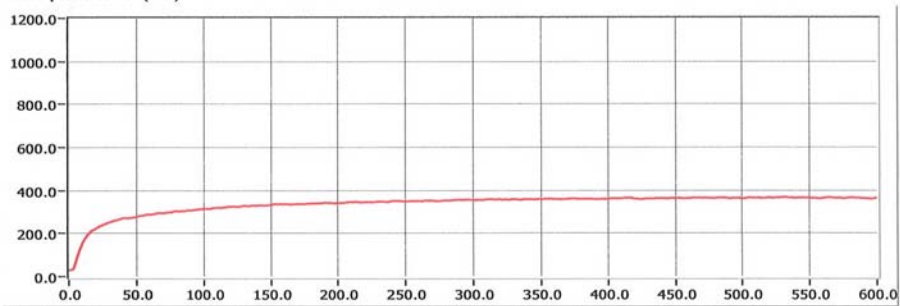
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

CAN/ULC S102-07 DATA SHEETS
Run 3
Recycled Cotton Fiber Acoustical Panels

ULCS 102.1

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Client: Technature Inc.
Date: 05/19/09
Project Number: 3180335
Test Number: 3
Operator: Gerry Loverro
Specimen ID:

TEST RESULTS

FLAMESPREAD INDEX: 25
SMOKE DEVELOPED INDEX: 30

SPECIMEN DATA . . .

Time to Ignition (sec): 0
Time to Max FS (sec): 46
Maximum FS (mm): 1359.7
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 380
Time to Max Temperature (sec): 528
Total Fuel Burned (cubic metres): 47.80

FS*Time Area (M*min): 13.2
Smoke Area (%A*min): 29.7
Unrounded FSI: 24.4

CALIBRATION DATA . . .

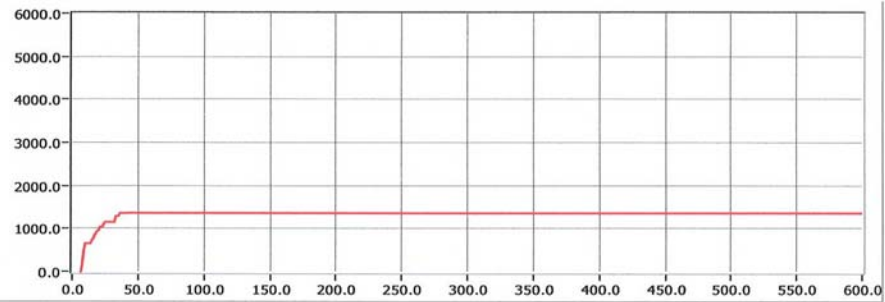
Time to Ignition of Last Red Oak (Sec): 41.0
Red Oak Smoke Area (%A*min): 105.5

CAN/ULC S102-07 DATA SHEETS
Run 3
Recycled Cotton Fiber Acoustical Panels

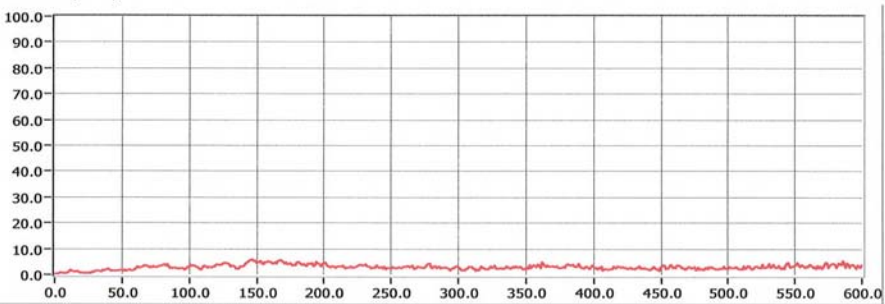
Project No: 3180335

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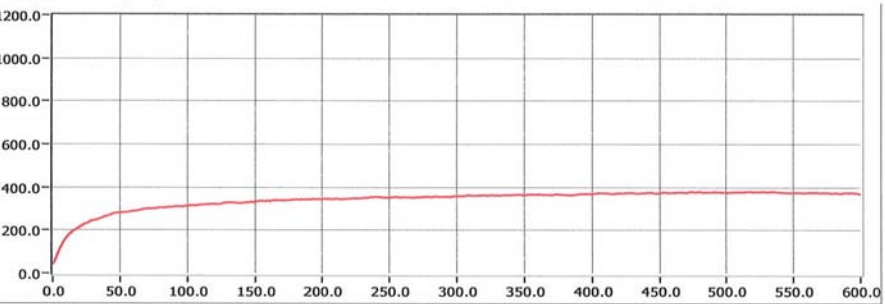
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

REVISION SUMMARY

DATE	PAGE(S)	SUMMARY
May 19, 2009	All	Original Issue Date