

TEST REPORT

Intertek

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EVALUATION CENTER
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RENDERED TO

MSW Canadian Plastics Inc.
PO BOX 29 140 Minto Road
Palmerston, ON N0G 2P0

PRODUCT EVALUATED: Corrugated PVC Panels
EVALUATION PROPERTY: Surface Burning Characteristics

Report of testing Corrugated PVC Panels for compliance with the applicable requirements of the following criteria: ASTM E84-13a, Standard Test Method for Surface Burning Characteristics of Materials

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2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for MSW Canadian Plastics Inc., to evaluate the surface burning characteristics of Corrugated PVC panels. Testing was conducted in accordance with the standard methods of ASTM E84-13a, *Standard Test Method for Surface Burning Characteristics of Materials*.

This evaluation began August 23, 2013 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. The sample materials were received at the Evaluation Center on July 17, 2013.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The sample product was identified by the client as Ribcore Corrugated PVC panels measuring 0.03 in. thick by 24 in. wide by 6 ft long and are white in colour.

For this trial run, four 6 ft panels were fitted together to form the required 24 ft length of sample material. The samples were supported by ¼ in. steel rods spaced every 24 in. and 20 ga 2 in x 2 in galvanized steel netting spanning the upper ledge of the flame spread tunnel. A layer of 6 mm reinforced cement board was placed over top of the samples, the tunnel lid was lowered into place, and the samples were then tested in accordance with ASTM E84-13a.

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 inorganic-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. This information is plotted on a graph (flame spread curve).

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).

(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.

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)

| Sample Material | Flame Spread | Flame Spread Classification |
|--------------------|--------------|-----------------------------|
| Ribcore PVC Panels | 12 | 10 |

(B) Smoke Developed

The areas beneath the smoke developed curve and the related classifications are as follows:
(For smoke developed indexes 200 or more, classification is rounded to the nearest 50. For smoke developed indexes less than 200, classification is rounded to nearest 5)

| Sample Material | Smoke Developed | Smoke Developed Classification |
|--------------------|-----------------|--------------------------------|
| Ribcore PVC Panels | 415 | 400 |

(C) Observations

The sample material ignited at approximately 31 seconds, the flame began to progress along the sample until it reached the maximum flame spread.

6 Conclusion

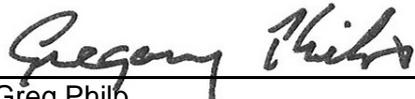
The sample of Ribcore PVC Panels, submitted by MSW Canadian Plastics., exhibited the following flame spread characteristics when tested in accordance with ASTM E84-13a *Standard Test Method for Surface Burning Characteristics of Materials*.

| Sample Material | Flame Spread Classification | Smoke Developed Classification |
|--------------------|-----------------------------|--------------------------------|
| Ribcore PVC Panels | 10 | 400 |

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:



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Reviewed by:



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APPENDIX A

DATA SHEETS

ASTM E84-13a DATA SHEETS

ASTM E84

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Client: MSW Canadian Plastics
Date: 08 23 2013
Project Number: 101259326
Test Number: 1
Operator: Greg Philp
Specimen ID: Ribcore Panels Corrugated PVC Panel

TEST RESULTS

FLAMESPREAD INDEX: 10
SMOKE DEVELOPED INDEX: 400

SPECIMEN DATA . . .

Time to Ignition (sec): 31
Time to Max FS (sec): 226
Maximum FS (feet): 3.1
Time to 980 F (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (F): 412
Time to Max Temperature (sec): 592
Total Fuel Burned (cubic feet): 42.00

FS*Time Area (ft*min): 23.7
Smoke Area (%A*min): 397.5
Unrounded FSI: 12.2
Unrounded SDI: 414.6

CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec): 42.0
Red Oak Smoke Area (%A*min): 95.9

Tested By
[Signature]

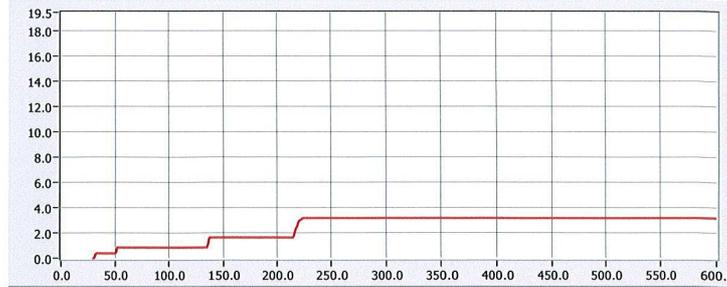
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ASTM E84-13a DATA SHEETS

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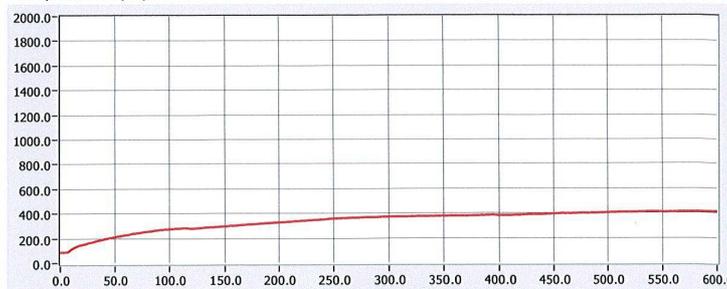
FLAME SPREAD (ft)



Smoke (%A)



Temperature (°F)



Time (sec)

600

REVISION SUMMARY

| DATE | PAGE | SUMMARY |
|-------------------|-------------|---------------------|
| August 30, 2013 | -- | Original Issue Date |
| September 4, 2013 | Cover | Address Correction |
| | | |