PALRAM AMERICAS INC.

TEST REPORT

REPORT ISSUED TO
Palram Americas Inc.
9735 Commerce Circle
Kutztown, PA 19530

SCOPE OF WORK
Report of testing ½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction) for compliance with the applicable requirements of the following criteria: ASTM E84-17a Standard Test Method for Surface Burning Characteristics of Materials.

REPORT NUMBER
103418229COQ-001b

ISSUE DATE
22-March-2018

PAGES
10

DOCUMENT CONTROL NUMBER
GFT-OP-10b (13-March-2017)
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CONCLUSION

The samples of ½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction) submitted by Palram Americas Inc. were tested in accordance with ASTM E84-17a Standard Test Method for Surface Burning Characteristics of Materials.

The product test results are presented in Section 7 of this report.

Salvatore Balletta  
TECHNICIAN  
BUILDING PRODUCTS

Greg Philp  
Reviewer  
BUILDING PRODUCTS CANADA
SECTION 1
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SECTION 2
OBJECTIVE

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Palram Americas Inc, to evaluate the surface burning characteristics of ½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction). Testing was conducted in accordance with the standard methods of ASTM E84-17a Standard Test Method for Surface Burning Characteristics of Materials.

This evaluation began March 21, 2018 and was completed March 21, 2018.

SECTION 3
SAMPLE SELECTION

Samples were submitted to Intertek directly from the client and were not independently selected for testing. The sample panels were received at the Evaluation Center on March 1, 2018.

SECTION 4
SAMPLE ASSEMBLY AND 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 ± 3°C (73.4 ± 5°F) and 50 ± 5% relative humidity.

The sample material consisted of ¼ in. thick by 22 in. wide by 22 in. long PVC panels, and was identified as “½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction). The sample material was attached to ¼ in. thick by 24 in. wide by 8 ft. long cement board substrate using four ¾ in. Wall Tuff Rivets per panel.

For this trial run, three 24 in. wide by 8 ft. panels were placed on 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 E84-17a.
SECTION 5
TESTING AND EVALUATION METHODS

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 Index:

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).

(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.
SECTION 6
RESULTS AND OBSERVATIONS

(A) Flame Spread

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

<table>
<thead>
<tr>
<th>Sample Material</th>
<th>Flame Spread</th>
<th>Flame Spread Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction)</td>
<td>26</td>
<td>25</td>
</tr>
</tbody>
</table>

(B) Smoke Developed

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

<table>
<thead>
<tr>
<th>Sample Material</th>
<th>Smoke Developed</th>
<th>Smoked Developed Index</th>
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<tbody>
<tr>
<td>½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction)</td>
<td>241</td>
<td>250</td>
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</tbody>
</table>

(C) Observations

During the tests, the sample surface ignited at approximately 36 seconds; the flame began to progress along the sample until it reached the maximum flame spread. At approximately 80 seconds it was observed that the sample material was falling away from the substrate.
SECTION 7
CONCLUSION

The samples of ½ in. thick Duraclad Multiwall PVC Wall Liner (Trial #2 1657635MD Machine Direction) submitted by Palram Americas Inc., exhibited the following flame spread characteristics when tested in accordance with ASTM E84-17a Standard Test Method for Surface Burning Characteristics of Materials.

<table>
<thead>
<tr>
<th>Sample Material</th>
<th>Flame Spread Index</th>
<th>Smoke Developed Index</th>
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<tbody>
<tr>
<td>½ in. thick Duraclad Multiwall PVC Wall Liner</td>
<td>25</td>
<td>250</td>
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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.
SECTION 8
APPENDIX A: TEST DATA (2 PAGES)
TEST REPORT FOR PALRAM AMERICAS INC.
Date: March 22, 2018

ASTM E84-17a DATA SHEETS

Client: Palram
Date: 03 21 2018
Project Number: 103418229
Test Number: 1
Operator: Salvatore Ballella

Specimen ID: 1657635G Duraficial 1/2 in. Thickness Multi Wall PVC (Machine Direction)

TEST RESULTS

FLAMESPREAD INDEX: 25
SMOKE DEVELOPED INDEX: 250

SPECIMEN DATA . . .

Time to Ignition (sec): 36
Time to Max FS (sec): 192
Maximum FS (foot): 6.4
Time to 980 F (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (°F): 407
Time to Max Temperature (sec): 600
Total Fuel Burned (cubic feet): 45.60

FS^2 Time Area (ft^2 min): 49.6
Smoke Area (% A^2 min): 192.5
Unrounded FSI: 25.6
Unrounded SDI: 240.6

CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec): 45.0
Red Oak Smoke Area (% A^2 min): 80.0

Reviewed by:

Test by:

ASTM E84-17a DATA SHEETS

FLAME SPREAD (ft)

Smoke (%A)

Temperature (°F)

Time (sec)

0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0 110.0 120.0 130.0 140.0 150.0 160.0 170.0 180.0 190.0 200.0

0.0 200.0 400.0 600.0 800.0 1000.0 1200.0 1400.0 1600.0 1800.0 2000.0

0.0 50.0 100.0 150.0 200.0 250.0 300.0 350.0 400.0 450.0 500.0 550.0 600.0

0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

0.0 50.0 100.0 150.0 200.0 250.0 300.0 350.0 400.0 450.0 500.0 550.0 600.0

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0

Project No: 103418229
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## REVISION SUMMARY

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