



ACCREDITED



CONSTRUCTION MATERIALS TECHNOLOGIES

LABORATORY TEST REPORT

Report for: Burtin Polymer Laboratories
100 Enterprise Drive
Cartersville, GA 30120

Date: March 24, 2008
REV: June 13, 2008

Attention: Mark Brandt

Product Name: 1120-0.5	Manufacturer: Burtin Polymer Laboratories
Date Received: January 23, 2008	Source: PRI
PRI Project No.: BPLI-001-02-01	Test Dates: February 7 – March 17, 2008

Subject: The purpose of this project was to determine performance properties for 1120-0.5 cellular plastic for compliance with the conditions of acceptance of ICC-ES Acceptance Criteria AC377 (Approved October 2007; Effective March 1, 2008): *Acceptance Criteria For Foam Plastic Insulation*, Table 1: Physical Properties of Spray-Applied Polyurethane Foam Plastic (SPF) Insulation by Application: SPU used in low-density applications (Excluding ASTM E 84: Surface Burning Characteristics).

Sample Description: The samples were provided to PRI spray applied in varying thicknesses to 2 x 2 foot pieces of exterior CDX plywood.

Product Sampling: The sampling complied with the requirements of AC85: *Acceptance Criteria for Test Reports*, Section 3.0 Testing of Representative Products. The product was sampled by PRI Construction Materials Technologies, LLC on 1/10/08 by Myra DeVit.

Test Methods: The test methods used included those found in AC377 and including: ASTM C 518-91 *Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of Heat Flow Meter Apparatus*; ASTM D 2856-94 (1998): *Standard Test Method for Open-Cell Content of Rigid Cellular Plastics by the Air Pycnometer*, ASTM D 1623-78 (1995): *Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics*, ASTM D 1622-98 *Standard Test Method for Apparent Density of Rigid Cellular Plastics*, ASTM D 1621-00: *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*, ASTM D 2126-98: *Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging*, ASTM E 96-00: *Standard Test Methods for Water Vapor Transmission of Materials*, ASTM C 1029-02: *Specification for Spray Applied Rigid Cellular Polyurethane Thermal Insulation*.

A Shimadzu Model AGH, with data acquisition was used to test the samples for tensile strength. The instrument was calibrated in December 2007 by Instron Corporation using NIST traceable standards.

The closed cell content was determined using a Micromeritics Multi-Volume Pycnometer 1305 which had been calibrated using NIST traceable standards supplied by the

BPLI-001-02-01REV PRI Accreditations: IAS-ES TL-189; State of Florida TST 5878; Metro-Dade 06-1116.02: CRRC

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manufacturer on date of test.

A Holometrics (Netzch-Gerätebau GmbH) Model Lambda 2300 was used for the ASTM C 518 testing. This instrument was calibrated on January 23, 2008 using 1450c NIST traceable primary standards. The calibration used multi-temperature points. The instrument has two heat flux transducers. The instrument calibration is verified weekly using the 1450c NIST traceable primary standards. The measurement uncertainty of this instrument taking into account the standard only is estimated at 2.6 percent with 95 percent confidence as estimated in NIST Special Publication 260-130. The instrument uncertainty is estimated at a maximum of 0.5 percent with 95 percent confidence based upon repetitive determinations of the 1450c standard and instrument specifications.

Revision: Aged thermal resistance values added to report.

Results of Testing:

SUMMARY TABLE


Property	ASTM Test Method	Result	AC 12 Requirement
Thermal Resistance, Initial			
Thermal Resistance @ 75.9°F mean temperature at 1.07" , °F h ft ² /BTU	C 518	4.33	Report
Thermal Resistance @ 75.7°F mean temperature at 2.08" , °F h ft ² /BTU	C 518	8.00	Report
Thermal Resistance @ 75.9°F mean temperature at 4.01" , °F h ft ² /BTU	C 518	14.60	Report
Thermal Resistance after 90 days at 140°F ± 2°F (Dry Heat)			
	C 1029		
Thermal Resistance @ 75.7°F mean temperature at 1.01" , °F h ft ² /BTU	C 518	3.85	Report
Thermal Resistance @ 75.4°F mean temperature at 2.03" , °F h ft ² /BTU	C 518	7.44	Report
Thermal Resistance @ 75.3°F mean temperature at 4.04" , °F h ft ² /BTU	C 518	14.40	Report
Core Density, lbs/ft ³	D 1622	0.61	As Reported
Tensile Strength, lbf/in ²	D 1623	4.9	3 min
Closed Cell Content, %	D 2856	4.8	<90 min
Dimensional Stability			
Dimensional Stability @ 158°F/97% RH, %			
	D 2126		
1 Day		5.5	15 max Total Change
7 Days		7.8	15 max Total Change
Surface Burning Characteristics	E 84	Not Tested	75 max flame spread index, 450 max smoke
Water vapor permeability, perm-inch	E 96 (Desiccant)	9.40	As Reported

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Statement of Compliance

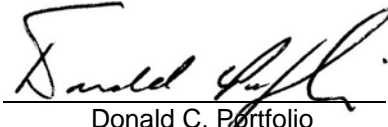
This product complies with all of the requirements of ICC-ES Acceptance Criteria AC377 (Approved October 2007; Effective March 1, 2008): *Acceptance Criteria For Foam Plastic Insulation*, Table 1: Physical Properties of Spray-Applied Polyurethane Foam Plastic (SPF) Insulation by Application: SPU used in low-density applications **excluding ASTM E 84: Surface Burning Characteristics which were not tested**. This product is not qualified as a vapor retarder.

Signed: 
Charles Rumpelton
Laboratory Technician

Date: March 24, 2008

Signed: 
Kristi Howell
Laboratory Technician

Date: June 13, 2008

Signed: 
Donald C. Portfolio
President

Date: June 13, 2008

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DATA AND UNCERTAINTY ANALYSIS

1120-0.5

Dimensional Stability
 ASTM D 2126

Replicate	1	2	3	4	5	Average	SD	95% CI
1 Day	3.90	10.70	5.40	4.50	3.20	5.5	2.995	2.626
1 Week	6.20	12.80	9.10	6.50	4.40	7.8	3.260	2.857

1120-0.5

Open Cell Content
 ASTM D 2856C

Replicate	1	2	3	4	5	Average	SD	95% CI
% Open Cells	95.3	95.8	94.3	94.5	95.9	95.2	0.73	0.64

1120-0.5

Tensile Strength
 ASTM D 1623

Replicate	1	2	3	4	5	Average	SD	95% CI
Tensile Strength, psi	3.68	3.91	5.03	6.83	5.22	4.93	1.26	1.10

1120-0.5

Core Density
 D 1622

Replicate	1	2	3	4	5	Average	SD	95% CI
Density, lb/ft ³	0.61	0.60	0.60	0.64	0.59	0.61	0.02	0.02

1120-0.5

Water Vapor Transmission
 E 96

Replicate	1	2	3	Average	SD	95% CI
WVT, grains/hr sq ft	2.17	1.96	2.38	2.170	0.21	0.238
Permeance, perms	4.64	4.18	5.06	4.627	0.440151	0.498
Perm-Inch	9.48	8.46	10.27	9.403	0.907432	1.027