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FIRE PERFORMANCE EVALUATION OF BPL 1145-1.8, IN ACCORDANCE WITH UNDERWRITERS LABORATORIES (UL) 1715, STANDARD FOR FIRE TEST OF INTERIOR FINISH MATERIAL

FINAL REPORT
Consisting of 8 Pages

SwRI® Project No. 01.13931.01.002b
Test Date: May 23, 2008
Report Date: June 24, 2008

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INTRODUCTION

This report presents the results of a fire performance evaluation conducted in accordance with Underwriters Laboratories (UL) 1715, *Standard for Fire Test of Interior Finish Material* (1997) by Southwest Research Institute's (SwRI) Fire Technology Department, in San Antonio, TX.

This test method is intended to measure and describe the properties of materials or products in response to heat and flame under controlled laboratory conditions. The results should not be used alone to describe or appraise the fire hazard or the fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a complete fire hazard assessment or a fire risk assessment, which takes into account all the factors that are pertinent to an assessment of a material's end use.

UL 1715 does not have explicit acceptance criteria in terms of passing or failing the test. However, in Section 3 of the standard entitled "Performance", there are two statements that evaluate the performance of the interior finish material in the room corner scenario, and they are as follows:

- During the test, the observed surface burning shall not extend to the extremities of the test specimen nor shall flame project through the doorway opening at any time.
- At the conclusion of the test, observations shall show that the combustive damage (that is burning, charring, and the like) of the test materials within the panels diminishes at increasing distance from the immediate fire exposure area.

The material being tested may perform differently when it is placed in a room of a different size or shape, or in different environmental conditions. The test data cannot be generalized to apply to these different conditions. The results apply specifically to the specimens tested, in the manner tested, and not to similar materials, nor to the performance when used in combination with other materials.

The products of combustion and entrained air are collected in a hood and extracted through an exhaust duct by a fan. Smoke development is determined based on the measured light obscuration in the duct using a white-light extinction photometer, located approximately 15 ft from the plenum of the exhaust hood. A time history of the smoke development within the room is shown in Appendix A.

The test room is instrumented with thermocouples to measure the upper layer temperature in the room and above the wood crib at various heights. The thermocouple layout, as required by UL 1715, was used for this test. A time history of the temperature development within the room and at the doorway is shown in Appendix A.

UL 1715 (1997)

Client: Burtin Polymer Laboratories
SwRI Project No.: 01.13931.01.002b
Test Date: May 23, 2008
Material ID: BPL 1145-1.8
Description: 1.8 pcf spray-applied polyurethane foam (SPF) with ½-in. thick regular gypsum wallboard
Witnessed By: Mr. Barry L. Badders (Professional Engineer, License No. 61907, registered in the state of Florida) of SwRI.
Comments: Test Notification Number from Miami-Dade County Florida for this test program is SwRI 08038.

Table 1. Test Assembly.

Dimensions (in.)		SPF Thickness (in.)		Dates (mm/dd/yy)	
Wall Studs	Ceiling Joists	Walls	Joists	SPF Received	SPF Applied
2 × 8	2 × 12	7	11	4/22/08	5/7/08

Construction Details: The SPF was applied to the wall and ceiling cavities as described in Table 1. Regular gypsum wallboard, ½-in. thick, covered the interior and exterior of the test room.

The SPF used for testing was selected and inspected by a representative of Technical Assistance Group, Inc. (TAG, Inc.), representing PRI Asphalt Technologies, Inc., on April 14, 2008. The test room and building were at approximately 73 °F and 71% relative humidity, during the test. A summary of the test results is given in Table 2 below. Selected photographic documentation is provided in Figures 1 through 4, and visual observations can be found in Table 3. The test results are summarized in Appendix A.

Table 2. Summary of Test Results.

Material ID	Burning to Outer Extremities or Flame Through Doorway?	Diminishing Combustive Damage with Distance from Burn Corner?
BPL 1145-1.8	No	Yes

Based on the test results, the material identified as BPL 1145-1.8 did comply with the statements in the “Performance” section of UL 1715.

Table 3. Test Observations.

Time min:s	Observation
00:00	Start of Test, ignition of alcohol in pan under crib.
00:11	Flames from burning excelsior are 3 to 3½ ft in height in the crib corner.
00:30	Discoloration in the crib corner from the top of the crib up to 5 ft from the floor.
00:48	Light white smoke in the room interior down to 5½ ft above the floor.
01:06	Flames are 4½ to 5 ft in height in the crib corner.
02:00	Flames from the burning crib are 7 ft in height and intermittently touching the underside of the ceiling.
02:20	Flames in crib corner are intermittently touching the ceiling with discoloration and scorching on both walls up to 5½ ft from the floor.
03:00	Flames from the burning crib are continuous to the ceiling.
04:00	Discoloration and scorching of the gypsum wallboard paper approximately 12 in. in width along both walls up to the ceiling.
06:30	Very light grey layer of smoke in the room interior down to 5½ ft above the floor.
09:00	Flames from the burning crib are continuous to the ceiling and flashing 1 to 2 ft along both walls at the ceiling. Discoloration and scorching is approximately 16 in. in width along both walls forming the crib corner. Charring on the ceiling is extending approximately 24 in. from the burn corner.
14:00	No change.
15:00	Crib corner extinguished.
	<p>POST-TEST OBSERVATIONS</p> <p>Upon completion of the test, the gypsum wallboard was removed from the crib corner, revealing discoloration and scorching in the first vertical cavities forming the crib corner.</p>



Figure 1. Completed Test Room.



Figure 2. 4 min 12 s into Test.



Figure 3. 14 min 46 s into Test.

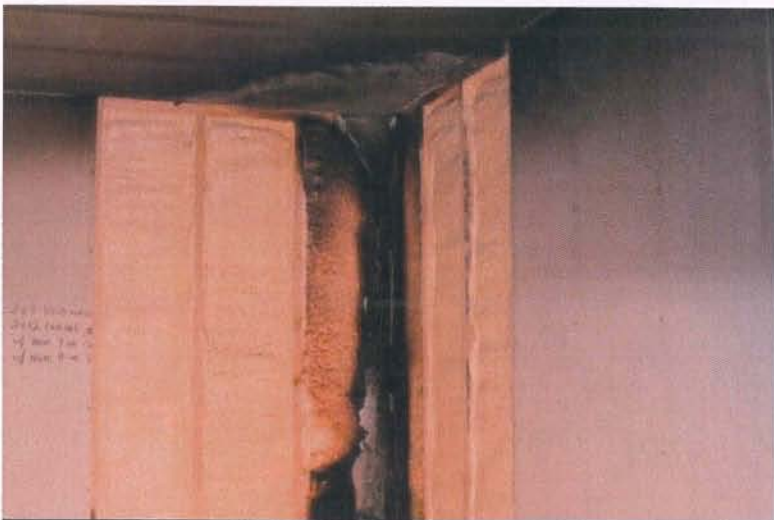


Figure 4. Post-Test: View of Burn Corner with Gypsum Removed.

APPENDIX A
TEST DATA
(Consisting of 2 Pages)

