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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
FIRE TECHNOLOGY DEPARTMENT
WWW.FIRE.SWRI.ORG
FAX (210) 522-3377



FIRE PERFORMANCE EVALUATION OF BPL 1120-0.5, IN ACCORDANCE WITH UNDERWRITERS LABORATORIES (UL) 1715, STANDARD FOR FIRE TEST OF INTERIOR FINISH MATERIAL

FINAL REPORT
Consisting of 8 Pages

SwRI® Project No. 01.13931.01.002a
Test Date: May 22, 2008
Report Date: June 24, 2008

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

Prepared by:

David Ewan
Engineer
Material Flammability Section

Approved by:

for Gladys M. Miller, M.S., M.B.A.
Assistant Director
Fire Technology Department

6/26/08
Reviewed By:

Barry L. Badders, Jr., P.E.
No. 61907, Florida

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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, the 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 in the room corner scenario that evaluate the performance of the interior finish material, 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.: 01.13931.01.002a
Test Date: May 22, 2008
Material ID: BPL 1120-0.5
Description: 0.5 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 08037.

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	3/17/08	3/18/08

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 January 10, 2008. The test room and building were at approximately 77 °F and 66% 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 1120-0.5	No	Yes

Based on the test results, the material identified as BPL 1120-0.5 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 excelsior under crib.
00:17	Flames in the crib corner are 2½ ft in height from the floor.
01:06	Flames in the crib corner are 4½ to 5 ft in height. Slight discoloration on the gypsum wallboard paper facing from the top of the crib up to 2½ ft from the floor.
02:00	Flames from the burning crib are continuous to 7 ft and intermittent to 8 ft.
03:00	Flames from the burning crib are continuous to the ceiling. Discoloration and scorching is approximately 12 in. in width, starting at the top of the crib, up to the ceiling, and extending 18 in. from the burn corner.
05:00	No change, very light white layer of smoke in the room interior, down to 5½ ft above the floor.
08:00	No change.
09:00	Discoloration and scorching is approximately 16 in. in width, starting at the top of the crib and tapering down to 12 in. in width, 4 ft from the floor. Scorching on the ceiling panel is extending approximately 24 in. from the crib corner.
10:00	Light-grey layer of smoke in the room interior down to 5½ ft above the floor.
14:00	No change.
15:00	Flames from the burning crib are continuous to the ceiling with discoloration and charring, approximately 18 in. in width, starting at the top of the crib and tapering down to 12 in. in width, 4 ft from the floor. Light-grey layer of smoke in the room interior down to 5½ ft above the floor. End of Test.
15:15	Crib extinguished
POST-TEST OBSERVATIONS	
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.	

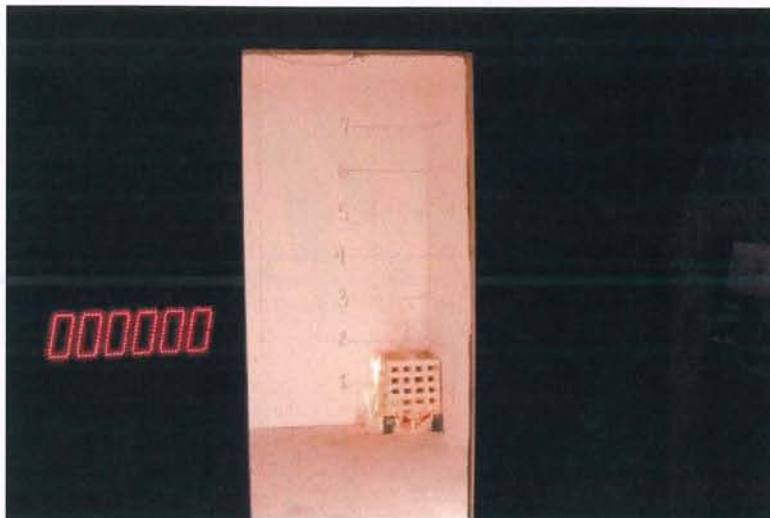


Figure 1. Completed Test Room.



Figure 2. 5 min into Test.



Figure 3. 14 min 2 s into Test.



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

APPENDIX A
TEST DATA
(Consisting of 2 Pages)

