



## **Code Compliance Research Report**

**Subject:** International Fireproof Technology, Inc. (IFTI)  
DC315 Fire Protective Coating

**Date:** October 20, 2015

**Materials:** DC315. Single-component, water-based fire protective coating for use over spray-applied polyurethane foam plastic insulation.

### **Test Standards:**

<u>Property</u>	<u>Standard</u>
Solids Content by Volume	ASTM D2697
Density	ASTM D1475
Viscosity	ASTM D2196

### **Building Codes and Code References:**

1. 2006, 2009, 2012, 2015 International Building Code (IBC)
2. 2006, 2009, 2012, 2015 International Residential Code (IRC)
3. AC456 Acceptance Criteria for Fire-Protective Coatings Applied to Spray-Applied Foam Plastic Insulation Installed without a Code-Prescribed Thermal Barrier, as approved by ICC-ES Committee, 10/2015.
4. AC377 Acceptance Criteria for Spray-Applied Foam Plastic Insulation, 5/2015.

### **Summary:**

1. Based on the test data submitted and the reference documents, DC315 fire protective coating meets the requirements and intent of AC456. When used and tested as a component as part of an assembly with specific spray polyurethane foam (SPF) systems, that assembly does not require the thermal barrier specified in IBC Section 2603.2, IRC Section R326.4 or AC377 Section 3.2.3.2.
2. Specific DC315 / SPF assemblies, including minimum DC315 thicknesses and maximum SPF thicknesses, may be found in individual SPF evaluation reports based on AC377.

### **Labeling Requirements:**

Containers of DC315 must be identified with the manufacturer's name (IFTI), address and telephone number; the name of the insulation product (DC315); date of manufacture; shelf life or expiration date; storage conditions; application instructions; and the name of the third-party inspection agency.

**Discussion:**

1. **Specific Spray Foam Systems:** DC315 is tested with specific spray polyurethane foam (SPF) systems as specific assemblies. DC315 application thickness will vary from one SPF to another. Fire test methods and test report requirements are provided in AC377. Recognition for specific assemblies with limits on DC315 and SPF thicknesses can be found in individual SPF evaluation reports based on AC377.
2. **Per Cent Solids by Volume:** For DC315, the per cent solids by volume (vol%) is 67%.
3. **Dry Film Thickness, Wet Film Thickness and Theoretical Application Rate:** Thicknesses and theoretical application rates for DC315 may be determined from the thicknesses reported in the respective fire test reports and the formulas listed in AC456, Appendix A. Based on a vol% content of 67%, Table 1 relates these relationships.

Table 1: Film Thicknesses and Theoretical Application Rates

WFT Wet Film Thickness (mils)	DFT Dry Film Thickness (mils)	TAR Theoretical Application Rate (gallons / 100 ft <sup>2</sup> )
18	12.0	1.13
19	12.7	1.19
20	13.4	1.25
21	14.1	1.31
22	14.7	1.38

4. **Adjustments to Theoretical Application Rates (TAR):** Due to job conditions, TARs must be adjusted upward for estimating and application purposes. Factors that affect these adjustments include SPF surface texture, overspray, and miscellaneous losses (such as spills, material left in hoses or on brushes, etc). Refer to SPFA-121 “Spray Polyurethane Foam Estimating Reference Guide” for specific determination methods.
5. **Installation Instructions:** Specific installation instructions may be found in the DC 315Data Sheet and Application Guide.
  - a. **Surface inspection and preparation:** All surfaces to be coated must be clean, cured, firm, dry and free of dust, dirt, oil, wax, grease, mildew and efflorescence. Inspect and clean surfaces as required. Some SPF assemblies require the use of a primer (see individual SPF evaluation reports for details).
  - b. **Equipment and Settings:** DC315 may be applied using airless spray equipment, brush or roller. See DC 315Data Sheet and Application Guide for specific equipment recommendations and settings.

- c. Application Conditions: Apply DC315 when ambient temperature is between 50 and 90°F and relative humidity is between 50 and 75%.
  - d. Storage Conditions / Shelf Life: Do not store DC315 below 50°F. Shelf life of DC315 is one year from date of manufacture when stored in unopened containers between 50 and 80°F.
  - e. Mixing: DC315 must be mixed prior to application. Use a high-speed drill with a mixer sized for the specific container. Container contents should be stirred from the bottom up. Five-gallon pails should be mixed 4-5 minutes. See DC 315Data Sheet and Application Guide for additional information.
  - f. Multiple Coats: Maximum application thickness of DC315 in one coat is 24 mils WFT for both vertical and horizontal (overhead) applications. Allow two hours between multiple coating applications.
6. **Fire Tests and Recognized Assemblies:** Fire tests for recognizing DC315 / SPF assemblies are specified in AC377 with NFPA 286 being the more common. Specific assemblies with minimum DC315 thicknesses and maximum SPF thicknesses may be found in individual SPF evaluation reports.
  7. **Quality Control:** DC315 is manufactured under a quality control program supervised and inspected by Warnock Hersey/Intertek.

#### Conclusions:

DC315 fire protective coating meets the requirements and intent of the IBC and IRC, in combination with tested SPF systems, as alternate assemblies to the use of thermal barriers as specified and as limited in the Summary section above.

Respectfully submitted,  
Deer Ridge Consulting, Inc.



Roger V. Morrison, PE, RRC  
President

#### Reference Documents:

1. 2006, 2009, 2012 and 2015 International Building Code: Sections 803.1.2.1; 2603.
2. 2006, 2009, 2012 and 2015 International Residential Code: Sections R302.9.4; R316.
3. AC456 Acceptance Criteria for Fire-Protective Coatings Applied to Spray-Applied Foam Plastic Insulation Installed without a Code-Prescribed Thermal Barrier, as approved by ICC-ES Committee, 10/2015.
4. AC377 Acceptance Criteria for Spray-Applied Foam Plastic Insulation, 5/2015.
5. DC 315Data Sheet and Application Guide.
6. SPFA-121 "Spray Polyurethane Foam Estimating Reference Guide."
7. PRI Construction Materials Technologies, Test Report No. CAW-002-02-01, March 24, 2015 (Percent Solids by Volume).