



DC 315: 15 Minute Thermal & Ignition Barrier on Spray Polyurethane Foam (SPF) Data Sheet and Application Guide



DC 315 applied over Spray Polyurethane Foam (SPF), is an Alternative Barrier System in “**Section 2603.9 Special Approval**” as a thermal barrier. To be approved as an Alternative Barrier System, DC 315 is applied over a manufacturer’s SPF and tested to the criteria of an NFPA 286, UL 1715, UL 1040, or FM 4880 for duration of 15 minutes by an accredited fire testing facility. Products that pass an ignition barrier tested under **AC 377 Appendix X are not appropriate alternative thermal barriers and cannot be used.** Depending on your particular application, either ignition or thermal barriers are required by the International Building Code (IBC).

Characteristics

- Color:** All orders ship in Light Gray (White and Dark Gray available via special order)
- V.O.C.:** (47 g/l)
- Volume Solids:** 67%
- Packaging:** 5 & 55 gallon containers

Advantages of Using DC315 over Spray Polyurethane Foam

- **DC 315 is the only 3rd party inspected fire protective coating for SPF**
- **Marked and Listed by Warnock Hersey Intertek W/N 20947**
- Single coat coverage reducing labor and material costs equaling higher profits
- Industry leading spread rate
- Passed CAL 1350 - safe for use in schools and high occupancy buildings
- Passed strict EPA – V.O.C. and AQMD air emission requirements (for all 50 states)
- Approved for Incidental Food Contact complies with NSF/ANS1-51 requirements of USDA
- Easily applied with a sprayer, roller, or brush with no complicated mixing
- 1 year shelf life
- Fast and easy clean-up, with no waste and fast turnaround time
- Compatible with any paintable construction material
- Meets Life Safety Code 101
- Meets LEED’s point requirements
- No formaldehyde

DC 315 is the most tested and approved product in the world for use as an, “**Alternative Barrier Coating System**” over Spray Polyurethane Foam (SPF).

Visit us at our website www.painttoprotect.com to obtain a current matrix of all the manufacturer’s foams DC 315 has been tested and approved over as Thermal or Ignition barriers in compliance with current IBC codes.

If a coating has not passed a full scale test on a manufacturer’s foam it cannot be used on that foam; there are no exceptions in the IBC Code!

Building Code Fire Performance Requirements for SPF:

The International Building Code (IBC) mandates that SPF be separated from the interior of the building by a 15 minute thermal barrier, or other approved covering. DC 315 passed certified NFPA 286 and UL 1715 test over a variety of open and closed cell spray applied urethane foams that were conducted by ISA certified testing facilities. All tests performed comply with the requirements of 2006 IBC Section 803.2.1 & 2009 IBC Section 803.1.2, and Section 2603.9; 2012 IBC Section 803.1.2 and Section 2603.10 under "Special Approvals for Thermal Barriers over Foam Plastics". DC315 is WHI marked and certified via 3rd party inspection for quality assurance and consistency.

Special Approval / Alternate Thermal & Ignition Barrier Assemblies [IBC 2603.9 / IRC R316.6]

Alternative 15 min Thermal Barrier Assemblies (e.g. Exposed SPF or SPF with a Thermal Barrier Protective Covering)

The assembly must remain in place for 15 minutes during specified large-scale fire tests, such as NFPA 286, UL 1715, UL 1040, or FM 4880.

Alternative Ignition Barrier Assemblies

DC 315 meets the requirements for ignition barrier per **AC 377, Appendix X**

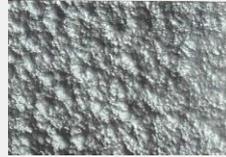
In order to validate warranty and confirm the installation complies with IFTI's best practices installer must obtain and read all current installation documents. Installation documents include Application Guide, Ventilation Guide and Job Work Report. These documents can be downloaded at www.painttoprotect.com or by calling IFTI at 949.975.8588. "Job Work Records are an excellent way to track your installations and confirm compliance to your Building Official or Authority Having Jurisdiction. In the event of a concern on a job the installer is able to provide documented proof of the installation, for this reason IFTI recommends using these forms for all thermal barrier jobs."

Prior to Applying DC 315 to Ensure Proper Adhesion: Adhesion of a coating to SPF requires the foam surface to have a slight profile or texture similar to an orange peel (view below). Smooth or glossy foam surfaces should be flash coated with a light 3 - 4 mils Wet Film Thickness (WFT) of DC 315 before applying the full application. Flash coating is a quick burst of DC 315 or a primer via airless sprayer over an area needing treatment. We also recommend flash coating around all pipes and air ducts.



Orange Peel Surface Texture

Description: The surface shows a fine texture and is compared to the exterior skin of an orange. This surface is considered acceptable for receiving a protective coating.



Coarse Orange Peel Surface Texture

Description: The surface shows a texture where nodules and valleys are approximately the same size and shape. This surface is acceptable for receiving a protective coating because of the roundness of the nodules and valleys.



Smooth Surface Texture

Description: The surface shows spray undulation and is ideal for receiving a protective coating.

Wait 12-24 hours to let foam off gas and cure before applying DC 315:

Surface Preparation: All surfaces to be coated must be clean, cured, firm, dry and free of dust, dirt, oil, wax, grease, mildew, and efflorescence. The quality of any application is only as good as the surface preparation that precedes the application. Our coating has excellent bonding characteristics and will adhere to most sound, clean, foam surfaces. Verify that the surface of the foam is free of gouges, holes, and exposed cells. Also verify the surface is stable, and not crumbling or deteriorated. If any such defects are found make sure to repair them prior to proceeding.

Material Preparation: DC 315 must be thoroughly mixed before application. Failure to do so will seriously compromise the coating's ability to perform. It is recommended to perform mechanical stirring with a high speed drill and a paddle appropriate for the size container you are working from. Contents should be stirred from the bottom up making sure to scrape the bottom and sides with a paint stick as you go. Contents should be stirred to a creamy consistency with no lumps. Continue mixing for 4-5 minutes per 5 gallon pail. Thinning is usually not needed. If DC 315 has been exposed to high heat, water may evaporate from the plastic 5 gallon container. If the paint level is below 3 inches from the top of the container, add enough water to bring the level back up to within 3 inches from the top in order to ensure proper consistency.

DC 315 Viscosity: DC 315 is a 9,000-10,000 viscosity coating. When you open a container of DC 315 it may appear thick before it is mixed, but once remixed for 5 minutes it will return to 9000-10,000 viscosity.

Temperature: PROTECT FROM FREEZING DURING SHIPMENT AND STORAGE. DC 315 is water based coating which will freeze and become unusable at temperatures below 32° F. **Do Not** store material at temperatures below 50° F. **Do Not** apply DC 315 when ambient air and substrate temperatures fall below 50° F. Store DC 315 at 50° F to 80° F at all times. **Do Not** store DC 315 on concrete floors during winter months. **IFTI recommends an ideal installation temperature range of 62°F to 90°F.**

Humidity: Relative humidity like temperature plays an equally important role in how well DC 315 cures. **Ideal conditions are 50-65% relative humidity.** Curing times are significantly affected when humidity levels exceed 70%. Low relative humidity can also be a problem, because DC 315 may dry too quickly and lead to blistering on the surface. It is imperative that humidity is monitored throughout the application and curing process. 65% humidity at the beginning of the job will quickly rise as the coating is installed. Continue monitoring humidity as the coating cures until equilibrium is achieved. For additional information on applying DC 315 in high or low humidity contact IFTI at 949.975.8588 or email us at ptp@painttoprotect.com.

Ventilation: Please see humidity and temperature guidelines above. We recommend running fans to circulate the air during application, especially in high or low humidity. Air flows must be across the area DC 315 was applied, but not directly on it. If the relative humidity is greater than 65% **at the end** of spraying and cross ventilation is not drastically reducing it, then a mechanical industrial dehumidifier is required. **IMPORTANT-** when spraying in enclosed spaces, particularly those that have just been insulated with an air barrier material like SPF, it is mandatory to use an "exhaust" blower at one end of the enclosed space and run a hose to the exterior of the building for removing stale air. Use a "supply" blower at the opposite end of the enclosed space and a hose from the exterior to maintain a negative pressure compared to the surrounding area, maintaining at least 0.3 air changes per hour following application until coating has fully cured. **Improper installation practices that do not address humidity will void the warranty.** Contact IFTI at 949.975.8588 or email ptp@painttoprotect.com for a current ventilation guide.

Freezing: It's also important that air temperatures do not drop below 50° F in the work space until the coating has fully cured. Curing paint can still contain moisture that will crystallize in sub-freezing temperatures instead of evaporating out into the atmosphere as it is designed to do. If temperatures do drop, you won't see a problem until the following spring or as temperatures rise. Moisture will remain hidden in the coating over the winter and then migrate to the surface under a warm spring sun, which may form blisters or delamination.

Application Equipment: DC 315 is best applied with an airless sprayer to achieve a more consistent mil thickness. In challenging areas where an airless sprayer is not practical, DC 315 can be applied by brush or roller (See pg. 4 for a list of recommended sprayers).

Spraying DC 315 for Maximum Yield: If this is the first time using DC 315 we suggest testing a pre-measured area to get a feel for spraying and yield. Example, if the job requires 20 wet mils or 80 sq. ft. per gallon, then a 5 gallon pail would cover 400 sq. ft. Measure out one or two 400 sq. ft. sections using pieces of tape, thumbtacks, or canned spray paint. Use just enough to outline the area you intend to apply DC 315. We suggest spraying inside the outlined area and taking wet film thickness measurements, with a wet film gauge across the area, to get a feel for maximum yield.

Coverage: DC 315 MUST BE THOROUGHLY MIXED FOR 5 MINUTES PRIOR TO APPLICATION WITH A MECHANICAL MIXER

Check appropriate test report or ESR for required wet film thickness (WFT) and gallon per square coverage.

WET Film Thickness	Sq. Ft. Per One Gallon	Sq. Ft. Per Five Gallon
4 WFT	400 Sq. Ft. Per One Gallon	2000 Sq. Ft. Per Five Gallon
18 WFT	89 Sq. Ft. Per One Gallon	445 Sq. Ft. Per Five Gallon
20 WFT	80 Sq. Ft. Per One Gallon	400 Sq. Ft. Per Five Gallon
21 WFT	76 Sq. Ft. Per One Gallon	380 Sq. Ft. Per Five Gallon
22 WFT	73 Sq. Ft. Per One Gallon	365 Sq. Ft. Per Five Gallon

Overlapping Technique: The overlapping technique ensures that an even amount of coating was sprayed onto the surface. The spray gun should be aimed so that the tip points at the edge of the previous stroke, therefore overlapping each stroke by 50%. To maximize efficiency when spraying on broad or open surfaces (e.g. ceilings and bare walls), the outside edges of walls should be sprayed first. The middle can then be sprayed quickly requiring less precise strokes. Given the contour of SPF we suggest spraying side to side followed by an up and down stroke.

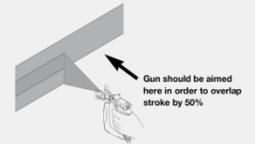


Figure 1

Measuring Wet Film Thickness (WFT)

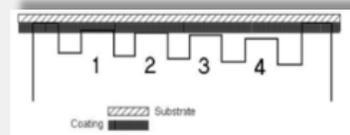


Figure 2

How to Use a Wet Film Thickness Gauge: A WFT gauge is designed to give the spray applicator immediate mil measurement of the film build just been sprayed. There are several types of WFT gauges available. The most common is the notch gauge (see figure 1). Other types of gauges available from specialty vendors include the eccentric disk, rolling notch, and the 6 sided.

Technique: When placing the gauge on a freshly painted area, the gauge must be placed at a 90 degree angle to the substrate and pressed firmly to ensure correct depth. The applicator also needs to be aware of variations in the surface that may influence the reading. For example, if the surface is not perfectly flat, one direction may give a more accurate reading than the other. International Fireproof Technology, Inc. (IFTI) suggests placing metal plates throughout the surface of the foam, or at least one per 400 sq. ft. These plates are available at most hardware stores. IFTI recommends writing the job date and applicator name on the back of each plate. Measuring WFT on the front side of the plate will give the most accurate reading. Collect these plates and keep them on file at the job site. They are a great tool to present your code official or Fire Marshal.



To use the WFT gauge, place the gauge directly on the wet area just sprayed as described above (see figure 2). The notches will indicate the measured film thickness. For example, if the 18 mil notch is wet and the 20 notch is dry, then the wet measured thickness is 18 mils.



Recommended Sprayers for DC 315:

For Residential and Warehouse usage:

Small Size Jobs Less than 7,500 Square Feet:

Pump: Titan 640 Impact or equivalent
Hose: 3/8" diameter airless spray line for the first 100' from pump and 1/4" x 6' whip
Tip: 517 – 521
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Medium Size Jobs:

Pump: Titan 840 Impact or **(Graco) Ultra Max II 795 Hi-Boy** or equivalent
Hose: 3/8" diameter airless spray line for the first 100' from pump and 1/4" x 6' whip
Tip: 517 – 523
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Large Size Jobs:

Airless sprayer: With capability of 1.3 gallon per minute or more. Heavy Duty Fluid Section with high viscosity fluid passages.

Pump: **(Titan) 1140 Impact** or **(Graco) Mark IV-Mark V- Mark X-** 220-240 volt offering or equivalent
Hose: 3/8" diameter airless spray line for the first 100' from pump and 1/4" x 6' whip
Tip: 517 – 525
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Gas Airless: Or equivalent

Pump: **(Graco) 7900HD** 2 gallon per minute
Hose: Max hose length 250 feet (250 feet 3/8 hose, 1/4 whip, HD Blue Gun)
Tip: 517 – 525
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Pump: **(Graco) GH 833** 4 gallon per minute 4000 psi
Hose: Max hose length 300 feet (1/2 inch 250 feet, 3/8 50ft, 1/4 whip hose, HD Blue Gun)
Tip: 517 – 525
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Pump: **(Graco) GH 733** 4 gallon per minute 4000 psi
Hose: Max hose length 300 feet (1/2 inch 250 feet, 3/8 50ft, 1/4 whip hose, HD Blue Gun)
Tip: 517 – 525
Mesh: 30

DC 315 may not exceed 24 Mils WFT in one coat.

Material must be applied at a maximum 24 wet Mils (WFT) in one coat

Tip size recommendation: .017-.025 @ 12 inches from substrate

Pressure recommendation: 3000psi

Surfaces should be sprayed with a 50% over lap spraying side to side followed by an up and down stroke.

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