

EnviroSeal® HFO is a two-component, medium density, one to one (by volume) closed-cell spray polyurethane (ccSPF) foam insulation system. EnviroSeal has excellent thermal properties, industry leading moisture performance, enhanced environmental benefits, and exceptional yield making it ideal for residential and commercial applications. EnviroSeal HFO is available in both a summer and winter blend.

### Application Information

Applied at a suggested maximum of 3.5" per pass. Temperatures of initial pass will be recorded to ensure that the core temperature is below 100°F. This process will be repeated for each additional pass to ensure proper heat dissipation. If spraying on heat sensitive materials (PEX pipe, low voltage wiring), spray maximum of 1" of foam and allow to fully cool before additional full thickness passes are added.

Foam must be protected from UV exposure within 90 days of application. Apply EnviroSeal HFO insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits. Ambient humidity should be below 70% and substrate temperatures should be more than 5°F above dew point to avoid condensation risks.

Substrate temperature for Standard Grade: 50-125°F.  
Substrate temperature for Winter Grade: 10-75°F.

### Appearance

The final cured product is cream in color (natural).

### Fire Test Data

Attribute	Test	Results
Flame Spread	ASTM E84	<25
Smoke Development	ASTM E84	<450
Surface Burning Characteristics @ 4"	ASTM E84	Class 1 (A)
Ignition Barrier	NFPA 286	Pass
Uncoated	Appendix X	
Spray Applied Thermal Insulation	ASTM C-1029	Meets or Exceeds Type II

### Thermal Resistance

Thickness (inch)	R-Value (°F-ft <sup>2</sup> -h/Btu) <sup>i</sup>
1.0	7.2
2.0	14
3.5	24
4.0	28

### Thermal Barrier

DC315 as manufactured by International Fireproof Technology      Application Rate: 18 Wet Mills - 12 Dry Mills

### Approvals and Certifications

- IAPMO UES# 854
- Meets requirements for ASTM C1029 as a Type II material
- UL GREENGUARD Gold Certified

### Recommended Applications

EnviroSeal HFO is a 2.0 pcf density closed cell spray polyurethane foam insulating material. EnviroSeal HFO has an R-Value of 7.2 at 1" and is designed to be used in areas where superior physical properties are needed. When properly installed, EnviroSeal expands quickly to fill gaps, cracks, and voids providing enhanced air sealing, reduced moisture infiltration, and can add structural enhancements. EnviroSeal may be used in residential, commercial, industrial, agricultural, and institutional applications.

### Vapor Retarder

EnviroSeal HFO, when installed at a minimum thickness of 1" qualifies as a Class II Vapor Retarder. Always check with your local building official or the appropriate edition of the IRC or IBC for specific requirements and climate zone tables.

### Physical Properties

Property	Test	Results
R-Value	ASTM C-518	7.2 @ 1"
Density (nominal)	ASTM D1622	2.0 lb/ft <sup>3</sup>
Water Vapor Transmission	ASTM E96	0.86 perm @1"
Dimensional Stability	ASTM D2126	< 1%
Tensile Strength	ASTM D1623	33 psi
Compressive Strength	ASTM D1621	26 psi
Air Permeance @ 75 Pa	ASTM E2178	<0.002 L/s-m <sup>2</sup>
Water Absorption (% Volume)	ASTM D2842	<1% by volume
Closed Cell Content	ASTM D2856	>97%
Maximum Service Temp.	ASTM C411	180°F
Fungi Resistance	ASTM C1338	Pass, no growth
Re-entry/Re-occupancy	UL Greenguard	24-Hours
VOC Emissions	UL Greenguard	In Process
Color	Material	Cream

### Ignition Barrier<sup>1</sup>

EnviroSeal HFO meets the requirements of AC377 and Appendix X for use in attics and crawlspaces without the use of a prescriptive ignition barrier or intumescent coating.

## <sup>1</sup> Ignition Barrier

EnviroSeal® HFO may be used in attics and crawlspaces without a prescriptive ignition barrier or intumescent coating under the following conditions: Entry is only to service utilities in the attic or crawlspace and no storage is permitted; attic and/or crawlspaces cannot be interconnected.

Other requirements: IBC 1203.2; 1203.3; IRC R408.1; R806; IMC 701; 702

## Processing Parameters

Pressures (dynamic):	1,000-1,500psi
Preheat Temperature:	A and B, 110-130°F
Hose Temperature:	110-130°F
Drum Temperature in Use:	70-80°F
Surface Temperature:	Standard Grade: 50-125°F Winter Grade: 10-75°F

The mix ratio of resin to ISO is 1:1 by volume. EnviroSeal products should be processed through commercially available equipment designed for spray polyurethane foam. The recommended spray gun is the Graco Fusion AP/CS gun equipped with an AR 4242/AR 4747 chamber. The use of larger gun chambers may result in reduced yield and decreased physical properties.

## Liquid Component Characteristics

Mix Ratio by Vol: 1:1 of A:B

Component A: 150-250 cps @ 77°F (Viscosity)  
1.24kg/L sg @ 77°F (Specific Gravity)

Component B: 600 cps @77°F (Viscosity)  
1.18 kg/L sg @ 77°F (Specific Gravity)

## Storage Recommendation

All EnviroSeal products are factory sealed and should remain sealed until they are ready to be used. Keep drums closed during storage and out of a humid environment.

Keep drums out of direct sunlight. To ensure proper longevity of the products, drums should be stored indoors within the temperature ranges referenced below. Please see chart below for shelf life and proper storage temperatures of EnviroSeal HFO:

Shelf Life	EnviroSeal HFO Part B Resin – 6 months	EnviroSeal ISO Part A - 12 months
Storage	50-80°F	50-80°F

## Precautions

Like many construction materials, spray polyurethane foam is a combustible product. Therefore, installers and occupants are to take precautions and safety measures to ensure the foam does not come into close (within 3”) contact of any devices that have a surface temperature exceeding 180°F. Once application is completed, foam shall be protected with a thermal barrier in accordance with the local building code requirements for a suitable thermal barrier (e.g. drywall).

## Adhesion

EnviroSeal HFO will adhere to most construction materials. Substrates must be free of grease, oil, dirt, and surface moisture. Moisture content of porous materials must be below 19% before application of foam.

Manufacturer can be contacted for material compatibility, surface preparation techniques, and adhesion on commonly encountered construction materials. It is up to the builder or designer to determine the suitability of the material for any project. The installer must verify the compatibility of the product at the time of application due to the variability of weather conditions, material suppliers, and site conditions which may impact the overall performance of the product.

## Health and Safety Handling

When spraying or handling EnviroSeal ISO and resin the following protective steps and equipment are recommended:

### Protective Equipment

- Fabric coverall (non-porous)
- Nitrile gloves
- Protective eyewear
- Supplied full face fresh air respirator (while spraying)
- Use personal protective equipment (see SDS)

### Exposure

- Avoid all contact with skin
- Avoid all contact with eyes
- Do not ingest
- Do not inhale vapors

In case of exposure, please refer to the SDS for first-aid measures.

## Spills

In case of spills, contain and collect spillage with a non-combustible absorbent material, such as: sand, earth, clay-based oil absorbent (kitty-litter), etc.

## Technical Assistance

For additional assistance please contact the Technical Services Department of Quadrant Performance Materials at 972-542-0072

## Disclaimer

Technical information as shown in this document is intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product.

LIMITED WARRANTY INFORMATION: The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are only intended for sale to commercial customers. Customer assumes full responsibility for quality control, testing, and determination of suitability of products for its intended application or use. We warrant that our products will meet our specifications contained herein. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability or fitness for a particular purpose. Our total liability and customers' exclusive remedy for all proven claims is replacement of nonconforming product and in no event shall we be liable for any other damages.



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