

# GREENSEAL 3.0 HFO

## TECHNICAL DATA SHEET

### PRODUCT DESCRIPTION

**GreenSeal 3.0 HFO** is a two component, Closed Cell HFO polyurethane foam system which utilizes a Zero Ozone-depleting blowing agent and has a low (less than 1) Global Warming potential, that can be used as a self-adhering, spray applied rigid polyurethane foam roofing system in conjunction with coatings also available from UltraTite Solutions Products. GreenSeal 3.0 HFO can be used for exterior tank and vessel insulation applications.

### TYPICAL PHYSICAL PROPERTIES<sup>1</sup>

Test Method	Property	GS 3.0 HFO
ASTM D1621	Compressive Strength	60 - 65 psi
ASTM D1623	Tensile Strength	80 - 85 psi
ASTM C518	Thermal Resistance (R-Value) @ 1"	6.7
ASTM C273	Sheer Strength	45 PSI
ASTM D2856	Closed-Cell Content	< 90%
ASTM D1622	Core Density	2.9 – 3.1 lbs. / cu. ft.
ASTM E84	Flame Spread @ 4"	< 75

### REACTIVITY PROFILES<sup>1</sup>

GS 3.0 HFO Reactivity	Recommended Ambient Temp Range
GS 3.0 HFO VS (Very Slow)	100° – 125°F (38° – 52°C)
GS 3.0 HFO S (Slow)	85° – 110°F (29.5° – 43°C)
GS 3.0 HFO R (Regular)	65° – 90°F (18° – 32°C)
GS 3.0 HFO F (Fast)	50° – 75°F (10° – 24°C)
GS 3.0 HFO VF (Very Fast)	40° – 55°F (4.5° – 13°C)

### RATINGS AND APPROVALS

Meets ASTM C1029 – Type III Standard criteria
UL 790 – R26705 Listings
UL 790 – R26705 Certified for Canada
CA BEARHFTI Listed
Meets IBC/IRC requirements for Foam Plastic Roofing Systems

### LEED INFORMATION

Pre-Consumer Recycled Content	1.3%
Post-Consumer Recycled Content	3.35%
Manufacturing Location	Houston, TX
Rapidly Renewable Resources	0.6%

### LEED INFORMATION

55-gallon drum (208.2L) – 1,000 lbs. set A & B net	A Component - 540 lbs. (245 Kg)
D.O.T. Classification; Liquid Plastic Material – NOIBN	B Component - 540 lbs. (245 Kg)

<sup>1</sup> Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

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### STORAGE AND USE OF CHEMICAL

Keep the temperature of the chemicals above 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The storage temperature should not exceed 85°F. Do not store in direct sunlight. Keep drums tightly closed when not in use. The B-side drum must be kept under dry air or nitrogen pressure of 2-3 psi after opening and during use. The shelf life of unopened A is 12 months and the B is six months.

### SAFE HANDLING OF LIQUID COMPONENTS

Use caution in removing bungs from the container. Partially loosen the small bung first allowing any built up gas pressure to escape before completely removing it. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to [www.spraypolyurethanes.org](http://www.spraypolyurethanes.org) Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF.

### EQUIPMENT AND COMPONENTS

GreenSeal 3.0 HFO is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B-drum is connected to the resin pump and the A-drum is connected to the isocyanate pumps. The proportioning pump ratio is 1:1. The dispensing temperature should be set between 125 °F and 135 °F

### INSTALLATION

1. SPF roofing systems should be processed through commercially available spray equipment designed for that purpose by a qualified professional applicator. It is the responsibility of the professional applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to SPF.
2. All surfaces to be sprayed with GreenSeal 3.0 HFO should be clean, dry, and free of all dirt and contaminants. All metal to which the SPF is applied must be free of oils, grease, etc.
3. Prior to application of the GreenSeal 3.0 HFO, the substrate should be between 45° – 120°F (7° – 49°C). Service temperatures for any surface to be sprayed with SPF should not exceed 180° – 200°F (82° – 93°C). Moisture in the form of rain, fog, frost, dew, or high humidity (>85%R.H.) will adversely affect the SPF formation and physical properties of the finished product. Wind velocities of excess of 15 mph may affect the foam surface texture, cure, and physical properties, as well as cause possible over-spray problems.
4. A and B Component Preheated temperatures should be set according to ambient temperature and substrate conditions. A typical starting range is 125°–135°F (51° –57°C); hose heat should be set to maintain these temperatures. Set the dynamic fluid pressure at 1,000 to 1,200 psi. Mixing ratio through the Proportioner is 1:1 by volume. 2:1 Transfer Pumps are recommended to provide positive feedback from the material to the Proportioner. These are recommended initial settings and may vary based on specific conditions.
5. Each "pass" or layer of the SPF should be at least 0.5 inches (13mm) and no more than 1.5 inches (38 mm) thick. Allow at least 10 minutes between each pass for cure and cooling. Multiple layers can be applied to reach the desired thickness and insulation value, as well as to facilitate positive drainage.
6. The finished surface of the GreenSeal 3.0 HFO must be protected from the adverse effects of sunlight (UV), which can cause discoloration and degradation. The protective coating or covering should be applied over the SPF the same day as the application, or within 24 hours. A variety of protective coatings designed for use with GreenSeal 3.0 HFO are available from UltraTite Solutions.