

## TECHNICAL DATA SHEET

Heatlok<sup>®</sup> HFO Pro is a two component, closed cell, spray applied, rigid polyurethane foam system. This product uses recycled plastic materials, rapidly renewable soy oils, and the blowing agent has zero ozone depleting potential. Heatlok HFO Pro complies with the intent of the International Code Council's residential and commercial building codes and is commonly used as a thermal insulation, air barrier, vapor retarder and water resistive barrier in above grade, below grade, interior and exterior applications.

PHYSICAL PROPERTIES			
ASTM D 1622	Core Density	2.0 – 2.4 lb/ft <sup>3</sup>	32.0 – 38.4 kg/m <sup>3</sup>
ASTM C 518	Aged Thermal Resistance	1" = 7.4 ft <sup>2</sup> h <sup>2</sup> F/BTU 3.5" = 23 ft <sup>2</sup> h <sup>2</sup> F/BTU	1" = 1.3 Km <sup>2</sup> /W 3.5" = 4.04 Km <sup>2</sup> /W
ASTM E 283	Air Leakage @ 75 Pa @ 1"	< 0.02 L/sm <sup>2</sup>	
ASTM E 2178	Air Permeance @ 75 Pa @ 1"	< 0.02 L/sm <sup>2</sup>	
ASTM E 96	Water Vapor Permeance Class II vapor barrier per IBC Section 202 @ 1"	0.91 perms	52.5 ng/Pa•s•m <sup>2</sup>
	Class II vapor barrier @ ≤ 1 perm	1"	25.4mm
ASTM D 2842	Water Absorption (volume)	0.3%	
ASTM D 1621	Compressive Strength	31 psi	214 kPa
ASTM D 1623	Tensile Strength	44 psi	303 kPa
ASTM D 2126	Dimensional Stability @ 158°F (70°C) 97% R.H. (168 hours)	-3.7 (% volume change)	
VOC Emissions	UL Environment (Greenguard Gold)	Meets Criteria	
ASTM C 1338	Fungi Resistance	No fungal growth	
ASTM D 2856	Closed Cell Content	98%	
ASTM C 1029	Standard specification for spray applied rigid cellular polyurethane thermal insulation	Type II Compliant	

FIRE TEST RESULTS		
ASTM E 84	Surface Burning Characteristics, 4" thick Flame Spread Index Smoke Developed	Class I 12 350 – 400
AC 377 Appendix X	Ignition Barrier – Compliant with 2009, 2012 & 2015 IBC and IRC, and ICC-ES AC-377 Appendix X, for use in attics and crawl spaces without a prescriptive ignition barrier or intumescent coating.	Pass
NFPA 286	Thermal Barrier – Compliant with the 2009, 2012 & 2015 IBC and IRC, as an interior finish without a 15 minute thermal barrier when coated with DC-315 at 18 mils wet film thickness, 12 mils dry film thickness, or Blazelok™ TBX at 18 mils wet film thickness, 12 mils dry film thickness.	Pass
ASTM D 1929	Ignition Properties (spontaneous ignition temperature)	766°F (408°C)

RECYCLED & RENEWABLE CONTENT	
Recyclable Content	19%
Renewable Content	6%

REACTIVITY PROFILE			
Cream Time	Gel Time	Tack Free Time	End of Rise
0 – 1 seconds	2 seconds	3 – 4 seconds	3 – 4 seconds

LIQUID COMPONENT PROPERTIES*		
PROPERTY	A-PMDI ISOCYANATE	HEATLOK HFO PRO RESIN
Color	Brown	Blue
Viscosity @ 77°F (25°C)	180 – 220 cps	500 – 800 cps
Specific Gravity	1.24	1.17 – 1.21
Shelf Life of unopened drum properly stored	12 months	6 months
Storage Temperature	50 – 100°F (10 – 38°C)	59 – 77°F (15 – 25°C)
Mixing Ratio (volume)	1:1	1:1

\*See SDS for more information.

RECOMMENDED PROCESSING CONDITIONS*		
Initial Primary Heater Setpoint Temperature	105 – 115°F	41 – 46°C
Initial Hose Heat Setpoint Temperature	105 – 115°F	41 – 46°C
Initial Processing Setpoint Pressure	1200 – 1400 psi	8274 – 9653 kPa
Substrate & Ambient Temperature	Summer > 50°F Winter > 15°F	Summer > 10°C Winter > -9°C
Moisture Content of Substrate	≤19%	≤19%
Moisture Content of Concrete	Concrete must be cured, dry and free of dust and form release agents.	

\*Foam application temperatures and pressures can vary widely depending on temperature, humidity, elevation, substrate, equipment and other factors. While processing, the applicator must continuously observe the characteristics of the sprayed foam and adjust processing temperatures and pressures to maintain proper cell structure, adhesion, cohesion and general foam quality. It is the sole responsibility of the applicator to process and apply Heatlok HFO Pro within specification.

**General Requirements:** Equipment must be capable of delivering the proper ratio (1:1 by volume) of polymeric isocyanate (PMDI) and polyol blend at adequate temperatures and spray pressures. Substrate must be at least 5 degrees above dew point, with best processing results when ambient humidity is below 80%. Substrate must also be free of moisture (dew or frost), grease, oil, solvents and other materials that would adversely affect adhesion of the polyurethane foam. Applicators should limit the application of this product to no more than a thickness of 2" (50mm) per pass (after expansion) to avoid fire hazards (including spontaneous combustion) resulting from excessive heat generation. A second 2" (50mm) layer may be applied immediately after the first one has fully risen. Alternatively, a single pass of up to 3" (76mm) may be applied. In either case, if subsequent passes are needed, applicators should wait until the core temperature of the foam has dropped below 100°F to allow any reaction heat to dissipate from the prior applications before attempting to reapply the product.

RECOMMENDED MAXIMUM PASS THICKNESSES		
Maximum Pass	3"	76mm
Dual Pass (x" + x")	2" + 2"	50mm + 50mm

Heatlok HFO Pro must be separated from the interior of the building by an approved thermal barrier or an approved finish material equivalent to a thermal barrier in accordance with applicable codes. Heatlok HFO Pro must be sprayed at a minimum thickness of 1" per pass. This product must not be used when the continuous service temperature of the substrate or foam is below -60°F (-51°C) or above 180°F (82°C). Heatlok HFO Pro should not be used to cover flexible ductwork.

**Disclaimer:** The information herein is to assist customers in determining whether our products are suitable for their applications. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent inferred. All patent rights are reserved. The foam product is combustible and must be protected in accordance with applicable codes. Protect from direct flame and spark contact, around hot work for example. The exclusive remedy for all proven claims is replacement of our materials.

