




# TECHNICAL DATA SHEET

## HANDIFOAM® HFO FR LOW PRESSURE SPRAY FOAM

### LOW PRESSURE POLYURETHANE FOAM INFORMATION

<b>Description</b>	(HFO) Low pressure, medium density, two-component spray polyurethane foam
<b>SPF</b>	Spray Polyurethane Foam
<b>Applications</b>	Designed to fill and seal various size voids, deaden sound, or reduce vibration. Conforms to the requirements of ASTM E84 as a Class 1 (A) system.
<b>Preparation for use</b>	Substrate must be clean, dry, firm, free of loose particles, and free of dust, grease, and mold release agents. Protect surfaces not to be foamed. Read SDS, Operating Instructions, and Product Stewardship Guidelines. For additional information go to <a href="http://www.handifoam.com">www.handifoam.com</a>
<b>Use</b>	Condition chemical to 75-85°F (24-29°C). Follow instructions for set-up found in the operating instructions.
<b>PPE</b>	 <p>Recommend using in a well-ventilated area with certified respiratory protection or a powered air purifying respirator (PAPR). Wear protective glasses with side shields or goggles, nitrile gloves, and clothing that protects against dermal exposure. Read all instructions and SDS (Section 8) prior to use of any product.</p>
<b>Note</b>	FOR PROFESSIONAL USE ONLY. Always check the local building code before use. Cured low pressure polyurethane foam is non-toxic and inert.
<b>Temperature</b>	Please see Temperature Guidelines located on page 2
<b>Product Storage</b>	Store in a dry area. Do not expose the cylinders to open flame or temperatures above 90°F (32°C). Excessive heat can cause premature aging of components resulting in a shorter shelf-life.
<b>Disposal</b>	Refer to SDS (Section 13) for instructions. Always dispose of empty cylinders according to applicable federal, state, provincial and local regulations.
<b>Shelf-life</b>	12 months
<b>Compatibility</b>	Cured low pressure polyurethane foam is chemically inert and non-reactive in approved applications, and will not harm electrical wire insulations, extruded polystyrene foams, Romex®, rubber, PVC, polyethylene (i.e. PEX) or other plastics. The product is not resistant to UV rays; if left exposed the product should be coated or painted.

### TECHNICAL DATA

### STANDARD

### RESULTS

<b>Density</b> Free Rise		1.75 lbs/ft <sup>3</sup> (28.0 kg/m <sup>3</sup> )
<b>Density</b> In-place	ASTM D1622	1.90 lbs/ft <sup>3</sup> (30.4 kg/m <sup>3</sup> )
<b>Tack-Free/Expansion Time</b>	--	15-30 seconds
<b>Cutable</b>	--	10 minutes (estimate)
<b>K-factor-</b> Initial		0.143 BTU·inch/ft <sup>2</sup> ·h·°F at 1" thickness
Initial		0.074 BTU·inch/ft <sup>2</sup> ·h·°F at 2" thickness
Aged 180 days @ 75°F (24°C)	ASTM C518	0.155 BTU·inch/ft <sup>2</sup> ·h·°F at 1" thickness
Aged 180 days @ 75°F (24°C)		0.081 BTU·inch/ft <sup>2</sup> ·h·°F at 2" thickness
<b>R-Value-</b> Initial		7.02 at 1" thickness
Initial		13.54 at 2" thickness
Aged 180 days @ 75°F (24°C)	ASTM C518	6.44 at 1" thickness
Aged 180 days @ 75°F (24°C)		12.30 at 2" thickness
<b>Air Barrier Properties</b>		
@1.57 psf (75 Pa)	ASTM E283 - modified	<0.003 cfm/ft <sup>2</sup> (<0.0152 L/s/m <sup>2</sup> )
<b>Perm Rating- Method A</b>		
1" Thick (2.54 cm)	ASTM E96 (Method A)	1.54 perms - Class III Vapor Retarder
<b>Closed-Cell Content</b>	ASTM D2856	> 90%
<b>Fungi Resistance</b>	ASTM G21	No growth

TECHNICAL DATA (Continued)	STANDARD	RESULTS
<b>Compressive Strength</b>	ASTM D1621	15 lbf/in <sup>2</sup> (103 kPa) Parallel 9 lbf/in <sup>2</sup> (62 kPa) Perpendicular
<b>Tensile Strength</b>	ASTM D1623	18 lbf/in <sup>2</sup> (124 kPa) Parallel
<b>Dimensional Stability</b> -4°F (-20°C) / 30 days 158°F (70°C) & 97% R.H. / 30 days	ASTM D2126 (% volumetric change)	+ 0.01% + 10.3%
<b>Water Absorption</b>	ASTM D2842	3.73%
<b>VOC Content</b>	EPA Method 24 (Calculated)	<25 g/L (when mixed as intended)
<b>Fire Rating-</b> Tested at 2" Thickness. <b>Class A</b>	ASTM E84	Flame Spread Index 10 Smoke Developed 350
<b>Fire Rating-</b> Tested at 4" Beads	CAN/ULC-S102	Flame Spread Index 15 Smoke Developed 75

### APPROVALS/STANDARDS/CLASSIFICATIONS

<b>ULe GREENGUARD</b>	Gold Certification
<b>CCMC</b>	Testing in progress for CAN/ULC S711.01



### TEMPERATURE GUIDELINES

<b>Chemical Storage Temperature</b>	Optimum 75-85°F (24-29°C) but not <60°F (16°C) or >90°F (32°C)
<b>Outside Application Temperature</b>	40-100°F (4-38°C)
<b>Process Core Chemical Temperature</b>	75-85°F (24-29°C)
<b>Surface Temperature (Substrate)</b>	40-100°F (4-38°C)
<b>Cured Foam</b>	-200 to +240°F (-129 to +116°C)

### YIELD<sup>1</sup> (1.75 lbs/ft<sup>3</sup> Free Rise Density)

	Weight (Including packaging)	Board Feet	Cubic Feet	Linear Feet	Linear Feet
<b>P12063</b> (II-100)	25.7 lbs (18.3 kg)	100 ft <sup>2</sup> (9.3 m <sup>2</sup> )	8.3 ft <sup>3</sup> (0.24 m <sup>3</sup> )	1,524 ft at 1" bead	381 ft at 2" bead
<b>P12055</b> (II-200)	40.4 lbs (18.3 kg)	201 ft <sup>2</sup> (18.6 m <sup>2</sup> )	16.7 ft <sup>3</sup> (0.47 m <sup>3</sup> )	3,065 ft at 1" bead	766 ft at 2" bead
<b>P12056</b> (II-600)	115.1 lbs (52.2 kg)	601 ft <sup>2</sup> (55.8 m <sup>2</sup> )	50.1 ft <sup>3</sup> (1.42 m <sup>3</sup> )	9,181 ft at 1" bead	2,295 ft at 2" bead
<b>P12064</b> (II-600)	113.5 lbs (51.5 kg)	601 ft <sup>2</sup> (55.8 m <sup>2</sup> )	50.1 ft <sup>3</sup> (1.42 m <sup>3</sup> )	9,181 ft at 1" bead	2,295 ft at 2" bead
<b>P12056W</b> (II-600)	116.2 lbs (52.7 kg)	601 ft <sup>2</sup> (55.8 m <sup>2</sup> )	50.1 ft <sup>3</sup> (1.42 m <sup>3</sup> )	9,181 ft at 1" bead	2,295 ft at 2" bead

<sup>1</sup> Yield is based on free-rise density. We state our core density/free-rise density when describing the foam. Applying foam into a cavity may result in higher in-place densities due to packing effects. These higher densities may result in lower yields.

**NOTE:** Physical properties shown are typical and are to serve only as a guide for engineering design. Results are obtained from specimens under ideal laboratory conditions and may vary upon use, temperature and ambient conditions. Right to change physical properties as a result of technical progress is reserved. Yields shown are optimum and will vary slightly depending on ambient conditions and application. This information supersedes all previously published data. The customer is responsible for deciding whether products and associated TDS information are appropriate for customer's use.

**WARNING:**

ICP low pressure one-component polyurethane foam sealants and adhesives (OCF), low pressure spray polyurethane foams and foam adhesives (SPF), and low pressure pour-in-place polyurethane foams (PIP) are composed of diisocyanate, hydrofluorocarbon, hydrocarbon, hydrofluoroolefin or hydrochlorofluoroolefin blowing agent, and a polyol blend. The urethane foam produced from these ingredients will support combustion and may present a fire hazard if exposed to a fire or excessive heat about 240°F (116°C). Read all instructions, ICP Product Stewardship Guidelines and SDS (Section 8) prior to use of any product. ICP polyurethane products are for professional use only.

Before using any OCF, SPF or PIP product, read the SDS and instructions carefully before use ([www.handifoam.com](http://www.handifoam.com)). **OCF Products:** wear protective glasses with side shields or goggles, nitrile gloves, and clothing that protects against dermal exposure. Recommend using in a well-ventilated area. Avoid breathing vapors. **SPF/PIP Products:** wear protective glasses with side shields or goggles unless using a full-face respirator, nitrile gloves, and clothing that protects against dermal exposure. Recommend dispensing product in a well-ventilated area and with certified respiratory protection or a powered air purifying respirator (PAPR); however, well ventilated exterior applications may not need respiratory protection. It is the responsibility of the employer to complete a PPE evaluation and/or exposure assessment to determine if respiratory protection is required. Personal Protective Equipment can be purchased through ICP Building Solutions Group by ordering the Polyset® Contractor Safety Kit (F65251). The Contractor Safety Kit includes: nitrile gloves, contractor safety glasses, and a size Medium NIOSH-approved negative pressure half mask respirator.

Refer to each product's TDS for specifications, testing results, and other attributes. The customer is ultimately responsible for deciding whether products and associated TDS information are appropriate for customer's use. For professional use only. Building practices unrelated to materials can lead to potential mold issues. Material suppliers cannot provide assurance that mold will not develop in any specific system. Product uses a non-flammable compressed gas. Keep away from heat. Smoking and open flames, including hot work, should be prohibited in the vicinity of a foaming operation. Avoid contact with skin and eyes. May cause sensitization by inhalation and/or direct skin contact. Persons previously sensitized to Isocyanates may develop a cross-sensitization reaction to other isocyanates. Avoid prolonged or repeated breathing of vapor. Use in conformance with all local, state and federal regulations and safety requirements. Failure to strictly adhere to any recommended procedures and reasonable safety precautions shall release ICP Building Solutions Group of all liability with respect to the materials or the use thereof. For additional information and location of your nearest distributor, call ICP Building Solutions Group 330.753.4585.

**LIMITED WARRANTY and LIMITATION OF DAMAGES:** ICP Building Solutions Group warrants only that the product shall meet ICP Building Solutions Group's specifications for the product when shipped by ICP Building Solutions Group. NO OTHER EXPRESSED OR IMPLIED WARRANTIES APPLY AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OUTSIDE THE U.S. AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. Buyer and users assume all risks of use, handling and storage of the product. Failure to strictly adhere to any recommended procedures shall release ICP Building Solutions Group from all liability. The user of the product is responsible to determine suitability of the product for the particular use. The exclusive remedy as to any breach of warranty, negligence or other claim is limited to the replacement of the product. Liability for any indirect, incidental or consequential damage or loss is specifically excluded.