




TECHNICAL DATA SHEET

HANDIFOAM® E84 (HFO) II-16 LOW PRESSURE SPRAY FOAM

LOW PRESSURE POLYURETHANE FOAM INFORMATION

Description	(HFO) Low pressure, medium density, two-component spray polyurethane foam
SPF	Spray Polyurethane Foam
Applications	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.
Preparation for use	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 www.handifoam.com
Use	Condition chemical to 75-85°F (24-29°C). Follow instructions for set-up found in the operating instructions.
PPE	 <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>
Note	FOR PROFESSIONAL USE ONLY. Always check the local building code before use. Cured low pressure polyurethane foam is non-toxic and inert.
Temperature	Please see Temperature Guidelines located on page 2
Product Storage	Store in a dry area. Do not expose the kit to open flame or temperatures above 90°F (32°C). Excessive heat can cause premature aging of components resulting in a shorter shelf-life.
Disposal	Refer to SDS (Section 13) for instructions. Always dispose of empty cylinders according to applicable federal, state, provincial and local regulations.
Shelf-life	12 months
Compatibility	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
Density Free Rise	ASTM D1622	2.2 lbs/ft ³ (32.0 kg/m ³)
K-factor - Initial		0.154 BTU·inch/ft ² ·h·°F at 1" thickness
Aged 90 days 140°F (60°C)	ASTM C518	0.163 BTU·inch/ft ² ·h·°F at 1" thickness
Aged 90 days 140°F (60°C)		0.0505 BTU·inch/ft ² ·h·°F at 3" thickness
R-Value - Initial		6.50 at 1" thickness
Aged 90 days 140°F (60°C)	ASTM C518	6.10 at 1" thickness
Aged 90 days 140°F (60°C)		19.80 at 3" thickness
Air Barrier Properties		
Tested at 1" thickness @1.57 psf (75Pa)	ASTM E283	0.003 cfm/ft ² (0.02 L/s/m ²)
Air Permeance		
Tested at 0.5" bead @1.57 psf (75Pa)	ASTM E2178	0.002 cfm/ft ² (0.01 L/s/m ²)
Compressive Strength	ASTM D1621	20 lbf/in ² (138 kPa) Parallel 18 lbf/in ² (124 kPa) Perpendicular
Dimensional Stability		
70°F (22°C) & 50% R.H. / 30 days	ASTM D2126	+/- 5%
-4°F (-20°C) / 30 days	(% volumetric change)	+ 0.2%
158°F (70°C) & 97% R.H. / 30 days		+ 9.7%
Tack-Free/Expansion Time	Tack-Free/Expansion Time	45-75 seconds

TECHNICAL DATA (Continued)

Closed-Cell Content	ASTM D2856	92%
Tensile Strength	ASTM D1623	32 lbf/in ² (221 kPa) Parallel
Cuttable	--	5 minutes (estimate)
Fungi Resistance	ASTM G21	No Growth
Perm Rating- Method A 1" Thick (2.54 cm)	ASTM E96	1.6 perms - Class III Vapor Retarder
VOC Content	EPA Method 24	<25 g/L (minus water and exempt compounds)
Fire Rating- Tested at 3" Thickness. Class A	ASTM E84	Flame Spread Index 10 Smoke Developed 450
Fire Rating- Tested at 4" Beads	CAN/ULC S102	Flame Spread Index 15 Smoke Developed 225
Fire Rating	FMVSS 302/ CMVSS 302	Meets/ Burn Rate 0/00 min

APPROVALS/STANDARDS/CLASSIFICATIONS

ULe GREENGUARD	Gold Certification
ESR- 2717	Update in progress
CCMC #13455-L	Update in progress
NFPA 286	Testing for use in roof/wall junctions and attic/wall penetrations at 2" thickness x 6" wide with unlimited length without a thermal barrier.
NFPA 286-Modified	Tested with FireShell F10E. Can be used in attic and crawlspace applications when certain qualifying conditions are met.
NFPA 286	Tested with DC315. Contact supplier for further information.



TEMPERATURE GUIDELINES

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

YIELD¹ (2.2 Free Rise Density)

	Weight (Including packaging)	Board Feet	Cubic Feet	Linear Feet	Linear Feet
P12625 (II-16)	4.0 lbs (1.8 kg)	12.5 ft ² (1.2 m ²)	1.0 ft ³ (0.03 m ³)	190 ft at 1" bead	48 ft at 2" bead

¹ 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.

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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). **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.