TECHNICAL DATA SHEET

HANDIFOAM® E84 SPRAY FOAM INSULATION LOW PRESSURE SPRAY FOAM REFILL SYSTEMS, FOR USE IN CANADA

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	 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.
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 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.
Disposal	Refer to SDS (Section 13) for instructions. Always dispose of empty cylinders according to applicable federal, state, provincial and local regulations.
Shelf-life	6 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	1.75 lbs/ft^3 (28.0 kg/m^3)
Density In-place		2.11 lbs/ft^3 (35.2 kg/m^3)
Tack-Free/Expansion Time	--	30-60 seconds
Cuttable	--	10 minutes (estimate)
K-factor- Initial	ASTM C518	0.152 BTU·inch/ft^2·h·°F at 1" thickness
Initial		0.076 BTU·inch/ft^2·h·°F at 2" thickness
Aged 180 days @ 75°F (24°C)		0.169 BTU·inch/ft^2·h·°F at 1" thickness
Aged 180 days @ 75°F (24°C)		0.085 BTU·inch/ft^2·h·°F at 2" thickness
R-Value- Initial	ASTM C518	6.6 at 1" thickness
Initial		13.2 at 2" thickness
Aged 180 days @ 75°F (24°C)		6.1 at 1" thickness
Aged 180 days @ 75°F (24°C)		11.7 at 2" thickness
Air Barrier Properties		
Tested at 1" thickness @1.57 psf (75 Pa)	ASTM E283 - modified	0.003 cfm/ft^2 (0.02 L/s/m^2)
Air Permeance @1.57 psf (75Pa)	ASTM E2178	0.0008 cfm/ft^2 (0.004 L/s/m^2)

TECHNICAL DATA (Continued)	STANDARD	RESULTS
Perm Rating- Method A 1.5" Thick (3.8 cm)	ASTM E96 (Method A)	1.4 perms - Class III Vapor Retarder
Closed-Cell Content	ASTM D2856	> 90%
Fungi Resistance	ASTM G21	No Growth
Compressive Strength	ASTM D1621	24.2 lbf/in^2 (167 kPa) Parallel
Tensile Strength	ASTM D1623	40.3 lbf/in^2 (278 kPa) Parallel
Dimensional Stability 70°F (22°C) & 50% R.H. / 28 days -4°F (-20°C) / 28 days 158°F (70°C) & 97% R.H. / 28 days	ASTM D2126 (% volumetric change)	 ±5 ±5 +0.96
Water Absorption	ASTM D2842	0.83%
VOC Content	EPA Method 24 (Calculated)	37 g/l when mixed as intended
Fire Rating- Tested at 2" Thickness. **Class A**	ASTM E84	Flame Spread Index 5 Smoke Developed 450
Fire Rating- Tested at 4" Beads	CAN/ULC-S102	Flame Spread Index 20 Smoke Developed 60

APPROVALS/STANDARDS/CLASSIFICATIONS

ULe GREENGUARD	Gold Certification
CCMC	File in progress for CAN/ULC S711.01
ICC-ES	File 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.

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)

YIELD[1] (1.75 lbs/ft^3 Free Rise Density)

	Weight (Per cylinder)	**Board Feet (Up to)**	**Cubic Feet (Up to)**	**Linear Feet (Up to)**	**Linear Feet (Up to)**
P23000C System 8	98.5 lbs (44.7 kg)	1,007 ft^2 (94.3 m^2)	84 ft^3 (2.39 m^3)	15,401 ft at 1" bead	3,850 ft at 2" bead
P23100C System 17	203 lbs (92.1 kg)	2,001 ft^2 (186 m^2)	167 ft^3 (4.72 m^3)	30,593 ft at 1" bead	7,648 ft at 2" bead
P23200C System 27	356.5 lbs (161.7 kg)	3,378 ft^2 (314 m^2)	282 ft^3 (7.98 m^3)	51,652 ft at 1" bead	12,913 ft at 2" bead
P23400C System 60	773 lbs (350.6 kg)	7,783 ft^2 (723 m^2)	649 ft^3 (18.4 m^3)	119,020 ft at 1" bead	29,755 ft at 2" bead
P23800C System 120	1,369 lbs (621 kg)	14,113 ft^2 (1,311 m^2)	1176 ft^3 (33.3 m^3)	215,828 ft at 1" bead	53,957 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.

Always read all operating, application and safety instructions before using any products. 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 of all liability with respect to the materials or the use thereof. For additional information and location of your nearest distributor, call ICP 1 330.753.4585 or 1 800.321.5585.

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 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 of all liability with respect to the materials or the use thereof. For additional information and location of your nearest distributor, call ICP 330.753.4585.

LIMITED WARRANTY and LIMITATION OF DAMAGES: ICP warrants only that the product shall meet ICP specifications for the product when shipped by ICP. 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 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.

Cylinder Warranty Statement

ICP warrants that the cylinder is fit to dispense ICP foam products that are loaded into the cylinder by ICP. The sole remedy for any breach of warranty is replacement of the cylinder. NO OTHER EXPRESSED OR IMPLIED WARRANTIES APPLY AND ANY IMPLIED WARRANTIES OF MECHANTABILITY, NON-INFRINGEMENT OUTSIDE THE U.S. AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. The terms, conditions and warranties applicable to ICP's products dispensed from the cylinder are covered in other ICP documentation relating to that purchase. Liability for any indirect, incidental or consequential damage or loss specifically excluded. **Buyer must not make any changes to the cylinder or the cylinder components, including plumbing**. Any such change may produce dangerous results and cause damage or injury, including a loss of product stored in the cylinder. ICP is not responsible for damages or injuries resulting from any such changes. Those damages or injuries are Buyer's responsibility, and ICP may charge Buyer for the costs of any resulting cylinder damage or repairs. ICP also reserves the right to restrict future sales if the Buyer does not address safety concerns such as modified or missing plumbing, pressure relief valve activated or excessive cylinder pressure.

Magnum Heated Hose Warranty Statement

See the hose manufacturer's warranty regarding any warranty applicable to the hose. ICP makes no warranty regarding the hose and it is sold "AS IS" and ALL EXPRESSED AND IMPLED WARRANTIES ARE EXPRESSLY DISCLAIMED. Liability for any indirect, incidental or consequential damage or loss is specifically excluded.

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WITH GLOBALLY SOURCED MATERIALS