




TECHNICAL DATA SHEET

HANDIFOAM® E84 LOW PRESSURE REFILL SYSTEMS

LOW PRESSURE POLYURETHANE FOAM INFORMATION

Description	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.icpadhesives.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 Guidelines	Please see chart located on page 2
Return Instructions	Refer to SDS (Section 13) for instructions. The cylinders are shipped back to ICP A&S to be cleaned, refilled, and redistributed. Return instructions are included in the A-cylinder collar of the refill system.
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 kg/m ³)
Density In-place		2.12 lbs/ft ³ (34 kg/m ³)
K-factor - Initial	ASTM C518	0.139 BTU·inch/ft ² ·h·°F
Aged 90 days 140°F (60°C)		0.166 BTU·inch/ft ² ·h·°F
Aged 90 days 140°F (60°C)		0.083 BTU·inch/ft ² ·h·°F
R-Value - Initial	ASTM C518	7.2 at 1 inch thickness
Aged 90 days 140°F (60°C)		6.0 at 1 inch thickness
Aged 90 days 140°F (60°C)		12.0 at 2 inch thickness
Air Barrier Properties	ASTM E283	0.003 cfm/ft ² (0.02 L/s/m ²)
Tested at 1 inch thickness @1.57 psf (75Pa)		
Air Permeance	ASTM E2178	0.02 L/s/m ²
Tested at 2 Inch Beads		
Compressive Strength	ASTM D1621	26 lbf/in ² (182 kPa) Parallel 16 lbf/in ² (110 kPa) Perpendicular
Dimensional Stability	ASTM D2126	+/- 5%
Tack-Free/Expansion Time	Tack-Free/Expansion Time	30-60 seconds
Closed-Cell Content	ASTM D2856	95%
Cutttable		2-5 minutes
Fungi Resistance	ASTM G21	No Growth

TECHNICAL DATA (Continued)

Tensile Strength	ASTM D1623	OSB 20 lbf/in ² (137 kPa) CMU 25 lbf/in ² (172 kPa) Steel 22 lbf/in ² (152 kPa)
Perm Rating- Method A		
1" Thick (2.54 cm)	ASTM E96	1.67 (100 ng/(m ² ·Pa·s))- Class III Vapor Retarder
2" Thick (5.08 cm)		1.44 (82 ng/(m ² ·Pa·s))- Class III Vapor Retarder
3" Thick (7.62 cm)		1.00 (57 ng/(m ² ·Pa·s))- Class II Vapor Retarder
Water Absorption	ASTM D2842	2.9%
Fire Rating- Tested at 2" Thickness	ASTM E84	Flame Spread Index 20 Smoke Developed 400
Fire Rating- Tested at 2" Beads	CAN/ULC S102	Flame Spread Index 9 Smoke Developed 43
Fire Rating	FMVSS 302/ CMVSS 302	Meets/ Burn Rate 0/00 min

APPROVALS/STANDARDS/CLASSIFICATIONS

ESR- 2717	Conforms to the requirements of AC 377
CCMC #13455-L	Conforms to the requirements of CAN/ULC S711.01
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	Tested with DC 315 Intumescent Coating. HandiFoam® E84 and DC 315 can be used in lieu of the prescribed 15 minute thermal barrier when HandiFoam® does not exceed 2 inch thickness in walls or ceilings and the foam is covered with 13 dry mils of DC 315.
NFPA 286-Modified	Tested with No Burn Plus XD Ignition Barrier. Can be used in attic and crawlspace applications when certain qualifying conditions are met.
ULe GREENGUARD	Gold Certification

**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°F to +240°F (-129°C to +116°C)

YIELD¹ (1.75 Density)

	Weight² (Per cylinder)	Cylinder Dimensions	Board Feet	Cubic Feet	Empty Cylinder Weight³
System 8 50004	96.7 lbs (44 kg)	H 28" (71 cm) D 12.5" (32 cm) Base 9.25" Diameter (23.5 cm)	1010 (93.9 m ²)	84.2 ft ³ (2.4 m ³)	23 lbs (10.4 kg)
System 17 P22070⁵	201 lbs (91.2 kg)	H 34" (86 cm) D 14.5" (37 cm) Base 14" Diameter (36 cm)	1980 (184 m ²)	165 ft ³ (4.67 m ³)	55 lbs (25 kg)
System 17 P22090⁴	201 lbs (91.2 kg)	H 34" (86 cm) D 14.5" (37 cm) Base 14" Diameter (36 cm)	1980 (184 m ²)	165 ft ³ (4.67 m ³)	55 lbs (25 kg)
System 27 P22270⁵	350 lbs (159 kg)	H 54" (137 cm) D 15" (38 cm) Base 20" x 20" (51 cm x 51 cm)	3120 (290 m ²)	260 ft ³ (7.36 m ³)	120 lbs (54 kg)
System 27 P22290⁴	350 lbs (159 kg)	H 54" (137 cm) D 15" (38 cm) Base 20" x 20" (51 cm x 51 cm)	3120 (290 m ²)	260 ft ³ (7.36 m ³)	120 lbs (54 kg)
System 60 P22470⁵	705 lbs (319.8 kg)	H 51" (130 cm) D 24" (61 cm) Base 22" x 23" (56 cm x 58 cm)	6840 (636 m ²)	570 ft ³ (16.14 m ³)	205 lbs (93 kg))
System 60 P22490⁴	705 lbs (319.8 kg)	H 51" (130 cm) D 24" (61 cm) Base 22" x 23" (56 cm x 58 cm)	6840 (636 m ²)	570 ft ³ (16.14 m ³)	205 lbs (93 kg)
System 100 P22670⁵	1190 lbs (540 kg)	H 61" (155 cm) D 30" (76 cm) Base 30" x 30" (76cm x 76cm)	11,400 (1059 m ²)	950 ft ³ (26.91 m ³)	360 lbs (163 kg)
System 120 P22890⁴	1278 lbs (580 kg)	H 57" (145 cm) D 30" (76 cm) Base 22" Diameter (56 cm)	13,020 (1210 m ²)	1085 ft ³ (30.70 m ³)	328 lbs (149 kg)

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.

² Average Gross Weight

³ See refillable cylinder for actual tare weight/empty cylinder weight. Various cylinder manufacture runs, paint, etc. can increase the average tare weight.

⁴ Refillable cylinder is equipped with 1/2" plumbing

⁵ Refillable cylinder is equipped with 3/8" plumbing

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 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 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 or hydrofluoroolefin 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.icpadhesives.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 Polysel® 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.

Cylinder Warranty Statement

ICP Building Solutions Group warrants that the cylinder is fit to dispense ICP Building Solutions Group foam products that are loaded into the cylinder by ICP Building Solutions Group. 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 MERCHANTABILITY, NON-INFRINGEMENT OUTSIDE THE U.S. AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. The terms, conditions and warranties applicable to ICP Building Solutions Group's products dispensed from the cylinder are covered in other ICP Building Solutions Group 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 Building Solutions Group is not responsible for damages or injuries resulting from any such changes. Those damages or injuries are Buyer's responsibility, and ICP Building Solutions Group may charge Buyer for the costs of any resulting cylinder damage or repairs. ICP Building Solutions Group 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 Building Solutions Group makes no warranty regarding the hose and it is sold "AS IS" and ALL EXPRESSED AND IMPLIED WARRANTIES ARE EXPRESSLY DISCLAIMED. Liability for any indirect, incidental or consequential damage or loss is specifically excluded.