




# TECHNICAL DATA SHEET

## HANDIFOAM® E84 CLASS 1(A) LOW PRESSURE REFILL SYSTEMS

### LOW PRESSURE POLYURETHANE FOAM INFORMATION



<b>Description</b>	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.icpadhesives.com">www.icpadhesives.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 Guidelines</b>	Please see chart located on page 2
<b>Return Instructions</b>	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.
<b>Shelf-life</b>	6 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	ASTM D1622	1.75 lbs/ft <sup>3</sup> (28 kg/m <sup>3</sup> )
<b>Density</b> In-place		2.12 lbs/ft <sup>3</sup> (34 kg/m <sup>3</sup> )
<b>K-factor</b> - Initial	ASTM C518	0.139 BTU·inch/ft <sup>2</sup> ·h·°F
Aged 90 days 140°F (60°C)		0.166 BTU·inch/ft <sup>2</sup> ·h·°F
Aged 90 days 140°F (60°C)		0.083 BTU·inch/ft <sup>2</sup> ·h·°F
<b>R-Value</b> - 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
<b>Air Barrier Properties</b>	ASTM E283	0.003 cfm/ft <sup>2</sup> (0.02 L/s/m <sup>2</sup> )
Tested at 1 inch thickness @1.57 psf (75Pa)		
<b>Air Permeance</b>	ASTM E2178	0.02 L/s/m <sup>2</sup>
Tested at 2 Inch Beads		
<b>Compressive Strength</b>	ASTM D1621	26 lbf/in <sup>2</sup> (182 kPa) Parallel 16 lbf/in <sup>2</sup> (110 kPa) Perpendicular
<b>Dimensional Stability</b>	ASTM D2126	+/- 5%
<b>Tack-Free/Expansion Time</b>	Tack-Free/Expansion Time	30-60 seconds
<b>Closed-Cell Content</b>	ASTM D2856	95%
<b>Cutttable</b>		2-5 minutes
<b>Fungi Resistance</b>	ASTM G21	No Growth

**TECHNICAL DATA (Continued)**

<b>Tensile Strength</b>	ASTM D1623	OSB 20 lbf/in2 (137 kPa) CMU 25 lbf/in2 (172 kPa) Steel 22 lbf/in2 (152 kPa)
<b>Perm Rating- Method A</b>		
1" Thick (2.54 cm)	ASTM E96	1.67 (100 ng/(m <sup>2</sup> ·Pa·s))- Class III Vapor Retarder
2" Thick (5.08 cm)		1.44 (82 ng/(m <sup>2</sup> ·Pa·s))- Class III Vapor Retarder
3" Thick (7.62 cm)		1.00 (57 ng/(m <sup>2</sup> ·Pa·s))- Class II Vapor Retarder
<b>Water Absorption</b>	ASTM D2842	2.9%
<b>Fire Rating- Tested at 2" Thickness</b>	ASTM E84	Flame Spread Index 20 Smoke Developed 400
<b>Fire Rating- Tested at 2" Beads</b>	CAN/ULC S102	Flame Spread Index 9 Smoke Developed 43
<b>Fire Rating</b>	FMVSS 302/ CMVSS 302	Meets/ Burn Rate 0/00 min

**APPROVALS/STANDARDS/CLASSIFICATIONS**

<b>ESR- 2717</b>	Conforms to the requirements of AC 377
<b>CCMC #13455-L</b>	Conforms to the requirements of CAN/ULC S711.01
<b>NFPA 286</b>	Testing for use in roof/wall junctions and attic/wall penetrations at 2" thickness x 6" wide with unlimited length without a thermal barrier.
<b>NFPA 286</b>	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.
<b>NFPA 286-Modified</b>	Tested with No Burn Plus XD Ignition Barrier. Can be used in attic and crawlspace applications when certain qualifying conditions are met.
<b>ULe GREENGUARD</b>	Gold Certification



**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°F to +240°F (-129°C to +116°C)

**YIELD<sup>1</sup> (1.75 Density)**

	<b>Weight<sup>2</sup></b> (Per cylinder)	<b>Cylinder Dimensions</b>	<b>Board Feet</b>	<b>Cubic Feet</b>	<b>Empty Cylinder Weight<sup>3</sup></b>
<b>System 8 50004</b>	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 <sup>2</sup> )	84.2 ft <sup>3</sup> (2.4 m <sup>3</sup> )	23 lbs (10.4 kg)
<b>System 17 P22070<sup>5</sup></b>	265 lbs (120 kg)	H 54" (137 cm) D 15" (38 cm) Base 20" x 20" (51 cm x 51 cm)	1980 (184 m <sup>2</sup> )	165 ft <sup>3</sup> (4.67 m <sup>3</sup> )	120 lbs (54 kg)
<b>System 17 P22090<sup>4</sup></b>	201 lbs (91.2 kg)	H 34" (86 cm) D 14.5" (37 cm) Base 14" Diameter (36 cm)	1980 (184 m <sup>2</sup> )	165 ft <sup>3</sup> (4.67 m <sup>3</sup> )	55 lbs (25 kg)
<b>System 27 P22270<sup>5</sup></b>	350 lbs (159 kg)	H 54" (137 cm) D 15" (38 cm) Base 20" x 20" (51 cm x 51 cm)	3120 (290 m <sup>2</sup> )	260 ft <sup>3</sup> (7.36 m <sup>3</sup> )	120 lbs (54 kg)
<b>System 27 P22290<sup>4</sup></b>	350 lbs (159 kg)	H 54" (137 cm) D 15" (38 cm) Base 20" x 20" (51 cm x 51 cm)	3120 (290 m <sup>2</sup> )	260 ft <sup>3</sup> (7.36 m <sup>3</sup> )	120 lbs (54 kg)
<b>System 60 P22470<sup>5</sup></b>	860 lbs (390 kg)	H 61" (155 cm) D 30" (76 cm) Base 30" x 30" (76 cm x 76 cm)	6840 (636 m <sup>2</sup> )	570 ft <sup>3</sup> (16.14 m <sup>3</sup> )	360 lbs (163 kg)
<b>System 60 P22490<sup>4</sup></b>	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 <sup>2</sup> )	570 ft <sup>3</sup> (16.14 m <sup>3</sup> )	205 lbs (93 kg)
<b>System 100 P22670<sup>5</sup></b>	1190 lbs (540 kg)	H 61" (155 cm) D 30" (76 cm) Base 30" x 30" (76cm x 76cm)	11,400 (1059 m <sup>2</sup> )	950 ft <sup>3</sup> (26.91 m <sup>3</sup> )	360 lbs (163 kg)
<b>System 120 P22890<sup>4</sup></b>	1278 lbs (580 kg)	H 57" (145 cm) D 30" (76 cm) Base 22" Diameter (56 cm)	13,020 (1210 m <sup>2</sup> )	1085 ft <sup>3</sup> (30.70 m <sup>3</sup> )	328 lbs (149 kg)

<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.

<sup>2</sup> Average Gross Weight

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

<sup>4</sup> Refillable cylinder is equipped with 1/2" plumbing

<sup>5</sup> 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 Adhesives & Sealants, Inc. of all liability with respect to the materials or the use thereof. For additional information and location of your nearest distributor, call ICP Adhesives & Sealants Inc. 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. 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.

ICP low pressure one-component polyurethane foam sealants and adhesives (OCF), low pressure spray polyurethane foams (SPF), and low pressure pour-in-place polyurethane foams (PIP) are composed of a diisocyanate, hydrofluorocarbon or hydrocarbon blowing agent, and polyol. For polyurethane foam sealants/adhesives: 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. Read the SDS and instructions carefully before use ([www.icpadhesives.com](http://www.icpadhesives.com)). For spray polyurethane foams and pour-in-place polyurethane foams: wear protective glasses with side shields or goggles, nitrile gloves, and clothing that protects against dermal exposure. Use only in a well-ventilated area and with certified respiratory protection or a powered air purifying respirator (PAPR). Additional information on ventilation can be found in the Product Stewardship Guide ([www.icpadhesives.com](http://www.icpadhesives.com)). Read the SDS ([www.icpadhesives.com](http://www.icpadhesives.com)) and instructions carefully before use. 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). 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. Refer to the products' SDS, ICP Adhesives & Sealants' Product Stewardship Guidelines, and operating instructions for guidance on the safe and proper application of the product ([www.icpadhesives.com](http://www.icpadhesives.com)). 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.

**WARNINGS:** Follow safety precautions and wear protective equipment as recommended. Prolonged inhalation exposure may cause respiratory irritation/sensitization and/or reduce pulmonary function in susceptible individuals. Onset may be delayed. Pre-existing respiratory conditions may be aggravated. We recommend that the product is used in a well-ventilated area and with certified respiratory protection. NIOSH approved positive pressure supplied air respirator is recommended if exposure guidelines may be exceeded. Contents may be very sticky and irritating to skin and eyes, therefore wear safety glasses with side shields or goggles, nitrile gloves, and clothing that protects against dermal exposure when operating. If liquid chemical comes in contact with skin, first wipe thoroughly with dry cloth, then rinse affected area with water. Wash with soap and water afterwards, and apply hand lotion if desired. If liquid comes in contact with eyes, immediately flush with large volume of clean water for at least 15 minutes and get medical help at once. If liquid is swallowed, get immediate medical attention. Do not induce vomiting. If breathing is difficult, give oxygen. If breathing has stopped give artificial respiration. Products manufactured or produced from these chemicals are organic and, therefore, combustible. Each user of any product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage. **KEEP OUT OF REACH OF CHILDREN.**

**LIMITED WARRANTY and LIMITATION OF DAMAGES:** ICP Adhesives & Sealants, Inc. warrants only that the product shall meet ICP Adhesives & Sealants, Inc. specifications for the product when shipped by ICP Adhesives & Sealants, Inc. 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 Adhesives & Sealants, Inc. 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 Adhesives & Sealants, Inc. warrants that the cylinder is fit to dispense ICP Adhesives & Sealants, Inc.'s foam products that are loaded into the cylinder by ICP Adhesives & Sealants, Inc. 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 Adhesives & Sealants, Inc.'s products dispensed from the cylinder are covered in other ICP Adhesives & Sealants, Inc. 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 Adhesives & Sealants, Inc. is not responsible for damages or injuries resulting from any such changes. Those damages or injuries are Buyer's responsibility, and ICP Adhesives & Sealants, Inc. may charge Buyer for the costs of any resulting cylinder damage or repairs. ICP Adhesives & Sealants, Inc. 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 Adhesives & Sealants, Inc. 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.