TECHNICAL DATA SHEET

HANDIFOAM® E84 SPRAY FOAM INSULATION 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	 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	24 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 (Incl. packaging)	Board Feet (Up to)	Cubic Feet (Up to)	Linear Feet (Up to)	Linear Feet (Up to)
P12130 (II-15)	4.0 lbs (1.8 kg)	15 ft^2 (1.4 m^2)	1.2 ft^3 (0.03 m^3)	230 ft at 1" bead	57 ft at 2" bead
P12135 (II-105)	25.7 lbs (11.7 kg)	105 ft^2 (9.7 m^2)	8.7 ft^3 (0.25 m^3)	1,605 ft at 1" bead	401 ft at 2" bead
P12140 (II-205)	40.3 lbs (18.3 kg)	205 ft^2 (19.0 m^2)	17.0 ft^3 (0.48 m^3)	3,132 ft at 1" bead	783 ft at 2" bead
P12145 (II-605)	111.6 lbs (50.6 kg)	605 ft^2 (56.2 m^2)	50.4 ft^3 (1.43 m^3)	9,244 ft at 1" bead	2,311 ft at 2" bead
P12146 (II-605)	110.3 lbs (50.0 kg)	605 ft^2 (56.2 m^2)	50.4 ft^3 (1.43 m^3)	9,244 ft at 1" bead	2,311 ft at 2" bead

YIELD[1] (1.75 lbs/ft³ Free Rise Density, Continued)

P12145W (II-605)	112.3 lbs (51.0 kg)	605 ft² (56.2 m²)	50.4 ft³ (1.43 m³)	9,244 ft at 1" bead	2,311 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 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. Read the SDS and all instructions carefully before use (www.HandiFoam.com). Additional information on ventilation and safety equipment can be found in the Product Stewardship Guide (www.HandiFoam.com). 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.HandiFoam.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 in the SDS and instructions. 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, safety glasses with side shields or goggles, nitrile gloves, and clothing that protects against dermal exposure when operating may be recommended. 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.

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WITH GLOBALLY SOURCED MATERIALS