

# TECHNICAL DATA SHEET



## E-84 Class 1 Two-Component Polyurethane Foam

**Handi-Foam® E-84 Class 1** is a multiple purpose two-component polyurethane froth foam designed within the international guidelines for protection of the ozone layer, and with respect to the Montreal Protocol, 1987 and other environmental guidelines, utilizing a non-flammable, non-ozone depleting blowing agent to assist in the safety of the end user and the environment. E-84 Class 1 systems have been specifically formulated for flame retardancy, and conform to the requirements of ASTM E-84 as a "Class 1" system (flame spread of 25 or less, smoke development of 450 or less). The pre-pressurized, two-component froth systems are dispensed through the state-of-the-art Handi-Gun® two-component froth dispensing unit, providing unsurpassed quality and flexibility in end-use performance.

### Application Areas

Spray foam onto any clean, dry surface in any direction to insulate, fill and seal various size voids, deaden sound or reduce vibration. It is specifically designed to spray onto flat or irregular surfaces and to fill large cavities where flame retardant requirements specify E-84 Class 1 foam.

### Properties

The patented and user-friendly II-105 and II-205 packaging systems provide many unique advantages, including:

- Factory attached dispensing hoses. No need to attach hoses prior to use.
- Handle is secured to tanks. No more handle popping out of box. No more tanks falling out of box when box gets wet.
- Easy to open box for immediate use.
- Hoses extend from top of tanks. More reach and stability.

Two-component froth foam systems will expand immediately upon chemical reaction of A component and B component to a final volume that is 3 to 5 times the dispensed volume, in typical applications, depending on various factors such as cavity size and ambient conditions. The foam will cure to a semi-rigid closed cell foam upon reaction of the A component (a polymeric isocyanate) and B component (a polyol blend containing certain additives).

Handi-Foam E-84 Class 1 fully expands and dries tack-free within 30-60 seconds, is cuttable in 2-5 minutes and fully cures within 1 hour.

Handi-Foam E-84 Class 1 adheres to almost all building materials with the exception of surfaces such as polyethylene, Teflon®, silicone, oils and greases, mold release agents and similar materials.

Optimum application temperature is 75°F (24°C) but may be sprayed onto colder or warmer substrates, with slight effects on the foam characteristics. Cured foam is resistant to heat and cold, -200 to +200°F (-129 to +93°C), and to aging, but not UV rays (i.e. sunlight) unless painted, covered or coated. Cured PU foam is chemically inert and non-reactive in approved applications, and will not harm electrical wire insulations, Romex®, rubber, PVC, polyethylene (i.e. PEX) or other plastic. It is approved for use around wires, plumbing penetrations, etc., and contains no formaldehyde.

Handi-Foam E-84 Class 1 systems require no outside mechanical or electrical power source and are available in refillable and non-refillable sizes to meet specific job applications requirements. When sprayed, the foam will create a seamless, continuous seal to insulate and protect against dust, air infiltration and pests.

### 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.

Shake kits well *before* using (applicable to non-refillable systems).

### Application / Use

After following instructions for set-up, systems are ready to use. Attach appropriate hose to tanks A and B if needed. Open tank valves as directed. Materials are dispensed through the hoses and mixed in the disposable nozzle.

With a nozzle attached to the two-component froth dispensing unit, dispense foam by squeezing the trigger of the unit. To interrupt or stop foaming process, release the trigger. Once foaming process has stopped, the dispensing unit must be reactivated within 30 seconds or a new nozzle **must** be installed. Fresh foam may be applied in several stages to reduce overfilling of void or damage to non-rigid, confined cavities. Cured foam can only be removed mechanically.

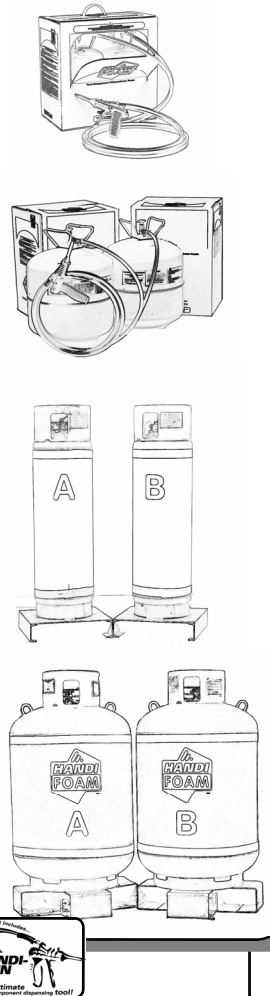
**Important Note:** Use only in well-ventilated area or with certified respiratory protection. Wear impervious gloves, protective eyewear and suitable work clothes when using. Read all instructions and safety information (MSDS) prior to use of any product. The product contains no formaldehyde. Cured foam is non-toxic.

**KEEP OUT OF REACH OF CHILDREN.**

### Product Storage

Store in cool dry area. Do not expose to open flame or temperatures above 120°F (49°C). Excessive heat can cause premature aging of components resulting in a shorter shelf life. Handi-Foam E-84 Class 1 is reusable by following product instructions. For optimum results of refill systems, chemical temperature must be between 75-85°F (24-29°C). The Magnum Dispensing Unit provides chemical temperature control through the use of insulated and heated hoses. Therefore, the recommended chemical temperatures when using the Mangum Dispensing Unit is 70-80°F (21-26°C).

**Note:** During colder months it may take up to a week or more to warm the chemicals to optimum temperature. Construction of a temperature controlled "hot box" is recommended for all applications in order to store the refill systems at a consistent, controlled temperature prior to and during use.



**Fomo Products, Inc.**  
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## Technical Data

<b>E-84 Class 1</b>	
(Metric data shown in parentheses)	
<b>DENSITY</b>	
ASTM D-1622	1.75 lb/ft <sup>3</sup> (28 kg/m <sup>3</sup> )
<b>K-FACTOR</b>	
ASTM C-518 - aged 28 day value	0.162 BTU·inch / ft <sup>2</sup> ·h·°F (0.023 W/m·K)
<b>R-VALUE</b> (Metric RSI in parentheses)	6.2/inch (RSI=1.09/inch, 0.043/mm)
<b>AIR BARRIER PROPERTIES</b>	
ASTM E-283	
@1.57 psf (75 Pa)	<0.01 cfm/ft <sup>2</sup> (<0.05 L/s/m <sup>2</sup> )
@6.24 psf (300 Pa)	<0.01 cfm/ft <sup>2</sup> (<0.05 L/s/m <sup>2</sup> )
<b>PERM RATING</b>	
ASTM E-96	
1" (2.54 cm)	2.61 (149.3 ng/(m <sup>2</sup> ·Pa·s))
3" (7.62 cm)	1.26 (72.1 ng/(m <sup>2</sup> ·Pa·s))
<b>TENSILE STRENGTH</b>	
ASTM D-1623	
Parallel @ 7%	45 psi (310 kPa)
<b>COMPRESSIVE STRENGTH</b>	
ASTM D-1621	
Parallel @ 10%	23 psi (158 kPa)
Perpendicular @ 10%	16 psi (110 kPa)
<b>DIMENSIONAL STABILITY</b>	
ASTM D-2126	
HEAT AGE: +158°F (70°C)	-0.6%
HUMID AGE: +158°F (70°C), 100% RH	+2.9%
COLD AGE: -4°F (-20°C)	-0.3%
<b>CLOSED CELL CONTENT</b>	
ASTM D-2856	>90%
<b>TACK-FREE / EXPANSION TIME</b>	30 - 45 seconds
<b>CUTTABLE</b>	2-5 minutes
<b>FULLY CURED</b>	1 hour
<b>FIRE RATING</b>	
ASTM E-84	Flame Spread Index = 25 Smoke Developed =200

## Approvals / Standards

Handi-Foam E-84 Class 1 conforms to the requirements of ASTM E-84 as a "Class 1" material.

Flame Spread 25  
Smoke Developed 200  
(Third party test report HPVA, T-11261)

Handi-Foam package is patented under U.S. patent #6,182,868.  
Dispensing gun is patented under U.S. patent #6,345,776. Other foreign and domestic patents pending.  
ODP (Ozone Depletion Potential): Contains non-ozone depleting, non-flammable HFC propellant.

## Theoretical Yield\*

### NON-REFILLABLE

**II-105**  
P10705 8.75 ft<sup>3</sup> (.25 m<sup>3</sup>)

**II-205**  
P10726 17 ft<sup>3</sup> (.48 m<sup>3</sup>)

**II-605**  
P10762 50 ft<sup>3</sup> (1.42 m<sup>3</sup>)

### REFILLABLE

**System 17**  
P22070 165 ft<sup>3</sup> (4.7 m<sup>3</sup>)

**System 27**  
P22270 260 ft<sup>3</sup> (7.4 m<sup>3</sup>)

**System 60**  
P22470 570 ft<sup>3</sup> (16.1 m<sup>3</sup>)

**System 100**  
P22670 950 ft<sup>3</sup> (26.9 m<sup>3</sup>)

\* Yields are based on theoretical calculations, for comparative purposes, and will vary depending on ambient conditions and particular application.

## Tank Specifications (Per Tank)

	Systems 17 & 27	Systems 60 & 100
<b>Dimensions</b>		
<b>Height</b>	54" (137 cm)	61" (155 cm)
<b>Diameter</b>	15" (38 cm)	30" (76 cm)
<b>Base</b>	20 x 20" (51 cm x 51 cm)	30 x 30" (76 cm x 76 cm)
<b>Empty Weight</b>	120 lbs (54 kg)	360 lbs (163 kg)
<b>Filled Weight*</b>	System 17: 265 lbs (120 kg) System 27: 350 lbs (159 kg)	System 60: 860 lbs (390 kg) System 100: 1190 lbs (540 kg)

\*Filled tank weights are approximate for estimation purposes only. Actual gross weight is formulation specific and may be slightly higher or lower.

**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 the Fomo Products, Inc. of all liability with respect to the materials or the use thereof. For additional information and location of your nearest distributor, call Fomo Products, 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. Yields shown are based on theoretical calculations and will vary depending on ambient conditions and particular application. Read all product directions and safety information before use. Consult local building codes for specific requirements regarding the use of cellular plastics or urethane products in construction.

**WARNINGS:** Follow safety precautions and wear protective equipment as recommended. Consult Material Safety Data Sheet (MSDS) for specific information. 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. Use only with adequate ventilation or 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 protective eyewear, impervious gloves, and suitable work clothing 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. 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:** The Manufacturer warrants only that the product shall meet its specifications: THIS WARRANTY IS IN LIEU OF ALL WRITTEN OR UNWRITTEN, EXPRESSED OR IMPLIED WARRANTIES AND THE MANUFACTURER EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. The buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the replacement of the material. Failure to strictly adhere to any recommended procedures shall release The Manufacturer of all liability with respect to the materials or the use thereof. User of this product must determine suitability for any particular purpose, including, but not limited to, structural requirements, performance specifications and application requirements prior to installation and after product is applied.



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