NOVA Chemicals

Expandable Polystyrene Resins

Product Data Sheet

High Density Geofoam/Construction Materials

M77_G Series

Features/Attributes:
Ultra-Low Pentane
Reduced Prepuff Age Times
Fast Molding Cycles
Controlled/Uniform Expansion for High Density Applications

Applications:
Geofoam
Insulated Concrete Forms (ICF)
High Density Sheathing
Below Grade Insulation vs. XPS

Grade-Specific Properties

		M77AG	M77BG	M77CG
Bead Size Average Bead Diameter	English Units	0.05 inches	0.033 inches	0.016 inches
	S.I. Units	1.25 millimeters	0.85 millimeters	0.60 millimeters
Pentane Content	% by weight	3.1%	3.8%	4.6%

Material Properties

	Typical Values (English Units)	Typical Values (S.I. Units)
Bulk Density	38 – 40 pounds per cubic foot	608 – 640 grams per liter
Thermal Properties:		
Thermal Resistance (R-Value)	3.9- 4.2 per inch	-
Thermal Conductivity[1] (K-factor, Lambda) Foot (ft) British Thermal Unit (Btu) Degree Fahrenheit (^oF) Degree Centigrade (^oC)	0.240-0.210 Btu-in/(hr-ft^2-^oF)	34.5-30.2 milli-Watts/(meters-^{o} Kelvin)
Coefficient of Linear Expansion Inch (in) Centimeter (cm)	3.5 x 10^{-5} in/in/^{o} F	6.3 cm/cm/^{o} C
Maximum Continuous Service Temperature	175^o F	80^o C

1 The thermal conductivity of expanded polystyrene at an average temperature of 75°F (24°C) is lowest at 3.5 pounds per cubic foot (pcf). It rises slightly at lower density until about 1.5 pcf where it increases rapidly. The rate of increase is much less at higher densities:

- 8.0 pcf (128 g/l) ▸ 0.269 Btu-in/(hr-ft^2-°F) or 38.7 mW/(m-K)
- 12.0 pcf (192 g/l) ▸ 0.276 Btu-in/(hr-ft^2-°F) or 39.8 mW/(m-K)

High Density Geofoam/Construction Materials **M77_G Series**

Availability

NOVA Chemicals expandable polystyrene (EPS) resins are produced at the Beaver Valley plant site (Monaca, PA) and are available in 2205 pound (1 metric tonne) bulk bags. The product type and batch number are clearly marked on each bag. Contact the NOVA Chemicals sales office in your region.

Quality and Environmental Management Systems

M77_G resins are manufactured at an ISO 9001 and ISO 14001 registered facility.

Storage and Handling

M77_G should be stored in a cool, dry place away from direct sunlight. This product can release pentane during expansion and molding. Pentane is a highly flammable gas in the presence of open flames, lit cigarettes, sparks, static electricity discharges, or heat. Prolonged or improper storage can result in deterioration of product properties. Care should be taken when handling and transferring product to prevent foreign matter contamination. The NOVA Chemicals' Material Safety Data Sheet (MSDS) and EPS Storage and Handling Safety Guide contain important safety information and should be reviewed before using the product. These and additional safety and health information are available on our Product Care webpage.

Typical Processing Conditions

Actual results may vary by customer location and equipment.

Minimum Density:	Batch pre-expander:		Continuous pre-expander:	
	pounds per cubic foot	grams per liter	pounds per cubic foot	grams per liter
M77AG	1.5	24	2.9	46
M77BG	1.5	24	2.2	35
M77CG	1.2	19	—	—

Pre-puff age time:	Units	**M77AG**	**M77BG**	**M77CG**
	Hours	12 to 48	8 to 48	8 to 48

Comprehensive assistance with processing conditions and Technical Services are available from NOVA Chemicals Styrenics Technology Center.

Environmental Information

NOVA Chemicals EPS resins are biologically and chemically inert. NOVA Chemicals EPS resins do not contain CFC's (Chlorofluorocarbons). NOVA Chemicals EPS resins are recyclable where expanded polystyrene products are accepted. Visit epsindustry.org or earth911.com to find an EPS collection program near you.

6 is the SPI resin code for polystyrene to identify material type for sorting and recycling. Significant information regarding EPS recycling is available from the EPS Industry Alliance. Where recycling of EPS resins is not possible, disposal to landfill or incineration in accordance with applicable laws and regulations is recommended. Contact NOVA Chemicals Styrenics Technology Center for further information on recycling and disposal.

NOVA Chemicals is a proud member of EPS Industry Alliance. For additional EPS information please visit: epsindustry.org

ICC-ES Evaluation Report – ESR 1798

www.icc-es.org/reports/pdf_files/ICC-ES/ESR-1798.pdf

UL Listings

database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html
Construction File number R4775

www.novachemicals.com

EPS Sales and Manufacturing

NOVA Chemicals, Inc.
400 Frankfort Road
Monaca, PA 15061
Phone: 1.877.877.0062
Fax: 724.770.6701

Latin America Sales

Phone: 724.770.5603
Fax: 724.770.6701

Asia and Pacific Rim Sales Office

NOVA Chemicals (International) S.A.
The Executive Centre
Level 42, Six Battery Road
Singapore 049909
Phone: 65.6224.8807
Fax: 65.6224.1877

Technical Center

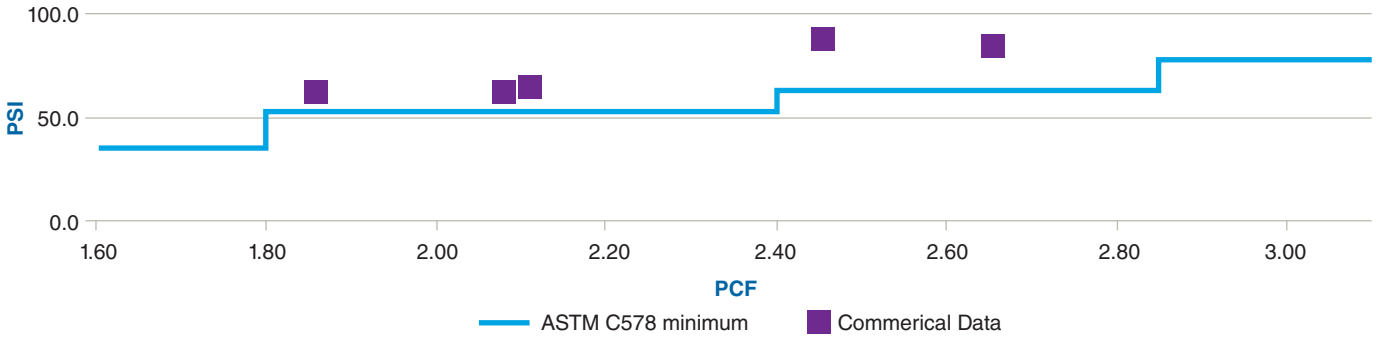
NOVA Chemicals Performance Styrenics Technology Center
400 Frankfort Road
Monaca, PA 15061
Phone: 724.770.5555
Fax: 724.770.5601

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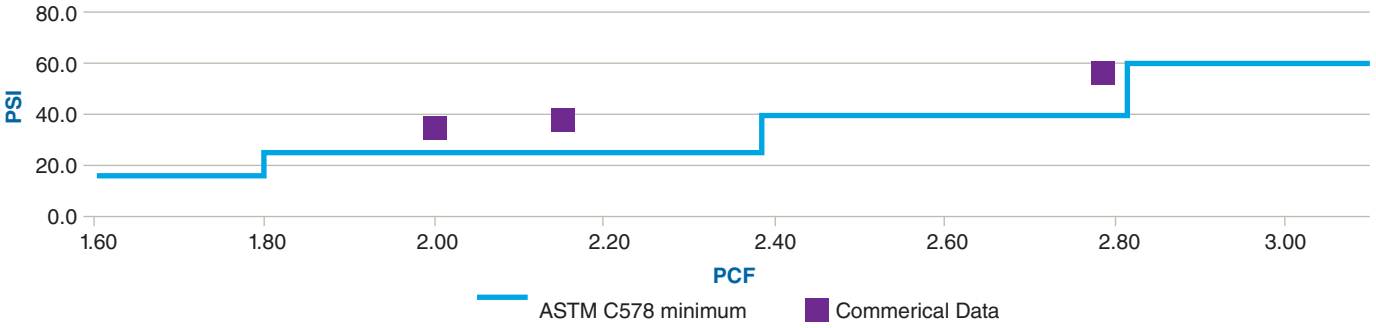
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High Density Geofoam/Construction Materials **M77BG**

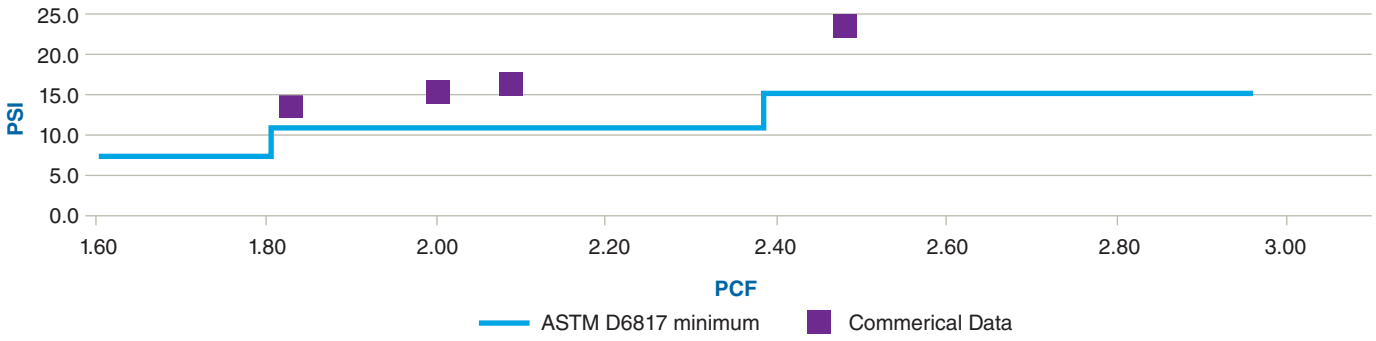
ASTM C578 Flexural Results



ASTM C578 Compressive Results



ASTM D6817 Geofoam Compressive Results (1% Strain)



Flexural Strength - Pounds per square inch (psi) and Density – Pounds per Cubic Foot (pcf)

The product properties in the data sheet have been determined in accordance with the current testing methods of the American Society for Testing and Materials (ASTM), wherever possible.