



Product Data Sheet

Insulation, ICFs, SIPs, Fabricated Packaging

M77C

Features/Attributes:

- Medium Density Potential
- Controlled/Uniform Expansion

Applications:

- ICFs
- SIPs
- Fabricated Packaging

Properties	Typical Values (English Units)	Typical Values (S.I. Units)
Product Properties:		
(C) Bead Size – avg. bead size diameter	0.016 inches	0.60 millimeter
Pentane Content (Avg.)	6.2% by weight	6.2% by weight
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 Conductivity¹ (K-factor, Lambda) Foot (ft) British Thermal Unit (Btu) Degree Fahrenheit (°F) Degree Centigrade (°C)	0.240-0.210 Btu-in/(hr-ft ² -°F)	34.5-30.2 milli-Watts/(meters-° Kelvin)
Coefficient of Linear Expansion Inch (in) Centimeter (cm)	3.5 x 10 ⁻⁵ in/in/° F	6.3 cm/cm/° C
Maximum Continuous Service Temperature	175° F	80° 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-ft²-°F) or 38.7 mW/(m-K)
- 12.0 pcf (192 g/l) → 0.276 Btu-in/(hr-ft²-°F) or 39.8 mW/(m-K)

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NOVA Chemicals® EPS

**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

M77C resins are manufactured at an ISO 9001 and ISO 14001 registered facility.

Storage and Handling

M77C 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.

Processing Conditions**Recommended Conditions:****Minimum Density:**

Batch pre-expander:

- 1.0 pounds per cubic foot or 16.0 grams per liter

Continuous pre-expander:

- 1.20 pounds per cubic foot or 20.0 grams per liter

Pre-puff age time:

12-48 hours – depending on pre-expanded density and method of bead pre-expansion.

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 does not contain CFC's (Chlorofluorocarbons). NOVA Chemicals® EPS resins are recyclable.



PS is the SPI resin code for polystyrene to identify material type for sorting and recycling. Significant information regarding EPS recycling is available from the [Alliance of Foam Packaging Recyclers](#). 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: <http://epsindustry.org/>

ICC-ES Evaluation Report – ESR 1798

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

UL Listings

<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html>

Construction File number R4775

www.novachemicals.com

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Asia and Pacific Rim Sales Office

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Level 15 Prudential Tower
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Fax: 65.6224.1877

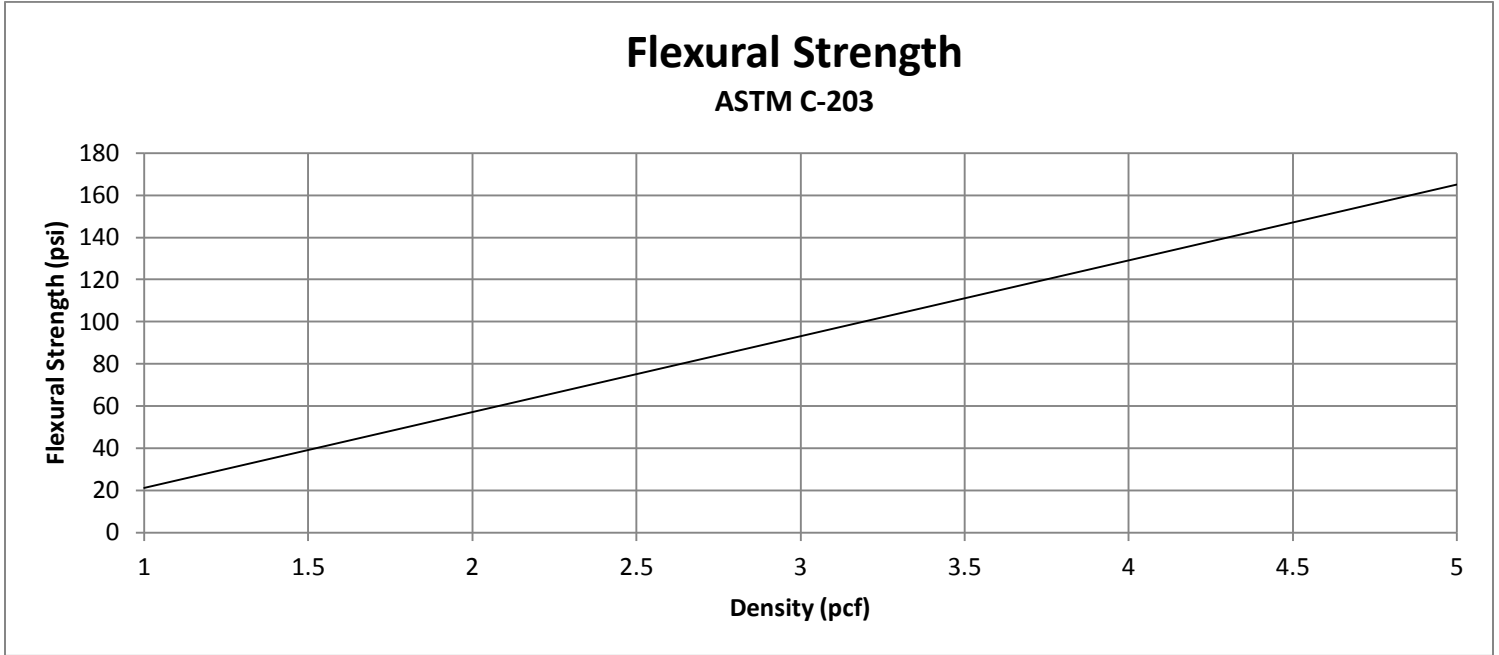
Technical Center

NOVA Chemicals Performance Styrenics Technology Center
400 Frankfort Road
Monaca, PA 15061
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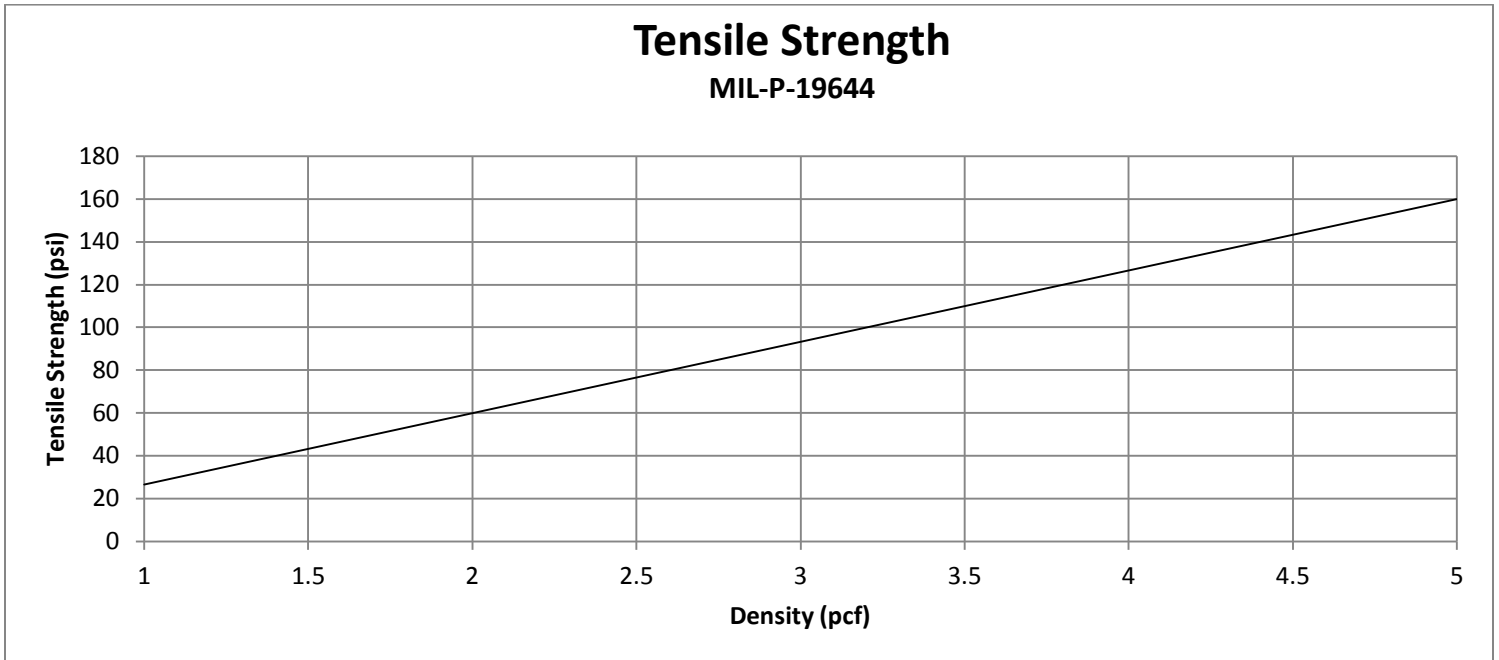
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NOVA Chemicals® EPS

TYPICAL MECHANICAL PROPERTIES:



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

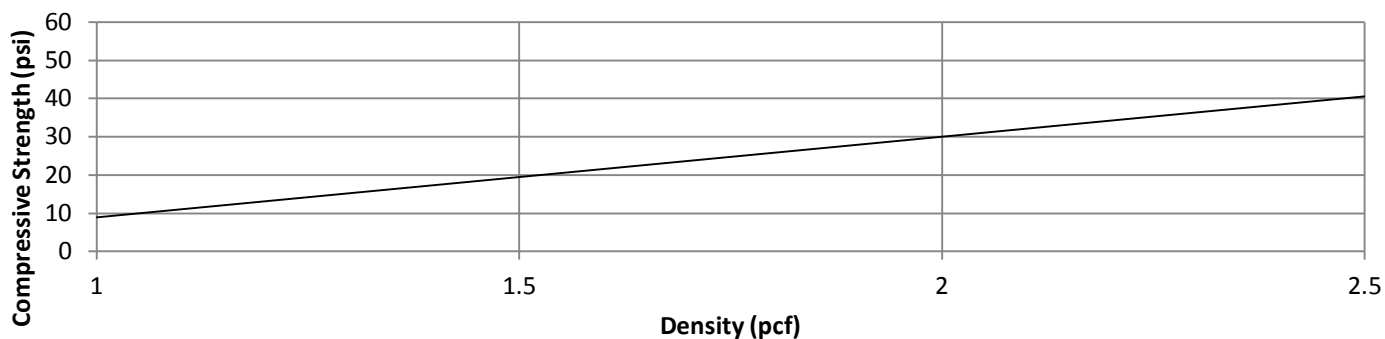


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Compressive Strength at 10% Deformation

ASTM D-1621



Water Absorption MIL-P-19644

Nominal Density		Lbs of Water Absorbed per sq. ft. of Specimen Surface.		Kg of Water Absorbed per sq. meter of Specimen Surface.		% By Volume
pcf	kg/m ³	Actual	Specification Max	Actual	Specification Max	
1.0	16	0.05	0.12	0.24	-	2.8
1.5	24	0.04	-	0.20	-	2.3
2.0	32	0.04	0.12	0.20	0.59	2.3
2.5	40	0.04	-	0.20	-	2.3
3.0	48	0.04	0.12	0.20	0.59	2.3
5.0	80	0.03	0.10	0.15	0.49	1.7

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NOVA Chemicals® EPS


Water Vapor Permeability ASTM C-355

Nominal Density		Perm-In.		Perm-Cm.	
		Plaques	Blocks	Plaques	Blocks
pcf	Fusion				
1.0	Optimum	1.0-2.0	1.5-3.0	1.5-3.5	2.0-5.0
1.4	Optimum	0.5-2.0	1.5-3.0	1.5-3.0	2.0-5.0
2.2	Optimum	0.5-1.5	1.0-2.5	1.0-2.5	2.0-4.0
2.5	Optimum	0.5-1.5	1.0-2.5	1.0-2.5	1.5-4.0
1.0	Minimum	1.5-3.0	2.0-3.5	2.5-5.0	2.5-6.0
2.3	Minimum	1.0-2.0	1.5-3.0	1.5-3.5	2.5-5.0

Thermal Conductivity, k, vs Density Mean Temperature 75°F (24°C) ASTM C-518

Units	Density (pcf)				
	1.0	1.25	1.5	2.0	2.5
Btu in./hr-ft-°F	.255	.244	.242	.239	.235

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.

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