

# 33M SERIES

## Styropek Expandable

### POLYSTYRENE RESINS

#### PRODUCT DATA SHEET

June 2023



## Insulation, SIP's, ICF's, Fabricated Packaging

#### Features/Attributes:

- Low Density Potential
- Controlled/Uniform Expansion

#### Applications:

- Insulation
- SIP's
- ICF's
- Fabricated Packaging

Properties	Typical Values (English Units)	Typical Values (S.I. Units)
<b>Product Properties:</b>		
Pentane Content		
“A” Bead      Pentane	6.4% by weight	6.4% by weight
“B” Bead      Pentane	6.1% by weight	6.1% by weight
“C” Bead      Pentane	5.9% by weight	5.9% by weight
Bulk Density	38 – 40 pounds per cubic foot	608 – 640 grams per liter
<b>Thermal Properties:</b>		
Thermal Resistance (R-Value)	3.9- 4.2 per inch	
Thermal Conductivity <sup>1</sup> (K-factor, Lambda) Foot (ft) British Thermal Unit (Btu) Degree Fahrenheit (°F) Degree Centigrade (°C)	0.240-0.210 Btu-in/(hr-ft <sup>2</sup> -°F)	34.5-30.2 milli-Watts/ (meters-°Kelvin)
Coefficient of Linear Expansion Inch (in) Centimeter (cm)	3.5 x 10 <sup>-5</sup> in/in/° F	6.3 cm/cm/° C
<b>Maximum Continuous Service Temperature</b>	175° F	80° C

<sup>1</sup> 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<sup>2</sup>-°F) or 38,7 mW/(m-K)  
12,0 pcf (192 g/l) → 0,276 Btu-in/(hr-ft<sup>2</sup>-°F) or 39,8 mW/(m-K)

#### Bead Size Description:

	Cumulative US Standard Sieve
“A” Large	96% thru 10 on 20
“B” Intermediate	96% thru 16 on 30
“C” Small	98% thru 25 on 45

# Styropek

www.styropek.com

## AVAILABILITY

**STYROPEK® 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 STYROPEK sales office in your region. .

## QUALITY AND ENVIRONMENTAL MANAGEMENT SYSTEMS

33M resins are manufactured at an ISO 9001 and ISO 14001 registered facility.

## STORAGE AND HANDLING

33M 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 STYROPEK' **Safety Data Sheet (SDS)** and **EPS Storage and Handling Safety Guide** contain important safety information and should be reviewed before using the product.

## PROCESSING CONDITIONS

### Recommended Conditions:

#### 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 STYROPEK Styrenics Technology Center.

## ENVIRONMENTAL INFORMATION

STYROPEK® EPS resins are biologically and chemically inert. STYROPEK® EPS resins does not contain CFC's (Chlorofluorocarbons). STYROPEK® EPS resins are recyclable.



PS is the SPI resin code for polystyrene to identify material type for sorting and recycling.



Where recycling of EPS resins is not possible, disposal to landfill or incineration in accordance with applicable laws and regulations is recommended. Contact STYROPEK Styrenics Technology Center for further information on recycling and disposal.

STYROPEK® 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](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

# Styropek

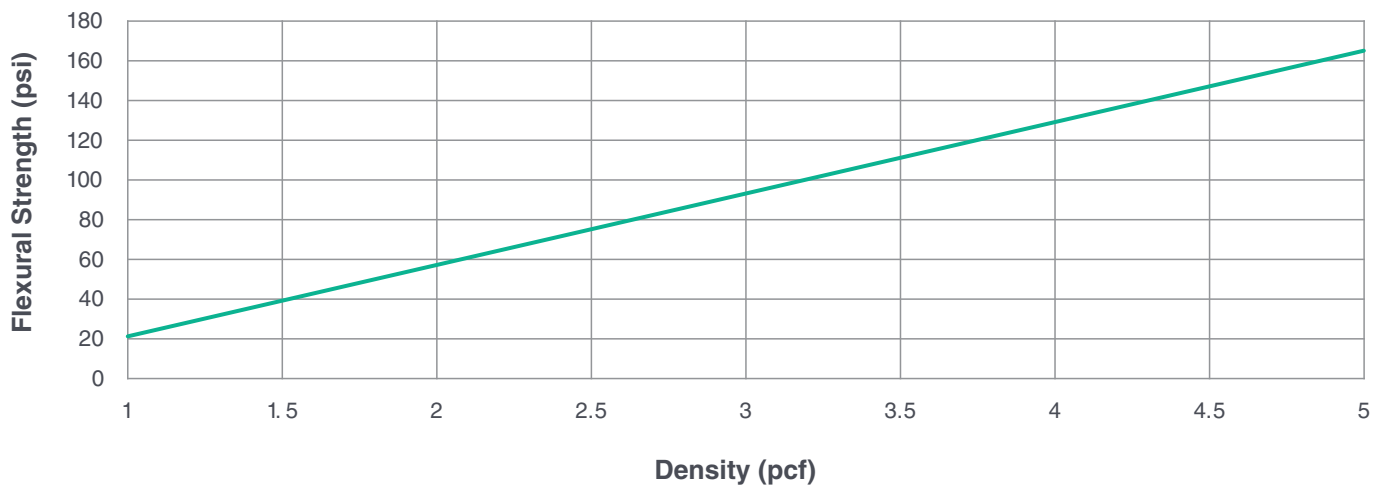
[www.styropek.com](http://www.styropek.com)

# 33M SERIES

## TYPICAL MECHANICAL PROPERTIES:

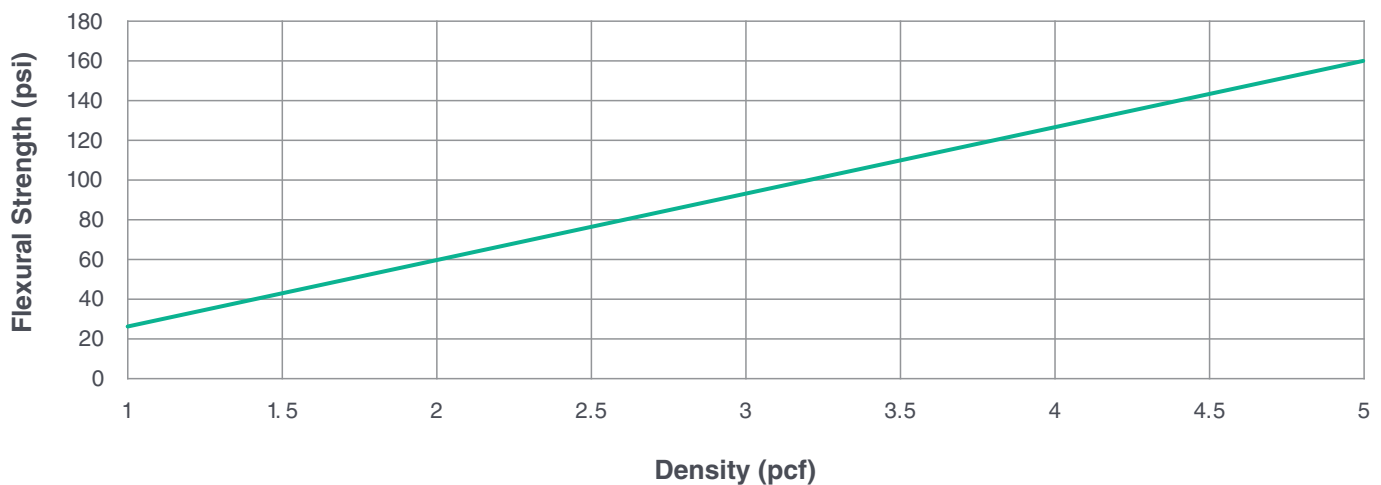


Flexural Strength  
ASTM C-203



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

Tensile Strength  
MIL-P-19644

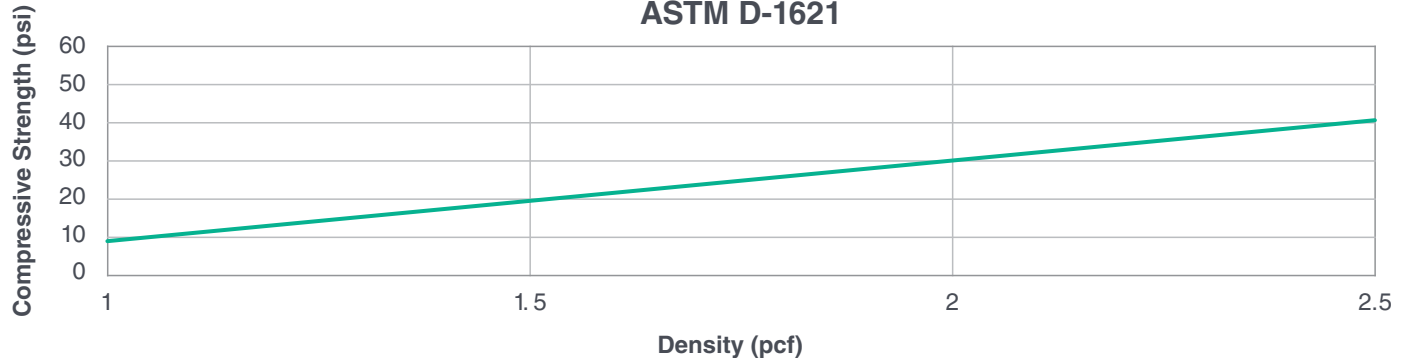


# 33M SERIES

## TYPICAL MECHANICAL PROPERTIES:



### 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 <sup>3</sup>	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

**Styropek**

[www.styropek.com](http://www.styropek.com)

# 33M SERIES

## TYPICAL MECHANICAL PROPERTIES:



### Water Vapor Permeability ASTM C-355

Nominal Density		Perm - In.		Perm - Cm.	
pcf	Fusion	Plaques	Blocks	Plaques	Blocks
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

	Density (pcf)				
Units	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.

"STYROPEK is a registered trademark of SYTOROPEK DE MEXICO SA DE CV or STYROPEK USA, INC. IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN FOR FREE AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK."

**Styropek**  
www.styropek.com