

Typical Physical Properties of Carpenter Expanded Polystyrene

Carpenter Expanded Polystyrene is a rigid, foamed plastic with resilient closed cells in a range of densities, sizes and profiles to meet your application and specifications. The Carpenter EPS production systems have been crafted by the industry's leader in customer-critical

technology and innovation. Carpenter customizes production and services to meet your requirements and exceed your expectations each and every day.



Advantages

- * Low material and insulation costs
- * Wide range of sizes and densities
- * Easy to handle and install
- * Consistently well-fused products
- * Accurate cuts
- * Simple and easy to use with common tools
- * Provides an excellent base for laminated products
- * Accurate piece counts
- * Excellent bonds with non-solvent based adhesives
- * Clean and odorless
- * Resists moisture penetration



Characteristics

- * No CFCs or HCFCs
- * Low thermal conductivity
- * Reflective white color
- * Effective over a wide temperature range
- * High strength-to-weight ratio
- * Will not twist or warp under normal use
- * Unaffected by vibration
- * Resistant to most acids and alkalis
- * Does not support bacterial growth



Code Compliance

Carpenter EPS can be manufactured to meet ASTM C578-95, Types XI, I, VIII, II, IX, XIV or XV. When ordering, please be specific as to which ASTM type is necessary.

Certain systems are Factory Mutual Approved and are eligible to be UL Classified. Carpenter's EPS complies with the flammability requirements of BOCA, ICBO and SBCCI building codes. Third party certification on selected products performed by UL. Carpenter EPS is approved for use under the current Miami-Dade County Building Code requirements as well as the recognized Florida Building Code approvals. Please contact your representative for details

EPS construction products are classified in Division 7 of the Construction Specifications Institute.



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TYPICAL PROPERTIES OF CARPENTER EXPANDED POLYSTYRENE

ASTM C578-95	Units	XI	I	VIII	II	IX	XIV	XV
Nominal Density	per cubic foot	.70lb	1.0lb	1.25lb	1.5lb	2.0lb	2.5lb	3.0lb
Density Range	Lb per cubic foot	.70 - .89	.90 – 1.14	1.15 – 1.34	1.35 – 1.79	1.80 – 2.20	2.40 – 2.75	2.80 – 3.30
k factor @40 deg. F	BTU/hr. (sq.ft.)(F/in.)	0.28	0.24	0.23	0.22	0.21	0.21	0.20
k factor @75 deg. F	BTU/hr. (sq.ft.)(F/in.)	0.3	0.26	0.25	0.24	0.23	0.22	0.22
R Value @40 deg. F (per inch)	per inch of thickness	3.6	4.17	4.25	4.55	4.76	4.85	5.05
R Value @75 deg. F (per inch)	per inch of thickness	3.3	3.85	3.92	4.17	4.35	4.50	4.60
Compressive Deformation @10%	per square inch	5	10	13	15	25	40	60
Flexural Strength	per square inch	10	25	30	40	50	60	75
Tensile	per square inch	14	16	17	18	23	25	27
Shear	per square inch	11	18	23	26	33	38	43
Shear Nodus	per square inch	190	280	370	460	600	720	780
Elastic Modulus	per square inch	110	360	580	730	1090	1500	1860
Water Vapor Permence (Max @1")		1.9	1.2	1.1	0.9	0.6	0.5	0.5
Water Absorption (Max Volume)		<4.0%	<3.5%	<3.0%	<3.0%	<2.0%	<2.0%	<2.0%
Capillary Action		None	None	None	None	None	None	None
Coefficient of Thermal Expansion	in./(in.)(F)	0.000035	0.000035	0.000035	0.000035	0.000035	0.000035	0.000035
Maximum Service Temperature	Long Term, degrees F	167	167	167	167	167	167	167
Maximum Service Temperature	Intermittent, degrees F	180	180	180	180	180	180	180
Oxygen Index (minimum)		24%	24%	24%	24%	24%	24%	24%
Dimensional Stability (Max)	% change	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Flame Spread		<20	<20	<20	<20	<20	<20	<20
Smoke Spread		150 to 300	150 to 300	150 to 300	150 to 300	150 to 300	150 to 300	150 to 300

Warranty and Remedy Information. Carpenter Co. ("Carpenter") warrants it will replace without charge any Carpenter product that is not merchantable because of defects in materials or workmanship. Notice of a claim under this warranty must be given promptly in writing, in no case later than 45 days after the defect becomes known to the purchaser. THIS EXPRESS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDY OF REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY ARISING FROM THE SALE OF CARPENTER'S PRODUCTS. IN NO CASE WILL CARPENTER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE including, without limitation, damage to other property, loss of profits, loss of goodwill, or other economic loss, whether such incidental or consequential loss or damage is claimed on account of breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory. GOODS SOLD FOR RESALE ARE ALL SUBJECT TO THESE TERMS, AND ALL OFFERS ARE EXPRESSLY CONDITIONED UPON ACCEPTANCE OF THESE TERMS.

Warning! EPS foam is flammable. Modified EPS, like most plastic foams, is flammable. Do not expose EPS to open flame or other direct or indirect high temperature ignition sources such as burning operations, welding, burning cigarettes, space heaters or naked lights. When burning, EPS will consume oxygen, releasing great heat and smoke and potentially toxic gases such as carbon monoxide and carbon dioxide. Do not use, install or store EPS except in strict compliance with BOCA, ICBO or SCCC codes, as well as any fire-related laws/ordinances. Failure to comply with these codes/laws may increase the risk of fire and result in personal injury or property damage from smoke, flames or water.



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