FOAMULAR® Extruded Polystyrene (XPS) Insulation
ASTM C578—Types and Physical Properties

Technical Bulletin

This table outlines the basic physical property requirements of ASTM C578[1] and FOAMULAR® XPS insulation compliance. The products are organized, left to right, in ascending compressive strength. For complete details on board types, properties and other quality requirements see the actual ASTM standard.

Polystyrene Board Type[2]	EPS	EPS	EPS	FOAMULAR® 150, XPS	EPS	FOAMULAR® 250, XPS	EPS	FOAMULAR® 400, XPS	EPS	FOAMULAR® 600, XPS	EPS	FOAMULAR® 1000, XPS
ASTM C578 Classification	Type XI	Type I	Type VIII	Type X	Type II	Type IV	Type IX	Type VI	Type XIV	Type VII	Type XV	Type V
Compressive resistance at yield or 10 % deformation, whichever occurs first (with skins intact) min, psi (kPa)	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	15.0 (104)	25.0 (173)	25.0 (173)	40.0 (276)	40.0 (276)	60.0 (414)	60.0 (414)	100.0 (690)
Density, min, lb/ft^3 (kg/m^3)	0.70 (12)	0.90 (15)	1.15 (18)	1.30 (21)	1.35 (22)	1.55 (25)	1.80 (29)	1.80 (29)	2.40 (38)	2.20 (35)	2.85 (46)	3.00 (48)
Thermal resistance of 1.00-in. (25.4-mm) thickness, min, hr•ft^2•°F/Btu (K·m^2/W) Mean temperature: 75 2°(24 1°C)	3.10 (0.55)	3.60 (0.63)	3.80 (0.67)	5.00 (0.88)	4.00 (0.70)	5.00 (0.88)	4.20 (0.74)	5.00 (0.88)	4.20 (0.74)	5.00 (0.88)	4.30 (0.76)	5.00 (0.88)
Flexural strength, min, psi (kPa)	10.0 (70)	25.0 (173)	30.0 (208)	40.0 (276)	35.0 (240)	50.0 (345)	50.0 (345)	60.0 (414)	60.0 (414)	75.0 (517)	75.0 (517)	100.0 (690)
Water vapor permeance of 1.00-in. (25.4-mm) thickness, max, perm (ng/Pa·s·m^2)	5.0 (287)	5.0 (287)	3.5 (201)	1.5 (86)	3.5 (201)	1.5 (86)	2.5 (143)	1.1 (63)	2.5 (143)	1.1 (63)	2.5 (143)	1.1 (63)
Water absorption by total immersion, max, volume	4.0	4.0	3.0	0.3	3.0	0.3	2.0	0.3	2.0	0.3	2.0	0.3

1. ASTM C578-10, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation"; published by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959

2. XPS is extruded polystyrene. EPS is expanded polystyrene, also known as molded polystyrene.

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