

PHYSICAL PROPERTY REQUIREMENTS OF RIGID CELLULAR POLYSTYRENE THERMAL INSULATION

STANDARD: ASTM C578

BRAND	UNIT	GPS 15	GPS 18	GPS 22	GPS 29	GPS 38	GPS 46	GPS 50
ASTM C578		TYPE XI	TYPE I	TYPE VIII	TYPE II	TYPE IX	TYPE XIV	TYPE XV
BS 3837		LD	SD	HD	EHD	UHD	SHD	XD
Minimum Density	[kg/m ³]	12	15	18	22	29	38	46
Range	[kg/m ³]	12-15	15-18	18-22	22-29	29-38	38-46	46-50
Compressive Resistance (@ yield or 10% deformation, whichever occurs first)	[kpa]	35	69	90	104	173	276	414
	[psi]	5	10	13	15	25	40	60
Thermal Resistance (R - value) (of 25.4 mm thickness @ mean temperature of 24±1 °C)	[k.m ² / W]	0.55	0.63	0.67	0.7	0.74	0.74	0.76
	[F.ft ² .h/Btu]	3.1	3.6	3.8	4	4.2	4.2	4.3
Thermal Resistance (R - value) (of 25.4 mm thickness @ mean temperature of 35±2 °C)	[k.m ² / W]	0.53	0.61	0.64	0.67	0.71	0.71	0.73
	[F.ft ² .h/Btu]	2.97	3.46	3.66	3.85	4.05	4.05	4.14
Thermal Conductivity (k - value) (max, @24 ° and 60% RH)	[W/m.k]	0.0462	0.0403	0.0379	0.0363	0.0343	0.0343	0.0334
	[Btu.in/hr.ft ² .F]	0.308	0.269	0.253	0.242	0.229	0.229	0.223
Thermal Conductivity (k - value) (max, @35 ° and 60% RH)	[W/m.k]	0.0482	0.0419	0.0394	0.0377	0.0356	0.0356	0.0347
	[Btu.in/hr.ft ² .F]	0.32	0.279	0.263	0.252	0.238	0.238	0.232
Flextural Strength (min)	[kpa]	70	173	208	240	345	414	517
	[psi]	10	25	30	35	50	60	75
Water Vapor Permeance (of 25.4 mm thickness, max.)	[perm]	5	5	3.5	3.5	2.5	2.5	2.5
Water Absorption (total immersion, max.)	[volume %]	4	4	3	3	2	2	2
Dimension Stability (change in dimensions, max.)	[%]	2						
Oxygen Index (min.)	[volume %]	24						