

# Product Information Bulletin

BULLETIN NO.	252
ISSUED:	January 18, 2012
REPLACES:	January 14, 2011

## ASTM C578 versus CAN/ULC-S701 EPS Material Properties

Material Property	ASTM Test	Units	ASTM C578-11b <sup>1</sup>				
			I	VIII	II	IX	XIV
Compressive resistance <i>Minimum at 10% deformation</i>	C165 or D1621	psi (kPa)	10 (69)	13 (90)	15 (104)	25 (173)	40 (276)
Thermal resistance <sup>2</sup> <i>Minimum</i>	C518 or C177	ft <sup>2</sup> ·hr·°F/BTU (°C·m <sup>2</sup> /W)	3.60 (0.63)	3.80 (0.67)	4.00 (0.70)	4.20 (0.74)	4.20 (0.74)
Water vapour permeance <sup>3</sup> <i>Maximum</i>	E96	Perm (ng/Pa·s·m <sup>2</sup> )	5.0 (287)	3.5 (201)	3.5 (201)	2.5 (143)	2.5 (143)
Flexural strength <i>Minimum</i>	C203	psi (kPa)	25 (173)	30 (208)	35 (240)	50 (345)	60 (414)
Dimensional stability <i>Maximum</i>	D2126	% linear change	2.0	2.0	2.0	2.0	2.0
Water absorption <sup>4</sup> <i>Maximum</i>	C272	% by volume	4.0	3.0	3.0	2.0	2.0
Oxygen index <i>Minimum</i>	D2863	volume %	24	24	24	24	24
Density <i>Minimum</i>	D1622 or C303	pcf (kg/m <sup>3</sup> )	0.90 (15)	1.15 (18)	1.35 (22)	1.80 (29)	2.40 (38)

  

Material Property	ASTM Test	Units	CAN/ULC-S701-11 <sup>5</sup>		
			1	2	3
Thermal resistance <sup>6</sup> <i>Minimum</i>	C518 or C177	m <sup>2</sup> ·°C / W (ft <sup>2</sup> ·hr·°F/BTU)	0.65 (3.75)	0.70 (4.04)	0.74 (4.27)
Water vapour permeance <sup>7</sup> <i>Maximum</i>	E96	ng/Pa·s·m <sup>2</sup> (Perm)	300 (5.2)	200 (3.5)	130 (2.3)
Dimensional stability <i>Maximum</i>	D2126	% linear change	1.5	1.5	1.5
Water absorption <sup>8</sup> <i>Maximum</i>	D2842	% by volume	6.0	4.0	2.0
Flexural strength <i>Minimum</i>	C203	kPa (psi)	170 (25)	240 (35)	300 (44)
Compressive resistance <i>Minimum at 10% deformation</i>	D1621	kPa (psi)	70 (10)	110 (16)	140 (20)
Oxygen index <i>Minimum</i>	D2863	volume %	24	24	24

<sup>1</sup> ASTM C578, **Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.**

<sup>2</sup> R-value (RSI-value) per 1.0 inch (25.4-mm) thickness measured at a mean temperature of 75 °F (24 °C) and a temperature differential of 40 °F (22 °C).

<sup>3</sup> WVP values quoted are maximum values for 1.0 inch (25.4-mm) thick samples.

<sup>4</sup> ASTM Test Method C272 water absorption requires 24 hours submersion of specimen under water.

<sup>5</sup> CAN/ULC-S701, **Thermal Insulation, Polystyrene, Board and Pipe Covering.**

<sup>6</sup> RSI-value (R-value) measured at a mean temperature of 24°C per 25-mm (1.0 inch) thickness and a temperature differential of 22 °C.

<sup>7</sup> WVP values quoted are maximum values for 25-mm (1.0 in.) thick samples.

<sup>8</sup> ASTM Test Method D2842 Water absorption requires 96 hour submersion under a head of water.