

Product Information Bulletin

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PlastiSpan® Insulation - CAN/ULC-S701 Types and Material Properties

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Plasti-Fab offers a wide variety of expanded polystyrene (EPS) insulation types. This bulletin provides an overview of the material properties for the range of PlastiSpan insulation types available. The attached table also includes a cross-reference to the common XPS insulation products within the same product type range as Plasti-Fab EPS insulation types.

The table identifies insulation types within the scope of CAN/ULC-S701, **Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering** as applicable. The following notes are provided for reference related to the material properties values:

1. RSI (R-value) in the tables are thermal resistance values measured at a mean temperature of 24 °C (75 °F).
2. RSI (R-value) provided in the table for XPS insulation types is the minimum long term thermal resistance (LTTR) per 25-mm (1-inch) calculated from the predicted LTTR value for 50 mm (2-inch) thickness provided in Table 1A of CAN/ULC-S701-11.
3. LTTR is predicted using the accelerated aging laboratory test method CAN/ULC-S770, **Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Insulating Foams**. The LTTR is deemed equivalent to the thermal resistance value for a product measured after 5-year storage in a laboratory condition – i.e. the LTTR is equivalent to the aged R-value after 5 years.
4. “Long-term” (LTTR) R-value of foam plastic insulation such as XPS insulation is applicable to products manufactured with blowing agents intended to be retained for greater than 180 days. **EPS insulation R-value is not affected by LTTR because it is not manufactured with a blowing agent that is intended to be retained within the cellular structure.**
5. Water absorption % by volume for EPS and XPS insulation types in the tables are determined using a laboratory test method that involves submersion under a 50 mm (2”) head of water. The water absorption values are applicable to specific end-use design requirements only to the extent that the end-use conditions would require submersion under a head of water.
6. Water vapour permeance values in the tables are maximum values for 25-mm (1-inch) thick insulation with natural skins intact. Lower values will result for thicker materials and for laminated product.
7. While an insulation material with a lower vapour permeance characteristic may resist moisture diffusion into it and provide lower water absorption values based upon laboratory test methods, it will also dry more slowly in the event moisture gets into the cellular structure as a result of long term in-service applications. See Plasti-Fab PIBs 268, 303 and 307 for additional information on these performance properties.

Material Property	1		2		3		4			
	PlastiSpan Insulation	PlastiSpan HD Insulation	PlastiSpan 20 Insulation	XPS	PlastiSpan 25 Insulation	XPS	PlastiSpan 30 Insulation	PlastiSpan 40 Insulation	XPS	40 psi XPS
CAN/ULC-S701 Type No.	70 (10)	110 (16)	140 (20)	110 (16)	170 (25)	140 (20)	210 (30)	276 (40)	210 (30)	276 (40)
Compressive resistance Minimum, kPa (psi)	0.65 (3.75)	0.70 (4.04)	0.70 (4.04)	0.84 (4.85)	0.74 (4.27)	0.84 (4.85)	0.74 (4.27)	0.74 (4.27)	0.84 (4.85)	0.84 (4.85)
Thermal resistance Minimum, m ² ·°C/W (ft ² ·hr·°F/BTU)	100	100	100	90	100	90	100	100	90	90
RSI (R-value) warranty Minimum % of Original	300 (5.2)	200 (3.5)	130 (2.3)	90 (1.5)	130 (2.3)	90 (1.5)	130 (2.3)	130 (2.3)	90 (1.5)	35 (0.6)
Water vapour permeance Maximum, ng/Pa·s·m ² (Perm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dimensional stability Maximum % linear change	6.0	4.0	2.0	0.9	2.0	0.9	2.0	2.0	0.7	0.7
Water absorption Maximum % by volume	170 (25)	240 (35)	280 (40)	240 (35)	300 (44)	300 (44)	350 (50)	414 (60)	350 (50)	414 (60)
Flexural strength minimum, kPa (psi)	85 (12)	125 (18)	140 (20)	125 (18)	150 (22)	165 (24)	170 (25)	207 (30)	165 (24)	207 (30)
Shear strength minimum, kPa (psi)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)	12.7 (0.5)
Thickness mm (in.)	1219 (48)	1219 (48)	1219 (48)	102 (4)	1219 (48)	102 (4)	1219 (48)	1219 (48)	102 (4)	102 (4)
Plasti-Fab Product Information Bulletin	PIB 211	PIB 212	PIB 229		PIB 213		PIB 221	PIB 248		

¹ Contact your local Plasti-Fab sales representative to confirm maximum PlastiSpan thickness available in your area.