

Product Information Bulletin

PlastiSpan HD Hydronic Insulation for Floor Radiant Heating Systems

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Conventional forced air heating systems rely upon convection to force hot air towards the ceiling resulting in non-uniform heat distribution throughout the room area. With radiant floor heating systems, there are no vents blowing air into specific areas. The hydronic tubing cast into the concrete slab and PlastiSpan HD hydronic insulation beneath the concrete slab ensures that heat is spread uniformly throughout the entire floor area.

In radiant floor heating systems, hot water is circulated through hydronic tubing to keep all slab areas warm. PlastiSpan HD hydronic insulation board is installed on a prepared ground surface as the first component in the radiant floor heating system to ensure that heat loss will be minimized and the entire floor area will be warmed faster.

PlastiSpan HD hydronic insulation also incorporates supports for the hydronic tubing. The supports ensure that hydronic tubing is held in position until the concrete floor is placed.

Radiant heating systems can also be used in a variety of other applications. Examples would be under exterior concrete slabs on walkways or driveways for melting snow and ice and beneath the concrete slab of your garage floor to keep your garage warm all year round.

The advantages of radiant floor heating systems using PlastiSpan HD hydronic insulation include:

- Provides monolithic insulation layer ensures uniform heat distribution.
- Floor area will be noticeably warmer to anyone standing on it.
- Insulation installs quickly and easily with no special skills, tools or equipment required.
- No mechanical attachment of hydronic tubing is required.
- Energy efficient method of constructing a heated basement floor slab.



PlastiSpan HD hydronic insulation is an expanded polystyrene (EPS) insulation used as the insulation component in radiant floor heating systems. PlastiSpan HD hydronic insulation minimizes heat loss, allows uniform heat distribution uniform to the floor area and ensures the floor area will be warmed faster. The closed cellular structure of PlastiSpan HD hydronic board provides excellent resistance to moisture and the long-term insulating value is not subject to thermal drift, because it contains no HCFC's or HFC's.

PlastiSpan HD hydronic insulation typical thicknesses are provided below. However, custom thickness based upon the thermal resistance value required for specific applications are available.

PlastiSpan HD hydronic insulation meets CAN/ULC-S701-11, **Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering**, the National Standard of Canada for EPS insulation. The table below provides material properties for PlastiSpan HD insulation.

Material Property	Test Method	Units	Values ¹
Thermal Resistance <i>Minimum RSI per 25 mm (R per inch)</i>	ASTM C518	m ² •°C/W (ft ² •h•°F/BTU)	0.70 (4.04)
Compressive Resistance <i>Minimum @ 10% Deformation</i>	ASTM D1621	kPa (psi)	110 (16)
Flexural Strength <i>Minimum</i>	ASTM C203	kPa (psi)	240 (35)
Water Vapour Permeance² <i>Maximum</i>	ASTM E96	ng/(Pa•s•m ²) (Perms)	200 (3.5)
Water Absorption³ <i>Maximum</i>	ASTM D2842	% By volume	4.0
Dimensional Stability <i>Maximum, 7 Days @ 70 ± 2 °C (158 ± 4 °F)</i>	ASTM D2126	% Linear Change	1.5
Limiting Oxygen Index <i>Minimum</i>	ASTM D2863	%	24
Typical Dimensions			
Width – mm (feet)	Length – mm (feet)	Thickness – mm (inches)	
1,220 (4)	1,220 (4)	38, 50 or 75 (1-½, 2 or 3)	

1. PlastiSpan HD insulation properties are third party certified under a certification program administered by Intertek Testing Services and listed by the Canadian Construction Materials Centre (CCMC) under evaluation listing number 12425-L (Type 2).

2. WVP values quoted are maximum values for 25-mm thick samples with natural skins intact. Lower values will result for thicker materials.

3. The water absorption laboratory test method involves complete submersion under a head of water for 96 hours. The water absorption value above is applicable to specific end-use design requirements only to the extent that the end-use conditions are similar to test method requirements.