

Product Name

INSULWORKS™

Associated Specification Section

MasterFormat 1995 # 07212

MasterFormat 2004 # 07 21 11

Manufacturer's Name

Beaver Plastics

Sept 30, 2004

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PRODUCT DESCRIPTION

PRODUCT FEATURES

- BASIC USES / RELATED USES
 - INSULWORKS is manufactured from high-density EPS and is designed for hydronic heating applications, such as:
 - under slab-on-grade
 - in sandwich slab applications
 - snow melt systems
- PRODUCT ATTRIBUTES AND CHARACTERISTICS
 - High compressive strength supports concrete structures, construction activity, machinery and heavy loading.
 - Efficient thermal barrier between the heated slab and underlying ground.
 - Moisture vapour permeable.
 - Contains no CFCs, HCFCs, or other refrigerant gases.
 - Biologically inert; will not support mould, mildew or fungus growth.
 - Contains a chemical additive to inhibit accidental ignition from a small fire source.
 - Non-toxic and hypo-allergenic.
- SELECTION CRITERIA
 - Reduces labour and costs by eliminating the need to tie tubing down to wire mesh.
 - Available in four standard thicknesses with additional thicknesses available on request.
 - Standard thermal resistance values range from 1.1 RSI (R-6) to 21. RSI (R-12) or over.
 - Available for both 13 mm (1/2") and 19 mm (3/4") I.D tubing.
 - Material is easily cut.
- APPLICABLE STANDARDS, RELATED REFERENCES
 - ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
 - ASTM D696-03 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics

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PRODUCT DESCRIPTION

Between -30°C and 30°C With a Vitreous Silica Dilatometer.

- ASTM D1621-00 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- ASTM E96-00e1 - Standard Test Methods for Water Vapor Transmission of Materials.
- ASTM D2842-01 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.
- CAN/ULC-S701 – Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- **QUALITY STATEMENT, TESTS, CERTIFICATIONS, AND APPROVALS**
 - Product certified under Warnock Hershey Third Party Certification Program.
 - ISO 9001:2000 Registered Company (Quality Certification Bureau #94-41).
 - Canadian Construction Materials Centre, Evaluation 12982-L
 - International Code Council - Evaluation Service, Evaluation ER-6100
- **PACKAGING, HANDLING, PROTECTION, AND DELIVERY INSTRUCTIONS**
 - Observe normal fire precautions and good housekeeping during storage and application.
- **LIMITATIONS**
 - Product will burn when exposed to large continuous flame.
- **AVAILABILITY**
 - Available direct from Beaver Plastics.
- **COST**
 - Varies with substrate condition and configuration, and relative size of building.
 - Consult national for specific product costs or relative costs.

PRODUCT PROPERTIES

- **MATERIALS, COMPOSITION, PROPERTIES**
 - Material: Rigid closed cell, expanded polystyrene (EPS) board, Type 2 to CAN/ULC-S701 and ASTM C578.
 - Performance:

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PHYSICAL PROPERTY	UNITS IMPERIAL (R VALUE)	UNITS SI (METRICS)	ASTM TEST PROCEDURE	VALUES	
				Imperial	Metric
Minimum thermal Resistance (R-Value)	Hr.ft ² °F BTU / 1 in.	hm ² °C W / 25 mm	C-177-76 or C-518-76	4.00	0.70
Coefficient of Thermal Expansion (max)	In / in / °F	m / m°C	D-696-79	3.5 x 10 ⁻⁵	6 x 10 ⁻⁵ c ⁻¹
Compressive Strength	Psi	kPa	D-1621-73	16	110
Capillary Action	-----	-----	-----	none	none
Water vapor permeance (max)	Perm - in	ng / Pa.s.m. ⁻²	E96-80	3.5	200
Water absorption % (max)	%	%	D2842-69	3.0	3.0

- Flame Spread/Smoke Developed Index: Less than 25/450 to ASTM E84.
- Thermal resistance for standard thicknesses available:
 - 38 mm (1 1/2") thickness: 1.1 RSI (R-6)
 - 48 mm (1 7/8") thickness: 1.3 RSI (R-7.5)
 - 64 mm (2 1/2") thickness: 1.7 RSI (R-10)
 - 75 mm (3") thickness: 2.1 RSI (R-12)

● DIMENSIONS

- Standard board sizes: 1220 x 1220 mm (4' x 4') panels.
- Standard board thickness': 38 mm, 48 mm, 64 mm, and 75 mm (1 1/2", 1 7/8", 2 1/2" and 3")

PRODUCT PLACEMENT

● INSTALLATION

- Verify surface is ready to receive insulation.
- Install insulation panels to manufacturer's instructions.
- "Step" hydronic tubing into raised panel ridges.

● COVERAGE

- Insulworks panels are bundled in packs providing the following coverage:

Panel Description	Pieces per Pack	Area
38 mm (1 1/2")	20	29.7 m ² (320 sq.ft.)
48 mm (1 7/8")	16	23.8 m ² (256 sq.ft.)
64 mm (2 1/2")	12	17.8 m ² (192 sq.ft.)

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PRODUCT DESCRIPTION

76 mm (3")	10	14.8 m ² (160 sq.ft.)
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Corporate Identification

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Technical Services Available

Phone toll free or e-mail

Classification and Filing

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07 21 11 - Hydronic Piping Insulation

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