

Product Information Bulletin

07 22 00 Roof and Deck Insulation - PlastiSpan Insulation

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This specification consolidates essential information about Plasti-Fab PlastiSpan roof insulation for specifiers and other professionals involved in a construction project.

1. GENERAL

Product Names

PlastiSpan Insulation Board
PlastiSpan HD Insulation Board
PlastiSpan XD Insulation Board

Product Type

Moulded expanded polystyrene (EPS) insulation.

2. MANUFACTURER

Plasti-Fab Ltd.

Contact Information:

Toll-free Number: 1-88 THINK EPS (1-888-446-5377)
E-mail: mailbox@plastifab.com
Website: www.plastifab.com

3. PRODUCT DESCRIPTION

Description

PlastiSpan insulation board is a moulded expanded polystyrene (EPS) product that does not contain any CFCs, HFCs or HCFCs.

Basic Use

PlastiSpan insulation board provides a continuous thermal blanket that eliminates thermal bridges and is ideal for roofing applications that use typical roofing materials, including Built-Up Roofing (BUR), Ethylene Propylene Diene Monomer (EPDM) and modified bitumen. The insulation boards are useful in flat roofing applications and can be adapted to most roof coverings.

The boards may be cut and laid to a pre-determined design to create a drainage system on a roof, thus allowing the drainage pattern of a flat roof to be provided by the insulation.

Composition and Materials

PlastiSpan insulation is inert, non-nutritive and will not decompose, decay or produce undesirable gases or leachates. It is lightweight, rigid and easy to handle, and the closed-cell structure assures constant thermal resistance (R-Value) and resists water absorption.

Insulation Board Sizes

Typical board sizes are: 1,220 mm x 1,220 mm (48" x 48"). However, other sizes requested by customer can be accommodated by Plasti-Fab.

Limitations

- Rigid foamed plastic insulation products, such as PlastiSpan insulation, are combustible. Although product contains a combustion modifier to inhibit accidental ignition, the product should not be exposed to a large, continuous fire source.
- The continuous service temperature limit of PlastiSpan insulation is 75 °C (170 °F). Constant exposure to temperatures above 75 °C (170 °F) will shrink and warp the product.
- Petroleum products will cause EPS insulation to soften and collapse. Attention must be given to the selection of adhesives, coatings and separation sheets to ensure compatibility with EPS insulation.
- Insulation must be protected from extended periods of exposure to direct sunlight by covering with a tarpaulin or opaque, light-coloured polyethylene film.

4. TECHNICAL DATA

Applicable Standards

ASTM International (ASTM)

- ASTM C165-07, Standard Test Method for Measuring Compressive Properties of Thermal Insulations
- ASTM C177-04, Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- ASTM C203-05a, Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
- ASTM C303-07, Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation
- ASTM C390-08e1, Standard Practice for Sampling and Acceptance of Thermal Insulation Lots
- ASTM C518-04, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- ASTM C550-03 (2009), Standard Test Method for Measuring Trueness and Squareness of Rigid Block and Board Thermal Insulation
- ASTM C585-10, Standard Practice for Inner and Outer Diameters of Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)
- ASTM C578-10a, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- ASTM D 618-08, Standard Test Method for Conditioning Plastics for Testing
- ASTM D1621-10, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- ASTM D2126-09, Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- ASTM D2842-06, Standard Test Method for Water Absorption of Rigid Cellular Plastics.
- ASTM D2863-09, Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index).
- ASTM E84-10b, Standard Test Method for Surface Burning Characteristics of Building Materials.
- ASTM E96-05, Standard Test Methods for Water Vapor Transmission of Materials.

Canadian General Standards Board (CGSB)

- CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- CGSB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular Polystyrene Insulation.

National Research Council (NRC)

- CCMC #12424-L, PlastiSpan/PlastiSpan Type 1/PlastiSpan EFS/DuroFoam.
- CCMC #12425-L, PlastiSpan HD/PlastiSpan HD Type 2/PlastiSpan M24/DuroFoam HD.
- CCMC #12426-L, PlastiSpan XD/PlastiSpan XD Type 3/PlastiSpan M28/DuroFoam XD.

Underwriters' Laboratories of Canada (ULC)

- CAN/ULC-S102.2-07, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials.
- CAN/ULC-S107-03, Fire Tests of Roof Coverings.
- CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

Environmental Considerations

- Energy consumption associated with HVAC operations will be reduced through use of insulation with high thermal efficiency.
- PlastiSpan insulation board is not manufactured with a blowing agent such as a HFC or HCFC intended to enhance R-value; therefore, it is not subject to thermal drift and will provide a constant R-value over time.
- PlastiSpan insulation will not produce any undesirable gases or leachates, and is recyclable where facilities exist.

Physical/Chemical Properties

Thermal resistance values given below are for a material thickness of 25 mm (1").

- Thermal resistance @ 24°C (75°F) mean temperature (to ASTM C 177 or ASTM C518):
 - Type 1: 0.65 m²•°C/W per 25-mm (3.75 ft²•hr•°F/BTU per inch).
 - Type 2: 0.70 m²•°C/W per 25-mm (4.04 ft²•hr•°F/BTU per inch).
 - Type 3: 0.74 m²•°C/W per 25-mm (4.27 ft²•hr•°F/BTU per inch).
- Compressive strength @ 10% deformation (to ASTM D 1621 – Procedure A):
 - Type 1: 70 kPa (10 psi).
 - Type 2: 110 kPa (16 psi).
 - Type 3: 140 kPa (20 psi).
- Flexural strength (to ASTM C 203 – Procedure B):
 - Type 1: 170 kPa (25 psi).
 - Type 2: 240 kPa (35 psi).
 - Type 3: 300 kPa (44 psi).
- Water vapour permeance (to ASTM E 96):
 - Type 1: 300 ng/Pa•s•m² (5.2 perms).
 - Type 2: 200 ng/Pa•s•m² (3.5 perms).
 - Type 3: 130 ng/Pa•s•m² (2.3 perms).
- Water absorption (to ASTM D 2842):
 - Type 1: 6% by volume.
 - Type 2: 4% by volume.
 - Type 3: 2% by volume.

- Dimensional stability – 7 days @ 70 ± 2 °C (158 ± 1.8 °F) per ASTM D 2126:
 - Types 1, 2 and 3: 1.5% linear change.
- Compressive modulus per ASTM D 1621 – Procedure A):
 - Type 1: 2500 kPa (360 psi).
 - Type 2: 4900 kPa (710 psi).
 - Type 3: 7100 kPa (1030 psi).
- Limiting oxygen index (to ASTM D 2863):
 - Types 1, 2 and 3: 24%.
- Flame Spread and Smoke developed to CAN/ULC-S102.2:
 - For thickness greater than 12.5 mm – flame spread 290/smoke developed >500.

5. INSTALLATION

Preparatory Work

Handle, store and protect boards in accordance with Plasti-Fab recommendations. Ensure product secured against movement from wind storms at the storage location and handle boards carefully so corners are not broken off or otherwise damaged. Protect from direct sunlight exposure with tarpaulins or light-coloured polyethylene sheets if stored on site for extended periods of time (more than a few weeks).

Methods of Application

Installation methods may vary with specific applications. Instructions for all applications can be found in various Plasti-Fab brochures, in the full version of the applicable Masterformat Specification or on the Plasti-Fab website at www.plastifab.com.

Precautions

- Rigid foamed plastic insulation, such as PlastiSpan insulation, is combustible and should be treated with normal care accorded to all combustible materials. Although EPS insulation contains a combustion modifier to inhibit accidental ignition, the product should not be exposed to a large, continuous fire source. Avoid open flames, welding torches and high intensity lamps, and if welding is necessary in proximity to the EPS insulation, protect the insulation with fire-rated gypsum board or similar products.
- Do not leave plastic foam insulation exposed in inhabited areas. A protective barrier or thermal barrier is required as specified in the appropriate Building Code.

Building Codes

Installation must comply with all applicable local, provincial and National code jurisdictions. Plasti-Fab can offer technical assistance as needed.

6. AVAILABILITY AND COST

Availability

Plasti-Fab Ltd. is headquartered in Calgary, Alberta, Canada and has been serving customers in Canada and the US for over 40 years. Contact Plasti-Fab using any of the methods listed in Part 2 of this specification for current list of facilities and agents.

Cost

Contact Plasti-Fab using any of the methods listed in Part 2 of this specification for current pricing information. Cost information may also be obtained from a local Plasti-Fab dealer.

7. WARRANTY

It is the responsibility of the contractor to install PlastiSpan insulation board in accordance with Plasti-Fab Ltd. published recommendations. Plasti-Fab assumes no liability resulting from a failure to follow these instructions. Plasti-Fab offers a warranty for RSI value (R-value) retention over time. Plasti-Fab's liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to Plasti-Fab within 30 days from the date it was, or reasonably should have been, discovered. Further information on warranty conditions, duration and remedies may be obtained from Plasti-Fab.

8. MAINTENANCE

PlastiSpan insulation products are maintenance free when installed according to Plasti-Fab's published recommendations.

9. TECHNICAL SERVICES

Plasti-Fab's broad distribution network ensures exceptional customer service. One of the most comprehensive design manuals in the industry is available to assist engineers, architects and specification writers to determine how to make the best use of EPS. For more information, contact Plasti-Fab using any of the methods listed in Part 2 of this specification.

10. FILING SYSTEMS

Additional product information is available upon request from Plasti-Fab.