



**Building & Construction**

# 1 PRODUCT NAME STYROFOAM™ SM Insulation

## 2 Manufacturer

Dow Chemical Canada Inc.  
Building & Construction  
Suite 2200 250-6th Avenue SW  
Calgary, AB T2P 3H7  
1-866-583-BLUE (2583) (English)  
1-800-363-6210 (French)  
www.dowstyrofoam.ca/4architects

## 3 Product Description

STYROFOAM™ SM extruded polystyrene insulation is a multi-purpose extruded polystyrene board that meets the needs of the commercial foundation and slab market. The closed-cell structure of STYROFOAM SM insulation resists water absorption, enabling it to retain a high R-value (RSI)\*\* over time – a necessary property in below-grade commercial foundation applications.

STYROFOAM SM insulation protects foundation damp-proofing and waterproofing, especially during backfilling. It also provides a secondary barrier against groundwater leakage. With STYROFOAM SM insulation, the freeze-thaw cycling of the foundation wall is minimized, reducing the possibility of cracking. And a warmer foundation wall reduces the potential for condensation and adds to the thermal mass of the building.

### BASIC USE

STYROFOAM SM insulation can be used against any commercial foundation wall in above- and below-grade applications.

### SIZES

Thickness: 1", 1.5", 2", 3", 4"  
Sheet size: 2' x 8'  
Edge treatment: butt edge and shiplap

Thickness: 2.4", 2.5"  
Sheet size: 2' x 8'  
Edge treatment: shiplap

Thickness: 90 mm  
Sheet size: 400 mm x 2,400 mm  
Edge treatment: butt edge

Thickness: 50 mm, 75 mm  
Sheet size: 600 mm x 2,400 mm  
Edge treatment: butt edge and shiplap

Not all sizes are available in all parts of Canada. Consult your local sales representative for availability.

## 4 Technical Data

### APPLICABLE STANDARDS

ASTM International

- ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics

- ASTM E96 – Standard Test Methods for Water Vapour Transmission of Materials
- ASTM D696 – Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30° and 30°C with a Vitreous Silica Dilatometer
- ASTM D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics
- CAN/ULC S701 Type 4
- CCMC 06525-L

### PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM SM insulation exhibits physical properties as indicated in Table 1 when tested as represented.

For chemical resistance properties of STYROFOAM SM insulation, see Table 2.

### ENVIRONMENTAL DATA

STYROFOAM extruded polystyrene insulation products are manufactured with HCFC blowing agents, which have 94 percent less ozone depletion potential than standard CFC blowing agents.

STYROFOAM extruded polystyrene insulation products are reusable in many applications and are recyclable.

TABLE 1

Physical Properties of STYROFOAM SM Insulation	
Property and Test Method	Value
Thermal Resistance per inch (25 mm), ASTM C518 @ 75°F (24°C) mean temp., ft <sup>2</sup> •h•°F/Btu (m <sup>2</sup> •°C/W) min., R-value (RSI)	5.0 (.87)
Compressive Strength <sup>(1)</sup> , ASTM D1621, psi (kPa), min.	30 (210)
Water Absorption, ASTM D2842, % by volume, max.	<0.7
Water Vapour Permeance, ASTM E96, perm (ng/Pa•s•m <sup>2</sup> )	0.9 (50)
Maximum Use Temperature, °F (°C)	165 (74)
Coefficient of Linear Thermal Expansion, ASTM D696, in/in•°F (mm/m•°C)	3.5 x 10 <sup>-5</sup> (6.3 x 10 <sup>-2</sup> )

(1) Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.

TABLE 2

Chemical Resistance <sup>(1)</sup> of STYROFOAM SM Insulation			
Acid, inorganic, weak	Excellent	Salts	Excellent
Acid, inorganic, strong	Excellent	Insecticides	Not recommended
Acid, organic, weak	Excellent	Kerosene	Poor
Acid, organic, strong	Good	Mineral oil USP	Excellent
Bases	Excellent	Naphtha (VMP)	Not recommended
Alcohols, including isopropyl alcohol	Excellent	Turpentine	Not recommended
Methyl ethyl ketone	Not recommended	Beer	Good
Polyglycols, including propylene glycol	Excellent	Gasoline	Not recommended
Hydrocarbons	Not recommended	Fruit juices	Good

(1) Explanation of ratings:  
 Excellent = The plastic was unaffected for the duration of the test.  
 Good = A very slight clouding or discoloration of the plastic.  
 Poor = Considerable change in plastic during exposure, possible etching, discoloration, dimensional or weight changes.  
 Not recommended = Severe attack of the plastic. Became soft and unusable after a few hours of exposure.  
 NOTE: This table should be used as a guide only. For design purposes, specific test data on the intended application may be needed.

## FIRE PROTECTION

STYROFOAM™ SM insulation is combustible; protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector.

## 5 Installation

STYROFOAM SM insulation boards are easy to handle, cut and install. In particular, STYROFOAM SM insulation with shiplap edges is designed to ensure energy efficiency and minimize on-site cutting and waste. Use a polystyrene-compatible adhesive to hold boards in place during backfilling. Apply caulk or mastic to the top of boards to prevent water infiltration behind the insulation. To complete the installation,

parge the above-grade portions of STYROFOAM SM insulation.

It is recommended that any masonry irregularities or jagged surfaces on the foundation wall or slab be removed prior to installation. Below-grade walls should be protected from moisture leakage and dampness prior to installation of STYROFOAM SM insulation.

Contact a local Dow representative or access the literature library at [www.dowstyrofoam.ca/4architects](http://www.dowstyrofoam.ca/4architects) for more specific instructions.

## 6 Availability

STYROFOAM SM insulation is distributed through an extensive network. For more information, contact your local Dow representative or call:

- 1-800-232-2436 (English)
- 1-800-565-1255 (French)

## 7 Warranty

Not applicable.

## 8 Maintenance

Not applicable.

## 9 Technical Services

Dow can provide technical information to help address questions when using STYROFOAM SM extruded polystyrene insulation. Technical personnel are available at Dow sales offices to assist with any insulation project.

## 10 Filing Systems

- [www.dowstyrofoam.ca/4architects](http://www.dowstyrofoam.ca/4architects)
- [www.sweetscanada.com](http://www.sweetscanada.com)

### IN CANADA:

- For Technical Information: **1-866-583-BLUE (2583)** (English); **1-800-363-6210** (French)
- For Sales Information: **1-800-232-2436** (English); **1-800-565-1255** (French)

### DOW CHEMICAL CANADA INC.

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COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-519-339-3711.

Building and/or construction practices unrelated to insulation could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

