



1 | PRODUCT NAME

STYROFOAM DECKMATE Plus Insulation

2 | Manufacturer

The Dow Chemical Company
Building Materials
200 Larkin Center
Midland, MI 48674
(866) 583-BLUE (2583)
Fax: (989) 832-1465
www.dowstyrofoam.com/architect

Dow Chemical Canada Inc.
Building Materials
1086 Modeland Rd
Sarnia, ON N7T 7K7
English: (866) 583-BLUE (2583)
French: 800-363-6210
www.dowstyrofoam.ca/4architects

3 | Product Description

BASIC USE

STYROFOAM* DECKMATE* Plus extruded polystyrene insulation is designed specifically to provide a higher compressive strength and additional membrane support for conventional low slope roof applications. STYROFOAM DECKMATE Plus insulation is an extruded polystyrene foam. The board has smooth, high-density skins, with a closed cellular structure. STYROFOAM DECKMATE Plus insulation has excellent insulating characteristics (R-value** of 5.0 [.88 RSI] per inch of thickness), low water absorption, excellent compressive strength and meets CAN/ULC S 701 Type 3 and ASTM C 578 Type 4.

Properties imparted by Dow's extrusion process coupled with the hydrophobic nature of polystyrene give STYROFOAM

extruded polystyrene insulation high resistance to both water and water vapor. Durable and reusable, it exhibits dependable and predictable long-term mechanical and thermal performance, even in the most severe environments.

SIZES

Thickness (U.S.): 2", 2-1/2", 3", 4"
Sheet size (U.S.): 2' x 8', 4' x 8'
Edge treatment: square edge

Thickness (Canada): 4"
Sheet size (Canada): 2' x 8'
Edge treatment: shiplap edge

NOTE: Not all thicknesses and sizes are available in all areas. Please contact your local Dow sales representative for availability.

4 | Technical Data

APPLICABLE STANDARDS

- ASTM International
- ASTM C 518 – Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - ASTM D 1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
 - ASTM C 272 – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
 - ASTM E 96 – Standard Test Method for Water Vapor Transmission of Materials

U.S. PROPERTY CHART

TABLE 1

Physical Properties of STYROFOAM DECKMATE Plus Insulation	
Property and Test	Value
Thermal resistance ¹ per in., ASTM C 518, 75°F mean temp., ft ² hr ² /F/BTU as min.	5.0
Compressive strength ² , ASTM D 1621, psi min.	25
Water absorption, ASTM C 272, % by volume, max.	0.1
Water vapor permeance ³ , max., ASTM E 96, perms	1.1
Maximum operating temperature, °F	165
Coefficient of linear thermal expansion, in./in., °F	3.5 x 10 ⁻⁵
Flexural strength, ASTM C 203, psi min.	50
Dimensional stability, max., ASTM D 2126, % linear change, max.	2.0
Flame spread ⁴ , ASTM E 84	5
Smoke development, ASTM E 84	165

¹ Values are consistent with criteria of ASTM C 578 and requirements of FTC R-value rule.

² Vertical compressive strength is measured at 10% deformation or at yield, whichever comes first. Since STYROFOAM extruded polystyrene insulation are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformations.

³ Based on 1" thickness.

⁴ This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

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**R means resistance to heat flow. The higher the R-value or RSI, the greater the insulating power.

STYROFOAM DECKMATE Plus Insulation

CANADA PROPERTY CHART

TABLE 2

Physical Properties of STYROFOAM DECKMATE Plus Insulation	
Property and Test	Value
Thermal resistance ¹ per in. (25 mm), ASTM C 518, 24°C mean temp., ft ² hr ² F/BTU (m ² C/W) min.	5.0 (.88 RSI)
Compressive strength ² , ASTM D 1621, psi (kPa) min.	20 (140)
Water absorption, ASTM D 2842, % by volume, max.	0.7
Water vapour permeance ³ , max., ASTM E 96, perms (ng/([Pa•s•m ²]))	1.5 (90)
Maximum operating temperature, °F (°C)	165 (74)
Coefficient of linear thermal expansion, in/in, °F (mm/mm, °C)	3.5 x 10 ⁻⁵
Flexural strength, ASTM C 203, psi (kPa) min.	43 (300)
Dimensional stability, max., ASTM D 2126, % linear change, max.	1.5
Flame spread ⁴ , ULC S 102.2, CAN/ULC S102.2	100 - 205

¹ Values are consistent with criteria of ASTM C 578.

² Vertical compressive strength is measured at 10% deformation or at yield, whichever comes first. Since STYROFOAM extruded polystyrene insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformations.

³ Based on 1" (25.4 mm) thickness.

⁴ This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

TABLE 3

Chemical Resistance of STYROFOAM Extruded Polystyrene Insulation			
Acid, inorganic	Good	Gases, carbon hydroxide (CH ₄)	Good
Acid, organic	Good	Gases, chlorofluorocarbons	Good
Alcohol	Good	Gases, dioxide (O ₂)	Good
Asphalts, water-based	Good	Gases, nitrous hydroxide (NH ₃)	Good
Bases (caustics)	Good	Gases, sulfur dioxide (SO ₂)	Good
Bleach	Good	Mineral oil USP	Excellent
Brines and other salts	Good	Paints, alcohol-based	Good
Cements and mortar	Good	Paints, water-based	Good
Gases, carbon dioxide (CO ₂)	Good	Water	Good

- ASTM C 203 – Standard Test Method for Breaking Load and Flexural Properties of Block Type Thermal Insulation
- ASTM D 2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials

CODE COMPLIANCE

STYROFOAM DECKMATE Plus insulation complies with the following codes:

- ICBO-ES ER 2257
- ICBO-ES ER 5155
- BOCA-ES RR 21-02
- SBCCI PST & ESI, ER 9576D
- Underwriters Laboratory, Inc. (UL) Classified, see Classification Certificate D369

PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM DECKMATE Plus extruded polystyrene insulation exhibits the properties and characteristics indicated in Tables 1 and 2 when tested as represented.

Exposure to ultraviolet radiation in sunlight for several weeks will cause the surface of STYROFOAM extruded polystyrene insulation to become yellow and dusty. A light-colored, opaque protective covering should be used if excessive solar exposure is expected. The surface degradation will have no measurable effect on the insulating value of the plastic foam unless the deterioration is allowed to continue until actual foam thickness is lost. Since the dust would impair the performance of adhesives and finishes, the dusty surface should be brushed off before these products are applied.

For chemical resistance properties of STYROFOAM extruded polystyrene insulation, see Table 3.

ENVIRONMENTAL DATA

STYROFOAM extruded polystyrene insulation products are chlorofluorocarbon (CFC) free. STYROFOAM extruded polystyrene insulation products are manufactured with HCFC blowing agents, which have ozone depletion potentials 94 percent less than standard CFC blowing agents.

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

FIRE PROTECTION

All roof systems incorporating STYROFOAM extruded polystyrene insulation should provide adequate fire protection. Coverings such as 15-minute thermal barriers or other code-approved tests or assemblies such as UL260 and UL440 are regarded as acceptable in most applications, but always verify all federal, state/provincial and local requirements.

Consideration should be given to the benefits of and costs of additional fire protection gained by installing automatic fire detection, alarm and suppression systems.

For proper protection of plastic foam in storage, consult an insurer, local fire department or other authority having jurisdiction.

5 Installation

STYROFOAM DECKMATE Plus insulation can be used over any substrate in new construction for thermal upgrading of existing roofing when reroofing is required. Roof substrate must be clean, dry, smooth and free from oil, grease, rust, frost and snow.

The roof system must be designed to meet all applicable building codes.

Flute spanability – maximum flute spanability is 1-3/4" for 1"- thick product, 3" for 1-1/2"-thick product, 4-3/8" for 2"-thick product or greater.

Boards of STYROFOAM extruded polystyrene insulation are easy to handle, cut and install. Contact a local Dow representative or access the literature library for more specific instructions.

6 Availability

STYROFOAM extruded polystyrene insulation is manufactured in several locations across North America and is distributed through an extensive network. It is available in several types and sizes. For more information, contact your local Dow sales representative or call 1-800-232-2436 (French: 1-800-565-1255).

7 Warranty

LIMITED THERMAL WARRANTY – U.S. ONLY

A limited warranty is available that covers thermal resistance retention of STYROFOAM DECKMATE Plus insulation when used below sheet membranes. Refer to the Dow warranty certificate for complete details.

8 Maintenance

Not applicable.

9 Technical Services

Dow can provide technical information to help address questions when using STYROFOAM extruded polystyrene insulation.

For technical assistance, call:

U.S.: 1-866-583-BLUE (2583)

Canada: 1-866-583-BLUE (English)

1-800-363-6210 (French)

10 Filing Systems

- www.dowstyrofoam.com/architect (U.S.)
- www.dowstyrofoam.ca/4architects (Canada)
- www.CMDFirstSource.com
- www.specSource.com

IN THE U.S.:

- For Technical Information: **1-866-583-BLUE (2583)**
- For Sales Information: **1-800-232-2436**

THE DOW CHEMICAL COMPANY

- Building & Construction • 200 Larkin • Midland, MI 48674
- www.dowstryofoam.com/architect**

IN CANADA:

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

DOW CHEMICAL CANADA INC.

- Building & Construction • 1086 Modeland Rd. • Sarnia, ON N7T 7K7
- www.dowstryofoam.ca/4architects**

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COMBUSTIBLE: Protect from high heat sources. For more information, consult MSDS and/or call Dow at 1-866-583-BLUE (2583). In an emergency, call Dow (U.S.: 1-989-636-4400) (Canada: 1-519-339-3711). Local building codes may require a protective or thermal barrier. Contact your local building inspector for more information.

Building and/or construction practices unrelated to insulation or housewrap 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.



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