Dow Building Solutions

1 PRODUCT NAME
STYROFOAM™ DECKMATE™ Plus Extruded Polystyrene Insulation

2 Manufacturer

The Dow Chemical Company
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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 and excellent compressive strength.

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

IN THE U.S.:

Square Edge

Width and length:
2' x 8', 4' x 8'

Thickness:
2", 2-1/2", 3", 4"

IN CANADA:

Shiplap Edge

Width and length:
2' x 8' (600 mm x 2,400 mm)

Thickness:
4" (100 mm)

Not all sizes are available in all areas. Contact your Dow representative for details.

4 Technical Data

APPLICABLE STANDARDS

STYROFOAM™ DECKMATE™ Plus insulation meets ASTM C578, Type IV – Standard Specification for Rigid Cellular Polystyrene Thermal Insulation. Applicable standards include:

- C518 – Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- C272 – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- E96 – Standard Test Methods for Water Vapor Transmission of Materials
- C203 – Standard Test Methods for Breaking Load and Flexural Properties of Block Type Thermal Insulation
- D2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
- CAN/ULC S701, Type 3

U.S. PROPERTY CHART

TABLE 1

Physical Properties of STYROFOAM™ DECKMATE™ Plus Insulation

Property and Test Method	Value
Thermal Resistance per inch, ASTM C518 @ 75°F mean temp., $ft^2 \cdot h \cdot °F/Btu$, R-value(1), min.	5.0
Compressive Strength(2), ASTM D1621, psi, min.	25
Water Absorption, ASTM C272, % by volume, max.	0.1
Water Vapor Permeance(3), ASTM E96, perm, max.	1.1
Maximum Operating Temperature, °F	165
Coefficient of Linear Thermal Expansion, in/in•°F	3.5×10^{-5}
Flexural Strength, ASTM C203, psi, min.	50
Dimensional Stability, ASTM D2126, % linear change, max.	2.0
Flame Spread(4), ASTM E84	5
Smoke Developed, ASTM E84	165

(1) R means resistance to heat flow. The higher the R-value or RSI, the greater the insulating power.
(2) Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.
(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.

CANADA PROPERTY CHART

TABLE 2

Physical Properties of STYROFOAM™ DECKMATE™ Plus Insulation

Property and Test Method	Value
Thermal Resistance per inch (25 mm), ASTM C518 @ 75°F (24°C) mean temp., $ft^2 \cdot h \cdot °F/Btu$, ($m^2 \cdot °C/W$), R-value (RSI)(1), min.	5.0 (.87)
Compressive Strength(2), ASTM D1621, psi (kPa), min.	20 (140)
Water Absorption, ASTM D2842, % by volume, max.	0.7
Water Vapour Permeance(3), ASTM E96, perm (ng/Pa•s•m^2), max.	1.5 (90)
Maximum Use Temperature, °F (°C)	165 (74)
Coefficient of Linear Thermal Expansion, in/in•°F (mm/m•°C)	3.5×10^{-5} (6.3×10^{-2})
Flexural Strength, ASTM C203, psi, (kPa), min.	43 (300)
Dimensional Stability, ASTM D2126, % linear change, max.	1.5

(1) R means resistance to heat flow. The higher the R-value or RSI, the greater the insulating power.
(2) Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.
(3) Based on 1" (25 mm) thickness.

TABLE 3

Chemical Resistance(1) of STYROFOAM™ DECKMATE™ Plus 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.
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.

CODE COMPLIANCES

STYROFOAM™ DECKMATE™ Plus insulation complies with the following codes:

- Meets IBS/IRC requirements for foam plastic insulation; see ICC-ES NER-699
- ICBO-ES ER-2257
- ICBO-ES ER-5155
- BOCA-ES RR 21-02
- Underwriters Laboratories, 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.

For chemical resistance properties of STYROFOAM DECKMATE Plus insulation, see Table 3.

Exposure to ultraviolet radiation in sunlight for several weeks will cause the surface of STYROFOAM DECKMATE Plus 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.

ENVIRONMENTAL DATA

STYROFOAM™ DECKMATE™ Plus insulation is manufactured with HCFC blowing agents, which have 94 percent less ozone depletion potential than standard CFC blowing agents.

STYROFOAM™ DECKMATE™ Plus insulation is reusable in many applications.

FIRE PROTECTION

STYROFOAM™ DECKMATE™ Plus 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™ 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" product, 3" for 1-1/2" product, 4-3/8" for 2" product or greater.

Boards of STYROFOAM DECKMATE Plus insulation are easy to handle, cut and install. Contact a local Dow representative or access the literature library:
www.dowstyrofoam.com/architect
www.dowstyrofoam.ca/4architects

6 Availability

STYROFOAM™ DECKMATE™ Plus insulation is manufactured in several locations across North America and is distributed through an extensive network. For more information, call:
1-800-232-2436 (English)
1-800-565-1255 (French)

7 Warranty

A limited warranty is available in the United States 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™ DECKMATE™ Plus insulation. Technical personnel are available to assist with any insulation project. For technical assistance, call:
1-866-583-BLUE (2583) (English)
1-800-363-6210 (French)

10 Filing Systems

- www.dowstyrofoam.com/architect
- www.dowstyrofoam.ca/4architects
- www.sweets.com

IN THE U.S.:
- **For Technical Information: 1-866-583-BLUE (2583)**
- **For Sales Information: 1-800-232-2436**

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