



# 1 PRODUCT NAME

## STYROFOAM™ DECKMATE™ Plus FA Extruded Polystyrene Insulation

### 2 Manufacturer

The Dow Chemical Company  
Dow Building & Construction  
200 Larkin  
Midland, MI 48674  
1-866-583-BLUE (2583)  
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www.dowstyrofoam.com/architect  
www.dowstyrofoam.ca/4architects

### 3 Product Description

STYROFOAM™ DECKMATE™ Plus FA insulation is an extruded polystyrene insulation with a planed surface. It has excellent insulating characteristics, high resistance to water and water vapor, excellent freeze-thaw resistance, superior compressive strength and long-term durability.

#### BASIC USE

STYROFOAM™ DECKMATE™ Plus FA insulation is designed for use in fully adhered conventional low-slope roof applications. Available in flat and tapered board stock (see Table 1 for slopes of tapered panels), the rigid foam insulation boards can be installed directly on structural steel decks beneath a non-bituminous sheet membrane, eliminating the need for a thermal barrier.

#### SIZES

IN THE U.S.:

Square Edge  
Width and length:

2' x 8'  
4' x 8'

Thickness:

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

IN CANADA:

Shiplap Edge

Width and length:

2' x 8' (600 mm x 2,400 mm)

Thickness:

1-1/2" (40 mm), 2" (50 mm),  
2-1/2" (65 mm), 3" (75 mm),  
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 FA insulation meets ASTM C578-01, Type IV – Standard Specification for Rigid Cellular Polystyrene Thermal Insulation, which includes:

- 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
- D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics
- CAN/ULC S701, Type 3

#### CODE COMPLIANCES

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

- Meets IBC/IRC requirements for foam plastic insulation; see NES NER 699
- ICBO-ES ER 2257
- ICBO-ES ER 5155
- BOCA-ES RR 21-02
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369
- Factory Mutual Approved – Subject to conditions of approval as a roof insulation when installed as described in the current edition of FM Approval Guide
- National Building Code of Canada
- CCMC – Evaluation Listing #12085-L

TABLE 1

Slopes for STYROFOAM™ Tapered DECKMATE™ Plus FA Insulation							
Slope ID	A	B	C	D	E	F	G
Slope, inch/foot	1/8	1/8	1/8	1/8	1/4	1/4	1/2
Edge Thickness, min., in. (mm)	0.5 (13)	0.75 (19)	1.0 (25)	1.25 (31)	0.5 (13)	1.0 (25)	0.5 (13)
Edge Thickness, max., in. (mm)	1.0 (25)	1.5 (38)	2.0 (50)	2.5 (63)	1.5 (38)	2.0 (50)	2.5 (63)

STYROFOAM DECKMATE Plus FA Extruded Polystyrene Insulation

TABLE 2

WIND UPLIFT APPROVALS		
Description	First Approval	Second Approval
DECK TYPE	Concrete	Steel
COVERBOARD	DENS-DECK	5/8" DENS-DECK or gypsum board
ADHESIVE TYPE	OLYBOND OB500 installed as 12" o.c. 3/4" to 1-1/4" beads, or OLYBOND OB Classic full coverage	INSTA-STIK™ applied as 3/4" to 1"-12" o.c. beads
MEMBRANE TYPE	BUR, Mod Bit, Single-Ply	Carlisle SURE-WELD Fleeceback adhered with INSTA-STIK applied as 3/4" to 1"-12" o.c. beads
RATING	Limited to the uplift rating of the membrane	165 psf
TESTING AGENCY	FM	UL

U.S. PROPERTY CHART

TABLE 3

Physical Properties of STYROFOAM™ DECKMATE™ Plus FA Insulation	
Property and Test Method	Value
Thermal Resistance per inch, ASTM C518 @ 75°F mean temp., ft <sup>2</sup> •h•°F/Btu, min., R-value <sup>(1)</sup>	5.0
Compressive Strength <sup>(2)</sup> , ASTM D1621, psi, min.	25
Water Absorption, ASTM C272, % by volume, max.	0.1
Water Vapor Permeance <sup>(3)</sup> , max., ASTM E96, perm	1.1
Maximum Operating Temperature, °F	165
Coefficient of Linear Thermal Expansion, in/in•°F	3.5 x 10 <sup>-5</sup>
Flexural Strength, ASTM C203, psi, min.	50
Dimensional Stability, ASTM D2126, % linear change, max.	2.0
Flame Spread <sup>(4)</sup> , 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 4

Physical Properties of STYROFOAM™ DECKMATE™ Plus FA 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) <sup>(1)</sup>	5.0 (.88)
Compressive Strength <sup>(2)</sup> , ASTM D1621, psi (kPa), min.	25 (170)
Water Absorption, ASTM D2842, % by volume, max.	0.7
Water Vapour Permeance <sup>(3)</sup> , ASTM E96, perm (ng/Pa•s•m <sup>2</sup> ), max.	1.5 (90)
Maximum Use Temperature, °F (°C)	165 (74)
Coefficient of Linear Thermal Expansion, in/in•°F (mm/m•°C)	3.5 x 10 <sup>-5</sup> (6.3 x 10 <sup>-2</sup> )
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 5

Chemical Resistance <sup>(1)</sup> of STYROFOAM™ DECKMATE™ Plus FA 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.

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## PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM™ DECKMATE™ Plus FA insulation exhibits physical properties as indicated in Tables 3 and 4 when tested as represented.

For chemical resistance properties of STYROFOAM DECKMATE Plus FA insulation, see Table 5.

Exposure to ultraviolet radiation in sunlight for several weeks will cause the surface of STYROFOAM DECKMATE Plus FA 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 FA insulation is manufactured with HCFC blowing agents, which have 94 percent less ozone depletion potential than standard CFC blowing agents.

STYROFOAM DECKMATE Plus FA insulation is reusable in many applications and can be recycled.

## FIRE PROTECTION

STYROFOAM™ DECKMATE™ Plus FA 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 FA insulation can be used over any substrate in new construction or 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 FA insulation are easy to handle, cut and install. For more specific instructions, contact a local Dow representative or access the literature library:  
[www.dowstyrofoam.com/architect](http://www.dowstyrofoam.com/architect) (U.S.)  
[www.dowstyrofoam.ca/4architects](http://www.dowstyrofoam.ca/4architects) (Canada)

## 6 Availability

STYROFOAM™ DECKMATE™ Plus FA insulation is manufactured in several locations across North America and is distributed through an extensive network of roofing distributors. For more information, call 1-800-232-2436.

## 7 Warranty

A limited warranty is available in the United States that covers the thermal resistance retention of STYROFOAM™ DECKMATE™ Plus FA insulation. 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 FA 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](http://www.dowstyrofoam.com/architect) (U.S.)
- [www.dowstyrofoam.ca/4architects](http://www.dowstyrofoam.ca/4architects) (Canada)
- [www.sweets.com](http://www.sweets.com)

**IN THE U.S.:**

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

**THE DOW CHEMICAL COMPANY**

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- [www.dowstyrofoam.com/architect](http://www.dowstyrofoam.com/architect)**

**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)

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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 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

NOTE: 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.



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