

1 PRODUCT NAME

STYROFOAM™ Square Edge Extruded Polystyrene Insulation

2 Manufacturer

The Dow Chemical Company
Building & Construction
200 Larkin
Midland, MI 48674
1-866-583-BLUE (2583)
Fax 1-989-832-1465
www.dowstyrofoam.com/architect

3 Product Description

STYROFOAM™ Square Edge insulation is an extruded polystyrene board that meets the needs of the commercial foundation and building floor slab market.

STYROFOAM extruded polystyrene has nearly 60 years of proven performance in wet environments. The closed-cell structure of STYROFOAM Square Edge insulation resists water pickup, enabling it to retain a high R-value[†] over time – a necessary property in wet, below-grade commercial foundation applications.

BASIC USE

STYROFOAM™ Square Edge insulation protects foundation damp-proofing and waterproofing, especially during backfilling. It also provides a secondary barrier against groundwater leakage. With STYROFOAM Square Edge insulation, freeze-thaw cycling of the foundation wall is minimized, reducing the potential for cracking. And a warmer foundation can reduce the potential for condensation.

STYROFOAM Square Edge insulation can be used against commercial interior walls and exterior foundation walls in above- and below-grade applications. STYROFOAM Square Edge insulation can be used under the slab or over the deck or subfloor. STYROFOAM Square Edge insulation is suitable for use in pervious, semi-pervious and practically impervious soils.

SIZES

Square Edge

Width and length:

2' x 8' and 4' x 8'

Thickness:

.75", 1", 1.5", 2", 2.5", 3", 4"

Not all product sizes are available in all parts of the country. Contact your local Dow representative for details.

4 Technical Data

APPLICABLE STANDARDS

STYROFOAM™ Square Edge insulation meets ASTM C578 – 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
- E96 – Standard Test Methods for Water Vapor Transmission of Materials
- D696 – Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer
- 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
- ASTM C272 – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions

CODE COMPLIANCE

STYROFOAM™ Square Edge insulation complies with the following codes:

- International Residential Code (IRC) and International Building Code (IBC); see ICC-ES NES NER report 699, 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 the FM Approval Guide

Contact your Dow sales representative or local authorities for state and local building code requirements and related acceptances.

PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM™ Square Edge insulation exhibits the physical properties indicated in Table 1 when tested as represented.

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

ENVIRONMENTAL DATA

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

STYROFOAM Square Edge insulation is reusable in many applications and can be recycled.

FIRE PROTECTION

STYROFOAM™ Square Edge 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.

TABLE 1

Physical Properties of STYROFOAM™ Square Edge Insulation	
Property and Test Method	Value
Thermal Resistance ⁽¹⁾ per inch, ASTM C518 @ 75°F mean temp., ft ² •h•°F/Btu, R-value, 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 Use Temperature, °F	165
Coefficient of Linear Thermal Expansion, ASTM D696, in/in•°F	3.5 x 10 ⁻⁵
Flexural Strength, ASTM C203, psi, min.	50

(1) R-values are consistent with criteria of ASTM C578 and the requirements of the FTC R-value rule (16 CFR Part 460).
 (2) Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.
 (3) Based on 1" thickness.

TABLE 2

Chemical Resistance ⁽¹⁾ of STYROFOAM™ Square Edge Insulation	
Acid, inorganic, strong	Excellent
Acid, inorganic, weak	Excellent
Acid, organic, strong	Good
Acid, organic, weak	Excellent
Bases	Excellent
Alcohols, including isopropyl alcohol	Excellent
Methyl ethyl ketone	Not recommended
Polyglycols, including propylene glycol	Excellent
Hydrocarbons	Not recommended
Salts	Excellent
Insecticides	Not recommended
Kerosene	Poor
Mineral oil USP	Excellent
Naphtha (VMP)	Not recommended
Turpentine	Not recommended
Beer	Good
Gasoline	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 changes 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.

5 Installation

STYROFOAM™ Square Edge insulation boards are easy to handle, cut and install. The square edge boards are designed to ensure energy efficiency and minimize on-site cutting and waste. Use a polystyrene-compatible adhesive to hold the boards in place during backfilling. Apply caulk or mastic to the top of the board to prevent water infiltration behind the insulation. To complete the installation, parge the above-grade portions of STYROFOAM Square Edge insulation to protect from solar radiation.

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 Square Edge insulation. Code-approved drainage systems should be installed. Ensure foundation drainage meets local codes.

Contact a local Dow representative or access the literature library at www.dowstyrofoam.com/ architect for more specific instructions.

6 Availability

STYROFOAM™ Square Edge insulation is distributed through an extensive network. For more information, contact your local Dow representative or call 1-800-232-2436.

7 Warranty

Fifteen-year limited thermal warranty.

8 Maintenance

Not applicable.

9 Technical Services

Dow can provide technical information to help address questions when using STYROFOAM™ Square Edge extruded polystyrene insulation. Technical personnel are available to assist with any insulation project. For technical assistance, call 1-866-583-BLUE (2583).

10 Filing Systems

- www.dowstyrofoam.com/architect
- 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

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

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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.

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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