



MASONPRO, Inc.  
 43300 Seven Mile Road  
 Northville, MI 48167  
 1-800-659-4731  
 www.masonpro.com

# STYROFOAM™ Brand Ultra SL Extruded Polystyrene Foam Insulation

## 1. PRODUCT NAME

STYROFOAM™ Brand Ultra SL Insulation

## 2. MANUFACTURER

The Dow Chemical Company  
 Dow Building Solutions  
 200 Larkin  
 Midland, MI 48674  
 1-866-583-BLUE (2583)  
 Fax 1-989-832-1465

## 3. PRODUCT DESCRIPTION

### Basic Use

STYROFOAM™ Brand Ultra SL Insulation is a moisture-resistant, durable and lightweight extruded polystyrene foam board with shiplap edges designed specifically to be used as a continuous insulation (ci) and installed over block, concrete or metal stud backup behind masonry or stone veneers. Manufactured with a patented carbon-black technology, STYROFOAM™ Brand Ultra SL Insulation features an R-value of 5.6 per inch (RSI of 0.97 per 25 mm),<sup>1</sup> the highest of all extruded polystyrene foam insulation products. Its closed-cell structure offers advanced long-term thermal performance and moisture control. STYROFOAM™ Brand Ultra SL Insulation with shiplap edges maximizes the thermal performance of the wall assembly.

STYROFOAM™ Brand Ultra SL Insulation – when tested with WEATHERMATE™ Flashing taped joints, penetrations and transitions – complies with ASTM E2178 and ASTM E2357 Assembly Air Barrier tests. It is also an approved air barrier assembly by the Air Barrier Association of America (ABAA). These tests are included as acceptable compliance tests in meeting the continuous Air Barrier Standard that has been approved by the ASHRAE 90.1 committee for inclusion into the 90.1-2010 standard. This wall assembly was tested in accordance with the ASTM E331 Water Penetration Test and passed.

## 4. TECHNICAL DATA

### Applicable Standards

STYROFOAM™ Brand Ultra SL Insulation meets ASTM C578 Type IV Standard Specification for Rigid Cellular Polystyrene 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
- 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
- D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics

When tested with WEATHERMATE™ Flashing or GREAT STUFF PRO™ Insulating Foam Sealant<sup>2</sup> around joint treatments, penetrations and transitions, STYROFOAM™ Brand Ultra SL Insulation meets the following standards:

- ASTM E2357 Air Barrier Assembly Test
- ASTM E2178 Air Barrier Assembly Test
- ASTM E331 Water Penetration Test for Block and Steel Stud – Passed
- Approved as an air barrier assembly by the Air Barrier Association of America (ABAA)
- Meets NFPA requirements<sup>3</sup>

### Code Compliance

STYROFOAM™ Brand Ultra SL Insulation complies with the following codes:

- Meets IBC/IRC requirements for foam plastic insulation; see ICC-ES ESR 2142
- BOCA-ES RR 21-02
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369

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

**TABLE 1: U.S. Sizes, R-Values and Edge Treatments for STYROFOAM™ Brand Ultra SL Extruded Polystyrene Foam Insulation**

Nominal Board Thickness, <sup>1</sup> in.	R-Value <sup>2</sup>	Board Size, <sup>3</sup> in.	Edge Treatment
1.75	10.0	4' x 8'	8' Shiplap
2.125	12.0	4' x 8'	8' Shiplap
2.5	14.0	4' x 8'	8' Shiplap
3.0	16.8	4' x 8'	8' Shiplap

<sup>1</sup> Not all product sizes are available in all regions.

<sup>2</sup> R means resistance to heat flow. The higher the R-value, the greater the insulating power. R-values are expressed in ft<sup>2</sup> x h x °F/Btu. R-value determined by ASTM C518.

<sup>3</sup> 4' x 10', 4' x 12' lengths available through special order.

<sup>1</sup> Aged R-value (RSI) at 75°F (24°C) mean temp. R means resistance to heat flow. The higher the R-value or RSI, the greater the insulating power. Refer to Table 2 for thermal resistance at other mean temperatures.

<sup>2</sup> Consult label and Material Safety Data Sheet carefully before use.

<sup>3</sup> Meets NFPA 285 per Section 2603.5.5 of the building code. For specific assemblies, see code report ESR 2142.

## Physical Properties

STYROFOAM™ Brand Ultra SL Insulation exhibits the properties and characteristics indicated in Table 2 when tested as represented.

Do not leave STYROFOAM™ Brand Ultra SL Insulation exposed to direct sunlight for more than 90 days. Consult a Dow representative if exposure is expected to be longer than 90 days. Prolonged exposure to ultraviolet radiation may cause the surface of STYROFOAM™ Brand Ultra SL Insulation to become faded and dusty. 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, dusty surfaces should be brushed off before these products are applied. A lightcolored, opaque protective covering should be used if excessive solar exposure is expected. When stored outdoors, keep insulation boards tarped or covered to protect from weather and weighted down to prevent boards from being blown around by the wind.

## Environmental Data

STYROFOAM™ Brand Ultra SL Insulation is hydrochlorofluorocarbon-free (HCFC-free) with zero ozone-depletion potential. STYROFOAM™ Brand Ultra SL Insulation is reusable in many applications. STYROFOAM™ Brand Insulation products produced in North America contain an average of 20% pre-consumer recycled content certified by UL Environment Inc.

## Fire Information

STYROFOAM™ Brand Ultra SL Insulation is combustible; protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector.

## 5. INSTALLATION

Boards of STYROFOAM™ Brand Ultra SL Insulation are easy to handle, cut and install. Contact a local Dow representative or access the literature library at [ultrawallssystem.com](http://ultrawallssystem.com) for more specific instructions.

## 6. AVAILABILITY

STYROFOAM™ Brand Ultra SL Insulation is manufactured in several locations across North America and is distributed through an extensive network. For more information, call 1-800-232-2436.

## 7. WARRANTY

In the United States, a 50-year thermal limited warranty is available on STYROFOAM™ Insulation products 1.5 inches and greater. For thickness less than 1.5 inches, other warranties may apply. Warranties are available as described at [dbswarranties.com](http://dbswarranties.com)

## 8. MAINTENANCE

Not applicable.

## 9. TECHNICAL SERVICES

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

## 10. FILING SYSTEMS

[www.dowbuildingsolutions.com](http://www.dowbuildingsolutions.com)  
[www.ultrawallssystem.com](http://www.ultrawallssystem.com)

Visit [www.dowbuildingsolutions.com](http://www.dowbuildingsolutions.com) or contact a local Dow representative for more specific instructions.

**TABLE 2: Physical Properties (U.S.) of STYROFOAM™ BRAND ULTRA SL Extruded Polystyrene Foam insulation**

Property and Test Method	Value			
	1.75"	2.125"	2.5"	3.0"
Thermal Resistance per in. ASTM C518, ft <sup>2</sup> x h x °F/Btu, R-value, 1 min. @ 75°F mean temp.	17.5	21.25	25	30
	10.0	12.0	14.0	16.8
Compressive Strength, <sup>2</sup> ASTM D1621, psi, min.	25			
Water Absorption, ASTM C272, % by volume, max.	0.3			
Water Vapor Permeance, ASTM E96, perm, max.	1.75"	2.125"	2.5"	3.0"
	1.1	0.8	0.65	0.50
Maximum Use Temperature, °F	165			
Coefficient of Linear Thermal Expansion, ASTM D696, in/in x °F	3.5 × 10 <sup>-5</sup>			
Flexural Strength, ASTM C20 <sup>3</sup> , psi, min.	50			
Flame Spread, <sup>3</sup> ASTM E84	0			
Smoke Developed, ASTM E843	155			

<sup>1</sup> Values are consistent with the criteria of ASTM C578 and the FTC R-value rule (16 CFR Part 460).

<sup>2</sup> Vertical compressive strength is measured at 10 percent deformation or yield, whichever occurs first. Since STYROFOAM™ Brand Extruded Polystyrene Foam Insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformation. For static loads, 3:1 is suggested. For dynamic loads, 5:1 is suggested. Contact Dow for design recommendations.

<sup>3</sup> These numerical flame-spread and smoke-developed ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions.



In the United States

**The Dow Chemical Company**  
**Dow Building Solutions**

200 Larkin Center  
Midland, MI 48674

In Canada

**Dow Chemical Canada ULC**  
**Dow Building Solutions**

450 – 1st St. SW  
Suite 2100  
Calgary, AB T2P 5H1

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)

[dowbuildingsolutions.com](http://dowbuildingsolutions.com)

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CAUTION: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. 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.

WARNING: Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

Dow Polyurethane Foam Insulation and Sealants

CAUTION: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). 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.

GREAT STUFF PRO™ Insulating Foam Sealant products contain isocyanate and a flammable blowing agent. Read the label and Material Safety Data Sheet carefully before use. Eliminate all sources of ignition before use. Wear long sleeves, gloves, and safety glasses or goggles. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure.

Building and/or construction practices unrelated to building materials 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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