STYROFOAM™ Brand Spray Polyurethane Foam Insulation (RS Series)

Product Name

STYROFOAM™ Brand Spray Polyurethane Foam Insulation (RS Series)

Manufacturer

The Dow Chemical Company
Dow Building Solutions
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Product Description

STYROFOAM™ Brand Spray Polyurethane Foam (RS Series) is a two-component, spray-applied polyurethane foam that creates a seamless, monolithic barrier against water vapor and air on the interior of stud walls. This closed-cell, 2 pcf spray foam is chlorofluorocarbon (CFC) free and successfully incorporates a zero ozone-depleting blowing agent in the manufacturing process.

STYROFOAM™ Brand SPF (RS Series) is available in three formulas:

RS 2030
30°F-70°F Ambient Processing
30°F-60°F Substrate Processing

RS 2045
45°F-95°F Ambient Processing
45°F-100°F Substrate Processing

RS 2060
60°F-100°F Ambient Processing
60°F-120°F Substrate Processing

Properties

STYROFOAM™ Brand SPF Insulation is created from a unique polyol technology, which offers improved foam yield and wide processing latitude. STYROFOAM™ Brand SPF Insulation expands during installation to fill cavities, cracks and crevices, helping prevent uncontrolled air leakage and helping maintain consistent, comfortable indoor temperatures. The foam serves as both an insulation and air sealant for a wide range of new and retrofit applications throughout the building envelope. In addition, STYROFOAM™ Brand SPF Insulation resists moisture and provides structural reinforcement for improved racking strength. STYROFOAM™ Brand SPF Insulation provides structural enhancement only. Use in conjunction with approved structural components and framing members consistent with local building code requirements.

STYROFOAM™ Brand SPF Insulation exhibits typical physical properties indicated in Table 1 when tested as represented.

Sizes

STYROFOAM™ Brand Spray Polyurethane Foam (RS Series) is sold in sets of 55 gallon drums (one A isocyanate and one B polyol blend). Contact your Dow sales representative with questions.

Technical Data

APPLICABLE STANDARDS

Applicable test methods include:

- ASTM C1029 – Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation
- ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- ASTM D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics
- ASTM D6226 – Standard Test Method for Open Cell Content of Rigid Cellular Plastics

Code Compliances

STYROFOAM™ Brand SPF Insulation complies with the following codes:

- ICC ESR-2670
- IBC/IRC requirements for foam plastic insulation
- Underwriters Laboratories, Inc., see UL 723
- Southwest Research Institute (SWRI), Classified Class A (ASTM E84)
- ICC ES AC377 Appendix X modified NFPA 286: Being exposed in attics and ceilings

Fire Information

STYROFOAM™ Brand Spray Polyurethane Foam is combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose foam to temperatures above 240°F.

Safety and Conditions of Use

- Read the instructions and Material Safety Data Sheets carefully before use. The MSDSs are available at www.dowbuildingsolutions.com/na. Visit www.spraypolyurethane.org for information covering a wide range of topics, including an overview of SPF health and safety guidelines, suggested personal protective equipment (PPE), typical first-aid treatment and regulations.
- STYROFOAM™ Brand SPF contains isocyanate, hydrofluorocarbon blowing agent and polyol. Do not breathe vapor or spray. Use only with a NIOSH-approved supplied air respirator (SAR) in accordance with your company's respiratory protection program. Supplied air respirator or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter is required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure, air-supplying respirator (air line or self-contained breathing apparatus).
- Isocyanate is irritating to the eyes, skin and respiratory system, and may cause sensitization by inhalation or skin contact. Sensitization, or the development of asthma, can lead to permanent respiratory problems.
- STYROFOAM™ Brand SPF will adhere to most surfaces and skin. Do not get foam on skin. When spraying polyurethane foam, wear MDI-resistant (e.g., nitrile) or fabric gloves coated in nitrile, neoprene, butyl or PVC. Spray applicators should wear chemically resistant coveralls or full body suits with hoods and MDI-resistant fitted boots or booties. Professional judgment is necessary to determine the appropriate PPE necessary for secondary activities such as cleaning and trimming of the cured foam. Cured foam must be mechanically removed or allowed to wear off in time.
- The contents are under pressure.
- STYROFOAM™ Brand SPF should be installed by a trained SPF applicator.

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Installation

Spray equipment must be capable of delivering the proper ratio (1:1 by volume) of polymeric isocyanate and polyol blend at adequate temperatures and spray pressures. Substrate must be at least 5 degrees above dew point, with best processing results when ambient humidity is below 80 percent. Substrate must also be free of moisture (dew or frost), grease, oil, solvents and other materials that would adversely affect adhesion of the polyurethane foam. Substrate temperatures should not exceed 60°F for STYROFOAM™ Brand SPF RS 2030.

Due to the exothermic reaction of the isocyanate and polyol blend, mixed components should be applied in layers (maximum 2½" thickness per layer). Allow foam to cool completely before applying successive layers.

Contact a local Dow representative or visit www.dowbuildingsolutions.com for more specific instructions.

Table 1: Typical Physical Properties[1] of STYROFOAM™ Brand SPF Insulation (RS Series)

Property and Test Method	Value		
	RS 2030	RS 2045	RS 2060
Ambient (Substrate) Temperature Range, °F	30-70 (30-60)	45-95 (45-100)	60-100 (60-120)
Core Density, ASTM D1622, lb/ft^3	2.5	2.5	2.2
Compressive Strength, ASTM D1621, lb/in^2, parallel	25	25	20
Tensile Strength, ASTM D1623, lb/in^2, parallel	60	60	60
Closed-cell Content, ASTM D6226, %	>95	>95	>95
Thermal Resistance, ASTM C518, 75°F mean temp., aged R-value[2] (90 days @ 140°F), ft^2•h•°F/Btu			
At 1"	6.0	6.4	6.5
At 4"	25	24	24
Water Vapor Permeability, ASTM E96, perm-inch	2.2	2.2	2.2
Water Absorption, ASTM D2842, % by volume	1.2	2.5	1.5
Dimensional Stability, ASTM D2126, max. % linear change			
At -20°F, ambient R.H., 7 days	-0.1	0.4	0.1
At 158°F, ambient R.H., 7 days	-2.0	2.2	3.0
At 158°F, 97% R.H., 7 days	Pass[3]	Pass[3]	Pass[3]
Surface Burning Characteristics[4], ASTM E84	Class A	Class A	Class A
Flammability, NFPA 286[4] Maximum foam thickness with code-approved thermal barrier			
Wall	12"	12"	12"
Ceiling	12"	12"	12"
Flammability, AC377 Appendix X (modified NFPA 286)[5] Maximum foam thickness uncovered			
Attics	10"	10"	10"
Crawl spaces	10"	10"	10"

(1) Not to be considered sales specifications. Properties determined by processing foam with Gusmer H2O/35 primary heater at 120°F (A,B), hose temperature of 120°F with GX7 gun; .028 drilled module with 70 PCD; dynamic pressures at 600 psi-1,000 psi.
(2) R means resistance to heat flow. The higher the R-value, the greater the insulating power.
(3) Pass AC377.
(4) Flammability values for this or any other material are not intended to represent hazards that may be present under actual fire conditions.
(5) Attic and crawl space use limitations apply. Contact Dow at 1-866-583-BLUE (2583) for more information.

Storage and Shelf Life

STYROFOAM™ Brand SPF Insulation has a shelf life of six months when stored dry between 60°F and 90°F. Avoid direct sunlight during shipping and storage on the job site. Artificial warming of drums is not recommended.

Exercise caution when opening the containers as pressure may be present when material has been exposed to elevated temperatures.

Ensure drums are capped after use. Empty drums are nonreturnable and should be disposed of by using current industrial practices in accordance with federal, state or local regulations.

Availability

STYROFOAM™ Brand Spray Polyurethane Foam (RS Series) is distributed through an extensive network. For more information, call 1-800-232-2436.

Technical Services

Dow can provide technical information to help address questions when using STYROFOAM™ Brand Spray Polyurethane Foam (RS Series). Technical personnel are available to assist with any insulation project. Call 1-866-583-BLUE (2583).

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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. 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.

STYROFOAM™ Brand Spray Polyurethane Foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and Material Safety Data Sheets carefully before use. Wear protective clothing (including long sleeves), gloves, goggles and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter is required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure. STYROFOAM™ Brand SPF should be installed by a trained SPF applicator.

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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