

Product Data Sheet



Energy-Saving, Moisture-Resistant XPS Insulation

High Compressive Strength

FOAMULAR[®] 400 Insulation:
ASTM C578 Type VI, 40 psi minimum

FOAMULAR[®] 600 Insulation:
ASTM C578 Type VII, 60 psi minimum

FOAMULAR[®] 1000 Insulation:
ASTM C578 Type V, 100 psi minimum

Description

Owens Corning[™] FOAMULAR[®] 400, 600 and 1000 are high strength extruded polystyrene (XPS) insulation products designed for use in engineered applications requiring additional load-bearing capability such as under slab, concrete floors, foundations, roadways and rail beds, plaza and parking decks and cold storage installations.

The unique closed-cell structure of FOAMULAR[®] XPS helps to make it highly resistant to moisture, retaining its excellent R-value year after year—even following prolonged exposure to moisture and freeze/thaw cycling.

Key Features

- Designed for use in high load bearing applications. High compressive strength helps resist damage from heavy loads. Available in 40, 60 and 100 psi compressive strengths.
- Excellent long-term stable insulating performance with an R-value¹ of R-5 per inch.
- Exceptional moisture resistance, long-term durability.
- Limited lifetime warranty²—maintains 90% of R-value and covers all ASTM C578 properties.
- The only XPS foam to be GREENGUARD Children & Schools CertifiedSM.
- The only XPS foam with certified recycled content—certified by Scientific Certification Systems (SCS) to contain a minimum 20% recycled content.
- Will not corrode, rot or support mold growth.
- Zero ozone depletion potential with 70% less global warming potential than our previous formula.
- Reusable.
- Lightweight, durable rigid foam panels are easy to handle and install.
- Easy to saw, cut or score.

Product Applications

- Owens Corning FOAMULAR[®] 400, 600, and 1000 are ideal for under slab, cold storage installations, concrete floors, foundations, plaza and parking decks, roofing, roadways and rail beds, permafrost protection and other high load-bearing applications
- Designed for use in high load bearing applications. High compressive strength resists damage from heavy loads. Available in 40, 60, and 100 psi compressive strengths

Technical Information

This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. For additional information, consult MSDS or contact Owens Corning World Headquarters at 1-800-GET-PINK.[®]

All construction should be evaluated for the necessity to provide vapor retarders. See current ASHRAE Handbook of Fundamentals.

FOAMULAR[®] XPS insulation is a non-structural material and must be installed on framing which is independently braced and structurally adequate to meet required construction and service loading conditions.

FOAMULAR[®] insulation can be exposed to the exterior during normal construction cycles. During that time some fading of color may begin due to UV exposure, and, if exposed for extended periods of time, some degradation or “dusting” of the

1. R means the resistance to heat flow; the higher the R-value, the greater the insulating power.
2. See actual warranty for complete details, limitations and requirements.



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polystyrene surface may begin. It is best if the product is covered within 60 days to minimize degradation. Once covered, the deterioration stops, and damage is limited to the thin top surface layers of cells. Cells below are generally unharmed and still useful insulation.

Standards, Codes Compliance

- Meets ASTM C578 Type VI (FOAMULAR® 400 Insulation), Type VII (FOAMULAR® 600 Insulation), or Type V (FOAMULAR® 1000 Insulation).
- UL Classified. A copy of UL Classification Certificate U-197 is available at www.foamular.com
- See ICC-ES Evaluation Report ESR-1061 at www.icc-es.org
- See www.foamular.com for details on listings, constructions and assemblies



- Meets California Quality Standards and HUD UM #71a
- Compliance verification by RADCO (AA-650)

Certifications and Sustainable Features of FOAMULAR® XPS insulation

- FOAMULAR® XPS insulation is reusable
- FOAMULAR® XPS insulation is made with a zero ozone depletion formula
- Certified by Scientific Certification Systems to contain a minimum of 20% pre-consumer recycled polystyrene

Typical Physical Properties¹

FOAMULAR® 400/600/1000 Insulation

Property	Test Method ²	FOAMULAR® Insulation		
		400	600	1000
Thermal Resistance³, R-Value (180 day) minimum, hr•ft ² •°F/Btu (RSI, °C•m ² /W) @ 75°F (24°C) mean temperature				
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.5 (1.32)	7.5 (1.32)
2" Thickness		10.0 (1.76)	10.0 (1.76)	10.0 (1.76)
3" Thickness		15.0 (2.64)	15.0 (2.64)	15.0 (2.64)
@ 40°F (4.4°C) mean temperature				
1" Thickness		5.4 (0.95)	5.4 (0.95)	—
1½" Thickness		—	8.1 (1.43)	8.1 (1.43)
2" Thickness		10.8 (1.90)	10.8 (1.90)	10.8 (1.90)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
Long Term Thermal Resistance, LTTR-Value³ minimum hr•ft ² •°F/Btu (RSI, °C•m ² /W) @ 75°F (24°C) mean temperature				
	CAN/ULC 5770-03			
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.8 (1.37)	7.8 (1.37)
2" Thickness		10.6 (1.87)	10.6 (1.87)	10.6 (1.87)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
Compressive Strength⁴, minimum psi (kPa)	ASTM D1621	40 (276)	60 (414)	100 (689)
Flexural Strength⁵, minimum psi (kPa)	ASTM C203	115 (793)	140 (965)	140 (965)
Water Absorption⁶, maximum % by volume	ASTM C272	0.05	0.05	0.05
Water Vapor Permeance⁷, maximum perm (ng/Pa•s•m²)	ASTM E96	1.1 (63)	1.1 (63)	1.1 (63)
Dimensional Stability, maximum % linear change	ASTM D2126	2.0	2.0	2.0
Flame Spread^{8,9}	ASTM E84	5	5	5
Smoke Developed^{8,9,10}	ASTM E84	45-175	45-175	45-175
Oxygen Index⁸, minimum % by volume	ASTM D2863	24	24	24
Service Temperature, maximum °F (°C)	—	165 (74)	165 (74)	165 (74)
Linear Coefficient of Thermal Expansion, in/in/°F (m/m/°C)	ASTM E228	← 3.5 × 10 ⁻⁵ (6.3 × 10 ⁻⁵) →		

1. Properties shown are representative values for 1" thick material, unless otherwise specified.
2. Modified as required to meet ASTM C578.
3. R means the resistance to heat flow; the higher the value, the greater the insulation power. This insulation must be installed properly to get the marked R-value. Follow the manufacturer's instructions carefully. If a manufacturer's fact sheet is not provided with the material shipment, request this and review it carefully. R-values vary depending on many factors including the mean temperature at which the test is conducted, and the age of the sample at the time of testing. Because rigid foam plastic insulation products are not all aged in accordance with the same standards, it is useful to publish comparison R-value data. The R-value for FOAMULAR® XPS insulation is provided from testing at two mean temperatures, 40°F and 75°F, and from two aging (conditioning) techniques, 180 day real-time aged (as mandated by ASTM C578) and a method of accelerated aging sometimes called "Long Term Thermal Resistance" (LTTR) per CAN/ULC 5770-03. The R-value at 180 day real-time age and 75°F mean temperature is commonly used to compare products and is the value printed on the product.
4. Values at yield or 10% deflection, whichever occurs first.
5. Value at yield or 5%, whichever occurs first.
6. Data ranges from 0.00 to value shown due to the level of precision of the test method.
7. Water vapor permeance decreases as thickness increases.
8. These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.
9. Data from Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.
10. ASTM E84 is thickness-dependent, therefore a range of values is given.

- Certified to meet indoor air quality standards under the stringent GREENGUARD Indoor Air Quality Certification Program®, and the GREENGUARD Children & Schools Certification ProgramSM
- Approved under the National Association of Home Builders (NAHB) Research Center Green Seal of Approval
- Utilizing FOAMULAR® XPS insulation can help achieve green building certifications



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Product and Packaging Data

FOAMULAR® 400/600/1000 Insulation

Material		Packaging							Edges
Extruded polystyrene closed-cell foam panel with continuous skin on face and back surface.		Shipped in poly-wrapped units with individually wrapped or banded bundles.							
Thickness (in)	Product Dimensions Thickness (in) x Width (in) x Length (in)	Pallet (Unit) Dimensions (typical) Width (ft) x Length (ft) x Height (ft)	Square feet per Pallet	Board feet per Pallet	Bundles per Pallet	Pieces per Bundle	Pieces per Pallet		
FOAMULAR® 400 Insulation									
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192		
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	Square Edge	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48		
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64		
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32		
FOAMULAR® 600 Insulation									
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192		
1½	1.5 x 24 x 96	4 x 8 x 8	2,048	3,072	8	16	128		
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	Square Edge	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48		
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64		
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32		
FOAMULAR® 1000 Insulation									
1.5	1.5 x 24 x 96 (Half unit)	4 x 8 x 4	1,024	1,536	4	16	64	Square Edge	
2	2 x 24 x 96 (Half unit)	4 x 8 x 4	768	1,536	4	12	48		

1. Product availability and lead times vary by region and by product. Consult your local Owens Corning sales representative for availability and lead times.

including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification

- FOAMULAR® XPS insulation may qualify for The Buy American provision of the American Recovery and Reinvestment Act (ARRA)

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services.

Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at www.sustainability.owenscorning.com.

Warranty

FOAMULAR® XPS Insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building and covers all ASTM C578 properties. See actual warranty for complete details, limitations and requirements at www.foamular.com or www.owenscorningcommercial.com.

All products described here may not be available in all geographic markets. Consult your local sales office representative for more information.

For more information on the Owens Corning family of building products, contact your Owens Corning dealer, call 1-800-GET-PINK®, or access our web sites: www.foamular.com and www.owenscorning.com.



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This NAHB Research Center Green Approved mark is your assurance that a product is eligible for points toward National Green Building Certification. Visit www.GreenApprovedProducts.com for details.

LEED is a registered trademark of the U.S. Green Building Council.



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