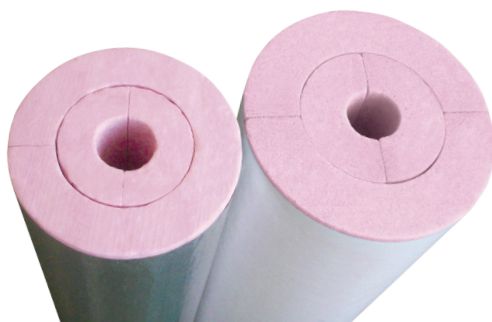




# FOAMULAR® & FOAMULAR® NGX™ PIPE INSULATION



## EXTRUDED POLYSTYRENE FABRICATION BILLETS

FOAMULAR® & FOAMULAR® NGX™ Extruded Polystyrene (XPS) Fabrication Billets are manufactured from rigid sheets of foam made using Owens Corning® Hydrovac® process technology. The unique closed-cell structure of FOAMULAR® & FOAMULAR® NGX™ XPS insulation makes it highly resistant to moisture, and thus low in water absorption but high in insulating capability.

FOAMULAR® & FOAMULAR® NGX™ XPS Fabrication Billets are factory laminated using a specially formulated polyurethane-based adhesive under strict process controls for performance.

The primary function of the FOAMULAR® XPS Fabrication Billet product is to provide raw stock to commercial pipe fabricators from which individual pipe insulation parts can be cut.

FOAMULAR® & FOAMULAR® NGX™ XPS Fabrication Billets can be pre-fabricated by our value-add distribution network into pipe shells and fittings (elbows, strainers, valves, etc.), as well as engineered systems for tanks and vessels of any size and shape.

FOAMULAR® NGX™ contains the additional benefit of being manufactured with a blowing agent formulation that delivers a 90% reduction to Global Warming Potential (100 years), including the complete elimination of HFC 134a.<sup>1</sup>

<sup>1</sup> Compared to FOAMULAR® blowing agent formulation.

### Features



**MOISTURE RESISTANCE**



**DURABLE**



**COLD TEMPERATURE PERFORMANCE**

### Applications

- Ammonia piping and equipment
- Refrigeration piping and equipment
- Food and beverage service processing
- Other cold service applications

### Technical Information

Owens Corning has developed an Installation Guide for Low Temperature Pipe Insulation to assist engineers, architects, and contractors with the proper installation of pipe insulation made from FOAMULAR® XPS Fabrication Billets. This guide is available at [www.owenscorning.com/xspipe](http://www.owenscorning.com/xspipe).

FOAMULAR® XPS pipe insulation is available from Owens Corning fabricators from across North America. For more information, call 1-800-GET-PINK®, or contact your local area sales manager.

### Physical Properties

PROPERTY	ASTM METHOD	SI/METRIC	ENGLISH
Thermal Conductivity <sup>2,3</sup> [180 days @ 24°C (75°F)]	ASTM C518	0.029 W/mK	0.20 BTU · in/hr · °F · ft <sup>2</sup>
Compressive Strength <sup>2,4</sup> (@ 10% deformation)	ASTM D1621	≥ 173 kPa	≥ 25 psi
Water Absorption <sup>2,5</sup> (% by volume)	ASTM C272	≤ 0.15	≤ 0.15
Water Vapor Permeance <sup>2,6</sup>	ASTM E96	≤ 1.1 ng/Pa · s · m <sup>2</sup>	≤ 0.019 perm
Dimensional Stability <sup>2</sup> (linear change)	ASTM D2126	2%	2%
Service Temperature <sup>7</sup>		-196 to 74°C	-320 to 165°F
Linear Coefficient of Thermal Expansion <sup>2</sup>	ASTM E228	6.3 · 10 <sup>-5</sup> /K	3.5 · 10 <sup>-5</sup> /°F

<sup>2</sup> XPS foam core values meet ASTM C578 TYPE IV.

<sup>3</sup> k means the apparent thermal conductivity. The lower the value, the greater the insulation power.

<sup>4</sup> Values at yield or 10% deflection, whichever occurs first.

<sup>5</sup> Data ranges from 0.00 to value shown due to the level of precision of the test method.

<sup>6</sup> Water vapor permeance decreases as thickness increases.

<sup>7</sup> Please contact Owens Corning at 800-327-6126 for service temperatures below -100°F (-73°C).

## Thermal Conductivity

### THERMAL CONDUCTIVITY ( $\lambda$ ) VALUES AT SELECT MEAN TEMPERATURES (ASTM C518, C177)<sup>2,3</sup>

Temperature	°C (°F)	43 (110)	24 (75)	10 (50)	-18 (0)	-46 (-50)	-73 (-100)	-101 (-150)	-129 (-200)	-157 (-250)
ASTM C578 <sup>9</sup>	W/mK (BTU • in/hr • °F • ft <sup>2</sup> )	0.031 (0.215)	0.029 (0.200)	0.027 (0.190)	0.025 (0.171)	0.022 (0.155)	0.021 (0.149)	0.020 (0.139)	0.017 (0.119)	0.013 (0.093)
Foamular® XPS Billet	W/mK (BTU • in/hr • °F • ft <sup>2</sup> )	0.031 (0.215)	0.029 (0.200)	0.027 (0.190)	0.025 (0.171)	0.022 (0.155)	0.021 (0.149)	0.020 (0.139)	0.017 (0.119)	0.013 (0.093)

<sup>10</sup> Type IV board limit values, where applicable, are specified by ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

### Availability

Fabrication billets are made-to-order. Please contact your local Owens Corning sales representative for more information.

### Limitations

- Fire performance of products fabricated using FOAMULAR® XPS Pipe Fabrication Billets may vary in the field, depending on facings and adhesives used in the fabrication process. Fabricators should be consulted if composite fire performance is required.
- FOAMULAR® XPS Fabrication Billets and the subsequent parts and pipe sections that are fabricated from them are subject to deterioration from prolonged exposure to ultraviolet light and sun exposure. Procedures should be established during fabrication, shipment, storage, and eventual product use that limit total direct exposure to ultraviolet light to a maximum of 30 days over the life of the material.
- This product or subsequent parts or pipe sections that are fabricated from it will ignite if exposed to fire of sufficient heat and intensity. During shipping, installation, and use, this product should not be exposed to temperatures above 165°F, open flames, or other ignition sources.
- This product or subsequent parts or pipe sections that are fabricated from it are not recommended for use in piping systems that contain flammable liquids such as hydrocarbons.
- This product or subsequent parts or pipe sections that are fabricated from it should not be packaged or covered with clear (non-opaque) wrap and left exposed to direct sunlight.

### Warranty

FOAMULAR® XPS Fabrication Billets are made from FOAMULAR® XPS insulation. 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.owenscorning.com/xpspipe](http://www.owenscorning.com/xpspipe) or <http://sustainability.owenscorning.com>.

### 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.owenscorning.com](http://www.owenscorning.com).

FOAMULAR® is manufactured with a polystyrene resin and a blend of HFC blowing agents that have a global warming potential (100 years) of less than 750. FOAMULAR® NGX™ is manufactured with a polystyrene resin and a blend of HFO and HFC blowing agents that have a global warming potential (100 years) of less than 80.

### Certificates and Sustainable Features<sup>10</sup>

- Certified by SCS Global Services to contain an average of 20% recycled content pre-consumer.
- GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit [ul.com/gg](http://ul.com/gg).
- Utilizing FOAMULAR® XPS insulation can help builders achieve green building certifications, including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification.

<sup>10</sup> The above certifications apply only to pre-laminated FOAMULAR® Extruded Polystyrene (XPS) boards that make up fabrication billets.



### Disclaimer of Liability

Technical information contained herein is furnished without charge or obligation and is given and accepted at recipient's sole risk. Because conditions of use may vary and are beyond our control, Owens Corning makes no representation about, and is not responsible or liable for, the accuracy or reliability of data associated with particular uses of any product described herein.

SCS Global Services provides independent verification of recycled content in building materials and verifies recycled content claims made by manufacturers. For more information, visit [www.SCSglobalservices.com](http://www.SCSglobalservices.com).

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

### Notes

For additional information, refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via <http://sds.owenscorning.com>. **Please contact Owens Corning at 800-327-6126 for application service temperatures below -100°F (-73°C).**

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