

## Technical Data Sheet

# XPS PIB – Extruded Polystyrene Pipe Insulation Billets

XPS PIB (eXtruded PolyStyrene Pipe Insulation Billet) is a rigid thermoplastic foam manufactured by a proprietary extrusion process that forms a uniform, void-free, closed cell structure. This structure, along with the naturally water-repellent nature of the polystyrene resin, gives XPS PIB products high compressive strength, low friability and excellent resistance to water vapor and water absorption from freeze-thaw cycling.

XPS PIB is non-dusting and non-irritating and is not a known food source for mold and mildew.

## Applications

XPS PIB is used extensively in industrial and commercial piping applications. With a service temperature range of -196°F to 320°F (-183°C to 74°C), XPS PIB is a preferred material for low-temperature systems, both for minimizing heat gain and preventing surface condensation.

XPS PIB maintains its key insulating properties in low-temperature applications and other environments with high humidity and high-moisture conditions.

Typical applications for XPS PIB include:

- ammonia refrigeration lines
- freezer rooms
- chilled water piping
- transport pipelines
- cold storage systems
- refrigeration equipment
- pharmaceutical plants
- cryogenic systems



## Physical Properties

XPS PIB exhibits the properties and characteristics indicated in Table 1 when tested as represented.

Consultation with local code officials and design engineers/specifiers are recommended before application.

As with all cellular polymers, XPS PIB will degrade upon prolonged exposure to sunlight. A covering to block ultraviolet radiation must be used to prevent degradation. Other coverings to protect the insulation from the elements may be required.

## Environmental Data

XPS PIB is manufactured without the use of CFC or HCFC blowing agents. XPS PIB is recyclable and can be reused in many applications.

## Safety Considerations

XPS PIB requires care in handling. All persons working with this material must know and follow the proper handling procedures. The current Safety Data Sheet (SDS) and General Handling Recommendations for XPS PIB contain information on the safe handling, storage and use of this material, and can be found at [www.itwinsulation.com](http://www.itwinsulation.com).

## Size

XPS PIB is extruded into billets.

Height and width:

7" x 14" (18 cm x 36 cm)

8" x 16" (20 cm x 41 cm)

10" x 20" (25 cm x 51 cm)

Length: 9' (2.75 m)

## Installation

XPS PIB is specifically formulated for easy fabrication into many shapes, such as pipe coverings, valve and fitting covers, and others to meet specific design needs. Because of the critical design aspects in many applications, ITW recommends contacting qualified designers for system design.

## Availability

XPS PIB insulation is distributed through ITWIS's extensive Authorized Fabricator Network.

### XPS PIB complies with ASTM C578, Type XIII.

Physical Properties of XPS PIB	
Property <sup>1</sup> and Test Method <sup>2</sup>	Value
Density, ASTM D1622, lb/ft <sup>3</sup> (kg/m <sup>3</sup> )	1.6 (26)
Compressive Strength <sup>3</sup> , ASTM D1621, lb/in <sup>2</sup> (kPa),	20 (138)
k-Factor ASTM C518, Btu-in/hr-ft <sup>2</sup> ·°F (W/m <sup>2</sup> ·°C) Aged 180 days @ 75°F (24° C)	0.259 (0.037)
Water Absorption, % by volume ASTM C272	1.0
ASTM D2842	1.0
Water Vapor Permeability, ASTM E96 perm-inch (ng/Pa·s·m)	1.5 (2.2)
Dimensional Stability <sup>3</sup> , ASTM D2126, % volume change At 158° F (70°C), 97% R.H. 7 days	1.0
Surface Burning Characteristics <sup>4</sup> , UL723/ASTM E84, Flame Spread/Smoke Developed (FS/SD)	5/10 up to 4" (10 cm) thickness
Service Temperature <sup>5</sup> , °F (°C)	-196° to +320° (-127° to +160°)
Coefficient of Linear Thermal Expansion, ASTM D696 in/in·°F	35 x 10 <sup>-6</sup>
cm/m·°C	19.4 x 10 <sup>-4</sup>
Color	Blue

(1) All properties are measured at 74°F (23°C), unless otherwise indicated.

(2) Unless otherwise indicated, data shown are typical values obtained from representative production samples. This data may be used as a guide for design purposes but should not be construed as specifications. For property ranges and specifications, consult your ITW Insulation Systems representative.

(3) Average value through foam cross section.

(4) This numerical flame spread data is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(5) XPS PIB can be used at this temperature and below but for applications below -297°F certain system design precautions may be necessary. Please consult ITW Insulation Systems for more information.

For where to buy and further technical information, contact us at **1-800-231-1024** or [www.itwinsulation.com](http://www.itwinsulation.com).

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COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult SDS, call ITW at 1-800-231-1024 or contact your local building inspector.

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