



DATA SHEET

# Pyrogel® XT

## FLEXIBLE INDUSTRIAL INSULATION FOR HIGH-TEMPERATURE APPLICATIONS

Pyrogel® XT is a high-temperature insulation blanket formed of silica aerogel and reinforced with a non-woven, glass-fiber batting.

Silica aerogels possess the lowest thermal conductivity of any known solid. Pyrogel® XT achieves this industry-leading thermal performance in a flexible, environmentally safe, and easy-to-use product.

Ideal for insulating piping, vessels, tanks, and equipment, Pyrogel® XT is an essential material for those seeking the ultimate in thermal efficiency.

### Physical Properties

<b>Thicknesses*</b>	0.20 in (5 mm)	0.40 in (10 mm)
<b>Material Form*</b>	60 in (1,500 mm) wide x 260 ft (80 m) long rolls	60 in (1,500 mm) wide x 155 ft (47 m) long rolls
<b>Max. Use Temp.</b>	1200°F (650°C)	
<b>Color</b>	Beige	
<b>Density*</b>	11 lb/ft <sup>3</sup> (0.18 g/cc)	
<b>Hydrophobic</b>	Yes	

\*Nominal Values



### Advantages

#### Superior Thermal Performance

Up to five times better thermal performance than competing insulation products

#### Reduced Thickness and Profile

Equal thermal resistance at a fraction of the thickness

#### Less Time and Labor to Install

Easily cut and conformed to complex shapes, tight curvatures, and spaces with restricted access

#### Physically Robust

Soft and flexible but with excellent springback, Pyrogel® XT recovers its thermal performance even after compression events as high as 100 psi

#### Shipping and Warehousing Savings

Reduced material volume, high packing density, and low scrap rates can reduce logistics costs by a factor of five or more compared to rigid, pre-formed insulations

#### Simplified Inventory

Unlike rigid pre-forms such as pipe cover or board, the same Pyrogel® XT blanket can be kitted to fit any shape or design

#### Hydrophobic Yet Breathable

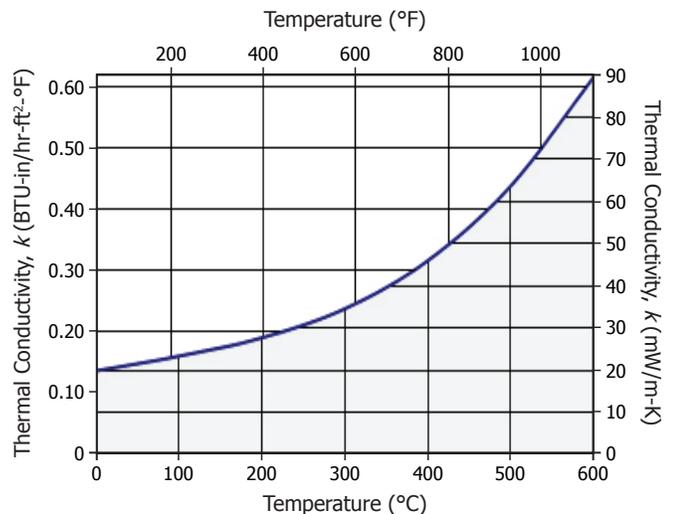
Pyrogel® XT repels liquid water but allows vapor to pass through, helping to prevent corrosion under insulation

#### Environmentally Safe

Landfill disposable, shot-free, with no respirable fiber content

### Thermal Conductivity†

ASTM C 177 Results



Mean Temp. °C	0	100	200	300	400	500	600
°F	32	212	392	572	752	932	1112
<b>k</b> mW/m-K	20	23	28	35	46	64	89
BTU-in/hr-ft <sup>2</sup> -°F	0.14	0.16	0.19	0.24	0.32	0.44	0.62

†Thermal conductivity measurements taken at a compressive load of 2 psi.



# Pyrogel® XT

## Thicknesses Required for Personnel Protection\*

Design conditions:

Ambient temperature = 86°F (30°C)  
 Wind speed = 2.2 mph (1 m/s)  
 Surface emissivity = 0.15  
 Max. touch temp = 140°F (60°C)

\*These data are provided as an example only. Actual performance should be determined using the parameters relevant to the particular application. Please contact Aspen Aerogels® for technical assistance.

Pyrogel® XT Thickness (mm) vs. Process Temperature and Nominal Pipe Size														
NPS in (mm)	100°C (210°F)	150°C (300°F)	200°C (390°F)	250°C (480°F)	300°C (570°F)	350°C (660°F)	400°C (750°F)	450°C (840°F)	500°C (930°F)	550°C (1020°F)	600°C (1110°F)	650°C (1200°F)		
<b>0.5 (15)</b>	5	5	5	10	10	15	15	20	20	25	30	40	5 mm product	
<b>0.75 (20)</b>	5	5	5	10	10	15	15	20	25	30	35	45		
<b>1 (25)</b>	5	5	10	10	15	15	20	25	30	35	40	50		
<b>1.5 (40)</b>	5	5	10	10	15	20	20	25	30	40	45	55		
<b>2 (50)</b>	5	5	10	15	15	20	25	30	35	40	50	60		
<b>3 (80)</b>	5	10	10	15	20	25	30	35	40	50	60	70		
<b>4 (100)</b>	5	10	10	15	20	25	30	35	45	55	65	75		
<b>6 (150)</b>	5	10	15	20	25	30	35	45	50	60	75	85		
<b>8 (200)</b>	5	10	15	20	25	30	40	45	55	70	80	95		5 mm and/or 10 mm product
<b>10 (250)</b>	5	10	15	20	25	35	40	50	60	75	85	105		
<b>12 (300)</b>	5	10	15	20	30	35	45	55	65	75	90	110		
<b>14 (350)</b>	5	10	15	25	30	35	45	55	65	80	95	110		
<b>16 (400)</b>	5	10	15	25	30	40	45	55	70	80	100	115		
<b>18 (450)</b>	5	10	20	25	30	40	50	60	70	85	100	120		
<b>20 (500)</b>	5	10	20	25	30	40	50	60	75	90	105	125		
<b>24 (600)</b>	5	15	20	25	35	40	50	65	75	90	110	130		
<b>28 (700)</b>	5	15	20	25	35	45	55	65	80	95	115	135		
<b>30 (750)</b>	5	15	20	25	35	45	55	65	80	95	115	140		
<b>36 (900)</b>	5	15	20	30	35	45	55	70	85	100	120	145		
<b>48 (1200)</b>	10	15	20	30	40	50	60	75	90	105	130	150		
<b>Flat</b>	10	15	20	35	45	50	65	80	100	125	150	175		

## Specification Compliance and Performance

Test Procedure	Property	Results
ASTM C 165	Compressive Strength	Stress at 10% strain = 14.8 psi (102 kPa) Stress at 25% strain = 26.6 psi (183 kPa)
ASTM C 356	Linear Shrinkage Under Soaking Heat	< 1.3% @ 1200°F (650°C)
ASTM C 411	Hot Surface Performance	Passed
ASTM C 447	Estimation of Maximum Use Temperature	1200°F (650°C)
ASTM C 592-04 (Section 11.11, Modified)	Heat and Vibration Aging	-0.19% mass change after 6 hr vibration
ASTM C 795	Insulation for Use Over Austenitic Stainless Steel	Passed
ASTM C 1101	Classifying the Flexibility of Mineral Fiber Blankets	Class: Resilient Flexible
ASTM C 1104	Water Vapor Sorption	2.25% (by weight)
ASTM C 1338	Fungal Resistance of Insulation Materials	Passed
ASTM C 1511	Liquid Water Retention After Submersion	4% (by weight)
ASTM E 84	Surface Burning Characteristics	Flame Spread Index = 0 Smoke Developed Index = 0
ASTM E 1354	Cone Calorimetry	No ignition at 50 kW/m <sup>2</sup>
BS EN 13501-1: 2007	Reaction to Fire Performance	Passed Euroclass A2
ISO 1182:1990	Non-Combustibility	Meets criteria outlined in ISO 1182:1990

## Characteristics

Pyrogel® XT can be cut using conventional cutting tools including scissors, tin snips, and razor knives. The material can be dusty, and it is recommended gloves, safety glasses, and dust mask be worn when handling material. See MSDS for complete health and safety information.

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