

# Cryogel® Z

## HIGH PERFORMANCE, FLEXIBLE, INDUSTRIAL INSULATION FOR SUB-AMBIENT AND CRYOGENIC APPLICATIONS

Cryogel® Z flexible aerogel blanket insulation is engineered to deliver maximum thermal protection with minimal weight and thickness. Ideal for use in sub-ambient and cryogenic applications, Cryogel® Z incorporates an integral vapor retarder with zero water vapor permeability to ensure maximum protection of your assets.

Cryogel® Z insulation features unique silica aerogel within a flexible fiber blanket to deliver industry-leading thermal performance in an easy-to-handle and environmentally safe product.

Cryogel® Z's extremely low thermal conductivity reduces heat gain and liquid boil-off. The inherent flexibility of Cryogel® Z's blanket form minimizes installation labor, eliminates the need for contraction joints, and makes the product durable and resistant to mechanical abuse.

### Physical Properties

<b>Thicknesses*</b>	0.20 in (5 mm)	0.40 in (10 mm)
<b>Material Form*</b>	57 in (1,450 mm) wide x 250 ft (76 m) long rolls	57 in (1,450 mm) wide x 150 ft (46 m) long rolls
<b>Max. Use Temp.</b>	257°F (125°C)	
<b>Color</b>	White	
<b>Density*</b>	10 lb/ft <sup>3</sup> (0.16 g/cc)	
<b>Hydrophobic</b>	Yes	

\*Nominal Values

### Advantages

#### Superior Thermal Performance

Extremely low thermal conductivity (k-value) for improved efficiency and energy savings

#### Reduced Thickness and Profile

Can be installed at a fraction of the thickness of competing materials, enabling tighter packing of piping and equipment

#### Integral Vapor Retarder

Factory-laminated vapor retarder provides moisture protection, prevents damage from condensation and enhances process control

#### Eliminates Contraction Joints

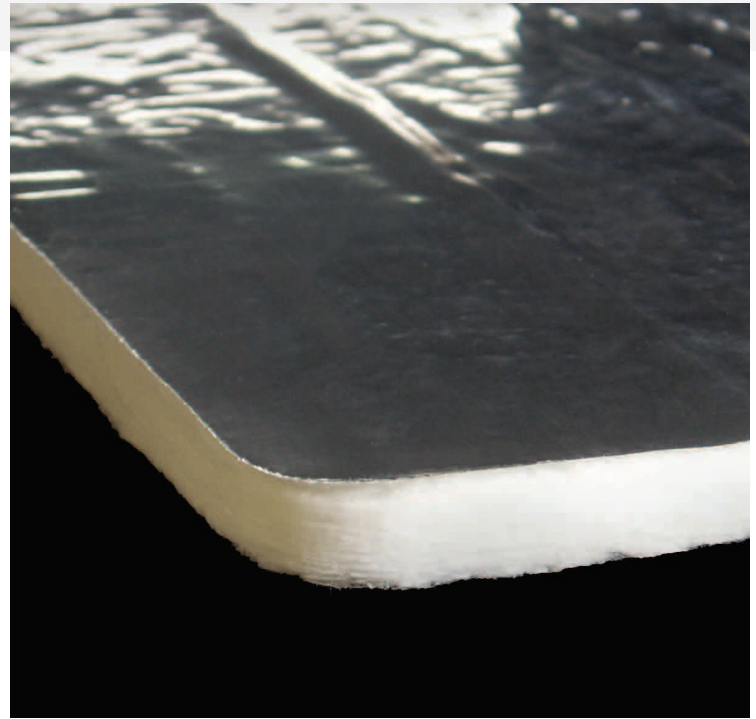
Low-temperature flexibility eliminates the need for contraction joints, speeding installation and reducing complexity

#### Ease of Handling and Installation

Easily cut and conformed to complex patterns, Cryogel® Z excels in tight spaces with restricted access, allowing easier insulation of problem areas and improved adherence to site specifications

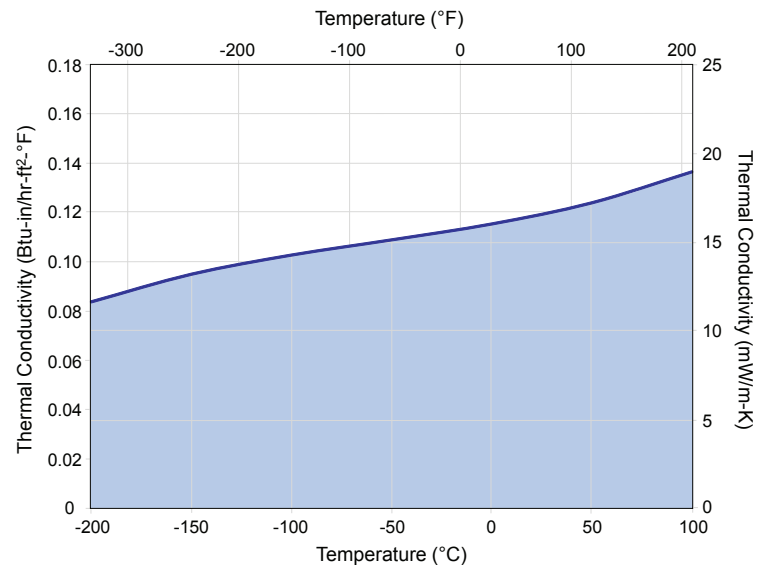
#### Physically Robust

Durable and flexible even at low temperatures, Cryogel® Z can recover from compression events and maintain performance, resulting in increased effectiveness over its lifetime



### Thermal Conductivity†

ASTM C 1728, Type I, Grade 1, Category B



Mean Temp.	°F	-200	-100	0	75	100	200
	°C	-129	-73.3	-17.8	23.9	37.8	93.3
k	BTU-in/hr-ft²-°F	0.096	0.10	0.11	0.12	0.12	0.13
	mW/m-K	14	15	16	17	17	19

†Thermal conductivity typically measured at a compressive load of 2 psi.

## Specification Compliance and Performance

Test Procedure	Property	Results
ASTM C 1728, Type 1, Grade 1B	Standard Specification for Flexible Aerogel Insulation <sup>1</sup>	Complies
ASTM C 795	Standard Specification for Thermal Insulation for Use in Contact With Austenitic Steel	Pass
ASTM C 1101	Flexibility at Cryogenic Temperature	Resilient Flexible
ASTM C 1104	Water Vapor Sorption	≤5% (weight)
ASTM C 1338	Fungi Resistance	No Growth
ASTM C 1511	Water Retention after Submersion in Water <sup>2</sup>	≤5% (weight)
ASTM E 84	Flame and Smoke Spread	Class A: FSI <25 SDI <50
ASTM E 96	Water Vapor Transmission Rate (with vapor retarder)	0.00 perm
ISO 15665	Acoustic Insulation for Pipes, Valves and Flanges <sup>3</sup>	Meets Class A, B, C, and Shell D
OTI 95 634	Jet-Fire Resistance Test of Passive Fire Protection Materials <sup>3, 4, 5</sup>	75 min → 60 mm 120 min → 100 mm
UL 1709	Structural Steel Fire Protection <sup>3, 5</sup>	30 min → 20 mm      120 min → 60 mm 60 min → 30 mm      150 min → 70 mm 90 min → 50 mm

[1] Compression resistance measured under a preload of 2 psi.

[2] Water retention uses a modified C 1511, nominal values.

[3] Contact Aspen Aerogels for construction details.

[4] 200 mm (8") pipe with a failure criteria of 400°C (752°F).

[5] Requires the use of stainless steel jacketing.

## Characteristics

Clean, flush and accurate cutting of Cryogel® Z can be achieved using conventional cutting tools such as scissors, tin snips, razor knives, and hot knives. As with all technical insulation materials, appropriate personal protective equipment (PPE) should be worn when handling, cutting and installing Cryogel® Z. See SDS for complete health and safety information.

## Other Available Materials

Aspen Aerogels® produces several types of flexible aerogel blanket materials for hot and cold applications. Please contact us for information on these products.

## Technical Services

Cryogel® Z represents the state of the art in cold service asset and process protection, minimizing total installed costs while facilitating long-term operating cost savings. Our Technical Services team offers comprehensive assistance for your project, from initial design and specification through to training and site start up.

## More Info

### Product Webpage

Scan with mobile device or go to <http://bit.ly/Nqa6Sb>



### SDS

Scan with mobile device or go to <http://bit.ly/1u7RTyH>



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