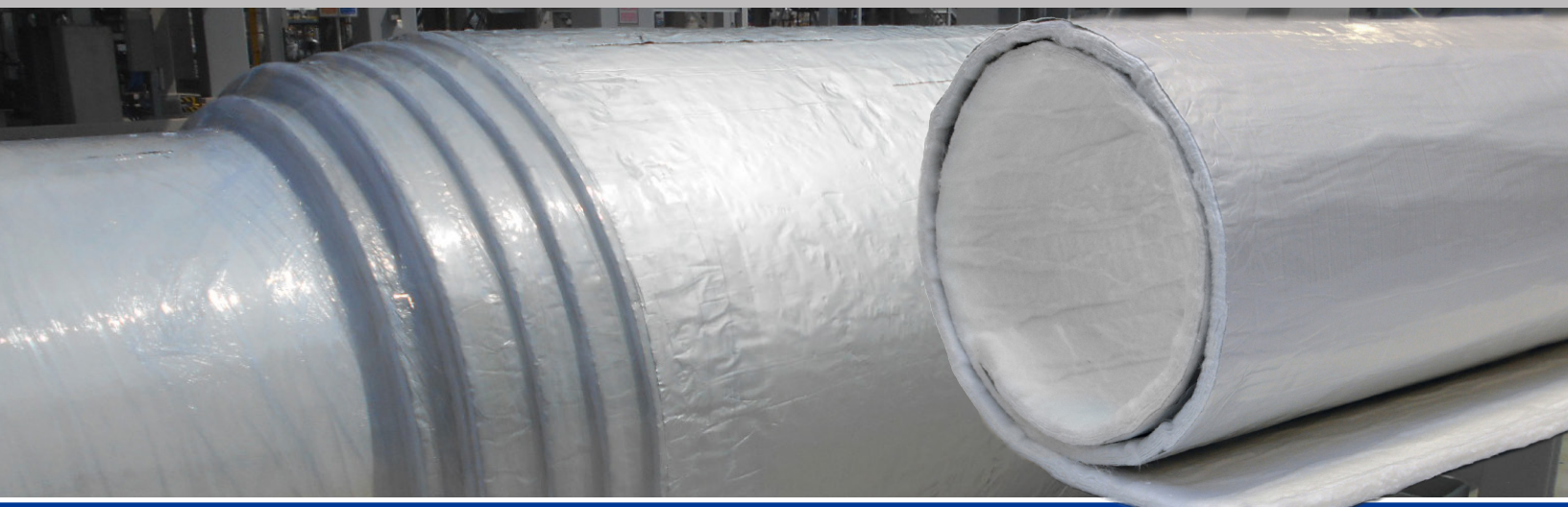
Cryogel® Z

aspen aerogels®

PRODUCT DATA SHEET



Flexible Industrial and Commercial 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. Unmatched in sub-ambient, cold cycling and cryogenic applications. Cryogel Z incorporates an integral vapor retarder with zero water vapor permeance to ensure maximum asset protection.

Cryogel Z's extremely low thermal conductivity minimizes heat gain and liquid boil-off. Cryogel Z remains flexible, even at cryogenic temperatures, eliminating the need for complex, costly contraction joints thereby simplifying and speeding installation. Its durable format withstands mechanical abuse, and provides continued protection throughout the life of the asset. Cryogel Z is ideal for both maintenance work and new builds, supporting faster and safer installations with sustained long term performance.

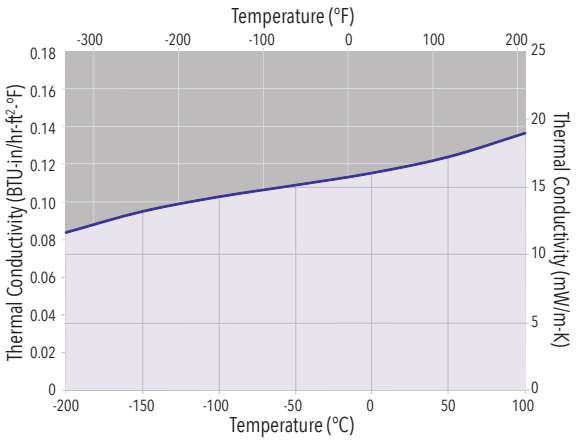
In addition to being the first choice in cold conservation, Cryogel Z offers acoustic attenuation and protections against cold splash, pool fire, and jet fire. The combination of these safeguards make Cryogel Z ideal for onshore, offshore and marine applications.

THERMAL CONDUCTIVITY†

Tested in accordance with ASTM C177

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

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



ADVANTAGES

- **Extremely low thermal conductivity (k-value) enables thinner designs for improved space efficiency**
- **Integrated, zero perm vapor retarder provides redundant protection in an easy-to-install package**
- **Eliminates the need for contraction joints reducing cost and complexity**
- **Durable and flexible even at cryogenic temperatures**
- **Sustained performance during construction, transport and operations makes it suitable for pre-insulation and modular builds**
- **Increased labor productivity and faster installation rates**
- **Proven in global LNG liquefaction and regasification service**
- **Thermal, acoustic, jet-fire, pool fire, and cold splash protection in a single system**

Cryogel® Z

PHYSICAL PROPERTIES

THICKNESS*	0.2 in (5 mm)	0.4 in (10 mm)
ROLL SIZE*	Approx. 1250 sqft; 58 in (1450mm) wide	Approx. 700 sqft; 58 in (1450mm) wide
MAX. USE TEMP.	257°F (125°C)	
COLOR	White	
DENSITY*	10 lb/ft^3 (0.16 g/cc)	
HYDROPHOBIC	Yes	

*Nominal Values

SPECIFICATION COMPLIANCE AND PERFORMANCE

TEST PROCEDURE	PROPERTY	RESULTS
ASTM C1728, Type 1, Grade 1B	Standard Specification for Flexible Aerogel Insulation	Complies
ASTM C165[1]	Compressive Resistance	≥ 5 psi (34.5 kPa) @ 10% deformation
ASTM C356	Linear Shrinkage Under Soaking Heat	< 2%
ASTM C795	Insulation for Use Over Austenitic Stainless Steel	Pass
ASTM C1101/1101M	Flexibility of Blanket Insulation	Flexible
ASTM C1104/1104M	Water Vapor Sorption	≤ 5% (by weight)
ASTM C1338	Fungal Resistance of Insulation Materials	No Growth
ASTM C1617	Corrosiveness to Steel	Pass
ASTM C1763	Water Absorption by Immersion	Pass
ASTM E84	Surface Burning Characteristics	Flame Spread Index ≤ 25 Smoke Developed Index ≤ 50
ASTM E96	Water Vapor Transmission Rate of Vapor Retarder	0.00 perm
ISO 15665	Acoustic Insulation for Pipes, Valves & Flanges	Configurations possible to meet Class A2, B2, C2, and Shell D2[2]
OTI 95 634	Jet-Fire Resistance Test of Passive Fire Protection Materials[2,3,4]	75 min ⟶ 60 mm 120 min ⟶ 100 mm
UL 1709	Structural Steel Fire Protection[2,4]	30 min ⟶ 20 mm 60 min ⟶ 30 mm 90 min ⟶ 50 mm 120 min ⟶ 60 mm 150 min ⟶ 70 mm
IMO	SOLAS Convention FTP Code	Compliant to Parts 2 & 5

[1] Compression resistance measured using a preload of 2 psi.
[2] Contact Aspen Aerogels for configuration details.
[3] 200 mm (8") pipe with a failure criteria of 400°C (752°F).
[4] Requires the use of stainless steel jacketing.

THE AEROGEL ADVANTAGE

Aerogel is a lightweight solid derived from gel in which the liquid component of the gel has been replaced with air. The process of creating aerogel results in a material with extremely low density and the lowest thermal conductivity of any solid. These remarkable properties make aerogel one of the world's most efficient insulating materials. Our patented process integrates this unique aerogel into a fiber-batting to create flexible, resilient, and durable aerogel blankets with superior insulating performance.

WORKING WITH CRYOGEL® Z

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/AIS for complete health and safety information.

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 WEB PAGE
Scan with mobile device or go to aerogel.com/cryogel

aspen aerogels®

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