

CryoMLI®202 Technical Datasheet

Vacuum Multilayer Insulation — Double-sided Aluminized PET (Mylar) + Synthetic Fiber Paper
Ultra-Low Emissivity MLI for LN₂ / LAr Applications



Compliance: GB/T 31480-2015 · GB/T 31481-2015 (ISO 201010:2014) · NB/T 47059-2017 · GB/T 18443-2010 · ASME BPVC Section VIII

PRODUCT STRUCTURE

Structure:Double-sided Aluminized PET (Mylar) + Synthetic Fiber Paper

Operating Temperature: 4K (–269°C) to 393K (120°C); **Thermal shock up to 423K (150°C)**

KEY PROPERTIES

- ✓ Special design for Liquid Nitrogen and Argon
- ✓ Low thermal conductivity / thermal insulating
- ✓ Suitable for temperatures down to 4K (–269°C), thermal shock resistant up to 423K (150°C)
- ✓ Easy to wrap, shape or cut
- ✓ Excellent chemical stability
- ✓ Exceptionally resistant to thermal shock

TECHNICAL DATA

Parameter	Unit	Specification
Synthetic Fiber Paper basis weight	g/m ²	15 ±1
Synthetic Fiber Paper thickness	mm	0.08 ±0.01
Synthetic Fiber Paper thermal conductivity	W/(m·K)	< 0.032
Synthetic Fiber Paper moisture content	%	< 10
Synthetic Fiber Paper loss on ignition	%	< 0.3
Double-sided Aluminized PET (Mylar) basis weight	g/m ²	17 ±1
Double-sided Aluminized PET (Mylar) thickness	mm	0.012
Double-sided Aluminized PET (Mylar) coating	Å	600Å + 600Å
Double-sided Aluminized PET (Mylar) emissivity	ε	0.014 (@87K, NASA GRC)
Thermal shrinkage rate (180°C, 30min)	%	≤ 3.0
Spacer Gas Permeability	—	Moderate (fiber mat, moderate pump-down)
Comprehensive tensile strength	MPa	≥ 190
Apparent thermal conductivity	W/(m·K)	< 1.22×10 ^{−4}
Leak outgassing rate	Pa·m ³ /(s·g)	< 2.8×10 ^{−7}
Reference Heat Flux (40 layers, 78K-294K)	W/m ²	~0.7 (est., ref: NASA A126)
Operating Vacuum Requirement	—	< 1×10 ^{−4} Torr

CUSTOMIZATION & PROCESSING

Item	Details
Composite Layer Configurations	5/5, 10/10, 20/20 (mature); custom available
Recommended Layer Density	1.0 – 2.0 layers/mm
Roll Material — Max Layers	Up to 10/10
Processing Capabilities	Rewinding, sewing, cutting, lamination
Production Method	Fully automated mechanical production

Standard Widths: **90 / 100 / 200 / 300 / 910 / 1310 / 1800 / 2000 mm**Max Production Width: **2160 mm**Custom Width: **Available (MOQ applies)**

TARGET APPLICATIONS & MARKETS

Spacecraft MRI Cylinders Dewar Cryogenic transfer line Cryogenic Valve Box / Cold Box Superconducting cables
Nuclear fusion cryogenic modules

Technical Note: Emissivity varies with temperature per Lockheed/NASA correlation: $\epsilon \approx 6.8 \times 10^{-4} \times T^{0.67}$. (Source: NASA/JPL CEC 2015)

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Custom widths, shapes, dimensions, and layer counts available. Contact sales for details.