

CryoMLI®201 Technical Datasheet

Vacuum Multilayer Insulation — Aluminum Foil + Synthetic Fiber

Cost-Effective MLI for LN₂ / LAr Storage & Transport



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:Aluminum Foil + Synthetic Fiber

Operating Temperature: 4K (−269°C) 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)
- ✓ Easy to wrap, shape or cut
- ✓ Excellent chemical stability
- ✓ Exceptionally resistant to thermal shock

TECHNICAL DATA

Parameter	Unit	Specification
Synthetic Fiber basis weight	g/m ²	15 ±1
Synthetic Fiber thickness	mm	0.08 ±0.01
Synthetic Fiber thermal conductivity	W/(m·K)	< 0.032
Synthetic Fiber moisture content	%	< 10
Synthetic Fiber loss on ignition	%	< 0.3
Aluminum foil basis weight	g/m ²	17 ±1
Aluminum foil thickness	mm	0.0065
Aluminum foil emissivity	ε	0.028 (@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 (20 layers, 78K-293K)	W/m ²	~1.0 (est., ref: NASA C116)
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 mm**Max Production Width: **1800 mm**Custom Width: **Available (MOQ applies)**

TARGET APPLICATIONS & MARKETS

Dewar Storage tanks Cryogenic transfer line Cryogenic Valve Box / Cold Box Superconducting cables Nuclear fusion cryogenic modules

Technical Note: Aluminum foil may generate standing waves under acoustic and vibrational modes within blanket geometry. (Source: NASA TFAWS — Multilayer Insulation for In-Space Cryogenic Applications)

East Far Materials · East Far Cryo

901-133, 9F, Bldg W02, Phase 1, South New Park, 11 Yangfu Rd, SIP, Suzhou, Jiangsu, China 215000

Tel: +86 157 2065 2560 · www.efcryo.com · sale@efcryo.com

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