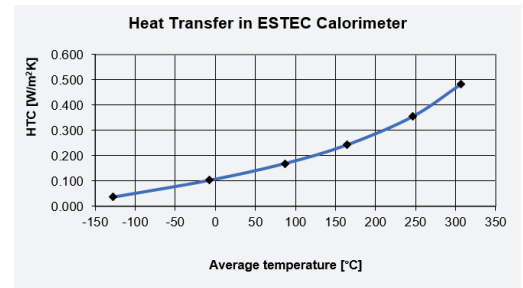
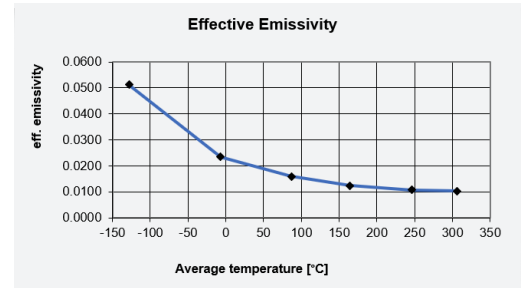


High Temperature Multi-Layer Insulation

This high temperature Multi-layer insulation (MLI) was developed by Beyond Gravity especially for the thermal insulation of launcher upper stages. It represents a cost-efficient alternative to insulations using ceramic fabrics.

Key Features and Options

- Strong cost advantage over ceramic fabrics
- Useable in application with up to +500°C
- MLI is electrically conductive due to ESD grid in outer layer and conductive internal layers
- Contains no hazardous components
- More flexibility of MLI compared to rigid insulation
- Amount of layers can be varied to adjust performance to customer need
- Manufacturing of Multi-layer insulation blankets based on customer input
- We can provide design support or take over the design and qualification testing
- For the attachment of MLI blankets grommets and/or Velcros can be incorporated



Specifications

Material Properties

Material

Conductive GlassFabric 41-L

Polyimide foils (both sides aluminized)

Glassfibre spacer GSW

25g

Layers

6

Weight

429 g/m² ± 5%

Thickness

0,4 mm ± 5%

Available Dimension

Width

1,2 m

Length

10 m

Properties

Outgassing ECSS-Q-70-02A at +125°C:

	Glass fibre	PI Foil	GSW25g (at +350°C)
TML	0,11%	1,37%	0,12%
RML	0,04%	0,16%	0,02%
CVCM	0,01%	0,00%	0,01%

Thermo-optical properties of outer layer

Solar absorptance (α_s) 250-2500nm	0,08
Thermal emittance (300K)- (ϵ) 3000-16700nm	0,93

ESD grid

ESD grid dimension	108 x 108 mm
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