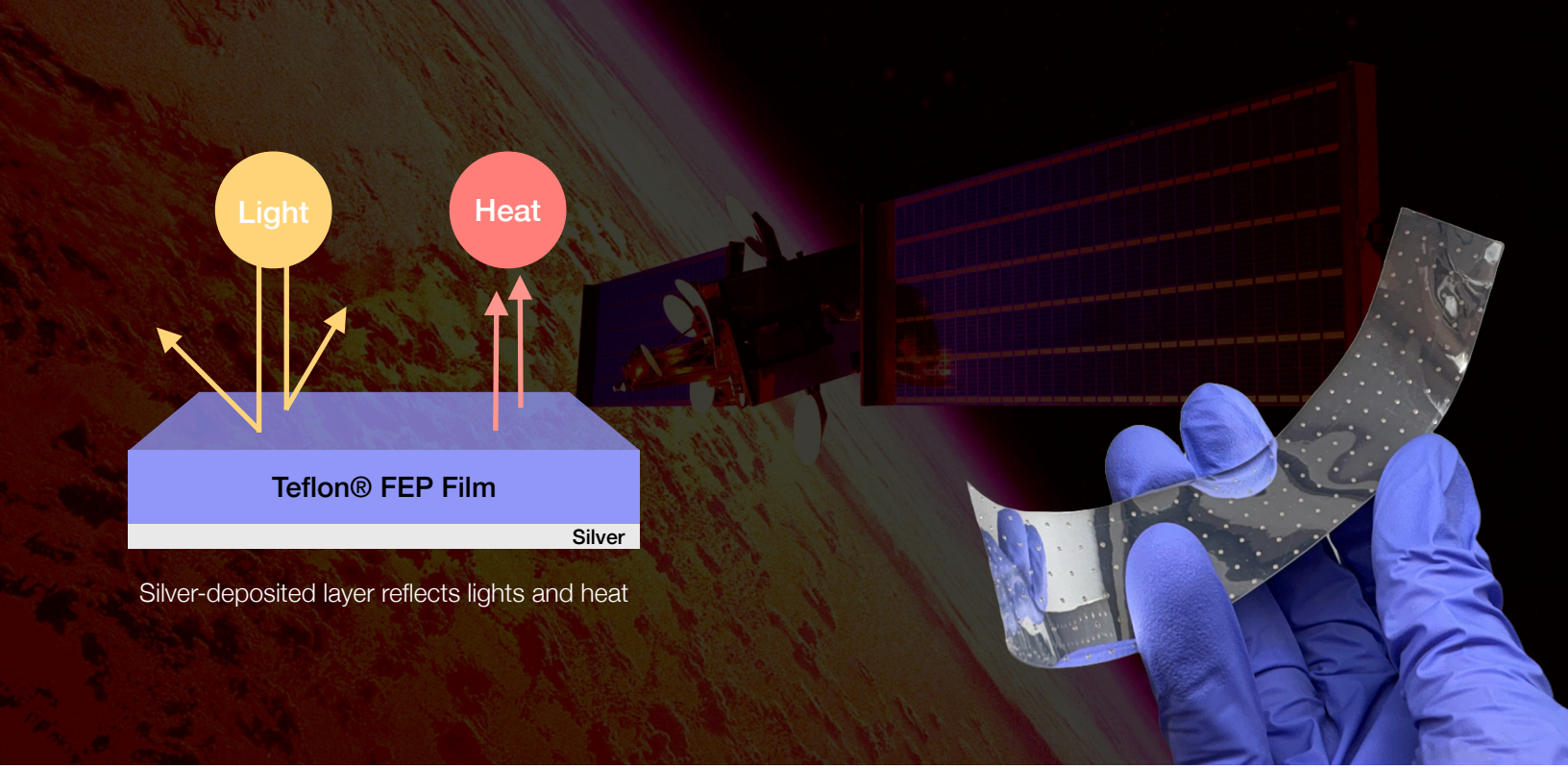
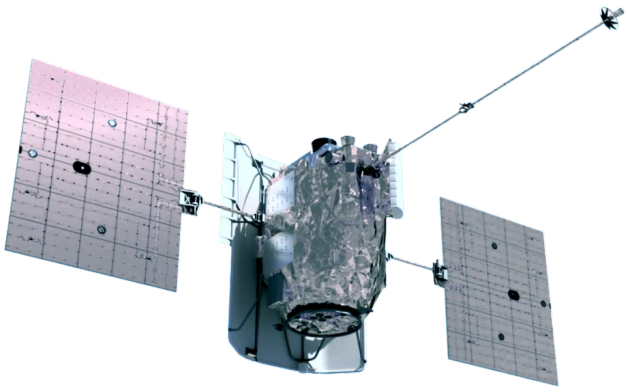


αFEP™

For Space and High Power Performance Applications

SQUID3 Space™ Silver AlphaFEP is a high-performance flexible film radiator technology manufactured for space, cryogenic, and optical applications. Also known as Silver Teflon® or Ag/FEP, SQUID3's Silver AlphaFEP is commonly implemented as a Flexible Optical Solar Reflector (FOSR). From LEO small satellites to mega constellations, Silver AlphaFEP is optimized for bonding on wide-profiled structural panels. On-orbit degradation is well-characterized by NASA, ESA, and JAXA in flight literature.



Manufactured using magnetron sputtering process, silver (Ag), indium tin oxide (ITO), and silicon dioxide (SiO2) thin films are vacuum deposited onto Teflon® FEP substrates. SQUID3 Space™ Silver AlphaFEP provides excellent thermophysical and optical properties, with high infrared emittance and low solar absorptance values. Silver AlphaFEP incorporates FEP film exclusively extruded from Teflon® FEP 100 resin.

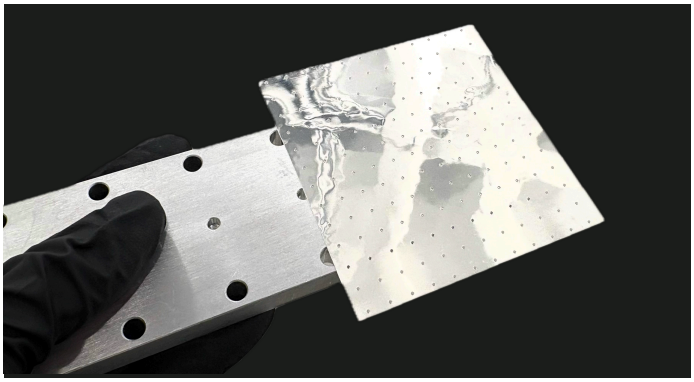
- Low Solar Absorptance
- High Reflectance in UV-VIS-NIR
- High Emittance in Infrared Band
- Resistance against Atomic Oxygen
- Low Outgassing per ASTM E-595
- Available in Roll Formats
- Easy to Cut to Size
- 5-Year LDEF Degradation Data

Disclaimer: Teflon® is a Registered Trademark of The Chemours Company FC, LLC

SQUID3 SPACE

αFEP™ Silver AlphaFEP Tape Technical Datasheet

Physical Properties		
Thickness	mil (µm)	10 (254)
		5 (127)
Width*	inches	2
		4
		12
		20



*custom widths up to 48 inches

Standard Configurations			With AO-Resistant Coatings	
Part Number	**AF500**	**AF1000**	**SAF500**	**SAF1000**
FEP Thickness	5 mil	10 mil	5 mil	10 mil
Solar Absorptance	< 0.1		< 0.1	
Hemispherical Emittance	> 0.75	> 0.85	> 0.75	> 0.85
3M™ PSA Type	966		966	
Surface Coatings	None		25 nm SiO2	
Perforation	None		None	
Lead Time	6~8 weeks		6~8 weeks	

With Surface Charge Mitigation ITO Coatings						
Part Number	**IAF500**	**IAF500-P**	**IAF500-P-C**	**IAF1000**	**IAF1000-P**	**IAF1000-P-C**
FEP Thickness	5 mil			10 mil		
Solar Absorptance	< 0.14			< 0.15		
Hemispherical Emittance	> 0.75			> 0.81		
3M™ PSA Type**	966	966	9703	966	966	9703
ITO Sheet Resistance	<1,000 Ω/sq					
Perforation***	-	✓	✓	-	✓	✓
Lead Time (weeks)	6~8	6~8	8~14	6~8	6~8	8~14

** 3M 9703 Electrically Conductive PSA enables direct Z-axis electrical grounding from ITO topcoat to spacecraft structure
*** Standard perforation pattern has 0.03~0.06" (0.76~1.5 mm) diameter holes on 0.5" (12.7 mm) centers

3M™ PSA Type	966	9703
Continuous Temperature [°C]	-60 to 120	-60 to 85
Intermittent Temperature [°C]	-185 to 230	-75 to 85

Materials Quality and Traceability

SQUID3 Space™ Silver AlphaFEP Tape is manufactured under a certified ISO9001:2015 Quality Management System facility. Complete material and manufacturing lot records, which include archive samples of finished product, are maintained by SQUID3. All products are shipped with a Certificate of Analysis.

Version 2026/11
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