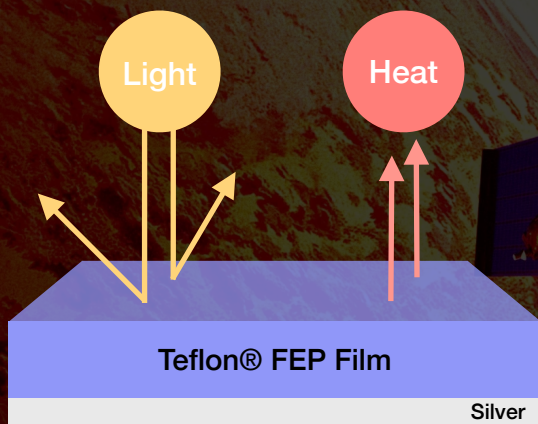
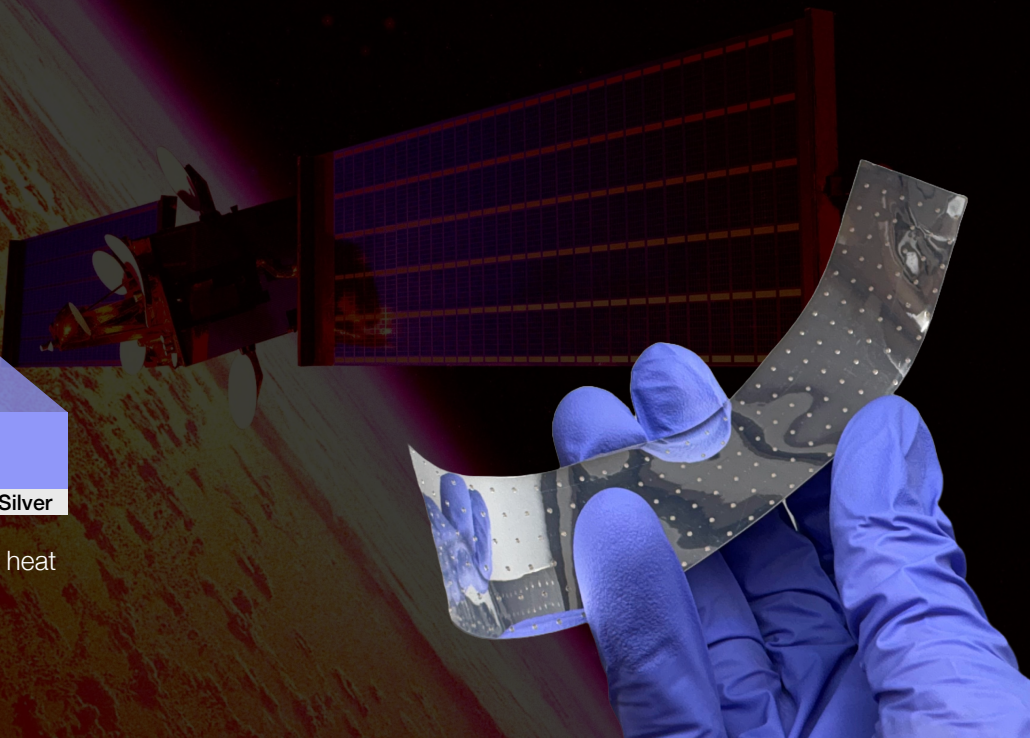




Silver-deposited layer reflects lights and heat

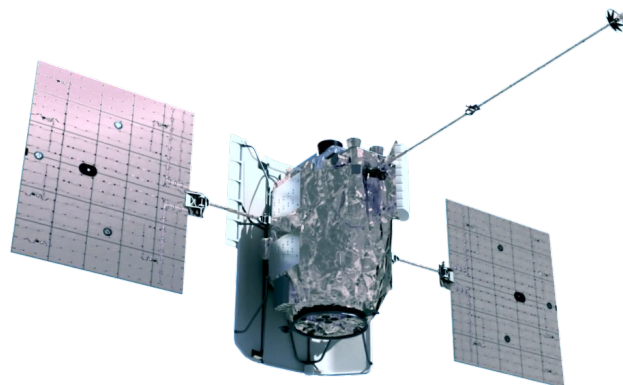


# $\alpha$ FEP™

## 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 (SiO<sub>2</sub>) 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

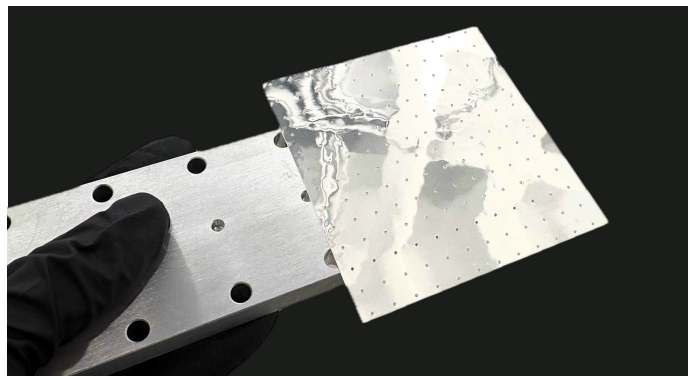


# **$\alpha$ FEP™** Silver AlphaFEP Tape Technical Datasheet

## Physical Properties

|           |                |          |
|-----------|----------------|----------|
| Thickness | mil ( $\mu$ m) | 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     |        | < 0.14     | < 0.15  |
| Hemispherical Emittance | > 0.75    | > 0.84 | > 0.75     | > 0.84  |
| 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 $\Omega$ /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 2026/09

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