

Technical Datasheet

SM-CS-402 Adhesive

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Epoxy Medium-Temperature Curing Cryogenic Structural Adhesive Film

Key Properties

- Revolutionary Large-Area Application
 - Gentler 120°C Curing Profile
 - Outstanding Cryogenic Toughness & Strength
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Product Description

SM-CS-402 is a highly tough, ultra-low temperature resistant epoxy adhesive film capable of bonding various metallic and non-metallic materials. It operates between -269°C and +60°C, exhibiting good bonding strength at both room temperature and ultra-low temperatures, making it suitable for structural bonding in various ultra-low temperature environments. The film has good storage stability below 40°C; it can be stably stored for a prolonged period even without a low-temperature storage environment.

Applications

- Aerospace structures including launch vehicle engine components
 - Large-scale cryogenic sensor mounting and sealing.
 - Large-area cryogenic structural bonding where liquid adhesive application is impractical
 - Functional patch material matrix for extreme low-temperature environments
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Product Data

Property	Value
Appearance	Yellow semi-solid liquid
Cured Appearance	Light greenish yellow

Processing

- **Surface Preparation:**

Degrease the substrate surface with acetone or gasoline, abrade (do not cross-hatch), and allow dry before use.

- **Adhesive Application:**

Tear off the release film from one side of the adhesive film, apply it evenly to the bonding surface, tear off the second release film, attach the other bonding surface, and cure under pressure after pressing firmly.

- **Curing Profile:**

120°C * 3h..

Storage & Handling

- **Storage Conditions:** Store in a dark, cool place.

- **Shelf Life:** 12 months at 0°C.

Typical Cured Properties

Property	Value	Test Method
Viscosity (mPa.s, 25±1°C)	30000~50000	GB/T 2794-2013 (Brookfield)
Storage Life	> 12 months at 0°C	
Tensile Shear Strength (23°C, MPa)	20	GB/T 7124-2008
Tensile Shear Strength (-196°C, MPa)	20	GB/T 7124-2008
Elongation at break	130-180%	GB/T 2567-2008
Tensile Strength (MPa)	20-30	GB/T 2567-2008
Hardness	60-70 Shore D	GB/T 2411-2008
Operation Temperature	-196~60°C	Min: Lowest tested strength limit; Max: Approx. 50% strength loss