

Technical Datasheet

SM-CS-104 Adhesive

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Polyurethane Extended-Pot-Life Cryogenic Adhesive

Key Properties

- **Balanced Rigid-Flexible Mechanical Matrix**
 - **Extended Operational Window**
 - **Cost-Effective Non-Contact Solution**
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Product Description

SM-CS-104 is a two-component polyurethane cryogenic adhesive capable of bonding various metallic and non-metallic materials. It can be used within a temperature range of -269°C to +60°C, features high bonding strength, and is suitable for cryogenic fields such as the bonding and encapsulation of high-pressure liquefied natural gas (LNG) containers, pipelines, and components. This adhesive can be cured at room temperature or with heat, features an operating time of over 1 hour, offers excellent processability, and exhibits good elasticity and toughness at both cryogenic and room temperatures.

Applications

- Complex, large-scale LNG container and pipeline bonding requiring extended working time
- Heavy-duty cryogenic structural assembly..
- Cryogenic insulation panel and dissimilar material bonding.
- Deep-freeze potting and void filling applications

Product Data

Property	Value
Mix Ratio	Part A : Part B = 3:1 (by weight)
Appearance (Part A)	Light yellow liquid
Appearance (Part B)	Brownish Yellow liquid
Cured Appearance	yellow translucent

Processing

- **Surface Preparation:**

Degrease and clean the substrate surface using acetone or gasoline. Mechanically abrade the surface (strictly avoid cross-hatch abrasion) and allow it to air-dry before use.

- **Adhesive Application:**

Accurately weigh components according to the mixing ratio and mix thoroughly until uniform, ensuring all air bubbles are removed. Apply using a scraper, brush, or roller. Assemble immediately and proceed to oven or room temperature curing.

- **Curing Profile:**

Cure at room temperature for at least 3 days, or at 60°C for 4 hours.

Storage & Handling

- **Storage Conditions:** Components are highly moisture-sensitive. Seal containers immediately after use to prevent deterioration. Store in a dry, cool, and well-ventilated area. Keep containers tightly sealed.
- **Shelf Life:** The shelf life is 6 months at room temperature.

Typical Cured Properties

Property		Value	Test Method
Viscosity (mPa.s, 25°C)	Part A	42000-47000	GB/T 2794-2013
	Part B	40-80	
Curing Time (25°C,min)		≥60	
Tensile Shear Strength (23°C, MPa)		≥15	GB/T 7124-2008
Tensile Shear Strength (-196°C, MPa)		≥20	GB/T 7124-2008
Hardness		20~30 Shore D	GB/T 2411-2008
T-Peel Strength (25°C, kN/m)		6	GB/T 2790-1995
Glass Transition Temp (Tg)		10-20°C	
Operation Temperature		-196 ~ 40°C	Min: Lowest tested strength limit; Max: Approx. 50% strength loss
Tack-free time		8h	1 mm to reach a non-sticky surface state.