ExSil™ 4010 A/B

Low Temperature Resistant Silicone Potting Compound

Revision: September 2026

ExSil™ 4010 A/B is a two-part, clear, platinum-catalyzed silicone potting compound with a 1:1 mix ratio by weight or volume. Designed for electronic assemblies exposed to extreme low-temperature environments, it provides reliable environmental protection while maintaining a more linear coefficient of thermal expansion (CTE) to minimize mechanical stress during thermal cycling.

Features & Benefits

- Two-part platinum-catalyzed silicone system
- 1:1 mix ratio by weight or volume
- Clear formulation
- Low viscosity for easy processing
- Long pot life
- Maintains flexibility to approximately -100°C*
- More linear low-temperature CTE
- Helps reduce thermal stress during thermal cycling
- Suitable for harsh cold-environment electronic applications

Note: * Operating temperature range is based on thermal characterization and expected elastomeric performance. Application-specific validation is recommended.

Typical Properties**	Units	Values
Mix Ratio A:B (by weight)		1:1
Appearance		Clear
Viscosity Part A	cP	1084
Viscosity Part B	cP	748
Viscosity Mixed	cP	940
Pot Life at 23°C	hr	>4
Tensile Strength	MPa	1.53
Elongation	%	56
Durometer	Shore A	44
Specific Gravity		1.03
Glass Transition Temperature (Tg)	°C	-123
Crystallization Temperature	°C	-105
Recommended Service Temperature Range*	°C	-100 to 180

Note: These are typical properties and not specifications. Customers must qualify the material for efficacy and regulatory compliance for any given application.
*Recommended service temperature range is based on thermal characterization and expected elastomeric performance. Performance should be verified under application-specific operating conditions.
**Cured properties were obtained by curing the product at 100 °C/30 hr.

Applications

Electronic assemblies, aerospace electronics, satellite components, solar cell encapsulation, sensors, and other applications exposed to extreme thermal cycling and low-temperature environments.

Processing, Fabrication, and Handling

MIXING AND DEAIRING | At the specified mix ratio by weight, accurately weigh Parts A and B into a clean, compatible container. Mix using qualified equipment (e.g., blade, static, centrifugal, or multi-shaft mixers) capable of producing a homogeneous mixture while minimizing heat generation. Excessive heat during mixing may prematurely initiate cure and should be avoided.

Following mixing, de-air the material under reduced pressure to remove entrapped air prior to cure. For assemblies with complex geometries, vacuum-assisted potting or an additional post-dispense deaeration step may be required to ensure complete wet-out and void-free encapsulation.

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Processing, Fabrication, and Handling (continued)

CURING | The recommended cure schedule is 30 minutes at 100 °C in a forced-air oven. Cure time may require adjustment for assemblies with high thermal mass or when the material is dispensed into thick sections or enclosed geometries, as additional time may be required for internal components to reach the target temperature. Alternative cure schedules using lower temperatures may be suitable; however, cure conditions should be established through evaluation on representative parts to ensure complete cure and acceptable final properties.

This is not a self-bonding product. For adhesion to various substrates, an adhesion primer is necessary. Please contact Gelest, if a primer is needed.

POT LIFE | Based on snapback time, the material exhibits a pot life of ≥ 3 hours at 25 °C. Extended working times beyond this period may be achievable; however, the upper limit has not been established.

COMPATIBILITY | This material is compatible with most metals, plastics, and electronic components. Certain materials may inhibit cure of platinum-catalyzed silicones; compatibility should be verified prior to use.

HANDLING AND SAFETY | Users should refer to the safety data sheet for any hazards associated with this product. Proper PPE should be used with this product including, at minimum, safety glasses, and disposable lab gloves.

SHELF LIFE | Based on available data, the estimated shelf life is at least 6 months when stored at ≤ 25 °C and < 65% relative humidity in tightly closed containers. For partially used containers, purging with dry nitrogen after opening is recommended to maximize shelf life.

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