

Thermoset® SC-300M Silicone Encapsulant

Technical Data Sheet

Thermoset® SC-300M silicone encapsulant is a two-component system designed for encapsulation of delicate electronic components. Thermoset SC-300M encapsulant system cures to an extremely soft, gel-like consistency using either room temperature or heat cure.

Features and Benefits:

Low Stress – exhibits low shrinkage and stress on components as it cures.

Excellent Adhesion – provides excellent adhesion to most substrates without the use of a primer.

Durable – composed of an addition-curing polymer that will not depolymerize when heated in confined spaces.

Insulative – provides excellent electrical insulation properties; provides thermal, mechanical and vibration damping.

Application:

Mixing – Thoroughly mix each component prior to combining resin and hardener. Mix Thermoset SC-300M resin with Thermoset SC-300M hardener at a 1:1 ratio, by weight or volume. Automatic meter/mix/dispense equipment may be used for high volume production.

Unless a closed-chamber mechanical mixer is used, air may be introduced into the encapsulant system either during mixing or when catalyzing the mixture. Electrical properties of the silicone encapsulant are best when air bubbles and voids are minimized. Therefore, in extremely high voltage or other critical applications, vacuuming may be appropriate.

Applying – Apply encapsulant system using handheld cartridges or automatic meter/mix/dispense equipment.

Avoid applying encapsulant system to surfaces that contain cure inhibiting ingredients, such as amines, sulfur, or tin salts. If bonding surface is in question, apply a test patch of encapsulant to the surface and allow it to set for the normal cure time.

Curing – Allow encapsulant to cure for 24 hours at room temperature (25°C), or for 16 hours at 25°C followed by 2 hours at 100°C. This time-at-temperature profile refers to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Shelf Life/Storage:

Shelf life of each component is six months when stored at 25°C in original, unopened container.

Thermoset SC-300M hardener evolves minute quantities of hydrogen gas. Do not repackage or store material in unvented containers. Adequately ventilate work area to prevent the accumulation of gas.

Typical Properties*

	SC-300M Resin	SC-300M Hardener	Mixed
Appearance	Clear Liquid	Clear Liquid	Clear Liquid
Viscosity, cP @ 25°C	200	120	160
Specific Gravity	0.99	0.99	0.99
Gel Time, minutes @ 25°C	–	–	50
Working Life, minutes @ 25°C	–	–	30

*Data is typical and not to be used for specification purposes.

Typical Cured Properties**

Thermal Conductivity, W/m·K ASTM D 2214, ISO 22007-2	0.2
Coefficient of Linear Thermal Expansion, ppm/°C @ 25°C	326
Glass Transition Temperature (T _g), °C	-110
Hardness	Soft Gel
Storage Modulus, MPa	2.75×10^{-3}
Volume Resistivity, ohm-cm @ 25°C ASTM D 257	9.9×10^{14}
Dielectric Strength, kV/mm (V/mil) ASTM D 114	19.7 (500)
Dielectric Constant @ 25°C 100 kHz, ASTM D 150	2.7
Dissipation Factor @ 25°C 100 kHz, ASTM D 150	0.005

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Cure schedule of 16 hours at 25°C plus 2 hours at 100°C.

Cautionary Information:

Before using this or any Parker Lord product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Values stated in this document represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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**Parker Lord
Engineered Materials Group**

111 LORD Drive
Cary, NC 27511-7923
USA

phone +1 877 275 5673

www.Parker.com/APS