

# CoolTherm® SC-320 LVH Thermally Conductive Silicone Encapsulant

## Technical Data Sheet

CoolTherm® SC-320 LVH (Low Viscosity) thermally conductive silicone encapsulant is a two-component system designed to provide excellent thermal conductivity for electrical/ electronic encapsulating applications, while retaining desirable properties associated with silicones.

### Features and Benefits:

**Low Viscosity** – maintains low viscosity for ease of component encapsulation compared to other highly thermal conductive materials.

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

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

**High Temperature Resistant** – provides excellent resistance for cured system that experiences continuous operating temperature up to 200°C; provides excellent thermal shock resistance.

**UL Rated** – provides excellent flame retardancy; UL 94 V-0 certified.

### Application:

**Mixing** – Thoroughly mix each component prior to combining resin and hardener. Mix CoolTherm SC-320 LVH resin with CoolTherm SC-320 LVH hardener at a 1:1 ratio, by weight or volume, until uniform in color. 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 silicone encapsulant using handheld cartridges or automatic meter/mix/dispense equipment.

Avoid applying encapsulant 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 30 minutes at 80°C, or for 24 hours at room temperature (25°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 nine months when stored at 25°C in original unopened container.

CoolTherm SC-320 LVH encapsulant 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-320 LVH Resin	SC-320 LVH Hardener	Mixed
Appearance	Pink Liquid	White Liquid	Light Pink Liquid
Viscosity, cP @ 25°C	6500	6000	6500
Specific Gravity	2.80	2.80	2.80
Gel Time, minutes @80°C	–	–	3.5 - 6
Working Time, minutes @ 25°C	–	–	30

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

**Typical Cured Properties\*\***

Thermal Conductivity, W/m·K Hot Disc Transient Method, ISO 22007-2	2.1
Coefficient of Linear Thermal Expansion, ppm/°C ASTM C 864	160
Hardness Shore A, ASTM D 2240	50
Tensile Strength, MPa (psi) ASTM D 412	0.69 (100)
Lap Shear Strength, MPa (psi) ASTM D 1002	0.90 (131)
Elongation at Break, % ASTM D 412	30
Moisture Absorption, % ASTM D 570-81	< 0.1
Volume Resistivity, ohm-cm @ 25°C	1 x 10 <sup>14</sup>
Dielectric Strength, kV/mm (V/mil) ASTM D 149	7.9 (200)
Dielectric Constant @ 25°C 1 MHz, ASTM D 150	3.25
Dissipation Factor @ 25°C 1 MHz, ASTM D 150	< 0.01
Extractable Ionic Contaminants, ppm	
Chloride	< 10
Sodium	< 10
Potassium	< 10
Ammonium	< 10
Bromide	< 10
Sulfate	< 10

\*\*Data is typical and not to be used for specification purposes.  
Cure schedule of 2 hours at 80°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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