CoolTherm™ SC-320 THK Thermally Conductive Silicone

Description

LORD CoolTherm™ SC-320 THK thermally conductive silicone is a two-component system designed to provide excellent thermal conductivity for electrical/electronic applications, while retaining desirable properties associated with silicones.

Features and Benefits

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

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

Thixotropic Viscosity – provides low viscosity during dispensing, with minimal flow after dispensing.

Environmentally Resistant – 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 THK resin with CoolTherm SC-320 THK 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 system either during mixing or when catalyzing the mixture. Electrical properties of the silicone 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 using handheld cartridges or automatic meter/mix/dispense equipment.

Avoid applying silicone 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 silicone to the surface and allow it to set for the normal cure time.

Typical Properties*

	SC-320 THK Resin	SC-320 THK Hardener	Mixed
Appearance	Pink Liquid	White Liquid	Light Pink Liquid
Viscosity	Light Body Paste	Light Body Paste	–
Specific Gravity	3.1	3.1	3.1
Gel Time, min @ 121°C	–	–	2-5
Working Life, min @ 25°C	–	–	40

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

Typical Cured Properties**

Volume Resistivity, ohm-cm @ 25°C ASTM D 257	>1 x 10^{14}
Thermal Conductivity, W/mk Hot Disc Transient Method	3.0
Coefficient of Linear Thermal Expansion, ppm/°C ASTM C 864	110
Hardness Shore A, ASTM D 2240	60
Tensile Strength, psi ASTM D 412	290
Elongation at Break, % ASTM D 412	50
Moisture Absorption, % ASTM D 570-81	<0.1
Dielectric Constant @ 25°C 1 MHz, ASTM D 150	6
Dissipation Factor, % @ 25°C 1 MHz, ASTM D 150	<1
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 60 minutes at 125°C.

Curing – Allow material to cure for 24 hours at room temperature (25°C) or for 60 minutes at 125°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 from date of manufacture when stored at 25°C in original, unopened container.

CoolTherm SC-320 THK silicone 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.

Cautionary Information

Before using this or any 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.

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