CoolTherm® SC-324 Silicone Encapsulant

Handling/Application Notes

CoolTherm® SC-324 silicone encapsulant is a two-component, thermally conductive system designed to provide excellent thermal conductivity for electrical/electronic encapsulating applications, while retaining desirable properties associated with silicones.

CoolTherm SC-324 encapsulant offers a convenient 1:1, by weight or volume, mix ratio. It has a very low mixed viscosity for a filled encapsulating resin system.

CoolTherm SC-324 encapsulant is composed of an addition-curing polydimethyl siloxane polymer that will not depolymerize when heated in confined spaces. As with all silicones, CoolTherm SC-324 encapsulant generates no exotherm as it cures. It also exhibits low shrinkage and stress on components as it cures. CoolTherm SC-324 encapsulant can be either room temperature cured or heat cured for maximum adhesion.

Handling Recommendations:

The inherently low viscosity of CoolTherm SC-324 encapsulant will lead to component stratification and filler settling during prolonged storage. It is important to thoroughly re-suspend the ingredients of each individual container prior to combination. This can be accomplished through manual or mechanical means.

Caution: Do not exceed 70°C during the mixing process.

Typical mechanical agitation would include:

- Single shaft dispersion utilizing a 4-inch dispersion blade. Scrape bottom of container with a clean, dry spatula until clumps of agglomerated filler are loosened. Blend thoroughly at 350-500 rpm until a homogeneous mixture is achieved.
- Turbulent agitation employing a common industrial paint shaker. Typically, six minutes on a standard 100 V industrial paint shaker with 3-axis mixing action is sufficient for thorough resuspension.

Deairing and Evacuation:

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, vacuum may be appropriate.

Should vacuuming prove to be necessary for the application, the mixed silicone encapsulant should be deaired in a container large enough to allow for expansion from two to five times the original volume.

A vacuum of 2-20 mm Hg for two to five minutes is generally adequate for small (one quart or less) batches. Larger batches may require longer vacuum time, lower pressures (<2 mm Hg), or introduction of the silicone encapsulant into the chamber in thin streams. Once the silicone encapsulant has been adequately deaired, the vacuum should be slowly released.

Cure Inhibition:

Avoid applying CoolTherm SC-324 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 CoolTherm SC-324 encapsulant to the surface and allow it to set for the normal cure time.

Cleanup:

Disposable containers and utensils are recommended when working with silicones. However, when disposable materials are impractical, uncured silicone can be removed by cleaning equipment with solvent. Observe appropriate precautions when using flammable solvents. Solvent-cleaned utensils should be thoroughly dried before reuse; any remaining solvent can contaminate the next application.

Shelf Life/Storage:

Shelf life of each component is six months when stored at 5-30°C in original, unopened container. The material must be periodically rotated within its container to maintain maximum shelf life. Settling will occur if not mixed.

CoolTherm SC-324 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.

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.

OD TT3066E 12/23 Rev.1

Parker Lord
Engineered Materials Group

111 LORD Drive
Cary, NC 27511-7923
USA

www.Parker.com/APS