

Electrolube® SC4004

Silicone Resin

DESCRIPTION

Electrolube® SC4004 is a two-part silicone potting and encapsulation resin designed for the protection of electronic devices. When cured, this material forms a soft, flame retardant, and thermally conductive polymer. Quick heat dissipation extends electronic life.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Good flow characteristics to allow the potting of difficult and complex geometries.
- Due to its low stress during and after cure, this material will not crush or damage delicate components and is vibration resistant.
- Addition-curing silicone polymer that will provide good dimensional stability and low shrinkage, making it an excellent choice to withstand temperature extremes, radiation, ozone exposure, moisture and/or steam.

PRODUCT INFORMATION

Please contact your customer service representative for information on available package sizes.

APPROVALS

Standard	Status
RoHS Compliant (2015/863/EU)	Yes

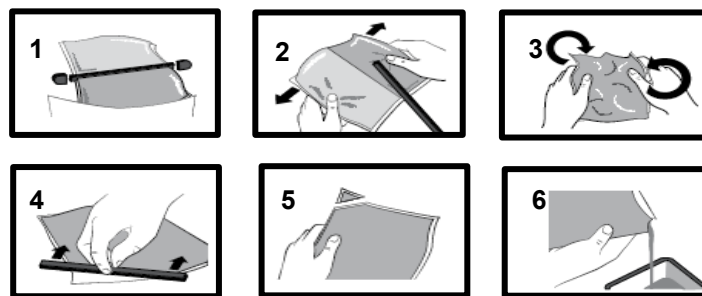
PHYSICAL PROPERTIES

Category	Results
Liquid Properties	
Base Material	Silicone
Color Part A - Resin Part B - Hardener	Off White Grey
Density (g/mL) Part A - Resin Part B - Hardener	1.67 1.67
Viscosity (mPa s 23 °C) Part A Part B Mixed System	6,000 6,000 6,000
Mix Ratio Weight Volume	1:1 1:1
Usable Life (20 °C)	20 minutes
Gel Time (23 °C)	60 minutes
Cure Time 23 °C 80 °C 100 °C	24 hours 60 minutes 30 minutes
Storage Conditions	Dry Conditions: Above 15 °C, Below 30 °C
Shelf Life	6 Months
Cured System	
Color (Mixed System)	Grey
Cured Density (g/mL)	1.62
Temperature Range (°C)	-50 to 200
Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	225

Category	Results
Hardness (23 °C)	A45
Dielectric Strength (kV/mm)	20
Permittivity @ 100 Hz	3.1
Permittivity @ 50 kHz	3.2
Dissipation Factor @100 Hz	0.0027
Loss Tangent @ 50 kHz	0.002
Thermal Conductivity (W/m.K)	1.0
Flame Retardancy	Meets UL 94 V-0

APPLICATION GUIDELINES – RESIN PACKS

When in Resin pack form, the resin and hardener are mixed by removing the clip and moving the contents around inside the pack until thoroughly mixed. To remove the clip, remove both end caps, grip each end of the pack and pull apart gently. By using the removed clip, take special care to push unmixed material from the corners of the pack. Mixing normally takes from two to four minutes depending on the skill of the operator and the size of the pack. Both the resin and hardener are evacuated prior to packing so the system is ready for use immediately after mixing. The corner may be cut from the pack so that it may be used as a simple dispenser.



APPLICATION GUIDELINES - BULK

Bulk Mixing

When mixing, care must be taken to avoid the introduction of excessive amounts of air. Automatic mixing equipment is available which will not only mix both the resin and hardener accurately in the correct ratio but do this without introducing air. Containers of Part A (Resin) and Part B (Hardener) should be kept sealed at all times when not in use to prevent the ingress of moisture. Bulk material must be thoroughly mixed before use. Incomplete mixing will result in erratic or partial curing.

GENERAL

Sedimentation of the resin has been minimized by careful attention to the formulation. However, any sediment which may have occurred over long periods of time must be dispersed before removing any material from the container. This dispersion can be carried out (if necessary) by stirring with a broad-bladed spatula or gently rolling the can. Take care not to introduce excessive amounts of air during this operation or it may be necessary to re-evacuate the resin. Sedimentation will be accelerated by storage at high temperatures. Sedimentation found in resin packs forms no problem since the sediment is re-mixed when the pack is used.

Addition cure uses a platinum catalyst to initiate curing and do not produce any by-products. Once catalysed, the cure will complete, even in a sealed enclosure. No atmospheric exposure is required.

IMPORTANT: Contains the platinum catalyst, great care should be taken when using automatic dispensing equipment. Please ensure that it is not contaminated by residual hydride containing rubber in the dispensing equipment, as curing will result. If in doubt, it's advised to thoroughly purge the equipment with a suitable hydrocarbon solvent or silicone fluid.

Great care must be taken when handling and mixing all addition cured silicone elastomer systems, that all the mixing tools (vessels and spatulas) are clean and constructed in materials which do not interfere with the curing mechanism

All surfaces must be clean before the mixed resin is applied. Certain materials, chemicals, curing agents and plasticisers can inhibit the cure of silicone resins. The most notable of these include:

- Organometallic compounds including tin complexes
- Silicone rubber containing tin catalysts, epoxy resin catalysts and even contact with materials containing certain of these substances e.g., moulding clays, sulphur vulcanised rubbers, condensation cure silicone rubbers, onion, and garlic
- Sulphur, polysulphides, polysulphones and arsenic
- Amines, urethanes, or other amine containing materials
- Unsaturated hydrocarbon plasticisers
- Some solder flux residues

ADDITIONAL INFORMATION

Cleaning: It is far easier for machines & containers to be cleaned before the resin has been allowed to cure. RRS is suitable for cleaning machines and containers and cured resin may be slowly softened and removed by soaking in our RRS.

Curing: Do not heat cure large volumes immediately. Allow these to gel at room temperature and post-cure at high temperature if required (refer to liquid properties for details). Small volumes (<250 mL) may be heat cured immediately.

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

CONTACT INFORMATION

www.macdermidalpha.com

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE . Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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