

## SC4003E

### Silicone Resin

#### DESCRIPTION

**SC4003E** is a two-part silicone potting and encapsulating resin designed for the protection of electronic devices. It has excellent high temperature properties, suitable for use in applications where the operating temperature will be up to 200 °C. It is particularly suited to applications where thin films are required due to its moisture cure nature.

READ ENTIRE TECHNICAL BULLETIN BEFORE USING THIS PRODUCT

#### FEATURES AND BENEFITS

- Good flow characteristics to allow the potting of difficult and complex geometries
- Simple 1:1 mix ratio, for ease of processing
- Wide temperature range ideal for applications requiring high temperature resistance
- Soft resin, exhibits low stress on components

#### APPROVALS

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

#### PRODUCT INFORMATION

For available packaging sizes please visit:

[electrolube.com](http://electrolube.com)

### PHYSICAL PROPERTIES

| Category   | Results                                  |
|--|--|
| <b>Liquid Properties</b>   |  |
| Base Material  | Silicone                                 |
| Color<br>Part A – Resin<br>Part B - Hardener   | Black<br>White                           |
| Density<br>Part A - Resin (g/mL)<br>Part B - Hardener (g/mL)                               | 1.43<br>1.43                             |
| Viscosity (mPa s 23 °C)<br>Part A<br>Part B<br>Mixed System                                | 4000<br>3000<br>3500                     |
| Mix Ratio<br>Weight<br>Volume  | 1:1<br>1:1                               |
| Usable Life (20 °C)  | 45 minutes                               |
| Gel Time (23 °C)   | 180 minutes                              |
| Cure Time (25 °C)  | 24 hours                                 |
| Storage Conditions   | Dry Conditions: Above 15 °C, Below 30 °C |
| Shelf Life   | 12 Months                                |
| <b>Cured System</b>  |  |
| Color (Mixed System)   | Black                                    |
| Thermal Conductivity (W/m.K)   | 0.7                                      |
| Current Density (g/mL)   | 1.43                                     |
| Temperature Range (°C)   | -60 to 200                               |
| Max Temperature Range<br>(Short Term (°C)/30 Mins)<br>(Application and Geometry Dependent) | 220                                      |

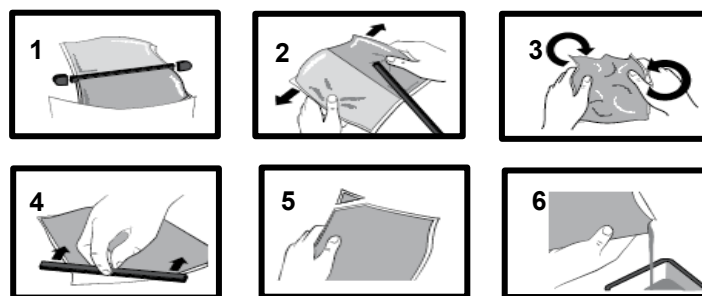
| Category                    | Results          |
|-----------------------------|------------------|
| Volume Resistivity (ohm-cm) | 10 <sup>14</sup> |
| Dielectric Strength (kV/mm) | 22               |
| Hardness*                   | A75              |
| Flame Retardancy            | Meets UL 94 V-0  |
| Tear Strength (N/mm)        | 6                |
| Shrinkage                   | <4%              |

\* Final hardness achieved after 7 days: humidity dependent.

### APPLICATION GUIDELINES – RESIN PACKS

#### Mixing Procedures

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 three 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. There is also a YouTube video ([Mixing Instructions](#)) available on the Electrolube channel to show the mixing process.



### APPLICATION GUIDELINES - BULK

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 or use of the wrong mix ratio will result in erratic or partial curing.

### GENERAL

Sedimentation of the resin has been minimised 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.

SC4003E is a moisture curing system. Relative humidity of 50% or above is preferred for curing; the thickness of the layer will affect the rate of initial cure – the higher the thickness applied, the longer it will take to reach the required strength. Moisture cure systems use humidity during curing and cannot be accelerated using heat. The cure process will only take place if the material is open to the atmosphere and curing will be adversely affected if access to humidity is removed prior to the completion of the cure process.

### 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.

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
- Sulphur, polysulphides, polysulphones or other sulphur containing materials
- Amines, urethanes, or other amine containing materials
- Unsaturated hydrocarbon plasticisers
- Some solder flux residues

**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

To confirm this document is the most recent version, please contact

**TechnicalSupportTeam@hkw.co.uk**

[www.electrolube.com](http://www.electrolube.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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