# SCTP
## Surface-Cure Thermal Paste

SCTP is a specially designed thermal interface material and is recommended where the efficient and reliable thermal coupling of electrical and electronic components is required or between any surface where thermal conductivity of heat dissipation is important. SCTP is specifically designed to resist pumping out of the thermal interface material from the bond line and can be applied using industrial dispensing equipment or via screen/stencil printing onto the contact surfaces.

- Pump-out resistant and high thermal stability; ideal for applications with rapid temperature cycling
- Solvent-free, efficient application; can be applied by screen/stencil print or dispensing equipment
- Good thermal conductivity and low thermal resistance; designed for use at the thermal interface
- Non-setting; allows simple/efficient rework of components and minimises effects of CTE mismatch

| | | |
|---|---|---|
| **Approvals:** | **RoHS Compliant (2015/863/EU):** | **Yes** |
| **Typical Properties:** | Colour: | White |
| | Base | Silicone Oil |
| | Thermo-conductive Component: | Powdered metal oxides |
| | Density @ 20°C (g/ml): | 2.6 |
| | Viscosity (Pa•s) | 100-150 |
| | Thermal Conductivity (Guarded Hot Plate): | 1.20 W/m•K (calculated) |
| | Thermal Conductivity (Heat Flow): | 0.80 W/m•K |
| | Temperature Range: | -50°C to +200°C |
| | Weight Loss after 96 hours @ 100°C: | <0.8% |
| | Permittivity @ 1 MHz: | 4.9 |
| | Volume Resistivity: | 1 x $10^{12}$ Ohms-cm |
| | Dielectric Strength: | 12 kV/mm |
| | Flame Retardancy: | Meets UL94 V-0 |

| Description | Packaging | Order Code | Shelf Life |
|---|---|---|---|
| Surface-Cure Thermal Paste | 310ml Syringe | SCTP310ML | 6 months |

Copyright Electrolube 2013

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

Ashby Park, Coalfield Way,
Ashby de la Zouch,
Leicestershire LE65 1JR
T +44 (0)1530 419 600
F +44 (0)1530 416 640
BS EN ISO 9001:2008
Certificate No. FM 32082

## Directions for Use

Thermal interface materials can be applied to the base and mounting studs of diodes, transistors, thyristors, heat sinks, silicone rectifiers and semi-conductors, thermostats, power resistors and radiators, to name but a few. When the contact surfaces are placed together, a firm metal-to-metal contact will only be achieved on 40 – 60% of the interface, depending on the smoothness of the surfaces. This means that air, which has relatively poor thermal conductivity, will account for the balance of the interface. Only a small amount of compound is required to fill these spaces and thus dramatically increase the effective surface area for heat transfer.

It is important to note that the quality of application of a thermal paste can be as important as the thermal conductivity of the material applied; best results are achieved when a uniform, thin coat is applied between the mating surfaces. Apply a thin layer of compound to one of the contact surfaces using a brush, spatula, roller, automated system or screen printing technique. Ensure that the entire interface is covered to avoid hot-spots from forming. Any excess paste squeezed out during the mounting process should be removed.

## Test Information

A test method was created to illustrate the effects of pump-out during thermal cycling. The below pictures show the application of SCTP, a non-silicone paste and a silicone paste between a sheet of aluminium and a glass plate. The samples were subjected to a thermal shock programme; -40 to +125ºC for 100 cycles. It is evident that SCTP has far superior resistance to thermal cycling and the effects of pump-out when compared to standard silicone and non-silicone thermal pastes. Thus, with such minimal change during environmental testing SCTP can help to greatly reduce thermal resistance at the interface over the lifetime of the device.



**SCTP**



**Non-Silicone Paste**



**Silicone Paste**

Copyright Electrolube 2013

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

Ashby Park, Coalfield Way,
Ashby de la Zouch,
Leicestershire LE65 1JR
T +44 (0)1530 419 600
F +44 (0)1530 416 640
BS EN ISO 9001:2008
Certificate No. FM 32082

## Additional Information

There are many methods of measuring thermal conductivity, resulting in large variances in results. Electrolube utilise a heat flow method which takes into account the surface resistance of the test substrate, thus offering highly accurate results of true thermal conductivity. Some alternative methods do not account for such surface resistance and can create the illusion of higher thermal conductivity. Therefore, when comparing thermal conductivity measurements it is important to know what test method has been utilised. For more information please contact the Electrolube Technical Department.

The rate at which heat flows is dependent on the temperature differential, the thickness and uniformity of the layer, and the thermal conductivity of the material. Products with the same comparable thermal conductivity value may have very different efficiencies of heat transfer in the end application depending on how successfully a thin even film can be applied. A full range of heat transfer products are available from Electrolube: standard and high thermal conductivity pastes (HTS, HTSP), non-silicone based pastes (HTC, HTCX, HTCP), gap filling materials (HTCPX), Silicone RTVs (TCORP, TCOR, TCER), epoxy adhesives (TBS) and encapsulation resins (ER2220, UR5633, SC2003).

Revision 3: Jan 2019

Copyright Electrolube 2013

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

Ashby Park, Coalfield Way,
Ashby de la Zouch,
Leicestershire LE65 1JR
T +44 (0)1530 419 600
F +44 (0)1530 416 640
BS EN ISO 9001:2008
Certificate No. FM 32082