Technical Data Sheet

TBS
Thermal Bonding Compound

Product Description

Thermal Bonding Compound is a two part epoxy bonding system which utilises metal oxides to provide excellent thermal conductivity whilst being electrically insulating. It is especially useful in the manufacture of heat sink assemblies where 'piggy back' arrangements are applied and where the manufacture design of heat sinks does not allow for welding or brazing techniques to be employed due to complexity or geometry of the fins. TBS is also ideal for use as a bonding medium in surface mounting assemblies.

Bare metal parts and heat sinks can be coated with Thermal Bonding Compound to avoid the risk of short circuiting if they contact other parts due to vibration damage. Chassis assemblies can be used as heat sinks by coating them with thermal bonding material and mounting components on them - the chassis can still be earthed.

A full range of heat transfer products are available from Electrolube. This range includes silicone and non-silicone pastes (HTS & HTC), RTV rubbers (TCOR & TCER) and an epoxy based potting resin (ER2074).

Features

- Very good thermal conductivity.
- Excellent electrical insulation characteristics.
- Solvent free system ensures no 'honeycomb' effect on curing.
- Unique filling system ensures that, after curing, mating surfaces cannot come into contact thus ensuring no electrical leakage through the bond.
- Extremely thin curing coating of approx. 200 microns.
- Ideal as bonding medium for surface mounting assemblies.
- Components operate at thermal equilibrium thus ensuring uniform performance throughout the temperature range.
- Bonds wide range of surfaces including dissimilar metals, epoxies, acrylics, poly-carbonates, etc.
- Remains flexible until cured and any minor adjustments required can be effected.
- Room temperature curing.

Approvals	**RoHS Compliant (2002/95/EC):**	**Yes**
Typical Properties:	Colour	Part A: Blue Part B: Cream
	Viscosity (Pa•s)	70-80 at 1 rpm
	Mix Ratio by Volume	3 parts A 1 part B
	Mix Ratio by Weight	6.66 parts A 2.32 parts B
	Usable Life	3 to 4 hours
	Cure Time	45 mins @ 100°C 75 mins @ 60°C 8 to 12 hrs @ room temperature - hard 48 hours @ room temperature - full cure

Cured Properties:	Operating Temperature Range	-40°C to + 120°C
	Tensile Strength	2200N/cm2
	Deflection Temperature	100°C
	Electric Strength	11 to 12 kV/mm
	Volume Resistivity	1014 to 1015 Ohms/cm
	Thermal Conductivity	1.1 W/mK
	Modulus of Elasticity	2 to 3 GN/m2
		0.29 - 0.435 x 106 lbf/in2
	Specific Heat Capacity	0.5 cal/g/°C @ 30°C - resin
		0.35 cal/g/°C @ 30°C - hardener
	Cured Density (g/ml)	1.85

Packing	**Order Code**	**Shelf Life**
20 ml Twin Syringe System	TBS20S	36 months

Directions for Use

Surfaces must be clean and dry and free from grease, dust and contaminants. Electrolube manufacture a range of solvent and water based cleaning solutions including Ultrasolve (ULS) and Safewash (SWAS).

Mix the two parts of the compound together (as per the mix ratio given below). Apply to one of the prepared surfaces using a clean instrument in a thin even coating. Press the two surfaces together firmly (1-2 bars is adequate and a pressure of over 6 bar should not be applied) - the mixture will remain flexible to allow for positioning adjustments to be made at this stage if necessary.

Additional Information

There are many methods of measuring thermal conductivity, resulting in large variances in results. When comparing thermal conductivity measurements it is therefore important to know what test method has been utilised. TBS was measured using a Guarded Hotplate Method. For more information please contact the Electrolube Technical Department.