# Thermal Bonding Compound

TECHNICAL DATA SHEET

**Product Code: TBS**

## PRODUCT DESCRIPTION

**Thermal Bonding Compound** is a metal oxide loaded two part epoxy bonding system with excellent thermal conductivity properties whilst being electrically insulating. It is an invaluable tool for use in the manufacture of heat sink assemblies in 'piggy back' heat sink arrangements; for the assembly of complex heat sinks thus effecting major cost savings. It is also ideal for use as a bonding medium in surface mounting assemblies.

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

A even higher thermally conductive paste is also available, order code HTSP, for special applications where thermal management is critical.

## PRODUCT USE

**Thermal Bonding Compound** can be used in the construction of heat sinks where extrusion is impossible because of the closeness of the fins or the shape, thus replacing expensive welding or brazing techniques. 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.

## FEATURES

* Excellent tensile strength.

* Very good thermal conductivity.



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* 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.

## APPLICATION

Surfaces must be clean and dry and free from grease, dust and contaminants - **use Electrolube Ultrasolve** or **Safewash 2000**. Both solvents are 100% Ozone Friendly. Allow solvents to evaporate completely before applying the **Thermal Bonding Compound**. If the surfaces are very contaminated grit or bead blasting may be necessary.

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.



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## TYPICAL PROPERTIES

| | | |
|---|---|---|
| Colour | Part A: | Blue |
| | Part B: | Cream |
| Viscosity: | | Paste |
| Operating Temperature Range: | | -40°C to + 120°C |
| Tensile Strength: | | 2200N/cm$^2$ |
| Deflection Temperature: | | 100°C |
| Electric Strength: | | 11 to 12 kV/mm |
| Volume Resistivity: | | $10^{14}$ to $10^{15}$ Ohms/cm |
| Thermal Conductivity: | | 1.1 W/mK |
| Modulus of Elasticity: | | 2 to 3 GN/m$^2$ |
| | | 0.29 - 0.435 x $10^6$ lbf/in$^2$ |
| 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 |
| Specific Heat Capacity: | | 0.5 cal/g/°C @ 30°C - resin |
| | | 0.35 cal/g/°C @ 30°C - hardener |

| PACKAGING | ORDER CODE |
|---|---|
| 20 ml Twin Syringe System | TBS20S |



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