

TBS

Thermal Bonding System

DESCRIPTION

TBS is a two-part, thermally conductive epoxy system, designed for bonding applications at thermal interfaces. It is ideal for use as a bonding medium in surface mounting assemblies and where the design of heat sinks does not allow for welding or brazing techniques to be employed due to complexity or geometry of the fins.

READ ENTIRE TECHNICAL BULLETIN BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- High bond strength and excellent adhesion; provides an alternative to welding techniques
- Very good thermal conductivity; optimum efficiency of heat dissipation
- Contains solid glass spheres (200 to 300 µm diameter); aids application by controlling the correct coating thickness
- Room temperature curing; simple mixing and curing procedures for ease of use

APPROVALS

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

PRODUCT INFORMATION

For available packaging sizes please visit:

electrolube.com

PHYSICAL PROPERTIES

Category	Results
Typical Properties	
Color Part A Part B	Blue Cream
Viscosity @ 1rpm (Pas)	70 to 80
Mix Ratio (A:B)	3:1
Usable Life	3 to 4 hours
Cure Time 100 °C 60 °C Room temperature	45 minutes 75 minutes 8 to 12 hours – hard 48 hours– full cure
Cured Properties	
Cured Density (g/mL)	1.85
Thermal Conductivity (W/m.K)	1.1
Operating Temperature Range (°C)	-40 to 120
Deflection Temperature (°C)	100
Dielectric Strength (kV/mm)	11 to 12
Volume Resistivity ($\Omega \cdot \text{cm}$)	10^{14} to 10^{15}
Tensile Strength (N/cm ²)	2200
Modulus of Elasticity (GN/m ²) (lbf/in ²)	2 to 3 $0.29 - 0.435 \times 10^6$
Specific Heat Capacity (cal/g·°C @ 30 °C)	0.50 – Part A 0.35 – Part B

APPLICATION GUIDELINES

TBS is especially useful in the manufacture of heat sink assemblies where 'piggyback' arrangements are applied and where the manufactured design of heat sinks does not allow for welding or brazing techniques to be employed due to complexity or geometry of the fins. Bare metal parts and heat sinks can be coated with TBS 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 TBS and mounting components on them - the chassis can still be earthed.

Surfaces must be clean and dry and free from grease, dust and contaminants. We manufacture a range of solvent and water based cleaning solutions for the preparation of surfaces prior to application. Mix the two parts of the compound together (as per the mix ratio given above). Apply to one of the prepared surfaces using a clean instrument, ensuring a thin even coating is achieved. Press the two surfaces together firmly (1 to 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. For full cure, please follow the instructions above.

Store in a cool, dry, dark place, above 4 °C and below 20 °C.

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 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.

Shelf Life: 36 Months

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

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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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