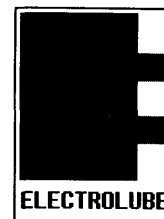


Technical Data Sheet



PRODUCT DESCRIPTION:	Non-Silicone Heat Transfer Compound	DATE:	03/97
PRODUCT CODE:	HTC	PAGES:	2

PRODUCT DESCRIPTION

Electrolube Heat Transfer Compound is recommended where the efficient and reliable thermal coupling of electrical and electronic components is required or between any surface where thermal conductivity or heat dissipation is important. They should be applied to the base and mounting studs of diodes, transistors, thyristors, heat sinks, silicone rectifiers and semi-conductors, thermostats, power resistors and radiators.

HTC contains no silicones and thus cannot migrate onto electrical contacts with consequent high contact resistance, arcing or mechanical wear. Similarly soldering problems caused by silicones will not be encountered.

A non silicone product is essential for applications where the use of silicone in any product is prohibited or where the specification set by the company states this.

A full range of heat transfer products are available from Electrolube. This range includes silicone based pastes for very high temperature applications (HTS), a RTV rubber (TCR), an adhesive epoxy (TBS) 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.

FEATURES

- * Excellent non-creep characteristics.
- * Wide operating temperature range.
- * Excellent thermal conductivity even at high temperatures.
- * Easy to handle.
- * Economic in use.
- * Low in toxicity.
- * White colour enables treated parts to be easily identified.
- * Low evaporation weight loss.

Cont'd...2

PROPERTIES

Colour:	White
Base:	Blend of synthetic fluids
Thermo-conductive Component:	Powdered metal oxides
Thermal Conductivity:	0.9 W/mK
Density @ 20°C:	2.04 g/cm ³
Temperature Range:	-200°C to +130°C
Weight Loss after 96 hours @ 100°C:	1.4%
Permittivity @ 10 ⁶ Hz:	4.2
Specific Resistance:	1 x 10 ¹⁴ Ohms/cm
Dielectric Strength:	42 kV/mm
Penetration:	210-250

PACKAGING**ORDER CODE**

2 ml Syringe	HTC02S
10 ml Syringe	HTC10S
20 ml Syringe	HTC20S
35 ml Luer Lock Syringe	HTC35SL
1 Kg Bulk	HTC01K
25 Kg Bulk	HTC25K

Nato Stock No: 5835-99-775-5881 (20 ml Syringe)

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Technical Data Sheet



PRODUCT DESCRIPTION:	ER2074 Epoxy Resin	DATE:	02/96
PRODUCT CODE:	ER2074	PAGES:	2

PRODUCT DESCRIPTION

ER2074 is a flame retardant epoxy resin exhibiting a very high level of thermal conductivity. **ER2074** is completely free of the abrasive fillers such as alumina which are often used in the formulation of high thermal conductivity resins. This results in substantially less wear on mix and dispense and other processing equipment, eliminating the necessity for using specially hardened coatings for pumps etc. The system exhibits a relatively low viscosity when mixed, and the exotherm temperature rise on curing is low.

The standard colour is white but a range of other colours is available. The system can be supplied in both bulk or Resinpack form.

PRODUCT USE

If in Resinpack form, resin and hardener are mixed by removing the clip (grip each end of the pack and pull gently) and moving the contents around inside the pack until thoroughly mixed. Take special care to push unmixed material from the corners. Mixing normally takes from two to four minutes depending on the skill of the operator. 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.

If in bulk form the resin and hardener are mixed in the ratio:

17.24 : 1 by Weight
7.15 : 1 by Volume

Sedimentation of the resin has been minimised by careful attention to formulation. However, any sediment which may have formed over long time periods in bulk resin must be dispersed before removal of 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 so avoid this.

When mixing resin and hardener, once again avoid introducing excessive amounts of air. Automatic mixing equipment is available from **Electrolube Design Resins** which will accurately mix resin and hardener in the correct proportions without introducing air.

Bulk material or Resinpacks must be thoroughly mixed before use - incomplete mixing will result in erratic or even partially incomplete cure.

Cure the **ER2074** system for at least: 24 hours @ 25°C
or 4 hours @ 60°C
or 1 hour @ 100°C

Cont'd ... 2

Do not hot cure large volumes immediately - allow these to gel at room temperature and post-cure at high temperature if desired. Small volumes may be hot cured immediately.

PROPERTIES OF SYSTEM (@ 25°C)

Time to Double Initial Mixed System	
Viscosity (for 300g sample)	46 minutes
Usable Life (for 300g sample)	90 minutes
Gel Time (for 300g sample)	5 hours
Gel Time (for 30g sample)	7 hours
Gel Time (for 5g sample)	40 minutes @ 60°C
Viscosity of Resin	1570 poise
Viscosity of Hardener	0.58 poise
Viscosity of Mixed System	167 poise
Density of Resin	2.28 g/ml
Density of Hardener	0.93 g/ml
Density of Mixed System	2.11 g/ml

PROPERTIES OF CURED RESIN

Specific Gravity	2.19
Tensile Strength	82 MPa
Deflection Temperature	60°C
Coefficient of Expansion	$30 \times 10^{-6} / ^\circ\text{C}$
Thermal Conductivity	1.26 W/mK
Electric Strength	10 kV/mm @ 20°C
Loss Tangent	0.05 @ 50Hz + 23°C
Permittivity	6 @ 50Hz + 23°C
Volume Resistivity	10^{15} ohm-cm
Flame Retardancy: (two 10 second insertions of 30mm diameter x 3mm thick disc into propane blue bunsen flame)	
Extinguishing time after 1st insertion	0 second
Extinguishing time after 2nd insertion	0 second

HEALTH & SAFETY NOTES

Machines, containers etc. are more easily cleaned before the resin has been allowed to harden. **Electrolube Design Resins OP9004** is a relatively safe non-flammable Cleaner for this purpose. Cured resin may be slowly softened and removed by soaking in **OP9003** Resin Stripper.

Resinpacks stored in a warm dry place have a shelf life of at least 18 months. Bulk material stored in suitable closed containers will have a shelf life of at least two years. The hardener used in the **ER2074** system reacts with atmospheric carbon dioxide and water, so it is especially important to keep containers tightly closed. On storage under cold conditions both the resin and the hardener can crystallise - if this occurs simply warm the container gently until all crystals have re-melted.

The **ER2074** hardener is corrosive, and both the resin and hardener if handled carelessly can cause dermatitis. Gloves, overalls and safety glasses or goggles must be worn. Any resin contamination should be washed from the skin or eyes immediately and thoroughly. Take care not to contaminate food-stuffs.

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