COOLTHERM® EP-6037 EPOXY RESIN

Technical Data Sheet

CoolTherm® EP-6037 epoxy resin is formulated for use with various CoolTherm hardeners to create a two-component epoxy system. The epoxy system is primarily used by the semiconductor industry to form thermally conductive joints in fabricated heat sinks and between heat sinks and power devices. CoolTherm EP-6037 resin can also be mixed with CoolTherm hardeners for bonding semiconductors and transistors to heat sinks, and for general purpose bonding of electronic components.

Features and Benefits

Low Stress: exhibits low shrinkage and stress on components as it cures.

Excellent Adhesion: provides a strong adhesion bond to a wide variety of substrates.

Low Coefficient of Thermal Expansion: minimizes the possibility of cracking during severe temperature cycling.

Application

Mixing: Thoroughly stir CoolTherm EP-6037 resin within its shipping container to ensure uniform dispersion. Transfer amount of resin needed to a clean container and add proper amount of hardener by weight.

Thoroughly mix epoxy system using an air-driven mixer. Be careful not to whip excessive air into the epoxy.

Applying: To ensure a void-free bondline, evacuate epoxy for 5 minutes before application. Apply epoxy to both mating surfaces and press together, squeezing out excess epoxy to obtain a thin bondline. Clamp in position to prevent movement during epoxy cure.

Curing: Cure time will vary depending on hardener used. Refer to cure schedules indicated below. Time-at-temperature profiles refer to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Shelf Life/Storage

Shelf life is one year when stored at 25°C in original, unopened container.

Typical Properties*

Appearance	Black or Green Paste
Viscosity, cP @ 25°C	500,000
Specific Gravity	2.35

*Data is typical and not to be used for specification purposes.

Typical Properties* of Resin Mixed with Hardener

	CoolTherm EP-6010 Hardener	CoolTherm EP-6252 Hardener
Mix Ratio by Weight, Resin to Hardener	100:3.4	100:7.1
Working Life, hours @ 25°C	2	3
Cure Time, hours		
@ 25°C	24	24
@ 65°C	2	2

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Cautionary Information

Before using this or any Parker Lord product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Typical Cured Properties*

	CoolTherm EP-6010 Hardener	CoolTherm EP-6252 Hardener
Thermal Conductivity, W/m·K Hot Disc Transient Method, ISO 22007-2	1.2	1.1
Coefficient of Thermal Expansion, ppm/°C	52	31
Glass Transition Temperature (Tg), °C by TMA	106	70
Hardness Shore D	93	92
Tensile Strength, MPa (psi) @ 25°C	50 (7250)	60 (8700)
Lap Shear Strength, psi @ 25°C Aluminum to aluminum, 1" overlap	1450	2175
Elongation at Yield, %	1.9	4.1
Moisture Absorption, % 10 days @ 25°C	0.076	0.17
Volume Resistivity, ohm-cm @ 25°C	>1 x 10^{15}	>1 x 10^{15}
Dielectric Strength, kV/mm (V/mil) ASTM D 149	>15.7 (>400)	>15.7 (>400)

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