

Product  
Bulletin**E50-502****High Temperature, Long Pot Life,  
Thixotropic Epoxy****GENERAL DESCRIPTION**

E50-502 is a 100% solids, soft, non-sag, two-component epoxy with high temperature resistance and non-flowing properties.

E50-502 is ideal for bonding glass, metals, ceramics, and many kinds of plastics; it is also recommended for fiber-optic connector terminations.

E50-502 displays superb resistance to chemicals and solvents. It can be exposed to 200°C continuous or 300-400°C for many hours, making it suitable for bonding all types of devices that must be exposed to very high temperatures.

The epoxy is self-extinguishing with respect to flammability (FED-STD 406, Method 2021).

Moisture resistance (MIL-1-16923-D), after 7 days at 96% RH, the epoxy exhibits a 0.03% mass increase.

**APPLICATION**

E50-502 is a very reactive system and should only be used for thick or thin film bond line applications. If extra thick sections are needed, it is suggested to gel the epoxy at 25°C or slightly above, then follow by a short post cure at a high temperature.

E50-502 epoxy will change color, from tan to dark amber, when cured. Thus, the cure can be determined by color change.

E50-502 can be applied by spatula, automatic or handheld dispensing equipment.

**SPECIFICATIONS****HANDLING CHARACTERISTICS**

Mix Ratio, Catalyst to Resin, by Weight: 10:1

Workable Pot Life, 100 g @ 25°C: 3 hrs.

Mixed Viscosity @ 25°C cps: 50,000

Mixed Color: dark amber

Shelf Life: 1 yr @ room temp.

**PHYSICAL CHARACTERISTICS**

Hardness, Shore D: 72

Specific Gravity, 25°C / 25°C: 1.11

Lap Shear Strength (@ 25°C): 2,000 psi

Glass Transition Temp. (Tg): 118°C

Coefficient of Expansion (CTE), in / in / °C,

Below Tg:  $43 \times 10^{-6}$

Above Tg:  $230 \times 10^{-6}$

Operating Temperature Range, °C: -50 to +200

Thermal Conductivity, btu / hr / ft<sup>2</sup> / °F / in: 0.05

Thermal Cycling: passed,

100 cycles, -55 to +150°C

Thermal Shock Resistance: passed,

10 cycles, -25 to +125°C

Outgassing to 300 °C / N<sub>2</sub>: 3.5%

pH: 6.6

Cation Analysis, ppm:

Cl<sup>-</sup> - 650

Na<sup>+</sup> - 420

NH<sub>4</sub><sup>+</sup> - 160

K<sup>+</sup> - 440

Total Ion Content: 9 ms / m

**CURE SCHEDULE**

155°C – 1 min.

125°C – 2-5 min.

100°C – 8 min.

80°C – 25 min.

60°C – 2 hrs.