

EpoxyBond 110

Two-Part Epoxy Adhesive

Description

EpoxyBond 110 is a hard, fast-curing, two-component, epoxy adhesive. The two-part formula is mixed 10:1 by volume and cures bubble-free in five minutes at 150 °C (302 °F). It is a reactive system only when heat is applied. Once cured, it is resistant to most chemical etchants and will not outgas under vacuum. A unique feature of EpoxyBond 110 is the red color that appears when cured. For the best results, cure this epoxy by color instead of time.

Mixing Ratio, by VOLUME

10:1 (Part A: Part B)

Curing Schedule

(thin or thick films only, glue line temperature)

5 minutes at 150 °C (302 °F)

10 minutes at 120 °C (248 °F)

30 minutes at 100 °C (212 °F)

Physical Properties (as-mixed)

Pot Life = 8 hours, at 24 °C (75 °F)

Viscosity = 350-550 cP (@ 100 RPM/23 °C)

Physical Properties (as-cured)

Lap Shear Strength = 2440 psi (@ 23 °C)

Die Shear Strength ≥ 10 kg/3400 psi (@ 23 °C)

Tensile Strength = 10,000 psi (@ 23 °C)

Flexural Strength = 18,000 psi (@ 23 °C)

Storage Modulus = 322,000 psi (@ 23 °C)

Percent Elongation = 4.2 (@ 23 °C)

0.05% Water Absorption after 24 hr. at 25 °C (77 °F)

0.1% Water Absorption after 2 hr. at 100 °C (212 °F)

Electrical Properties (as-cured)

Dielectric Strength = 450 V/mil

Dielectric Constant = 3.74 (@ 1 kHz)

Volume Resistivity ≥ 2×10^{13} Ohm-cm (@ 23 °C)

Power Factor = 0.003 (@ 1 kHz)

Dissipation Factor = 0.011 (@ 1 kHz)

Thermal Properties

Flash Point, Part A: 204 °C (400 °F)

Flash Point, Part B: 93 °C (200 °F)

Glass Transition Temperature (Tg) ≥ 90 °C (194 °F)

Heat Deflection Temperature = 150 °C (302 °F)

Degradation Temperature (TGA) = 375 °C (707 °F)

Coefficient of Thermal Expansion (CTE):

CTE Below Tg = 39×10^{-6} in/in/°C

CTE Above Tg = 175×10^{-6} in/in/°C

Applications

EpoxyBond 110 is commonly used to bond glass cover slips to small or delicate samples (such as IC devices), adhere multiple samples for TEM stacking, pre-coat samples prior to encapsulation, and fill PCB microvias, among other mounting applications. EpoxyBond 110 can be applied with a brush or dropper. It has excellent adhesion to many different types of materials, including metals, ceramics, glass, and most plastics.

WARNING!



Refer to the SDS document for additional safety information.

Instructions (IC Cover Slip Technique):

This technique is recommended for when the IC does not have a passivation layer, when rounding occurs during cross-sectioning, or for bond pad protection.

- 1) Using the droppers provided on the bottles, mix 10 drops of Part A (resin) with 1 drop of Part B (hardener) in the mixing cup. Mix thoroughly with a stir stick until the liquids are homogenous in color and no striations appear.
- 2) Using the stir stick, drip the mixed EpoxyBond 110 onto a Glass Cover Slip (#72-20000) so it covers an area slightly larger than the sample/die.
- 3) Place the die into the epoxy, circuit side down, so the edge of the die being cross-sectioned is near the edge of the glass cover slip.
- 4) Place an alligator clip onto the sample to squeeze the excess epoxy, creating a thin layer of adhesive between the sample and the cover slip (this will be thin enough to view the sample under a microscope through the epoxy).
- 5) Place the clamped sample into an oven or onto a hot plate at the appropriate temperature.
- 6) After the epoxy has cured (visually a deep, brick red color), let it cool (do not quench cool). Grind the sharp corners and excess glass from the edges of the die. The edges may also be scored with a scribe and then broken. This will eliminate scoring of the abrasive films used for polishing.

Removal: Cured EpoxyBond 110 can be removed from a sample with Epoxy Dissolver (#145-50210) heated to 150 °C (302 °F). Consult the Epoxy Dissolver instructions for details.

Storage Note: Keep the containers closed when not in use, and do not store above 48 °C (120 °F). The shelf life is one (1) year when stored at room temperature. Refrigeration is not required.