



AC A1450-TX

UV-curable Adhesive Thixotropic Adhesives

PRODUCT DESCRIPTION:

- Base chemistry: epoxy only, cationic polymerization
- One component adhesive ready for use, solvent-free, UV cureable, room temperature stable

PRODUCT USE:

- Bonding glass to glass or glass to metal, glass to ceramic, plastic to ceramic or plastic to metal for display applications.

FEATURES:

- Epoxy only, high adhesion, high Tg, long shelf and working life, room temperature stable, not sensitive to oxygen in cure process, excellent reliability performances, high solvent resistant, robust for solder reflow process.
- Compatible with liquid crystal material.

INSTRUCTIONS FOR USE:

- 1) Clean the substrates to remove contamination, dust, moisture, salt and/or oil
- 2) Dispense adhesive on substrates
- 3) UV cure to bond
- 4) Thermal post cure to improve adhesion

GENERAL USAGE INFORMATION:

Shipment: no restriction on shipment and no cold shipment is needed

Storage: After the adhesive is received in black syringes or amber HDPE bottles, room temperature storage (15-30°C) in the original container is required.

SAFETY AND HANDLING

The uncured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, **gloves and safety goggles**. Read Material Safety Data Sheet before handling

UV CURING CONDITIONS:

- UV Metal Halide or Mercury UV light source with UV-A (320-400 nm) with UV light intensity: 100 to 1,000 mW/cm²
- LED-365 nm with UV light intensity: 100 to 1,000 mW/cm²

| LED-365 nm | | Metal Halide/Mercury(UV-A: 320-400 nm) | |
|-----------------------------------|----------------|--|----------------|
| UV intensity(mW/cm ²) | x time(sec) | UV intensity(mW/cm ²) | x time(sec) |
| or 400 | 30 sec or more | or 400 | 20 sec or more |
| or 500 | 20 sec or more | or 500 | 15 sec or more |
| or 1,000 | 10 sec or more | or 1,000 | 10 sec or more |

- Thermal post cure at 80 to 100°C for 30 to 60 minutes will promote full cure and improve adhesion of bonded parts
- The recommended UV cure dose is at the adhesive. If the substrates absorb curing light, then the actual cure dose needs to be increased.

TYPICAL PROPERTIES

Uncured resin

| | |
|---|------------------|
| Viscosity at 25 °C, mPa.s or cps (shear rate 1/s) | 35,000 to 40,000 |
| Thixotropic index (shear rate: 1/s over 10/s) | 3 |
| Density (g/mL) | 1.1 |
| Storage (°C) | 15 – 25 |
| Shelf life (15 - 25 °C) | 6 months |
| Working life (15 - 25 °C) | 3 months |

Cured film

| | |
|--|------------------------|
| Outgas, weight % (per MIL-STD 883/5011) | 0.15 |
| Outgas, weight % (per Telcordia GR-1221) | 0.12 |
| Water absorption (% , 100 °C until saturation) | 0.2 |
| Water permeability (g/m 24 hrs) (50 °C/95% RH, 75 µm film) | 2.2 x 10 ⁻⁴ |
| Shrinkage (volume, %) | 1 |
| Hardness – Shore D | 85 |
| Glass transition temperature (DMA, °C) | 165 |
| Dielectric Strength (estimated, kV/mm) | 20-25 |
| Refractive index of cured film (25°C) | |
| @ 589 nm | 1.57 |
| @ 1310 nm | 1.56 |
| @ 1550 nm | 1.55 |
| Coefficient of thermal expansion (DMA by compression), 4-5 mm thick sample | |
| below Tg (x10 ⁻⁶), °C ⁻¹ | 76 |
| above Tg (x10 ⁻⁶), °C ⁻¹ | 189 |
| Physical properties tested at 25°C, 50% RH (ASTM D638) | |
| Tensile strength, MPa | 180 |
| Elongation (%) | 5 |
| Young's Modulus, MPa | 2,500 |
| Operating temperature (°C) | -40 to 180 |