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AC A1805-TX

Low Temperature Dual-Curable Epoxy Adhesive

Product Description:
AC A1805-TX is a one component dual curable epoxy for semiconductor and optoelectronics packaging; A1805-TX is suitable for high precision applications such as active alignment.

Applications

- AC A1805-TX is suitable for bonding glass to ceramic, ceramic to ceramic, ceramic to metal or plastic parts to ceramic or metal parts, etc. It is recommended to be used where instant fix for the aligned parts can be accomplished by UV, then thermal post cure of the fixed parts provides complete cure in areas where UV light cannot penetrate.

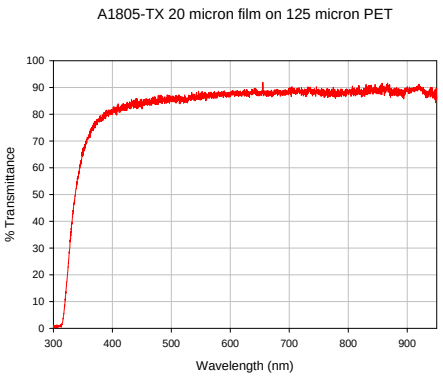
Features

- High Tg
- Thixotropic
- Low moisture permeability
- Good adhesion to various substrates: glass, metal and ceramic
- Excellent thermal stability
- Excellent for hot solder process of >235 °C
- Low CTE
- Dual curable: UV curable or heat curable or UV+heat cure
- Long work life at room temperature
- Operating temperature: -60 to 200 °C

Description

- Dual-curable epoxy sealant

UV-Vis Spectra



TYPICAL PROPERTIES

Liquid:	
Viscosity at 25°C, mPa.s (Brookfield DV-II, shear rate: 10/s)	10,000 to 13,000
Thixotropic Index (1/s over 10/s)	3 – 3.5
Density (g/mL)	1.1
Shelf life (3 –5 °C)	3 months
Shelf life (-20 to -10°C)	6 months
Work life (Pot life, must kept away from light and heat) (20 – 25 °C)	3days
Cured film (fully cured film properties)	
Shrinkage (volume, %)	1
Hardness (after UV+ heat cure) – Shore D	90
Glass transition temperature (°C) (DMA)	130
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile, MPa	240
Elongation (%)	4
Modulus, MPa	10,200
Refractive index of cured film (25°C)	
@ 589 nm	1.57
@ 1310 nm	1.56
@ 1550 nm	1.55

UV curing conditions (film thickness 5-1,000 µm)
** AC A1805-TX can be cured by exposure to UV of adequate intensity. Cure rate depends on light intensity, spectral distribution of light source and exposure time.
** For maxium performance, UV+Heat cure is recommended

Flood system (metal halide or mercury, 320 to 450 nm) – UV dose (J/cm²)	3 to 6
Spot cure system (metal halide or mercury, 320 to 450 nm) – UV dose (J/cm²)	5 to10
LED 365 nm - UV dose (J/cm²)	5-10 (thin film cure)

LED 365 dose required for certain depth of cure

Depth of cure	UV dose (J/cm²)
500 µm	10
750 µm	10 to 15
1 mm	10 to 20

Best curing conditions: UV+heat (80°C for 1 hr)

Heat curing conditions for film thickness of 25-500 µm

@ 80 °C	(if use heat only)	1 to 2 hr
	(if use UV and heat)	0.5 to 1 hr
@ 85 °C	(if use heat only)	1 hr
	(if use UV and heat)	0.5 to 1 hr
@ 95 °C	(if use heat only)	0.5 to 1 hr
	(if use UV and heat)	0.5 hr

IF film thickness is <25 µm, then dual cure (UV+heat) is recommended for curing.
EXCESS UV dose up to 4X is acceptable.
If the substrate is glass, UV curing or UV+heat curing is recommended
A1805-TX has post cure properties. Adhesion testing should be conducted at least 24 hrs after part assembly.

***Minimum intensity recommended for **LED 365 nm system: 100 mW/cm²**
***Minimum intensity recommended for Spot lamp system: 100 mW/cm²
***Minimum intensity recommended for Flood lamp system: 49 WPcm or 125 WPI or 100 mW/cm²
To ensure good curing speed, the humidity is recommended to be < 50% RH

SAFETY AND HANDLING
The un-cured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution.
Use caution in handling this material. 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.