

AC A1705-TX

Thixotropic, **Low Temperature** Dual-Curable Epoxy Sealant for Packaging Applications

Product Description:

AC A1705-TX is a one component dual curable epoxy for attachment of components in semiconductor and optoelectronics packaging.

Features

- High Tg
- 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
- Long work life at room temperature
- Thixotropic

Description

- Dual-curable epoxy sealant

APPLICATIONS

AC A1705-TX is suitable for bonding glass to glass, 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.

TYPICAL PROPERTIES

Liquid: Thixotropic paste

Viscosity @ shear rate 10/s (cps, 25 °C)	21,000 to 26,000
Thixotropic Index (1/s over 10/s)	2
Storage (°C)	20 – 25
Shelf life (20 – 25 °C)	6 months
Work life (Pot life) (20 – 25 °C)	3 months

Cured film (fully cured film properties)

Shrinkage (linear, %)	<0.3
Water permeability (g/m 24 hrs) (50 °C/95% RH, 75 µm film)	3 x 10 ⁻⁴
Outgas, weight % (per Telcordia GR-1221)	0.01
Outgas, weight % (per MIL-STD 883/5011)	0.03
Hardness – Shore D	95
Glass transition temperature (°C) (DMA)	184
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile, psi	80,000
Elongation (%)	3
Modulus, psi	500,000
Coefficient of thermal expansion (TMA), 75 µm film	
below Tg (x10 ⁻⁶), °C ⁻¹	20
above Tg (x10 ⁻⁶), °C ⁻¹	60

UV curing conditions

Flood curing system – UV dose (J/cm²) 3-5

Spot cure system – UV dose (J/cm²)
250 – 450 nm filter 5-10

Heat curing conditions:

@ 125 °C	(if use heat only)	4-5 hr
	(if use UV and heat)	3-4 hr
@ 150 °C	(if use heat only)	1-3 hr
	(if use UV and heat)	1-2 hr
@ 180 °C	(if use heat only)	0.5-2 hr
	(if use UV and heat)	0.5-1 hr

Operating temperature (°C) -60 to 200 °C

EITHER UV or Heat will cure the adhesive fully. EXCESS UV dose up to 4X is acceptable

***Minimum intensity recommended for Spot lamp system: 100 mW/cm²

***Minimum intensity recommended for Flood lamp system: 49 W/cm 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.

The information presented here represents our best available information and is believed to be reliable, but it does not constitute any guarantee or warranty. Inasmuch as Addison Clear Wave has no control over the exact manner in which others may use this information, it does not guarantee the results to be obtained. Nor does the company make any expressed or implied warranty of merchantability, or fitness for a particular purpose concerning the effects or results of such use. Purchasers are further responsible for determining the suitability of the product for its intended use and the appropriate manner of utilizing the production processes and applications so as to ensure safety, quality and effectiveness. Addison Clear Wave makes no warranties and assumes no liability in connection with the use or inability to use this product.