

AC A1705-A

Low Temperature Dual-Curable Epoxy Sealant for Packaging Applications

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

Description

- Dual-curable epoxy sealant

APPLICATIONS

AC A1705-A 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

Viscosity (cps, 25 °C)	9,200 to 9,700
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
Outgas, weight % (per MIL-STD 883/5011)	0.2
Water permeability (g/m 24 hrs) (50 °C/95% RH, 75 µm film)	3 x 10 ⁻⁴
Hardness – Shore D	95
Glass transition temperature (°C) (DMA)	170-175
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	21
above Tg (x10 ⁻⁶), °C ⁻¹	60

UV curing conditions

Flood curing system – UV dose (J/cm²) 4-5

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

Heat curing conditions:

@ 125 °C (if use heat only)	4-5 hrs
(if use UV and heat)	3-4 hrs
@ 150 °C (if use heat only)	2-3 hrs
(if use UV and heat)	1-2 hr
@ 180 °C (if use heat only)	1hr
(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 WPCm or 125 WPI or 100 mW/cm²

To ensure good curing speed, the humidity is recommended to be < 40% 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.

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