

PRODUCT SPECIFICATION

18000-E

UV Adhesive

Description:

Engineered for demanding electronic encapsulation, this single-component, 100% solids, clear, colourless photopolymer adhesive features a triple-cure system that cures rapidly under UV light (350–380 nm), visible light, or thermal exposure (121°C for 30 minutes). This multi-cure capability guarantees complete polymerization in shadowed regions or deep sections where light penetration is restricted.

Exhibiting superior substrate wetting, low volumetric shrinkage, and high flexibility, it delivers robust environmental resistance and stress absorption. It is specifically formulated for chip-on-board, chip-on-flex, and multi-chip module applications, providing exceptional adhesion and protection for printed circuit boards and sensitive electronic components.

Typical Properties of Cured/Uncured Material:

Liquid State		Cured State			
Base	Urethane Methacrylate	Tensile Strength, ASTM D882 (psi)	225000	Dielectric Strength (Volts/Mil)	500
Colour	Clear, Straw	Elongation @ break (%)	150	Volume Resistivity (ohm.cm)	555 x 10 ¹²
Specific Gravity (25°C)	1.1	Hardness, ASTM D2240 Shore D	45	Dielectric Constant, 1MHZ	3.27
Refraction Index (25°C)	1.52	Tg, ASTM D3418-82 (°C)	30		
Viscosity (cP)	17000-19000	Linear Shrinkage (%)	1.2		

UV Curing System:

Lamp Type	5" x 5" Flood	3/16" Spot	1" x 6" Focused
Max. Lamp Intensity @ 365 nm	300 mW/cm2	4000 mW/cm2	8000 mW/cm2
Adhesive Absorption Range (nm)	300 - 480	300 - 480	300 - 480
Cure Speed (Sec)			
Glass to Glass Bonding	2	4	<1
Surface Cure Speed	6	5	<1

Bond Strength

(Shear Strength, psi, ASTM D4501):

Substrate	psi	N/mm ²
Tensile Shear Strength	2400-3300	16-22

Cure Conditions:

Cure can be achieved using both low and high-intensity UV light sources. Under a low UV intensity of 30 mW/cm, highly transmissive substrates with joint gaps under 0.25 mm (0.010") cure in 5 seconds, while gaps of 1.75 mm to 2.25 mm (0.070" to 0.090") cure within 10 to 20 seconds. Under a high UV intensity of 100 mW/cm, highly transmissive substrates with gaps under 0.25 mm (0.010") cure in 2 seconds, while larger gaps of 2.5 mm to 5.0 mm (0.100" to 0.200") achieve full cure within 10 to 20 seconds.

Directions For Use:

This adhesive is UV sensitive. Exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling. Adhesive product should be dispensed from applicators with black feed lines. For best performance bond surfaces should be clean and free from grease.

UV cure rate is depends on lamp intensity, distance from light source, depth of cure needed or bond line gap and light transmittance of the substrate through which the radiation must pass.

Recommended intensity for cure in an adhesive application are 40-mW/cm2 minimums with an exposure time of 5-6 times the fixture time at this same intensity. For tack free surface cure, as necessary in coating, potting or tacking applications, higher intensity UV is required.

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