

MicroCoat Technologies

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Unparalleled in Polymer Coatings and Adhesives Technology™



Product Data Sheet

LED Encapsulant

MCT LED12L-3 Series

MicroCoat Technologies 12L-3 series are a single component LED Encapsulants that cures tack free in seconds to a tough, resilient polymer when exposed to ultraviolet light. It is recommended as an extremely fast and efficient way to coat LED's and other opto components that require a "softer" coating for molded devices. With this system, a drop of adhesive is used to form a coating over the wirebonded die, and the substrate. Exposure to UV light quickly cures the device. Useful applications for 12L-3 include wire tacking, chip capacitor bonding, coil termination, and tamper proofing adjustable components. The unique advantage of this adhesive is that even though it cures in seconds, it is extremely stable when not exposed to ultraviolet light. MCT LED12L-3 is sensitive to the whole range of UV light from 320 to 380 nanometers with peak sensitivity around 365 nanometers. The recommended energy required for full cure is 4.5 Joules/cm² of long wavelength UV light. The adhesive has been designed to be spot cured in small areas with hand held or fully conveyORIZED curing systems. Faster cure times are possible with medium pressure vapor lamps (typically 200 watts/linear inch). These are most commonly used in conveyORIZED applications because the light must be shielded from the operator. Some of these materials contain traces of Phosphor in order to obtain various blue and white colors

In addition to the UV cure, Some of the MCT LED12L-3 may contain a latent heat catalyst (*these systems are made to customer requirements but usually do not contain this if not required*) that can quickly cure areas that do not see the ultraviolet light. The catalyst allows the adhesive to cure in 10 minutes at 125°C in a convection oven, or 3 hours at 80°C. Faster cure times are possible with infrared ovens. Temperatures less than 60°C will not appreciably activate the adhesive. The advantage of the heat cure is to bring partially cured adhesive to full cure to get the maximum physical properties of the adhesive. The heat cure is not required if the entire adhesive receives proper exposure to UV light. MCT LED12L-3 has very good adhesion to glass, metals, printed circuit boards and many plastics. Since the cure is very exothermic, the adhesive should be allowed to cool back to room temperature before adhesive testing begins.

TYPICAL PHYSICAL PROPERTIES	12L-3	-68	-71
Temperature Range		-100°C to 150°C	
Viscosity	7000 - 8000 cps	5000	200
Modulus (psi)	2860	20,000	55,000
Tensile (psi)	534	1,000	1,500
Elongation at failure %	45	80	43
Shore D Hardness	55	80	86
Refractive Index	1.58	1.54	1.56
Dielectric Constant @1 MHZ	4.53	4.50	4.0
Dissipation Factor		0.0335	
Volume Resistivity(ohm-cm)		7.90 x 10 ¹⁴	
Surface Resistivity(Megohms)		2.58 x 10 ¹⁴	
Post Cure Ionics 883/5011.3.8.7	Cl=<6ppm, Na+=<3.3ppm, K+=<1.1ppm		
	Teflon Flask 5 gm sample using 20-40 mesh, 50 gm DI H ₂ O, 100°C for 24 hours		

Application: in high volume, automatic dispense equipment is preferred
Storage: 20°C – 25°C in a dark environment.
Shelf life: 6-9 months @ 25°C
Packaging: Liters