

NORLAND ELECTRONIC ADHESIVE NEA121M

Norland Electronic Adhesives 121M is a single component adhesives with that cures tack free in seconds to a tough, resilient polymer when exposed to ultraviolet light. NEA 121M is a low viscosity liquid. It is recommended as an extremely fast and efficient way to tack, fill, seal or bond precision components or wires in place. With this system, a drop of adhesive is used to form a bridge between the component or wire, and the substrate. Exposure to UV light quickly cures them, and holds the component in place. Useful applications for NEA 121M include wire tacking, chip capacitor bonding, coil termination, bonding of head gimbal assemblies and tamper proofing adjustable components.

The unique advantage of these adhesives is that even though they cure in seconds, they are extremely stable when not exposed to ultraviolet light. Norland 121M is sensitive to the whole range of UV light from 320 to 380 nanometers with peak sensitivity around 365 nanometers. Cure time is dependent on light intensity and thickness of adhesive layer. The adhesives have been designed to be spot cured in small areas.

In addition to the UV cure, Norland 121M contains a latent heat catalyst 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 all of the adhesive receives proper exposure to UV light.

NEA 121M 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. Components bonded with NEA 121M can withstand temperature conditions from -150°C to 150°C.

NEA 121M Typical Physical Properties

Viscosity	1,500-2,000 cps
Modulus (psi)	160,000
Tensile (psi)	3,500
Elongation at failure	30%
Shore D Hardness	85
Dielectric Constant @ 1 MHz	4.04
Dissipation Factor	0.045
Volume Resistivity (ohm-cm)	1.0×10^{15}
Surface Resistivity (Megohms)	10×10^9
Dielectric Strength (volts)	980
Arc Resistance (sec)	95

To remove uncured adhesive from substrate use an acetone or alcohol moistened cloth. The cured adhesive can be removed by prying the drop with a knife edge or soaking in a solvent combination of 90 parts methylene chloride and 10 part methanol.

Handling and Storage Precautions

Caution: Norland Electronic Adhesive 121M may cause skin irritation and prolonged contact with skin should be avoided. If contact occurs wash well with soap and water. Use in well ventilated area.

Store in a cool dark place. Caution: Do not freeze material. Never expose the bulk material to high heat or ultraviolet light. It can generate an extremely exothermic reaction.