

Norland Adhesive NEA 121 & 123

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 121 and 123 are 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 with hand held or desk top UV light sources that are safe and easy to use.



Norland Adhesive NEA 121 & NEA 123

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. These types of lights are available from companies such as American Ultraviolet or Fusion UV Curing Systems.

In addition to the UV cure, Norland 121 and 123 contain 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 the adhesive receives proper exposure to UV light.

NEA 121 and 123 have 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 121 and NEA 123 can withstand temperature conditions from -150° C to 150°C.

Typical Properties of NEA 121 & NEA 123 :

Viscosity at 25° C	300 cps	200,000 cps
Elongation at Failure	30%	60%
Modulus of Elasticity (psi)	160,000	50,000
Tensile Strength (psi)	3,500	3,000
Hardness - Shore D	85	60
Total Mass Loss (TML)	3.14%	3.89%
Collected Volatile Condensable Material (CVCM)	0.41%	0.21%
Dielectric Constant (1 MHz)	4.04	4.00
Dissipation Factor (1 MHz)	0.045	0.044
Volume Resistivity (ohm-cm)	1.0 x 10 to the 15 power	1.0 x 10 to the 12 power
Surface Resistivity (Megohms)	10 x 10 to the 9 power	10 x 10 to the 8 power
Dielectric Strength (volts/mil)	980	980
Arc Resistance (sec)	95	92

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.