



# NORLAND PRODUCTS INCORPORATED

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## NORLAND ELECTRONIC ADHESIVE 123 RED

Norland Electronic Adhesives 123R is a single component adhesive 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 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 U.V. light quickly cures it, and holds the component in place. Useful applications for NEA 123R include wire tacking, chip capacitor bonding, coil termination, bonding of head gimbal assemblies and tamper proofing 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. Norland 123R is sensitive to U.V. light from 320 to 380 nanometers with peak sensitivity around 365 nanometers. The recommended energy required for full cure is 4.5 Joules/cm<sup>2</sup> of long wavelength U.V. light. The adhesive has been designed to be spot cured in small areas with hand held or desk top U.V. light sources that are safe and easy to use.

Recommended light sources are:

Hand held	Manufacturer	Approximate cure times
Opticure 3 Light Gun	Norland Products Inc New Brunswick, NJ	10 to 60 seconds @ 1/2"
RC-250	Xenon Corporation Wilmington, MA	5 to 30 seconds @ 1/2"
Desk top		
Portascan 100	American Ultraviolet Chatham, NJ	5 to 30 seconds @ 6"

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, Rockville, MD.

In addition to the U.V. cure, Norland 123R 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 the adhesive receives proper exposure to U.V. light.

NEA 123R 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

Temperature Range	-150°C to 150°C
Color	Red
Viscosity	Thixotropic paste
Modulus (psi)	50,000
Tensile (psi)	3,000
Elongation at failure	60%
Shore D Hardness	60
Dielectric Constant @ 1 MHz	4.00
Dissipation Factor	0.044
Volume Resistivity (ohm-cm)	1.0 x 10.12
Surface Resistivity (Megohms)	10 x 10.8
Dielectric Strength (volts)	980
Arc Resistance (sec)	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.

#### Handling and Storage Precautions

Caution: Norland Electronic Adhesive 123R 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.

The data contained in this technical data sheet is of a general nature and is based on laboratory test conditions. Norland Products does not warrant the data contained in this data sheet. Norland does not assume responsibility for test or performance results obtained by users. It is the users responsibility to determine the suitability for their product application, purposes and the suitability for use in the user's intended manufacturing apparatus and methods. The user should adopt such precautions and use guidelines as may be reasonably advisable or necessary for the protection of property and persons. Nothing in this technical data sheet shall act as a representation that the product use or application will not infringe a patent owned by someone other than Norland Products or act as a grant of a license under any Norland Products Inc patent. Norland Products recommends that each user test its proposed use and application before putting into production.