



## Norland Optical Adhesive 86H

Norland Optical Adhesive 86H is an adhesive that will cure optically clear when exposed to long wavelength ultraviolet or visible light (blue-violet) or heat. The adhesive has low viscosity and meets the Bellcore specifications of 85C/85RH for 2000 hours as well as being USP Class VI biocompatible. NOA 86H is recommended for bonding glass or plastic. NOA 86H is cured by ultraviolet light between 315 to 400 nanometers and visible light between 400 to 420 nanometers. The peak absorption wavelengths are 325, 365 and 400 nanometers. Minor absorption wavelengths are 410 and 420 nm. Full cure requires 2.5 Joules/cm<sup>2</sup>.

In addition to the UV cure, NOA 86H 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. Areas in contact with air will cure tacky unless exposed to UV light or given the 125° C cure. Temperatures less than 80°C will not 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 or visible light.

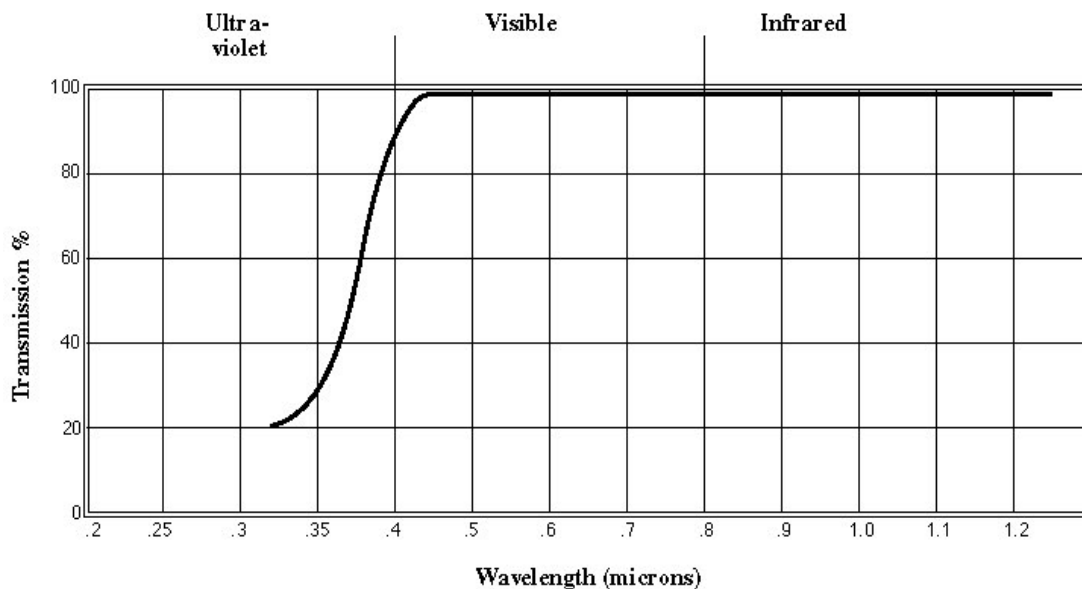
When fully cured, NOA 86H has very good adhesion and solvent resistance, but it has not reached its optimum adhesion to glass. This will come with aging over a period of about 1 week in which a chemical bond will form between the glass and adhesive. This optimum adhesion can also be obtained by aging at 50C for 12 hours.

NOA 86H can withstand temperatures before aging from -15C to 90C when used for glass bonding. After aging, it will withstand temperatures from -125C to 125C.

### Typical Properties of NOA 86H

Refractive Index	1.55
Temperature Range	-125C to 125C
Viscosity @ 25C	250-350 cps
Elongation at Failure	2.8 %
Modulus of Elasticity (psi)	360,400
Tensile Strength (psi)	7,834
Hardness - Shore D	75

### **Spectral Transmission of NOA 86H** (Measured through a bond thickness of 1 mil.)



Shelf life of the liquid is a minimum of 6 months from the date of shipment if refrigerated and kept in a dark place in the original container, refer to the package label for the actual expiration date. Allow the adhesive to come to room temperature prior to use.

Care should be taken in handling this material. The Material Safety Data Sheet should be read for this product. Prolonged contact with skin should be avoided and affected areas should be washed thoroughly with copious amounts of soap and water. If adhesive gets into eyes, flush with water for 15 minutes and seek medical attention.

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.