Norland UV Curing Optical Adhesives

Norland Optical Adhesives are designed for fast, precision bonding applications and will simplify processes that require critical alignment or exact positioning.

Used to manufacture optical components and other products including:

- LEDs
- Lenses
- Prisms
- Lasers
- Fiber Optics
- LCDs
- Touch Screens
- Solar Panels
- OLEDs
- Optoelectronic Devices
- Endoscopes
- Art Glass
- Eye Glasses
- Dive Masks
- Glass Trophies
- Windshield Crack Repair
- Microscope Slide Mounts

  to name a few...

Norland Optical Adhesives

These one part adhesives will set in seconds when exposed to ultraviolet light and can provide excellent light transmission over a wide spectral range. Our Optical Adhesives are designed for bonding where low strain, optical clarity or low outgassing are required in military, aerospace, fiber optics or commercial optics.

Norland Adhesives provide:

- Fast cure
- Long shelf-life

- Strong bonds to glass, metal, ceramics and plastics
- Low shrinkage — low stress
- Gap filling properties

Typical applications include:

- Conformal Coating
- Encapsulating
- Fillet Bonding
- Fixturing
- Optical Replication
- Potting
- Sealing
- Strain Relief
- Temporary Bonding
- Crack Filling

TECHNICAL DATA

Norland Optical Adhesive (NOA)

| Type | Description | Cure | ADHESION TO: | | | Color | TYPICAL PROPERTIES | | | | | |
			Glass	Metal	Plastic		Viscosity at 25 Degres C	Refractive Index	Modulus PSI	Tensile PSI	Elongation at Failure	Shore D Hardness
NOA 60	General purpose adhesive for bonding doublets, prisms or mounting components.	UV	Good	Good	Fair	Clear	300 CPS	1.56	135,000	2,800	35%	81
NOA 61	Preferred adhesive for military optics. Meets MIL-A-3920. Used for optics exposed to temperature extremes. Low shrinkage.	UV	Excellent	Excellent	Fair	Clear	300 CPS	1.56	150,000	3,000	38%	85
NOA 63	Cures well in thick sections. Use as fillet bond to hold lenses in place or for bonding where low fluorescence or good transmission in range is required.	UV	Good	Good	Fair	Clear	2,500 CPS	1.56	240,000	5,000	6%	90
NOA 65	Flexible adhesive suitable for low strain applications or for cold blocking of lenses.	UV	Good	Good	Fair	Clear	1,000 CPS	1.52	20,000	1,500	80%	50
NOA 68	Flexible adhesive for glass or plastics such as polycarbonate, CAB or acrylic.	UV	Excellent	Good	Good to Excellent	Clear	5,000 CPS	1.54	20,000	2,500	80%	60
NOA 68 T	Screen printable flexible adhesive for glass and plastics such as polycarbonate, CAB and acrylic.	UV	Excellent	Excellent	Fair	Clear	22,000 CPS	1.54	N/A	N/A	N/A	50
NOA 71	Provides a strong bond to glass surfaces and has excellent clarity for light guides and other applications.	UV	Excellent	Excellent	Fair	Clear	200 CPS	1.56	55,000	1,300	43%	86
NOA 72	Low viscosity adhesive for bonding glass or plastics such as polycarbonate, CAB or acrylic. Cures with UV or visible light.	UV/VIS	Excellent	Good	Good to Excellent	Clear	155 CPS	1.56	2,400	500	34%	75
NOA 73	Flexible adhesive with low viscosity for bonding delicate parts.	UV	Excellent	Good	Fair	Clear	140 CPS	1.56	1,600	200	16%	60
NOA 74	Low viscosity UV curing adhesive recommended for bonding glass and plastics. This adhesive has excellent adhesion to CAB.	UV	Excellent	Good	Good to Excellent	Clear	80–95 CPS	1.52	2,900	217	10%	30
NOA 75	Low viscosity UV and visible light curing adhesive recommended for bonding glass to plastic and plastic to plastic.	UV/VIS	Excellent	Good	Good to Excellent	Slight Yellow Tint	80–95 CPS	1.52	26,100	164	7%	25

N/A — Not Available

Norland Optical Adhesive (NOA)

Type	Description	Cure	Glass	Metal	Plastic	Color	Viscosity at 25 Degres C	Refractive Index	Modulus PSI	Tensile PSI	Elongation at Failure	Shore D Hardness
NOA 76	High viscosity adhesive for bonding glass to plastic. Cures with UV or visible light.	UV/VIS	Excellent	Good	Excellent	Clear	4,500 CPS	1.51	970	450	47%	60
NOA 78	High viscosity adhesive for bonding plastic to plastic. Cures with UV or visible light.	UV/VIS	Excellent	Good	Excellent	Yellow Tint	9,000 CPS	1.50	1,140	649	57%	55
NOA 81	Fast curing adhesive for tacking or bonding. Excellent adhesion to glass or metal. Produces a hard, resilient bond.	UV	Excellent	Excellent	Fair	Clear	300 CPS	1.56	200,000	3,000	25%	90
NOA 83H	Fast curing adhesive that will cure with UV or heat for tacking or bonding UV opaque materials.	UV/Heat	Excellent	Excellent	Fair	Clear	250 CPS	1.56	160,000	3,500	30%	85
NOA 84	Low refractive index adhesive for bonding glass.	UV	Excellent	Excellent	Fair	Clear	40–75 CPS	1.46	N/A	N/A	N/A	N/A
NOA 88	Low outgassing adhesive for aerospace or electronic applications. Excellent transmission in UV range.	UV	Excellent	Excellent	Fair	Clear	250 CPS	1.56	112,000	1,900	43%	90
NOA 89	Low viscosity adhesive for coatings and bonding delicate parts.	UV	Excellent	Excellent	Fair	Clear	20 CPS	1.51	N/A	N/A	N/A	40

TYPICAL PROPERTIES — columns Viscosity at 25 Degres C, Refractive Index, Modulus PSI, Tensile PSI, Elongation at Failure, Shore D Hardness. **ADHESION TO:** Glass, Metal, Plastic.

SPECIAL APPLICATIONS:												
UVS 91	Screenable paste for bonding and sealing perimeters of liquid crystal displays.	UV	Excellent	Good	Good to Excellent	Translucent	Thixotropic Paste	N/A	45,000	2,900	58%	55
NBA 107	UV curing adhesive for cold blocking and temporary bonding of lenses to metal polishing mounts.	UV	Excellent	Excellent	Fair	Clear	350 CPS	1.51	N/A	N/A	N/A	15
NBA 108	High strength UV curing adhesive for cold blocking and temporary bonding. Can be dissolved with acetone.	UV	Excellent	Excellent	Fair	Clear	550 CPS	1.51	N/A	N/A	N/A	25

N/A — Not Available

SUPPLEMENTAL NORLAND UV CURING OPTICAL ADHESIVES

Type	Description	Cure	ADHESION TO: Glass	Metal	Plastic	Color	TYPICAL PROPERTIES Viscosity at 25 Degrees C	Refractive Index	Modulus PSI	Tensile PSI	Elongation at Failure	Shore D Hardness
NOA 85	Low refractive index (1.46), low viscosity (200cps), recommended for bonding plastics and glass.	UV	Excellent	Good	Good to Excellent	Clear	200 CPS	1.46	9,340	1,500	111%	40
NOA 86	Low viscosity, UV and visible cure adhesive that meets the Bellcore specifications of 85C/85RH for 2000 hours.	UV/VIS	Excellent	Good	Good to Excellent	Clear	200-300 CPS	1.55	360,400	7,834	2.8%	75
NOA 86H	Low viscosity, UV, visible and heat cure adhesive that meets the Bellcore specifications of 85C/85RH for 2000 hours.	UV/VIS and or heat	Excellent	Good	Good to Excellent	Clear	200-300 CPS	1.55	360,400	7,834	2.8%	75
NOA 87	Higher viscosity and meets the Bellcore specifications of 85C/85RH for 2000 hours.	UV/VIS	Excellent	Good	Good to Excellent	Clear	900-1,500 CPS	1.52	209,700	4,880	13%	50
NOA 13685	Low refractive index adhesive (1.3685) for bonding glass or plastic.	UV	Excellent	Good	Fair	Clear	15-25 CPS	1.3685	N/A	N/A	N/A	N/A
NOA 1375	Low refractive index adhesive (1.375) for bonding glass or plastic.	UV	Excellent	Good	Fair	Clear	45-60 CPS	1.375	N/A	N/A	N/A	N/A
NOA 138	Low refractive index adhesive (1.38) for bonding glass or plastic.	UV	Excellent	Good	Fair	Clear	45-60 CPS	1.38	N/A	N/A	N/A	N/A
NOA 142	Low refractive index adhesive (1.42) for bonding glass or plastic.	UV	Excellent	Good	Fair	Clear	20-40 CPS	1.42	N/A	N/A	N/A	N/A
NOA 144	Low refractive index adhesive (1.44) for bonding glass or plastic.	UV	Excellent	Good	Fair	Clear	45-60 CPS	1.44	N/A	N/A	N/A	N/A

Type	Description	Cure	Glass	Metal	Plastic	Color	Viscosity at 25 Degrees C	Refractive Index	Modulus PSI	Tensile PSI	Elongation at Failure	Shore D Hardness
			ADHESION TO:					**TYPICAL PROPERTIES**				
NOA 148	Low refractive index adhesive (1.48) for bonding glass to glass.	UV	Excellent	Good	Fair	Clear	1,500-2,000 CPS	1.48	N/A	N/A	N/A	N/A
NOA 1625	High refractive index adhesive (1.625) for bonding glass to glass.	UV	Excellent	Good	Fair	Clear	60-80 CPS	1.625	N/A	N/A	N/A	N/A
NOA 164	Low viscosity adhesive with a refractive index of 1.64 for bonding glass.	UV	Excellent	Good	Fair	Clear	60-80 CPS	1.64	N/A	N/A	N/A	N/A
SPECIAL APPLICATIONS:												
IML 150	Index matching liquid with a refractive index of 1.52. Used as a temporary mounting material. This liquid is not an adhesive.					Light Yellow	100 CPS	1.52				