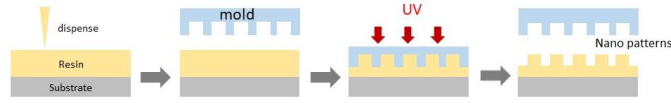




# PR-1614

## UV-Curable Optical Resin for Nano Imprint Lithography



### PRODUCT DESCRIPTION:

- Base chemistry: acrylate, radical polymerization
- One component resin ready for use, solvent-free, UV curing

### PRODUCT USE:

- Nano imprint Lithography
- Lens and prism bonding
- Optical brightness enhancement films.

### FEATURES:

- High refractive index

**UV CURING CONDITIONS:** PR-1614 is required to cure in between two substrates, in nitrogen or in the absence of air.

- UV curing conditions: UV dose ( $\text{mJ}/\text{cm}^2$  in nitrogen)  $>500$
- Light sources:
  - \* Metal halide/Mercury UV: UV-A (320-400 nm), intensity: 100-1,000  $\text{mW}/\text{cm}^2$
  - \* or LED-365 nm, UV light intensity: 100 to 1,000  $\text{mW}/\text{cm}^2$

LED-365 nm		Metal Halide/Mercury(UV-A: 320-400 nm)	
UV intensity ( $\text{mW}/\text{cm}^2$ )	time (sec)	UV intensity ( $\text{mW}/\text{cm}^2$ )	time (sec)
100	10 to 20 sec	100	10 to 20 sec
or 200	5 to 10 sec	or 200	5 to 10 sec
or 400	3 to 5 sec	or 400	3 to 5 sec
or 500	2 to 4 sec	or 500	2 to 4 sec
or 1,000	1 to 3 sec	or 1,000	1 to 3 sec

### TYPICAL PROPERTIES

#### Uncured resin

Viscosity at 25 °C, mPa.s or cps: 3,100-3,700  
 Density (g/mL): 1.1

#### Cured film

Appearance of cured adhesive: optically clear  
 Shrinkage (volume, %): 5  
 Glass transition temperature (DMA, °C): 76  
 Depth of cure:  $> 1\text{mm}$

Physical properties tested at 25°C, 50% RH (ASTM D638)

Tensile strength, MPa: 28  
 Elongation (%): 2  
 Young's Modulus, MPa: 2,280

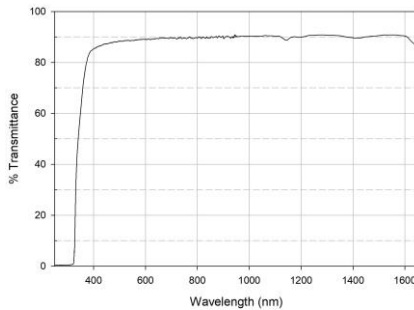
Refractive index of cured film (25 °C)

@ 589 nm (D): 1.614

Abbe Number at 25 °C ( $V_d$ ): 27

### UV-vis-Near IR spectrum

PR1614, 280 micron free-standing film  
 no correction for surface reflections



### GENERAL USAGE INFORMATION:

**Shipment:** no restriction on shipment

**Storage:** After receipt in black syringes or amber HDPE bottles, room temperature storage (15-30°C) in the original container is required.

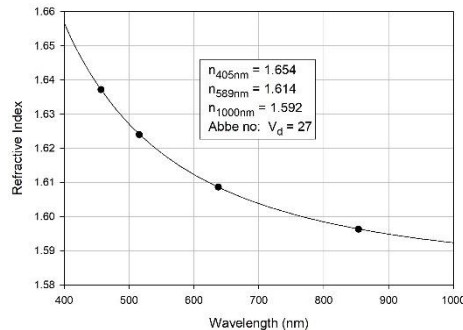
**Shelf life (20 - 25°C):** 6 months

**Pot life or working life (20 - 25°C):** 3 months

### SAFETY AND HANDLING

The uncured adhesive can be cleaned with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), acetone, or xylene. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, gloves and safety goggles. Read [Safety Data Sheet](#) before handling.

PR1614 bulk sample, 25 °C



Operating temperature (cured film) (°C): -40 to 110

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