



# R272

## UV-Curable Low Refractive Index Optical Resin for Nano Imprint, Cladding or Index matching Bonding

### PRODUCT DESCRIPTION:

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

### PRODUCT USE:

- Nano Imprint Lithography
- Cladding
- Anti-reflective application
- Index matching bonding

### FEATURES:

- High Tg, low refractive index, good flow properties, low viscosity

### OPTICAL CLARITY:

UV-Vis and Near IR spectra

### CURING METHOD: UV curing

R272 is required to be cured in the absence of air (cure in nitrogen or an inert atmosphere) or cured between two substances.

### UV curing conditions:

- \*Metal halide/Mercury UV: UV-A (320-400 nm), intensity: 50-1,000 mW/cm<sup>2</sup>
- \*or LED-365 nm, UV light intensity: 100 to 1,000 mW/cm<sup>2</sup>

LED-365 nm		Metal Halide/Mercury(UV-A: 320-400 nm)	
UV intensity(mW/cm <sup>2</sup> )	x time (sec)	UV intensity(mW/cm <sup>2</sup> )	x time (sec)
100	15 sec or more	50	40 sec or more
or 200	7 sec or more	or 100	10 sec or more
or 300	5 sec or more	or 200	7 sec or more
or 400	4 sec or more	or 500	2 sec or more
or 500	3 sec or more	or 1,000	1 sec or more
or 1,000	1 sec or more		

### TYPICAL PROPERTIES

#### Uncured resin

Viscosity at 25 °C, mPa.s or cps	25 to 40
Density (g/mL)	1.6
Shelf life (20 - 30°C):	6 months
Pot life or working life (20 - 30°C):	3 months

#### Cured film

Appearance of cured adhesive	optically clear
Shrinkage (volume, %)	1
Hardness – Shore D	65
Glass transition temperature (DMA, °C)	90
Depth of cure	>1,000 μm

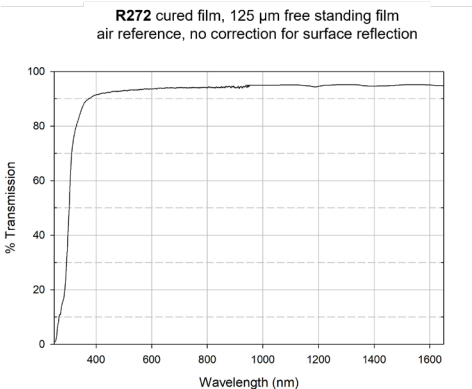
#### Refractive index of cured film (25 °C)

@ 589 nm (D)	1.413
@ 1310 nm	1.405
@ 1550 nm	1.404

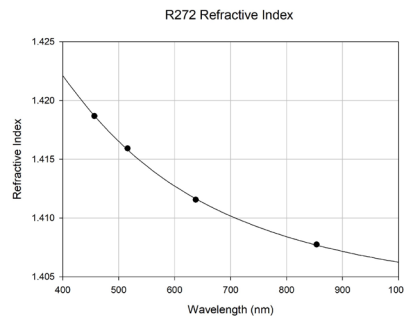
Abbe number, V<sub>d</sub>

69

#### Refractive index vs wavelength graph



R272 cured film, 125 μm



### 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.

**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.

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

Elongation (%)	5
Tensile strength (MPa)	12
Young's Modulus (MPa)	400
Operating temperature, °C	-40 to 140

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