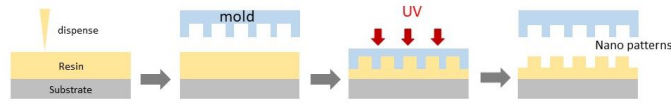




# L2002-C56

## 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

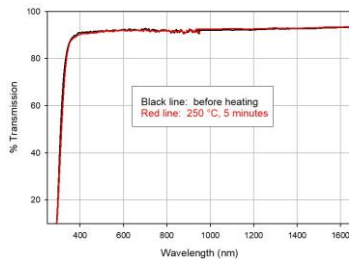
### PRODUCT USE:

- Nano imprint Lithography
- Lens and prism bonding
- LiDAR lens

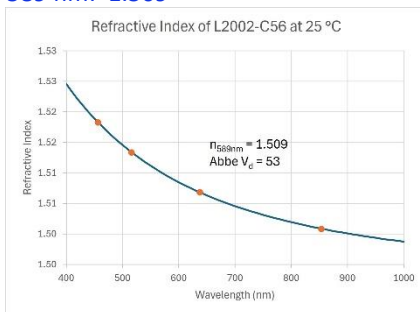
### FEATURES:

- High Tg, robust reliability performances, high heat resistance, good flow properties, excellent adhesion, high hardness, and spin coat-able
- Suitable for solder reflow post process

### OPTICAL DATA:



Refractive index of cured film (25 °C) @ 589 nm: 1.509



Abbe Number at 25 °C ( $V_D$ ): 53

### 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

**UV CURING CONDITIONS:** L2002-C56 is required to cure in between two substrates, in nitrogen or in the absence of air.

### UV curing conditions for film thickness of 5 to 125 micron

- UV curing conditions: UV dose (mJ/cm<sup>2</sup> in nitrogen) >1,000
- Light sources:
  - \* Metal halide/Mercury UV: UV-A (320-400 nm), intensity: 100-1,000 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> )	time (sec)	UV intensity(mW/cm <sup>2</sup> )	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 300	4 to 6 sec	or 300	4 to 6 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

### Application notes for curing at thick film: 0.75 to 1.2 mm

It is possible to cure L2002-C56 at thick section with UV dose of  $\geq 30$  J/cm<sup>2</sup>

- UV Metal Halide or Mercury UV light source with UV-A (320-400 nm) with UV light intensity: 250 to 1,000 mW/cm<sup>2</sup>
- LED-365 nm with UV light intensity: 250 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> )	time (sec)	UV intensity(mW/cm <sup>2</sup> )	time (sec)
275	120 sec or more	275	120 sec or more
or 500	60 sec or more	or 500	60 sec or more
or 1,000	30 sec or more	or 1,000	30 sec or more

### TYPICAL PROPERTIES

#### Uncured resin

Viscosity at 25 °C, mPa.s or cps: 1,100 to 1,300

Density (g/mL): 1.2

#### Cured film

Appearance of cured adhesive: optically clear

Shrinkage (volume, %): 3

Hardness – Shore D: 90

Glass transition temperature (DMA, °C): 145

Coefficient of thermal expansion (ASTM E831)

below Tg ( $\times 10^{-6}$ ), °C<sup>-1</sup>: 59

above Tg ( $\times 10^{-6}$ ), °C<sup>-1</sup>: 141

Physical properties tested at 25°C, 50% RH (ASTM D638, and ASTM D790)

Tensile strength, MPa: 63

Elongation (%): 6

Young's Modulus, GPa: 3.00

Operating temperature, °C: -40 to 150

### 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. TDS updated 072524 V5 V4

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