



# AC L2002-C42

## UV-Curable, High Refractive Index Optical Resin

### PRODUCT DESCRIPTION:

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

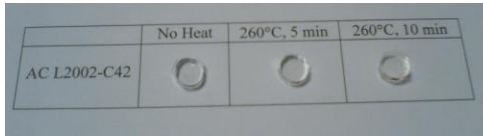
### PRODUCT USE:

- Nano imprinting
- Lens making
- Lens and prism bonding

### FEATURES:

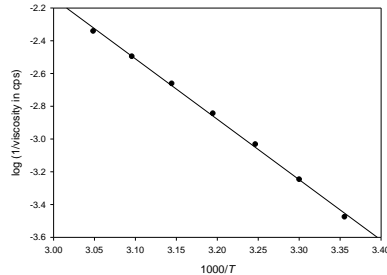
- High Tg, high refractive index, good flow properties, high heat stability and high hardness

### THERMAL STABILITY:



### VISCOSITY VS TEMPERATURE DATA

Temperature (°C)	Viscosity (cps)
25	3,000
30	1,770
35	1,080
40	700
45	460
50	314
55	220



viscosity in cps =  $10^{-(3690/(273+T)) - 8.930}$   
 where T is temperature in °C

### 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.

### UV CURING CONDITIONS:

- \*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> )	x time(sec)	UV intensity(mW/cm <sup>2</sup> )	x 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

### TYPICAL PROPERTIES

#### Uncured resin

Viscosity at 25 °C, mPa.s or cps 2,600 to 3,000  
 Density (g/mL) 1.1

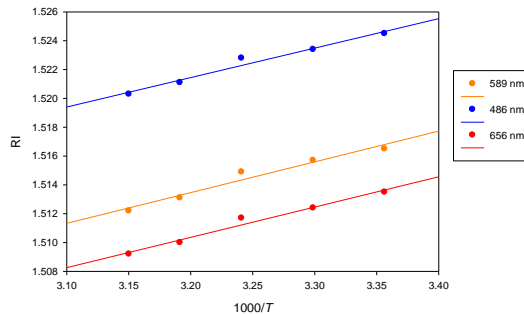
#### Cured film

Appearance of cured adhesive optically clear  
 Shrinkage (linear, %) < 0.5  
 Hardness – Shore D 90  
 Glass transition temperature (DMA, °C) 150

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

@ 589 nm (D) 1.515  
 @ 486 nm (F) 1.524  
 @ 656 nm (C) 1.513

#### Refractive index vs temperature



#### Calculated Refractive Index (R.I) L2002-C42

wavelength (nm)	function (T is temperature in °C)
589	R.I. = 1.4452 + 21.32 / (T + 273)
486	R.I. = 1.4561 + 20.42 / (T + 273)
656	R.I. = 1.4431 + 21.01 / (T + 273)

#### Abbe Number at 25 °C (V<sub>d</sub>)

47

#### Depth of cure

>5 mm

#### Coefficient of thermal expansion (DMA)

below Tg (x10<sup>-6</sup>), °C<sup>-1</sup> 24  
 above Tg (x10<sup>-6</sup>), °C<sup>-1</sup> 121

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

Elongation (%) 8  
 Young's Modulus, MPa 1,800  
 Operating temperature, °C -40 to 140

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