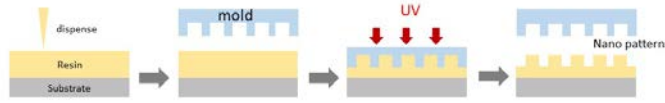




# BD-400

## 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

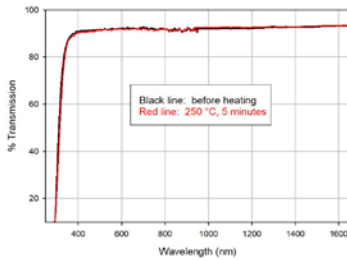
### PRODUCT USE:

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

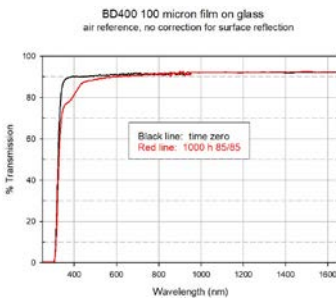
### FEATURES:

- 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:



### Non-yellowing after environmental test



### 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:** BD-400 is required to cure in between two substrates, in nitrogen or in the absence of air.

- UV curing conditions: UV dose (mJ/cm<sup>2</sup> in nitrogen) >500
- 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

### TYPICAL PROPERTIES

#### Uncured resin

Viscosity at 25 °C, mPa.s or cps 700 to 800

Density (g/mL) 1.1

#### Cured film

Appearance of cured adhesive optically clear

Shrinkage (volume, %) 2

Hardness – Shore D 90

Glass transition temperature (DMA, °C) 145

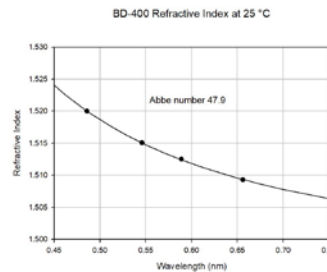
#### Refractive index of cured film (25 °C)

@ 589 nm (D) 1.513

@ 486 nm (F) 1.520

@ 656 nm (C) 1.509

#### Refractive index at 25 °C vs wavelength



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

48

BD-400 layer thickness

5 to 100 μm

Coefficient of thermal expansion (ASTM E831)

below Tg (x10<sup>-6</sup>), °C<sup>-1</sup> 59

above Tg (x10<sup>-6</sup>), °C<sup>-1</sup> 141

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

Tensile strength, MPa 63

Elongation (%) 6

Young's Modulus, MPa 2,000

Operating temperature, °C -40 to 150

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