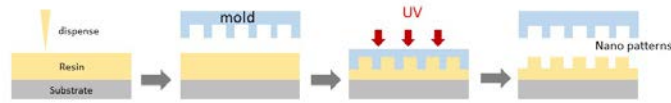




PR-1600-CA

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

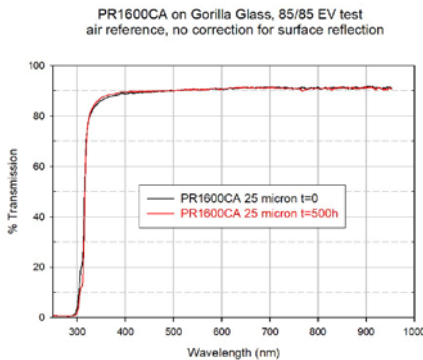
PRODUCT USE:

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

FEATURES:

- High refractive index

Optical data: UV-Vis at time 0 and at 500 hrs at environmental conditions of 85 °C/85% RH



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: PR-1600-CA is required to cure in between two substrates, in nitrogen or in the absence of air.

- UV curing conditions: UV dose (mJ/cm² in nitrogen) >500
- Light sources:
 - * Metal halide/Mercury UV: UV-A (320-400 nm), intensity: 100-1,000 mW/cm²
 - * or LED-365 nm, UV light intensity: 100 to 1,000 mW/cm²

LED-365 nm		Metal Halide/Mercury(UV-A: 320-400 nm)	
UV intensity(mW/cm ²)	time (sec)	UV intensity(mW/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 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 350 to 450

Density (g/mL) 1.1

Cured film

Appearance of cured adhesive optically clear

Shrinkage (volume, %) 5

Glass transition temperature (DMA, °C) 89

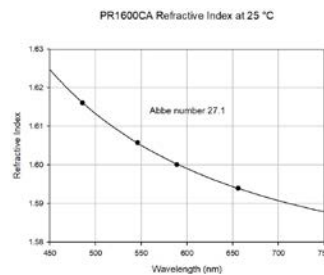
Refractive index of cured film (25 °C)

@ 589 nm (D) 1.6001

@ 486 nm (F) 1.6161

@ 656 nm (C) 1.5940

Refractive index at 25 °C vs wavelength



Abbe Number at 25 °C (V_d)

27

PR-1600-CA layer thickness

10 to 500 μm

Coefficient of thermal expansion (ASTM E831)

below T_g (x10⁻⁶), °C⁻¹ 60

above T_g (x10⁻⁶), °C⁻¹ 160

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

Tensile strength, MPa 100

Elongation (%) 4

Young's Modulus, MPa 3,000

Operating temperature, °C -40 to 120

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