



UV-NIL (UV-nanoimprinting)

UV-NIL Resins

Photo-NIL Resins

- Acrylate resins
- Spin-coating, Gravure Coating, Ink-jet
- Optical Clarity
- Refractive index: 1.52 to 1.60 @ 589 nm
- UV-cure
- Easy to process

UV nanoimprint Lithography (UV- NIL)



UV Nanoimprint lithography (UV-NIL or P-NIL) is a versatile technique for low cost nanoscale device fabrication. The precise, direct patterning and repeatable replication of complex three-dimensional nanoscale patterns (submicron) in a single step makes the NIL technique compelling in comparison to other expensive techniques such as e-beam or helium ion beam lithography. The versatility of the technique enables the fabrication of unique nanoscale devices by UV-NIL for a variety of applications including optics, plasmonics, and even biotechnology. Recent advances in throughput and yield in UV-NIL processes demonstrate the potential of being adopted for mainstream semiconductor device fabrication as well. Applications of UV-NIL are vast, ranging from flexible displays, wearable electronics, facial recognition, artificial intelligence, bio-medical, and semiconductor chips applications.

UV nanoimprint Lithography (UV-NIL)

With anticipation of the exciting potential of UV-NIL for future technologies, ACW developed a full line of UV resins for use in UV-NIL from replications of nano-features on glass or plastic to replications of nano features on silicon for silicon chip or wafer-level-optics.



UV nanoimprint Lithography (UV-NIL)

Applications:

- Microlens arrays
- Waveguides
- Gratings
- Wafer optics
- Diffusers
- Nano/Micro structures

Advantages as compared to competitors:

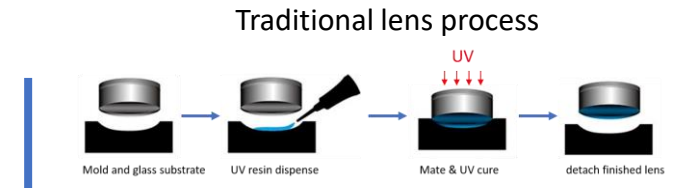
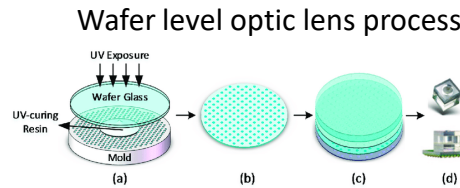
- Low viscosity for spin coating
- Fast cure rate
- Excellent replication features
- Optical clear
- Index matching

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ACW UV-NIL or P-NIL resins for multi-purposes for spin coat process

	Applications	Chemistry	Viscosity, mPas @ 25 °C	UV Cure Dose (mJ/cm ² in Nitrogen)	Refractive Index @ 589 nm	Glass Transition temp (°C)
BD-119	Nano/micro structures Grating, Diffusers Waveguides	Acrylate	390 – 420	>100	1.5165	131
BD-400	Nano/micro structures Grating, Diffusers Waveguides	Acrylate	700 – 800	>100	1.5100	145
IP-158	Nano/micro structures Grating, Diffusers Waveguides	Acrylate	420 – 500	>100	1.584	70
PR-1600-CA	Nano/micro structures Grating, Diffusers Waveguides	Acrylate	350 – 450	>500	1.600	89

ACW UV-NIL or P-NIL resins for Hybrid, Monolithic lenses or Wafer-Optics-lens



	Applications	Chemistry	Viscosity, mPas @ 25 °C	UV Cure Dose (mJ/cm ² in Nitrogen)	Refractive Index @ 589 nm	Glass Transition temp (°C)
L2002-C42	Microlens arrays Hybrid lens Monolithic lens Wafer-level-optics	Acrylate	2,600 – 3,000	1,000	1.515	150
L2007	Microlens arrays Hybrid lens Monolithic lens Wafer-level-optics	Acrylate	8,000 – 10,000	1,000	1.567	109
L2061-B	Microlens arrays Hybrid lens Monolithic lens Wafer-level-optics	Acrylate	1,800 – 2,200	1,000	1.602	130

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