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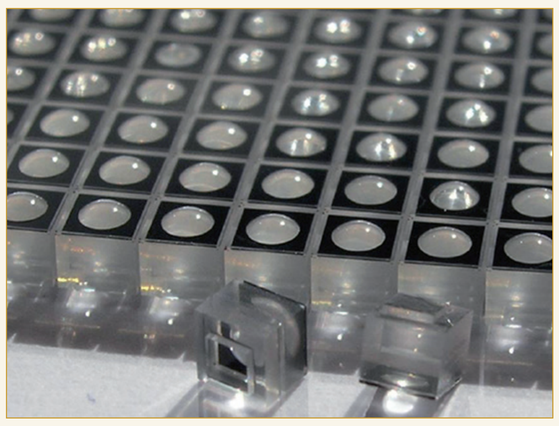
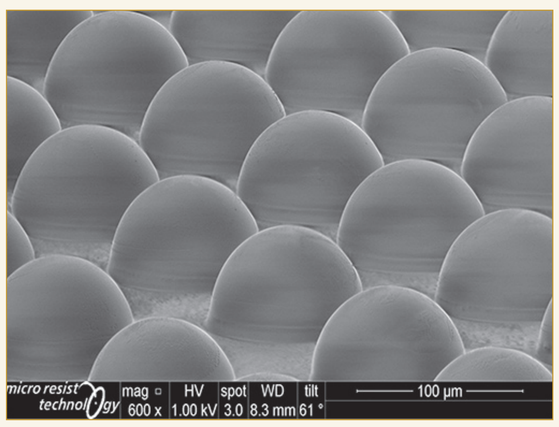
OrmoComp® and OrmoClear®FX

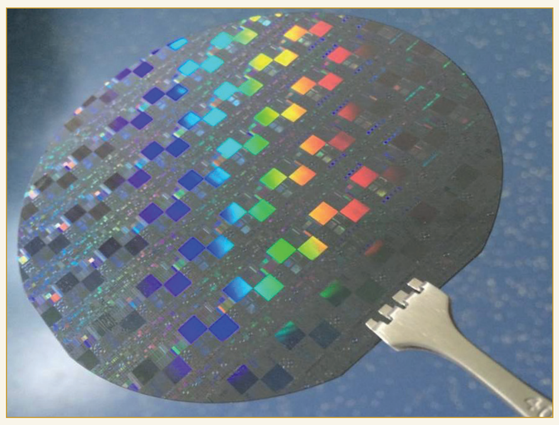
UV-curable Hybrid Polymers For Micro and Nano Optical Components



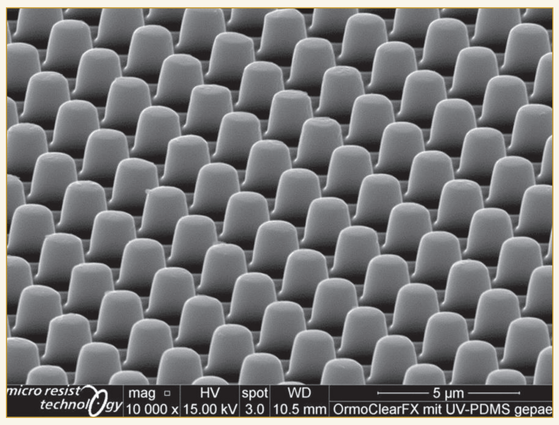
Mass-manufactured OrmoComp® micro lenses (1.3 mm diameter, 250 µm height) on glass (courtesy of FhG IOF, Germany)



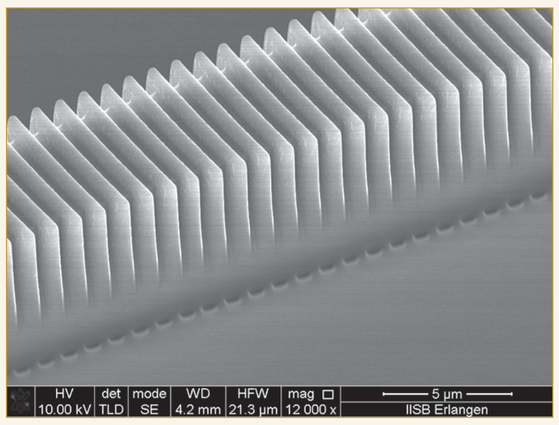
Replicated OrmoComp® micro lens array, fabricated via UV moulding.



Micro- and nanostructured OrmoClear®FX on a 4 inch wafer. Fabricated by UV-SCIL using a PDMS mold (courtesy of FhG IISB, Germany)



OrmoClear®FX pillar structures generated by UV-NIL process using PDMS mold



OrmoClear®FX surface relief Bragg gratings, fabricated by UV-SCIL using a PDMS mold (courtesy of FhG IISB, Germany)

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Unique features

- Excellent transparency for VIS and near UV down to 350 nm
- Excellent thermal stability of cured patterns up to 300 °C (short term), 270 °C (long term)
- High mechanical and chemical stability of cured patterns
- High resolution down to 100 nm feature size
- Compatible to UV imprint and UV moulding (hard molds, PDMS molds)
- Compatible to UV lithography with proximity exposure
- Ready-to-use solutions, solvent-free formulations

OrmoComp®

- Well-established in industrial large-volume production of optical components
- Very fast UV curing

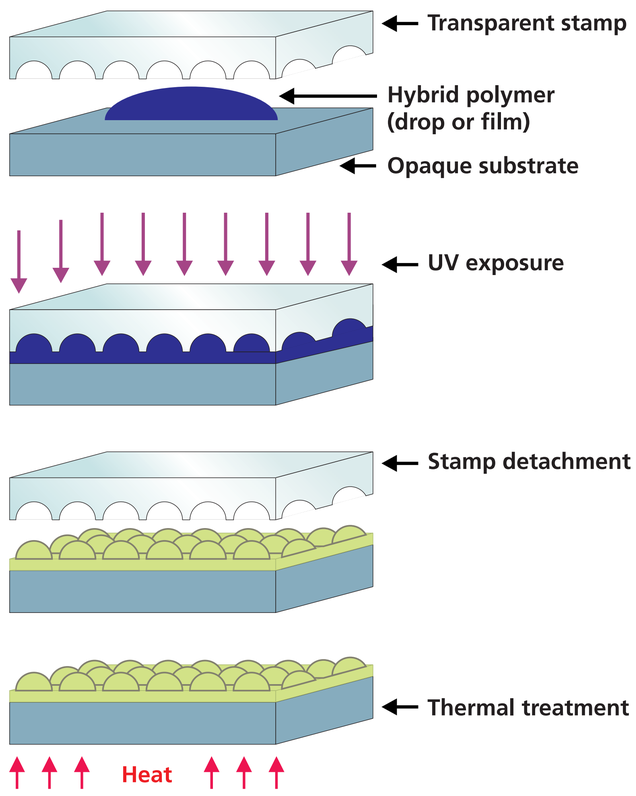
OrmoClear®FX

- 2nd generation product with lower volume shrinkage
- Higher flexibility after UV curing
- Alternative to OrmoComp® with lower high volume price

Applications

- Micro lenses and micro lens arrays
- Diffractive optics
- Micro optical components based on advanced design concepts
- Moulded gratings and prisms
- Optical couplers and connectors
- Microfluidic systems

Process flow - UV imprint



Properties OrmoComp® & OrmoClear®FX

Parameter	OrmoComp®	OrmoClear®FX
Solvent-free	Yes	Yes
Viscosity [Pa·s]	2 ± 1	1.5 ± 0.3
Spectral sensitivity [nm]	300 – 410	300 – 410
Volume shrinkage during UV curing [%]	5 – 7	3 – 5
Film thickness upon spin coating [µm] 3000 rpm 6000 – 1000 rpm	20 10 - 60	20 10 - 60
RI @ 589 nm, 25 °C, cured	1.520	1.555
dn/dT (589 nm) [10^{-4}/K]	-2.0	-2.7