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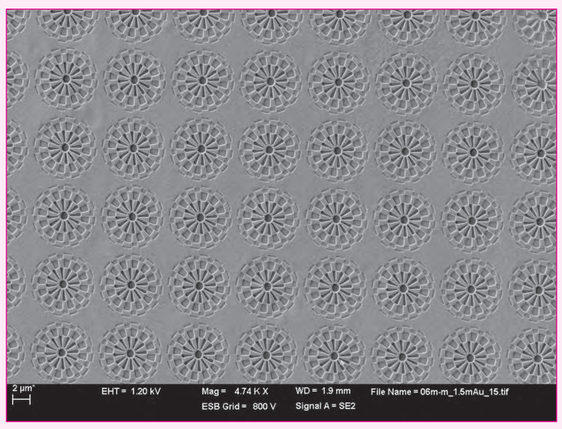
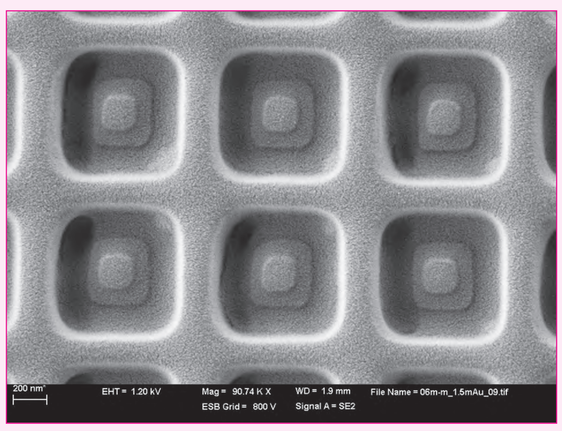
mr-XNIL26SF – A Fluorine modified UV nanoimprint resist with advanced release properties

mr-XNIL26SF can be applied as single layer resist without any adhesion layer on a variety of substrates like Si, glass, plastics, metals, etc. The fluorinated components facilitate the demolding step and also increase the lifetime of anti-sticking layers.



SEM micrographs of imprints with solvent-free mr-XNIL26SF
(Courtesy of N. Kehagias, Nanofabrication Division, Catalan Institute of Nanotechnology)



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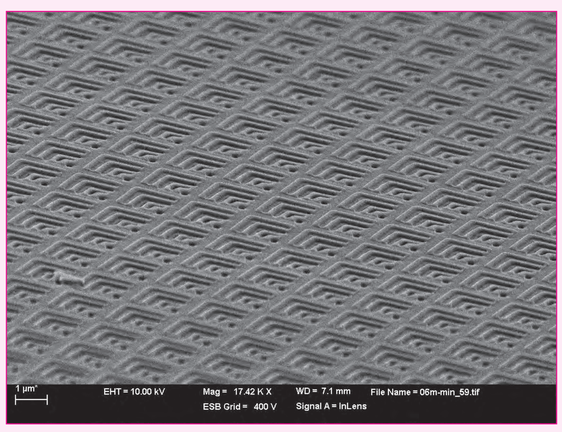

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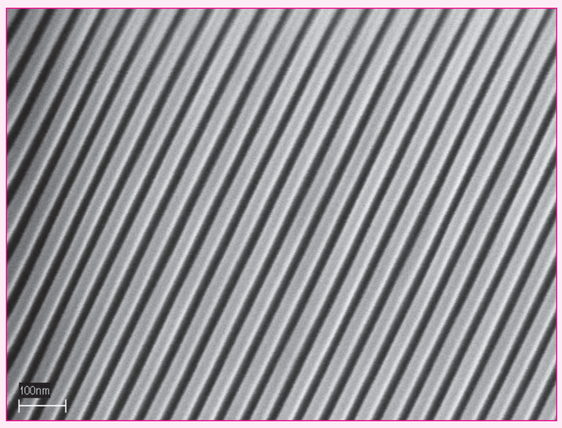


SEM image of 15 nm trenches and 50 nm bars imprinted into a layer of glass substrate. Si mould was provided by Eulitha AG. ASL: F13-TCS. Pattern depth: ~50 nm
(Courtesy of PSI, Switzerland. Scale: 100 nm)

Resist characteristics

- Excellent release due to fluorinated components
- Very good wetting and adhesion on various substrates without adhesion promoter due to the oligomeric components
- Fast curing and high resolution
- Fully organic material (no Silicon)
- Can be diluted down to 100 nm

Exemplary application fields

- Etch mask for wet-chemical etch processes or for RIE pattern transfer
- Fabrication of micro/nano-scale patterns with high aspect ratio
- Top-layer for multilayer material stacks

Availability

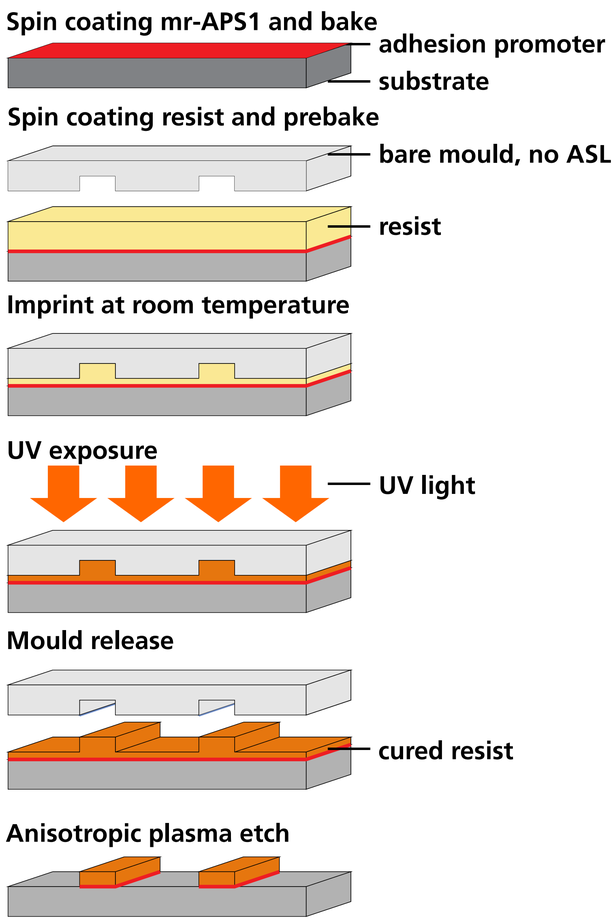
Product	Film thickness [a)]
mr-XNIL26SF	4800 ± 200 nm

[a)] Layer preparation by spin-coating @ 3000 rpm

Recommended processing parameters

Process step	Process parameter
Spin-coating	3000 rpm for 30 s
Softbake conditions	60-80 °C for 1 min
Imprint temperature	Room temperature
Imprint pressure	0.1 – 10 bars
Exposure dose	> 220 mJ/cm2
Mould release	Room temperature
Resist thinner	ma-T 1050

Option 1



Option 2