UV-curable Resist Formulation for UV- or Photo-NIL

mr-UVCur21 – fast curing resist formulation for imprints with hard stamp materials

**Unique Features**
- Suitable in combination with hard stamp materials (e.g. SiO₂, OrmoStamp®)
- Compatibility with various nanoimprint tools:
  - Wafer-scale or step&repeat UV-imprints
  - Imprinting in vacuum or under atmospheric pressure
- Excellent film quality and thickness uniformity
- Short cycle times due to fast filling of stamp cavities
- Pattern resolution below 30 nm
- Very low residual layer thickness (< 10 nm)
- Short curing times, low UV doses, compatibility with various UV lamps and filter systems
- High plasma etch resistance, no residues after oxygen plasma etching (silicon-free resist)
- Appropriate adhesion promoter available (mr-APS1)
- Not suitable in combination with PDMS working stamps

**Applications**
- Etch mask for pattern transfer processes (dry and wet etching)
- Fabrication of nanopatterns
  - Data storage
  - Nano-optical devices, sub-wavelength optical elements
  - Photonic crystals
  - Micro- and Nanofluidics
  - Microelectronics
- Coating of various substrate materials, e.g. Si, SiO₂, Al

**Technical Data**

<table>
<thead>
<tr>
<th>UV-curable NIL resist</th>
<th>mr-UVCur21</th>
<th>mr-UVCur21SF</th>
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<tbody>
<tr>
<td><strong>Coating method</strong></td>
<td>Spin coating</td>
<td>Dispensing, spin coating</td>
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<tr>
<td><strong>Process conditions</strong></td>
<td>Imprint: room temperature process, low imprint pressures (&gt;100 mbar), imprint in vacuum or under atmospheric pressure UV exposure: broad band or i-line, curing time few seconds</td>
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<td><strong>Smallest feature size</strong></td>
<td>&lt; 30 nm</td>
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<td><strong>Aspect ratio</strong></td>
<td>&gt; 2</td>
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<td><strong>Ready-to-use solutions for various film thicknesses</strong></td>
<td>100nm, 200nm, 300nm</td>
<td>1.6 µm (spin coating)</td>
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<td><strong>Diluents</strong></td>
<td>mr-T 1070</td>
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<tr>
<td><strong>Adhesion Promoter</strong></td>
<td>mr-APS1</td>
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1. Customized film thickness available on request