mr-NIL210 is a purely organic, photo-curable NIL resist featuring excellent curing and nanoimprint performance in combination with PDMS soft stamp materials. The most important industrial key parameters are: optimized PDMS compatibility for extended stamp longevity, increased dry etching resistance, and excellent reproducibility enabling high volume production.

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**Etching Performance**

<table>
<thead>
<tr>
<th>Substrate</th>
<th>RIE TOOL</th>
<th>Gas [sccm]</th>
<th>Resist Etch Rate [nm/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon</td>
<td>STS ICP</td>
<td>CF&lt;sub&gt;4&lt;/sub&gt; / SF&lt;sub&gt;6&lt;/sub&gt; (90/30)</td>
<td>60</td>
</tr>
<tr>
<td>Borosilicate Glass</td>
<td>OI BP80</td>
<td>CHF&lt;sub&gt;3&lt;/sub&gt; (20)</td>
<td>230</td>
</tr>
<tr>
<td>Sapphire</td>
<td>OI ICP180</td>
<td>BC1/Cl&lt;sub&gt;2&lt;/sub&gt; (90/10)</td>
<td>60</td>
</tr>
<tr>
<td>Titanium</td>
<td>OI System 100</td>
<td>SiCl&lt;sub&gt;4&lt;/sub&gt; (18)</td>
<td>40</td>
</tr>
<tr>
<td>Cured Resist</td>
<td>Gl Plasma Prep 5</td>
<td>O&lt;sub&gt;2&lt;/sub&gt; (240)</td>
<td>63</td>
</tr>
</tbody>
</table>

Data courtesy of University of Glasgow, N. Gadegaard

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**Film characteristics**

- Brilliant film forming characteristics, film stability, film thickness uniformity, and storage stability over several hours
- Film thickness freely adjustable from sub 100 nm range up to several microns (Standard: 100 nm, 200 nm, 500 nm)

**Photo-Nanoimprinting**

- Excellent imprint and photo-curing performance under ambient conditions as well as in the presence of air
- Outstanding compatibility to PDMS soft NIL stamps
- Suitable for the fabrication of micro- and nanoimprinted structures
- Enables high volume production by extended PDMS stamp longevity
- Photo-curing enabled also for LED (up to 405 nm) beside Hg bulb

**Dry etching characteristics and stripping**

- Excellent etching characteristics for many demanding substrates like sapphire, silica, etc.
- Facile removal of residual cured resist material by wet-chemical stripping or by oxygen plasma stripping

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<sup>1</sup> UV-PDMS was provided by Shin-Etsu Silicones and UV-PDMS KER-4690 A/B was used for the fabrication of all mentioned NIL stamp copies.