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Gesellschaft für chemische Materialien spezieller Photoresistysteme mbH

official distributor

Dow
Electronic Materials

⇒ g-line • i-line • DUV - Resists
⇒ BARC Materials
⇒ Lift-off Resist
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RHEM • g-Line, i-Line and DUV Products

RHEM • g-Line and i-Line Products – Overview vs. Film Thickness

<table>
<thead>
<tr>
<th>Resist FT</th>
<th>&gt; 10µm</th>
<th>5-10µm</th>
<th>3-5µm</th>
<th>2-3µm</th>
<th>1-2µm</th>
<th>0.5-1µm</th>
<th>&lt; 0.5µm</th>
</tr>
</thead>
<tbody>
<tr>
<td>g-line</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Thick</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Consolidation</td>
<td></td>
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<td>High Temp</td>
<td></td>
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</tr>
<tr>
<td>High resolution</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ultra high resolution</td>
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</tbody>
</table>

RHEM • DUV Products – Overview vs. Technical Node

<table>
<thead>
<tr>
<th>Tech Node, nm</th>
<th>350</th>
<th>250</th>
<th>180</th>
<th>130</th>
<th>90</th>
<th>65</th>
<th>45</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSI Trench/ Metal</td>
<td>UV82/UV2100G, HT</td>
<td>UV1100/UV1106, HT</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>CH/ MC/ Via</td>
<td>UV5/UV6/UV135G, HT</td>
<td>UV1116, HT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Thick Implant</td>
<td>UV26/UV26G/UV1412F HT</td>
<td>UV1401, Implant and BEOL consolidation, HT</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mid Implant</td>
<td>UV135G/UV60, Implant and BEOL consolidation, HT</td>
<td>UV53G, HT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Thin Implant</td>
<td>UV49/UV96, HT</td>
<td>UV1610, HT</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Resist</td>
<td>UVN2300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Resist Series S1800 G2

**Selection of g-Line & i-Line Resists**

<table>
<thead>
<tr>
<th>Resist</th>
<th>S1828 G2</th>
<th>S1818 G2 (SP16)</th>
<th>S1813 G2 (SP15)</th>
<th>S1811 G2</th>
<th>S1805 G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 4000 rpm</td>
<td>2.8 µm</td>
<td>1.8 µm</td>
<td>1.3 µm</td>
<td>1.1 µm</td>
<td>0.5 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>88.5</td>
<td>39.4</td>
<td>25</td>
<td>15</td>
<td>5.3</td>
</tr>
<tr>
<td>Dose (Broadband)</td>
<td>300 mJ</td>
<td>200 mJ</td>
<td>160 mJ</td>
<td>140 mJ</td>
<td>100 mJ</td>
</tr>
</tbody>
</table>

MICROPOSIT S1800 G2 series photoresist are positive photoresist systems engineered to satisfy the microelectronics industry’s requirements for IC device fabrication. The system has been engineered using a toxicologically – safer alternative casting solvent to the ethylene glycol derived ether acetates.

**Advantages**

- Optimized for *g*-line & *i*-line exposure
- Effective for broadband exposure
- Excellent adhesion (Improved with SP)
- PFOS / PFOA – free
- Optimized for use with MF-319 metal-ion-free developer family
- Compatible with metal-ion-bearing developers

**Absorbance Curve S1800G2**

- **Unexposed**
- **Exposed**

**4 µm Ft/2 µm L/S 310 mJ**

**1.3 µm Ft/ 0.8 µm L/S 180 mJ**
Resist Series SPR220

Selection of i-Line Resists

<table>
<thead>
<tr>
<th>Resist</th>
<th>SPR220-7.0</th>
<th>SPR220-4.5</th>
<th>SPR220-3.0</th>
<th>SPR220-1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3000 rpm</td>
<td>7.0 µm</td>
<td>4.5 µm</td>
<td>3.0 µm</td>
<td>1.2 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>390</td>
<td>123</td>
<td>49</td>
<td>11.5</td>
</tr>
<tr>
<td>Dose (i-line)</td>
<td>470 mJ</td>
<td>380 mJ</td>
<td>310 mJ</td>
<td>160 mJ</td>
</tr>
</tbody>
</table>

MEGAPOSIT SPR220 i-line photoresist is an optimized general-purpose, multi-wavelength resist designed to cover a wide range of film thicknesses, 1-30 µm, with a single-coat process. MEGAPOSIT SPR220 photoresist also has excellent adhesion and plating characteristics, which make it ideal for such thick film applications as MEMS and bump process.

Advantages
- Broadband, g-line and i-line capable
- >10µm film thickness in a single coat with good uniformity
- Excellent wet and dry etch adhesion
- Au; Cu and Ni/Fe plating without cracking
- MIF and MIB developer compatible

Absorbance Curve SPR220

Spin speed [rpm] vs. Film thickness [µm]
Resist Series SPR220 – Thick Application

Recommended Process Conditions

<table>
<thead>
<tr>
<th>Thickness:</th>
<th>1.1 µm to 4.0 µm Thickness*</th>
<th>1.1 µm to 10.0 µm Thickness*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softbake:</td>
<td>115°C/ 90 sec. Contact hotplate</td>
<td>1.1 µm – 10.0 µm</td>
</tr>
<tr>
<td>Expose:</td>
<td>ASML PAS 5500/ 200 i-Line (0.48 NA, 0.50 σ)</td>
<td>30 sec. step down to 115°C/ 90 sec. Contact hotplate**</td>
</tr>
<tr>
<td>PEB:</td>
<td>115°C/ 90 sec. Contact hotplate</td>
<td>ASML PAS 5500/ 200 i-Line (0.48 NA, 0.50 σ)</td>
</tr>
<tr>
<td>Developer:</td>
<td>MF™- 24 A @ 21°C, 60 sec. single spray puddle</td>
<td>115°C/ 90 sec. Contact hotplate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF™- 24 A @ 21°C, 60 sec. single spray puddle</td>
</tr>
</tbody>
</table>

**Recommended for isolated spaces as well  ** Refer to datasheet for further details

Etch trenches (Bosch Process)
4 to 10 µm features
(up to 100 µm deep)

Wet wafer etch (1:5 HF 5 min)
2 µm features

40 µm SPR220 over-plate with Au

Selection of i-Line Products

<table>
<thead>
<tr>
<th>Film thickness [µm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>40</td>
</tr>
</tbody>
</table>

Spin speed [rpm]

SPR220 7.0
Resist Series SPR3012 / 3510 / 3600

<table>
<thead>
<tr>
<th>Resist</th>
<th>SPR3625</th>
<th>SPR3621 (L)</th>
<th>SPR3617 (M)</th>
<th>SPR3612</th>
<th>SPR3012 (L)</th>
<th>SPR3510</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3000 rpm</td>
<td>2.5 µm</td>
<td>2.2 µm</td>
<td>1.7 µm</td>
<td>1.2 µm</td>
<td>1.18 µm</td>
<td>0.94 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>59.7</td>
<td>45.3</td>
<td>31.5</td>
<td>18.3</td>
<td>24.3</td>
<td>14</td>
</tr>
<tr>
<td>Dose (i-line)</td>
<td>140 mJ</td>
<td>110 mJ</td>
<td>150 mJ (M)</td>
<td>90 mJ</td>
<td>80 mJ</td>
<td>200 mJ</td>
</tr>
</tbody>
</table>

Absorbance Curve SPR3012

MEGAPOSIT SPR3012 / 3510 / 3600

For Microlithography Applications

MEGAPOSIT SPR3012 / 3510 / 3600

Series Photoresist are positive photoresist engineered for i-line, g-line and broadband application while providing high-throughput and excellent lithographic performance.

Advantages

MEGAPOSIT SPR 3012 :
- excellent adhesion
- L-dyed version for improved CD control over topography

MEGAPOSIT SPR 3510 :
- high thermal / etch resistance
- high throughput process

MEGAPOSIT SPR 3600 :
- extremely high throughput process
- high thermal / etch resistance
- dyed version for improved CD control over topography
MEGAPOSIT SPR700 series photoresists are positive multiwavelength photoresists that are optimized to provide robust process latitudes and high throughput with excellent thermal stability. SPR700 resists are compatible across a wide variety of developer families. This versatility makes SPR700 photoresists ideal for a number of applications, especially mix and match lithography.

**Advantages**
- Multiwavelength (i-line, g-line and broadband)
- Compatible across a wide variety of developer families (0.26N, 0.24N, 0.21N)
- Excellent process latitudes and robust process
- Thermal stability greater than or equal to 135°C
- High throughput for stepper and developer process
- Excellent DOF
Resist Series SPR660

<table>
<thead>
<tr>
<th>Resist</th>
<th>SPR660-1.5</th>
<th>SPR660-1.2</th>
<th>SPR660-1.0</th>
<th>SPR660-1.0M</th>
<th>SPR660-0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3200 rpm</td>
<td>1.5 µm</td>
<td>1.2 µm</td>
<td>1.0 µm</td>
<td>1.0 µm</td>
<td>0.8 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>17.6</td>
<td>13.06</td>
<td>10.4</td>
<td>10.4</td>
<td>8</td>
</tr>
<tr>
<td>Dose (i-line)</td>
<td>250 mJ</td>
<td>210 mJ</td>
<td>170 mJ</td>
<td>205 mJ</td>
<td>150 mJ</td>
</tr>
</tbody>
</table>

**Advantages**

- Linear resolution
  - 0.325 µm over silicon substrate
  - < 0.300 µm over anti-reflectant
- Wide process latitudes
  - DoF 1.5 µm for 0.4 µm lines / Spaces
  - DoF 1.2 µm for 0.4 µm contact holes
- Compatible with 0.24N and 0.26N developer
- 12 month shelf life

For Microlithography Applications

**SPR660**

SPR660 series is an advanced i-line photoresist designed for processing 0.350 micron features and larger. SPR660 performs in both line / space and contact hole application and on variety of substrates, including silicon dioxide, titanium nitride, and organic anti-reflectant coatings. The SPR660 product family includes a range of undyed dilutions as well dye loadings for improved processing over reflective surface.
Resist Series SPR955-CM

MEGAPOSIT SPR955-CM series photoresist is a general purpose, high-throughput, i-line photoresist for 0.35 µm front-end and back-end applications. SPR955-CM is optimized for anti-reflective (organic and inorganic) coating.

Advantages

350 nm Design Rules
- Dense Lines/Spaces and isolated lines on polysilicon
- Dense Lines/Spaces in high-aspect ratio film on TiN
- Contact holes on oxide
- Isolated spaces (trenches)
Resist Series Ultra-\(i^{\text{TM}123}\) — High Resolution < 0.25 µm

### Selection of i-Line Resists

<table>
<thead>
<tr>
<th>Resist</th>
<th>Ultra-(i^{\text{TM}123})-1.0</th>
<th>Ultra-(i^{\text{TM}123})-0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 2500 rpm</td>
<td>1.0 µm</td>
<td>0.8 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>8.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Dose (i-line)</td>
<td>295 mJ</td>
<td>250 mJ</td>
</tr>
</tbody>
</table>

Ultra-\(i^{\text{TM}123}\) For Microlithography Applications

Ultra-\(i^{\text{TM}123}\) is an advanced, general purpose, 0.25 µm critical i-line photoresist with extendibility to 0.23 µm and below. Ultra-\(i^{\text{TM}123}\) is optimized for antireflective coating.

#### Advantages

**Lines / Spaces**
- \(\geq 1.0\) µm DoF @ 0.25 µm dense
- \(\geq 1.1\) µm DoF @ 0.23 µm semi-dense

**Contact Holes**
- \(\geq 1.1\) µm DoF @ 0.30 µm CH
- \(\geq 1.1\) µm DoF @ 0.25 mm CH (with PSM)

---

Ultra-\(i^{\text{TM}123}\) — High Resolution < 0.25 µm

Selection of i-Line Resists

<table>
<thead>
<tr>
<th>Resist</th>
<th>Ultra-(i^{\text{TM}123})-1.0</th>
<th>Ultra-(i^{\text{TM}123})-0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 2500 rpm</td>
<td>1.0 µm</td>
<td>0.8 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>8.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Dose (i-line)</td>
<td>295 mJ</td>
<td>250 mJ</td>
</tr>
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</table>

Ultra-\(i^{\text{TM}123}\) For Microlithography Applications

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- \(\geq 1.0\) µm DoF @ 0.25 µm dense
- \(\geq 1.1\) µm DoF @ 0.23 µm semi-dense

**Contact Holes**
- \(\geq 1.1\) µm DoF @ 0.30 µm CH
- \(\geq 1.1\) µm DoF @ 0.25 mm CH (with PSM)
MICROPOSIT LOL 1000 and 2000

For Bi-Layer Lift-Off Processes

Microposit LOL 1000/2000 lift-off layer is an enhanced dissolution rate, dyed PMGI (poly(methylglutarimide)) solution used for lift-off processes requiring tight CD control, such as GMR thin film head, GaAs, and other leading-edge semiconductor applications. The LOL bilayer lift-off process is suitable for applications where a thin layer of metal is sputtered or evaporated in an additive process. CD variation due to etch bias inherent in subtractive processes is eliminated, resulting in superior metal line width control. Attack on the substrates by an etchant is eliminated.

Lift-off Resist – Protective Surface Coating Resist

MICROPOSIT FSC – PROTECTIVE SURFACE COATING

MICROPOSIT FSC series surface coating is a non-imagable coating formulated as a protective coat for use during chemical or mechanical processes in microelectronic fabrication. The system has been formulated with a single solvent. It does not contain xylene, acetone, or Cellosolve acetate.

Microposit FSC Series Surface Coating is available in two thickness ranges.

• FSC-M: 2.4 to 3.3 µm
  For front-side protection during back lapping 0.2 µm filtration
Resist Series UV26 / UV26G

<table>
<thead>
<tr>
<th>Resist</th>
<th>UV26 3.0</th>
<th>UV26 2.5</th>
<th>UV26 2.0</th>
<th>UV26 1.35</th>
<th>UV26 0.7</th>
<th>UV26G 1.6</th>
<th>UV26G 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3000 rpm</td>
<td>3.0 µm</td>
<td>2.5 µm</td>
<td>2.0 µm</td>
<td>1.35 µm</td>
<td>0.7 µm</td>
<td>1.6 µm</td>
<td>1.3 µm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>112</td>
<td>80</td>
<td>58.4</td>
<td>33</td>
<td>12.5</td>
<td>44</td>
<td>31.3</td>
</tr>
<tr>
<td>Dose (average for L/S)</td>
<td>30 mJ</td>
<td>27 mJ</td>
<td>25 mJ</td>
<td>20 mJ</td>
<td>15 mJ</td>
<td>22 mJ</td>
<td>20 mJ</td>
</tr>
</tbody>
</table>

**UV26 / UV26G**

**Description**

**UV26** is a positive DUV photoresist developed for deep Implant applications. The low viscosity of UV26 allows for reduced dispense volume and improved coating. Uniformity for film ranging from 0.7 µm to 3.0 µm. **UV26G** is the long term “green” replacement of **UV26**

**Features**

**Sizing Energy⇒DoF⇒Resolution**
- 16.5 mJ/cm² for 350 nm 1:1 Lines/Spaces at 1.1 µm FT⇒0.80 µm DoF⇒Resolution 240 nm
- 18.5 mJ/cm² for 450 nm 1:1 trenches at 1.8 µm FT⇒1.35 µm DoF⇒Resolution 280 nm
- 20.5 mJ/cm² for 600 nm 1:1 Lines/Spaces at 2.5 µm FT⇒1.0 µm DoF⇒Resolution 500 nm

**Absorbance Curve UV26**

**Selection of DUV Products**
**Resist Series UV60**

**For Microlithography Applications**

UV60 is a positive DUV photoresist designed for consolidation of implant, metal contact hole and via applications for 200 nm features. UV60 works well on reflective substrates.

**Advantages**
- DoF > 0.5 µm for 200 nm 1:1.25 trenches
- Excellent resolution
- Good exposure latitude
- Vertical profiles

**Selection of DUV Products**

<table>
<thead>
<tr>
<th>Resist</th>
<th>UV60-0.58</th>
<th>UV60-0.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3000 rpm</td>
<td>580 nm</td>
<td>750 nm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>9.7</td>
<td>12.7</td>
</tr>
<tr>
<td>Dose (average for L/S)</td>
<td>22 mJ</td>
<td>24 mJ</td>
</tr>
</tbody>
</table>

![Graph showing film thickness vs spin speed](image)

![Graph showing CD vs exposure dose](image)
Resist Series UV1100

<table>
<thead>
<tr>
<th>Resist</th>
<th>UV1100-0.38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3000 rpm</td>
<td>380 nm</td>
</tr>
<tr>
<td>Viscosity / cP</td>
<td>5.9</td>
</tr>
<tr>
<td>Dose (for 100nm iso-Line)</td>
<td>43 mJ</td>
</tr>
</tbody>
</table>

Advantages

- Low through-pitch bias
- Excellent etch resistance
- Minimal SB/PEB sensitivity
- Good process window
- Good resolution

UV1100

Description

UV1100 is a high temperature, positive DUV resist. UV1100 features excellent resolution and wide process windows for metal and trench application. UV1100 works well on organic anti-reflectant for hard mask processes and is especially suited for metal trench application.
Resist Series UV210GS

<table>
<thead>
<tr>
<th>Resist</th>
<th>UV210GS-0.6</th>
<th>UV210GS-0.4</th>
<th>UV210GS-0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 2750 rpm</td>
<td>600 nm</td>
<td>400 nm</td>
<td>300 nm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>13.83</td>
<td>10.07</td>
<td>7.52</td>
</tr>
<tr>
<td>Dose (average for L/S)</td>
<td>30 mJ</td>
<td>28 mJ</td>
<td>26 mJ</td>
</tr>
</tbody>
</table>

UV210GS
For Microlithography Applications

UV210GS
is a multipurpose resist that can be utilized for gate, phase shift mask contact holes and trench applications in 180 – 130 nm CD range.

**Features**

**Sizing Energy\(\rightarrow\)DoF\(\rightarrow\)Resolution**
- 28 mJ/cm\(^2\) for 130 nm 1:1.5 lines / spaces\(\rightarrow\)1.0 µm DoF\(\rightarrow\)Resolution 130 nm
- 33 mJ/cm\(^2\) for 180 nm 1:1 trenches\(\rightarrow\)0.8 µm DoF\(\rightarrow\)Resolution 160 nm
- 60 mJ/cm\(^2\) for 180 nm 1:1 contact holes\(\rightarrow\)0.7 µm DoF\(\rightarrow\)Resolution 150 nm (70 nm Bias)
Resist Series UVN2300

<table>
<thead>
<tr>
<th>Resist</th>
<th>UVN2300-0.4</th>
<th>UVN2300-0.5</th>
<th>UVN2300-0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness @ 3200 rpm</td>
<td>400 nm</td>
<td>500 nm</td>
<td>800 nm</td>
</tr>
<tr>
<td>Viscosity / cSt</td>
<td>3.85</td>
<td>4.77</td>
<td>8.07</td>
</tr>
<tr>
<td>Dose (average for L/S)</td>
<td>18 mJ</td>
<td>20 mJ</td>
<td>40 mJ</td>
</tr>
</tbody>
</table>

**UVN2300**

**Description**

UVN2300 is a negative PFOS-free photoresist for DUV applications. This resist is targeted for fast throughput device production rules down to 150 nm. Nested lines/spaces, isolated lines, posts, and contacts can be resolved with wide process windows. Minimal PEB sensitivity, insensitivity to airborne contaminants, and superior metal etch resistance are only some of the properties UVN2300 offers.

**Features**

**Sizing Energy**

- 10.0 – 100 mJ for lines and spaces

**Depth of Focus**

- 1.3 µm DoF for 300 nm semi trench
- 1.6 µm DoF for 300 nm 1:1 trenches
- 0.90 µm DoF for 180 nm 1:1 lines/spaces
- 0.80 µm DoF for 150 nm 1:1 lines/spaces
- 0.45 µm DoF for 180nm 1:1 CH

---

**Selection of DUV Resists**

![Graph showing film thickness vs. spin speed for UVN2300-0.4, UVN2300-0.5, and UVN2300-0.8]
## 248 nm Anti-Reflectants Product Selection Guide

<table>
<thead>
<tr>
<th>Attributes</th>
<th>AR3GSF</th>
<th>AR10L</th>
<th>AR14</th>
<th>AR14H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Reflectivity</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
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<tr>
<td>(1st or 2nd)</td>
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<tr>
<td>Thickness (nm)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
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<tr>
<td>ETCH</td>
<td></td>
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</tr>
<tr>
<td>Bulk Etch Rate (Relative to UV6 Resist)</td>
<td>1.2</td>
<td>1.3</td>
<td>1.3</td>
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<tr>
<td>Relative Etch Time (Relative to AR2/3)</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>Coating</td>
<td>Conformal</td>
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<tr>
<td>Planar &amp; Via fill</td>
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<tr>
<td>Resist Compatibility</td>
<td>ESCAP Resists</td>
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<td></td>
<td>Acetal/ Hybrid</td>
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</tbody>
</table>

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### Developers

**Metal Ion Free (MIF)**
(Recommended where it is desirable to avoid a potential source of metal ion contamination)
- **MF-20A Series** – MF-21A (0.21N), MF-24A (0.24N), MF-26A (0.26N)
- **MF-300 Series** – MF-319 (0.237N), MF-321 (0.21N), MF-322 (0.268N)
- **MF-CD-26 Developer** – (0.26N, surfactant-free)

**Metal Ion Bearing (MIB)**
- **Microposit 354 Developer (0.31N)** – concentrate
- **Microposit 351 Developer (1.39N)** – concentrate
- **Microposit 303A Developer (1.7N)** – concentrate
- **Microposit Developer (0.6N)** – concentrate, lowest attack on Aluminum

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### Ancillaries

<table>
<thead>
<tr>
<th>Ancillaries</th>
<th>S1800 G2</th>
<th>SPR350</th>
<th>SPR3000</th>
<th>SPR220</th>
<th>SPR700</th>
<th>SPR660</th>
<th>SPR680</th>
<th>SPR955CM</th>
<th>ULTRA-i</th>
<th>123</th>
<th>UV26G</th>
<th>UV60</th>
<th>UV210GS</th>
<th>UV1100</th>
<th>UVN2300</th>
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</thead>
<tbody>
<tr>
<td>MIF</td>
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<tr>
<td>MF-20A</td>
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<td>✔</td>
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<td>MF-300</td>
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<td>MF-CD-26</td>
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<td>351/354 Dev</td>
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<tr>
<td>303A Dev</td>
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<td>Micro Dev</td>
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</tbody>
</table>
AR602 is a developable organic bottom anti-reflectant for use in both KrF and ArF application. AR602 is designed for improved performance of critical implant layers while minimizing the negative effects of other implant solution. AR602 has excellent reflection control and improves profile and CDU concerns of a traditional top anti-reflectant-coating.

**Advantages**
- Optical density at 248nm = 7.5 µm and at 193 = 10.4 µm
- First minimum thickness at 520Å over reflective substrates
- Turntable dissolution rate with cure temperature
- Product dilution targeted at 510Å
- Compatible with many common EBR solvents
- Excellent CD and Profile control
### Advanced Removers

<table>
<thead>
<tr>
<th>Edge Bead Removers EBR</th>
<th>NMP-based General Purpose Resist Remover 1165</th>
<th>NMP-free General Purpose Resist Remover SVC-14, 1112A</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC Solvent, EC Solvent 11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Polymer Remover Aluminum</th>
<th>Polymer Remover Aluminum</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Batch Processing ARS-425</td>
<td>- Single Wafer Processing PRX-505</td>
<td></td>
</tr>
</tbody>
</table>

### CHROME ETCHANT 18

**Chrome Etchant 18** is designed for use in micro-lithographic applications where high reproducibility and tight dimensional control is required. The ready-to-use solution, which is based on acidic ceric salts, is stable and compatible with positive and negative resist systems.

The principle application is mask manufacture in microelectronic industry for etching bright and anti-reflective chrome thin-films on mask blanks. Other applications are in thin-film technology, (thin film circuitry, optical gratings, microelectronic devices, etc) for etching chromium, chrome-nickel alloys, molybdenum and tungsten films.

**PHYSICAL & CHEMICAL PROPERTIES:**

- **Specific Gravity at 20/20°C**: Approx. 1.140
- **Colour**: Orange
- **Turbidity**: Clear
- **Ceric Content**: Approx. 40 g/l
- **Total Acid Normality**: Approx. 1.90 N
micro resist technology develops and produces photoresists and materials for advanced lithography and nano-imprint lithography as well as hybrid polymers for microoptical applications. The products of micro resist technology are mainly used in MEMS applications, in the semiconductor industry, in optoelectronics, in new data storage media, and in nanotechnology. Over 50% of the turnover is achieved through exports. A world-wide network of distributors supports this.

Additionally to the own products micro resist technology has distribution contracts with DOW Chemicals (USA), MicroChem Corp. (USA), and DuPont (USA). micro resist technology’s customer services range from lithographic patterning of customers’ substrates to the on-site introduction into production.

One of the essential criteria for success is the technological advice for the product applications by the company’s scientists. micro resist technology puts a high priority on the consistent implementation of quality management methods. It has had a quality management system certified to DIN EN ISO 9001 since 1997 and to DIN ISO 14001 since 2011.

micro resist technology's products are:

- Polymers for Nanoimprint Lithography
- (Hybrid Polymers) (ORMOCER®s) for micro-optical applications
- Photoresists for Deep-UV and Electron-beam Lithography
- Photoresists and Photopolymers for UV, Laser and X-ray Lithography
- Customer Services

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