

## Developer for AR E-Beam Resists

### AR 600-50, 600-546, -548, -549, 600-55, -56 developer

For the development of e-beam resists films

#### Characterisation

- ultrapure, ultra-filtered (0.2 µm) solvent mixtures
- storage temperature at 10-22 °C

#### Properties

safer solvent optimally suited suited

AR resist / developer	AR 600-50	AR 600-55	AR 600-56
Fields of application/conditions	dip, puddle, spray development at 21-23 °C ± 1 °C		
Main component(s)	methoxypropanol / isopropyl alcohol	methyl isobutyl ketone (MIBK)	methyl isobutyl ketone (MIBK)
Properties		strong developer	weaker developer
Density at 20 °C (g/cm <sup>3</sup> )	0.871	0.792	0.788
Refractive index at 20 °C	1.395	1.384	1.381
Water content max. (%)	0.1	0.1	0.1
Flash point (°C)	21	12	12
AR-P 617	2-3 min	3 min	3 min
AR-P 630 - 670 series	-	1-3 min	1-3 min
AR-P 6500	-	-	-

AR resist / developer	AR 600-546	AR 600-548	AR 600-549
Fields of application/conditions	dip, puddle, spray development at 21-23 °C ± 1 °C		
Main component(s)	amyl acetate	diethyl ketone / diethyl malonate	diethyl malonate / anisole
Properties	weaker developer	strong developer	moderate developer
Density at 20 °C (g/cm <sup>3</sup> )	0.876	0.917	1.053
Refractive index at 20 °C	1.402	1.401	1.417
Water content max. (%)	0.1	0.1	0.1
Flash point (°C)	41	22	85
AR-P 6200	1 min	1 min	1 min

#### Information on developer processing

The choice of the developer strongly influences the development rate, the sensitivity and the profile of the resist structures. Coated and exposed substrates are treated with developers which are suitable for the respective process (puddle, spray, immersion bath) at a temperature of 21-23 °C kept as constant as possible. The required development time depends in each case on the resist film thickness. Films with a thickness of less than 0.2 µm can for example be completely developed after 30 s. The development process can be slowed down for AR 600-50, -55 and -56 by adding 10-20 % of the stopper AR 600-60.

Weaker developers like AR 600-56 and AR 600-546 provide a higher resolution without dark erosion, while a significantly higher sensitivity with at the same time higher dark erosion can be obtained with developers AR 600-55 and AR 600-548. If CSAR 62 is processed with developer AR 600-548 at a development temperature of about 0 °C, even after 10 minutes no erosion is observed at the prolonged development time. Substrates have to be rinsed immediately after development for 30 seconds with stopper and are subsequently dried.