

Remover for AR Resists

AR-P 600-70, 600-71, 300-76, 300-70, 300-72, 300-73 remover

For the stripping of tempered photoresist and e-beam resist films

Characterisation

- aqueous-alkaline solution (AR 300-73) or organic solvents (all others)

Remover recommendations after tempering:

- photoresists up to 180 °C: AR 600-71, 300-76
- photoresists up to 200 °C: AR 300-76, 300-71
- PMMAs up to 200 °C: AR 600-71, 300-76
- copolymers up to 210 °C: AR 600-71, 300-76
- CSAR 62 up to 200 °C: AR 600-71, 300-76
- novolac e-beam resists 150 °C: AR 300-73, 300-76

Properties

Parameter / AR	600-70	600-71	300-76 new	300-70, -72	300-73
Main component	acetone	dioxolane	DMG	NEP	TMAH
Density at 20 °C (g/cm ³)	0.79	1.02	1.08	1.03	1.00
Non-volatiles max. (%)	0.002				
Flash point (°C)	-17	3	103	98	-
Filtration (µm)	0.2				
Storage up to 6 month (°C)	10-22	10-18	10-22	10-22	10-22

Remover recommendations

 optimally suitable
 suitable
 limited suitability
 unsuitable

Properties / Remover AR	600-70	600-71	300-76 new * heated to 80 °C	300-70, 300-72 * heated to 80 °C	300-73 + heated to 50 °C
average time for removal at 1.5 µm					
Suitability for tempered photoresist films (21 °C)	inexpensive, commonly used	efficient all-rounder	universal, replacing the reprod. toxic, NEP: = AR 300-70, -72	universal, especially for thin films, but toxic for reproduction	special: AR-BR 5400, AR-P 3100, 3500, 3700
120 °C	15 s	10 s	25 s	20 s	30 s
150 °C	20 s	15 s	3 min 25 s *	2 min 20 s *	2 min 60 s +
180 °C	5 min	4 min	2 h 60 s *	2 h 50 s *	2 h 2 min +
200 °C			30 min *	25 min *	30 min +
Suitability for tempered e-beam resist films (21 °C)	inexpensive, commonly used	efficient all-rounder	universal, replacing reprod. -toxic NEP:	universal, but toxic for reproduction	special: AR-N 7520, 7700
PMMA 150 °C	25 s	20 s	20 min 10 s *	18 min 10 s *	15 min +
PMMA 180 °C	2 min	2 min	30 min 30 s *	28 min 30 s *	25 min +
PMMA 200 °C	3 min	3 min	42 min 50 s *	40 min 50 s *	
Copolymer 190 - 210 °C	10 s	5 s	60 s *	50 s *	20 min +
CSAR 62 150 °C		30 s	60 s *	50 s *	10 min +
CSAR 62 180 - 200 °C		40 - 60 s	5 min *	4 min *	15 - 25 min +
Novolac-based 85 - 120 °C	5 - 60 s except 7700	3 - 50 s except 7700	5 s * except 7520, 7700	5 s * except 7520, 7700	25 s - 3 min +
Novolac-based 150 °C	10 s - 9 min except 7520, 7700	5 s - 7 min except 7520, 7700	30 s * except 7520, 7700	10 s * except 7520, 7700	10 s - 50 min +

Processing instructions for removers

Substrates coated with resist are exposed to the effect of the remover by immersion (puddle or dip). To reduce the dissolution time for tempered layers, removers AR 300-70, 300-72 and 300-76 may be heated to up to 80 °C, remover AR 300-73 to up to 50 °C or megasonics may be helpful in this case. It is recommended to rinse off the remover with DI water, clean remover or with a suitable thinner. A stripping of very hard-baked layers (> 220 °C) with remover is hardly possible any more. In this case, oxidizing acids or oxygen plasma may be used for stripping. Further detailed remover specifications for a large variety of resists are listed on the following pages.