Tfp650-1.BMP

AZ® TFP-600 AND RFP-210K SERIES

Flat Panel Display Photoresists

Description

AZ Photoresist Products offers photoresists that are designed to meet the requirements of the flat panel display industry. They are specifically designed for a variety of applications including spin coat, extrusion coat, and roller coat. These production-proven photoresists can be used with a variety of developers and removers, and they are formulated to be compatible with the underlying layers.

Spin Coat and Extrusion Coat Resists Offer

- high photospeed
- low dark film loss
- excellent adhesion
- easy removal after hardbake
- excellent resistance to harsh etchants

Roller Coat Resists Offer

- dose to print on ITO 38 mJ/cm²
- etch bias on ITO 0.3 µm (each side)
- film loss at develop 30 Å

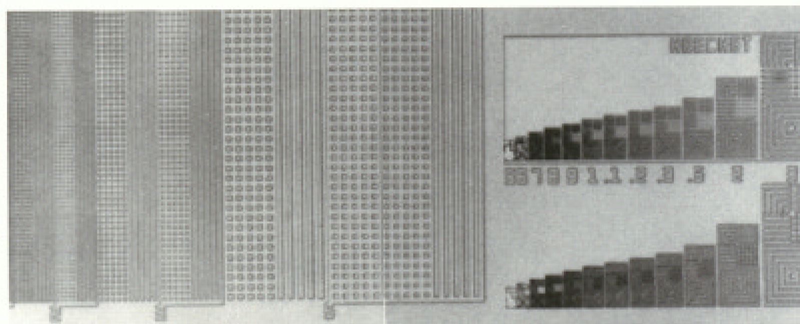
Product Lines

- AZ® TFP-650 photoresist for spin coat and extrusion coat applications
- AZ® TFP-650F photoresist for spin coat and extrusion coat applications on substrates with poor adhesion and/or harsh etch conditions
- AZ® TFP-610 photoresist for spin coat and extrusion coat applications on reflective substrates
- AZ® RFP-210K photoresist for roller coat applications

Exposure and Film Loss

Parameter	TFP-650 Photoresist	TFP-610 Photoresist
Dose to Print (g-line)	24 mJ/cm²	30 mJ/cm²
Dose to Print (aligner)	28 mJ/cm²	33 mJ/cm²
Film Loss at Develop	270 Å	160 Å
Film Loss at Hard Bake	540 Å	620 Å
Total Film Loss	810 Å	780 Å

Substrate	Bare Si
Resist Thickness	1.5 µm
Develop	AZ® 300 MIF developer (2.38 wt. % TMAH), 60 sec puddle at 23°C
Hardbake	120°C hotplate, 120 sec



AZ® TFP-650F photoresist (1.5 µm film on SiN_x) demonstrates excellent adhesion.

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Tfp650-2.bmp

Photoresist Characteristics
AZ® TFP-650F Photoresist

Parameter	Performance
Dose to Print (g-line)	16 mJ/cm²
Film Loss at Develop	470Å
SiO_2 Etch Bias (each side)	0.45 µm
ITO Etch Bias (each side)	0.91 µm

Resist Thickness	1.5 µm
Develop	AZ® 300 MIF developer (2.38 wt. % TMAH), 60 sec puddle at 23°C
Hardbake	100°C hotplate, 120 sec
Etch	SiO_2 - HF:NH_4F = 1:6 at 23°C, 2 min over etch; ITO - $FeCl_3$:HCl = 1:1 at 50°C, 100% over etch

Solvent Safety
AZ® TFP-600 series and RFP-210K series photoresists are formulated with propylene glycol monomethyl ether acetate (PGMEA) safer solvent, which is patented for use in photoresists by Hoechst Celanese Corp. (U.S. patent number 4,550,069). PGMEA is among the best tested and safest photoresist solvents available.

Equipment Compatibility
AZ TFP-600 series and RFP-210K series photoresists are compatible with all commercially available wafer and photomask processing equipment.

Recommended materials of construction include stainless steel, glass, ceramic, PTFE, polypropylene, and high-density polyethylene.

Storage
Keep in sealed original containers away from oxidants, sparks, and open flames. Protect from light and heat. Empty container may contain harmful residue and vapors.

Handling Precautions/First Aid
Refer to the current Material Safety Data Sheet (MSDS) for detailed information prior to handling.

Adhesion

Hardbake 120 sec hotplate	Etch bias on 5 µm lines (each side)			
	Cr TFP-650	Cr TFP-610	ITO TFP-650	ITO TFP-610
None	0.48	0.61	1.55	1.65
120°C	0.48	0.51	0.58	0.66
140°C	0.43	0.46	0.55	0.64
150°C	0.39	0.40	0.54	0.60
Etch	Cr - Ce $(NO_3)_4$ • 2 NH_4NO_3:HCl at 23°C, 50% over etch ITO - $FeCl_3$:HCl = 1:1 at 50°C, 50% over etch			

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