

Aluminum Etchant

Etchant for Aluminum Metallizations in Microelectronics

Chemical etchants compatible with negative and positive photoresists for developing ohmic contacts and interconnections in integrated circuits, transistors, diodes, MOD and FET devices.

ALUMINUM ETCHANT – TYPE A

Standard aluminum etchant for use on silicon devices and other microelectronic applications

FEATURES

- Controlled etch rates
- Selective etching: will not attack SiO_2
- Offers high resolution with minimal undercutting
- Eliminates smut formation
- Economical; reusable

Transene Aluminum Etchants are stable, non-toxic preparations used to etch aluminum metallizations on silicon devices and in integrated circuit applications. Aluminum contacts are defined, and interconnections are formed. These Aluminum Etchants, formulated with unique properties, easily overcome many of the difficulties experienced in aluminum etch processes.

The aluminum metallization and etching process using photo-lithographic techniques is basic to semiconductor and microelectronic technology. Transene Aluminum Etchants are highly compatible with commercial photoresists (KTFR, AZ, Hunt, Waycoat, etc.) and permit delineation into high resolution patterns. Metal line width of 1 mil and separations less than 5 microns are feasible. High resolution is practical with Transene Aluminum Etchants because lifting of photoresist patterns does not occur and undercutting is minimized. Furthermore, the etchants do not attack silicon, silicon dioxide, silicon nitride or nichrome resistor films. Type A is recommended for use on silicon devices. It is also recommended for etching aluminum metallizations on nichrome thin film resistors.

PROPERTIES OF TRANSENE ALUMINUM ETCHANT TYPE A

How do I increase the etch rate?	1. The rate will approximately double with every 10°C increase in temperature. 2. Increase the rate of stirring or agitation.
How do I reduce the etch rate?	Adding 1 part deionized water to 2 parts etchant will reduce the etch rate approximately 50%.
Do I need to dilute the etchant?	No, it is ready to use.
How do I reduce undercutting?	Increase the rate of stirring or agitation.
Appearance	Water-white to light yellow
pH	Strongly acidic
Etch Rate at 25°C 40°C	30 Å/sec. 80 Å/sec
Etch Capacity (rate declines at ~70%)	60 g/gallon
Shelf Life	1 year
Storage Conditions	Ambient
Filtration	0.2 um
Recommended Operating Temperatures	20-80°C (30-40°C most common)
Rinse	Deionized water; may be followed by alcohol rinse if desired.

Photoresist Recommendations	KLT6000 Series, KLT 5300 Series, HARE SQ (SU-8 type), TRANSIST, or PKP-308PI
Select Compatible Materials	Silicon oxide, gold, nichrome See https://transene.com/etch-compatibility/ for more details.
Select Incompatible Materials	Aluminum oxide, silicon nitride
Compatible Plastics	HDPE, PP, Teflon, PFA, PVC
Country of Origin	USA
Availability	Stock item
Available Sizes	Quart, Gallon, 5 Gallon, 55 Gallon
Packaging	HDPE
Packing	4 gallons/case
Isotropy	Isotropic
Incompatible Chemicals	Strong bases
Additional Information	—