

Tin Oxide/Indium Tin Oxide Etchant TE-100

DESCRIPTION:

Tin Oxide/Indium Tin Oxide Etchant TE-100 is a selective etchant for tin oxide and indium tin oxide (ITO) layers in microelectronics applications. TE-100 effectively etches ITO and tin oxide films deposited on ceramics, dielectrics, semiconductors, and many metals. TE-100 provides excellent definition and etch rate control. Broad compatibility with positive and negative photoresists is offered. TE-100 is not compatible with nickel, copper, nichrome, and aluminum.

APPLICATION:

ITO films are best prepared by first depositing a film of indium-tin. The indium-tin film is then oxidized in an oxygen plasma or at elevated temperatures in an oxygenating atmosphere. When etched, indium is solublized as a trivalent aquocomplex $[\text{In}(\text{H}_2\text{O})_6]^{3+}$ while tin forms a $[\text{SnCl}_6]^{2-}$ anion.

PROPERTIES:

How do I increase the etch rate?	<ol style="list-style-type: none"> 1. The rate will ~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	Brown
pH	Acidic
Etch Rate at 40-50 °C	15-20 Å/second
Etch Capacity (rate declines at ~70%)	100 g/gallon
Shelf Life	1 year
Storage Conditions	Ambient
Filtration	1 µm
Recommended Operating Temperatures	20-80 °C (30-40 °C most common)
Rinse	Deionized water
Photoresist Recommendations	KLT6000 Series, KLT 5300 Series, HARE SQT (SU-8 type), TRANSIST, or PKP Type II http://transene.com/semi/#photo
Select Compatible Materials	Au, oxide, nitride, alumina See http://transene.com/etch-compatibility/ for more details.
Select Incompatible Materials	Al, Ni, Ti, Cu, Pd
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, nitric acid
Additional Information	Immersion or spray application

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