

# MicroChem Remover 1112A

## PRODUCT PROFILE

MicroChem Remover 1112A is an aqueous alkaline remover supplied as a ready-to-use concentrate. It is designed to strip photoresist coatings on photomasks, optoelectronic displays, thin film circuits, and other microelectronic devices.

### CLEAN EFFICIENT REMOVAL

- Residue-free removal with less agitation

### AQUEOUS ALKALINE, METAL ION FREE

- Reduced device contamination
- Especially useful for LCD and electroluminescent displays
- Excellent for mask cleaning

### SIMPLIFIED WASTE TREATMENT

- No phenols, phosphates, fluorides, chromates, or metal ions

### EASE OF OPERATION

- Rinses completely in water
- No strong objectionable odor
- Simple replenishment
- Cost effective two bath system

### FLEXIBILITY FOR CUSTOM DILUTIONS

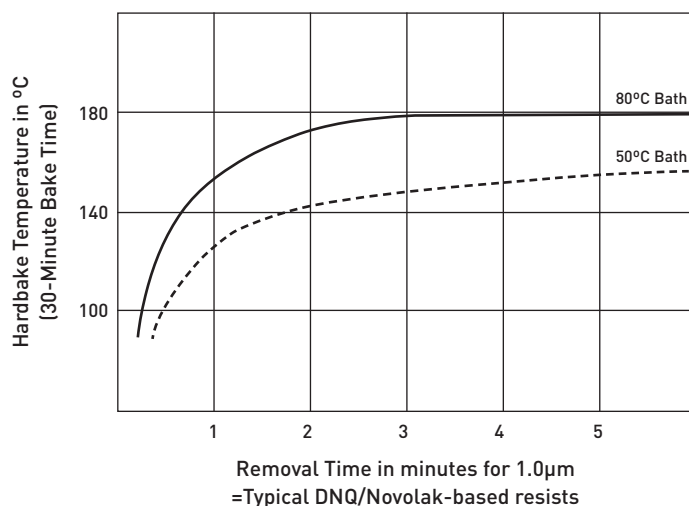
- Aqueous mixtures for addressing specific applications

## GENERAL PROCESS FLOW



## MicroChem Remover 1112A

Common Removal Time of  
Typical DNQ/Novolak-based resists using  
MicroChem Remover 1112A  
(As a Function of Hardbake Temperature)



### Comparison of Etching Properties (Etch Rate in Å/Minute @ 65°C)

Substrate	1112A	Custom 1:2 Dilution (1112A: H <sub>2</sub> O)
(100) Si	<14.0	107.0
(111) Si	<3.4	13.0
99.999% Al	<112.0	366.0
Al/4% Cu/2% Si	<128.0	272.0
Polysilicon	<4.5	51.6
SiO <sub>2</sub>	<0.1	<0.1

Typical photoresist removal rates: 1 minute in an 80°C MicroChem Remover 1112A bath removes 1.0µm of typical DNQ/Novolak-based resist that has been hardbaked up to 155°C for 30 minutes.

## I. Instructions for Use

### A. Bath Make-up

MicroChem Remover 1112A is supplied as a ready-to-use solution. The graph on the left shows MicroChem Remover 1112A removal time of typical DNQ/Novolak-based resists at two different bath operating temperatures. The table below compares etch rates on various substrates, respectively.

In general, a two bath system is recommended. The first bath removes the bulk of the photoresist while the second bath cleans up any remaining traces of photoresist.

### B. Temperature

Operate MicroChem Remover 1112A baths between 50° and 80°C with the temperature controlled to ±5°C.

The higher bath temperature is recommended for effective stripping of photoresist which has been hardbaked.

A lower temperature range is recommended to minimize attack rate on silicon, polysilicon, and aluminum during photoresist removal.

### C. Time

Immerse substrates for 3 to 5 minutes in each bath.

### D. Agitation


Good mechanical agitation of substrates is recommended.

### E. Rinse

A deionized water rinse is recommended using a cascade/overflow setup. Rinsing should continue until a desired resistivity is reached.

### F. Bath Control & Analysis

Maintain volume level with deionized water. Replace bath when removal time exceeds 5 minutes.



If a two bath system is being used, the first or bulk removal bath is sent to waste treatment and the second bath is then used for bulk removal. This is an efficient and economical approach to material conservation.

## II. Equipment

MicroChem Remover 1112A is compatible with high density polyethylene, unfilled polypropylene, and 316 stainless steel. In addition, polytetrafluoroethylene or 316 stainless steel immersion heaters can be used. Finally, whenever absolute metal ion free operation is required, use a polytetrafluoroethylene is recommended.

## III. Storage

Store MicroChem Remover 1112A only in upright, original containers in a dry area at 50° to 90°F (10° to 32°C). Store away from oxidants. Do not store in sunlight. Store away from heat and sources of ignition. Keep containers sealed when not in use. MicroChem Remover 1112A has a limited shelf life.

## IV. Waste Treatment

A used MicroChem Remover 1112A bath may be treated according to MicroChem procedure EHS012.04 "Waste and Disposal". Contact your MicroChem Technical Sales Representative for more information. It is your responsibility to verify that this procedure complies with federal, state, and local laws and regulations for wastewater discharge.

Due to the nature of MicroChem Remover 1112A, disposal of it, or residues therefrom, should be made in compliance with federal, state, and local environmental laws.

## V. Properties as Delivered

MicroChem Remover 1112A is manufactured with advanced manufacturing techniques in state-of-the-art facilities to the highest quality standards. It is then subjected to state-of-the-art testing for physical, chemical, and functional properties to assure the user of maximum lot-to-lot reproducibility.

Certificates of analysis will be supplied with each shipment upon request. Quality Assurance Material Specifications and Analytical Testing Procedures may be obtained from your MicroChem Technical Sales Representative.

MicroChem Remover 1112A has the following typical properties:

Specific gravity at 20/20°C: ~0.963

Color: Pale yellow to yellow solution

Turbidity: 1 NTU Maximum

Total Alkaline Normality: 2.65 - 02.75 N

## VI. Handling Precautions

**DANGER!** MicroChem Remover 1112A is an alkaline corrosive solution containing amines, alcohols, and glycol ethers. Contact with eyes, skin, or mucous membranes may cause irritation or burns. Handle with care. Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mists. Do not take internally. Use with adequate ventilation. Wash thoroughly after handling.

Wear chemical goggles, rubber gloves, and suitable protective clothing when handling MicroChem Remover 1112A.

In case of eye or skin contact, flush affected areas with plenty of water for at least 15 minutes. Then contact a physician at once.

Consult product Safety Data Sheet before using.

**FLUSH EMPTY CONTAINERS THOROUGHLY WITH WATER BEFORE DISCARDING.**

**CAUTION!** When using immersion heaters, failure to maintain proper volume level can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

## VII. Technical Literature

Please contact your MicroChem Technical Sales Representative for information on the use and performance of MicroChem Remover 1112A or any other MicroChem product.

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