

### **Area of use**

AX 100 is an acidic solution for activating and pretreating seed layers and metallic surfaces for electroplating, on which an direct metallization may cause problems regarding the adhesive strength. This applies e. g. for the electroplating of Au on Ni surfaces or direct electroplating on Ti or TiW layers.

AX100 activates metallic surfaces before electroplating and allows a better adhesive strength of electroplated layers on metallic surfaces, which tend to oxidation.

Common fields of application are semiconductor fabrication and microsystem technology.

### **Advantages and Requirement Profile**

AX100 is compatible with common resists (e. g. Novolak, other positive oder negative resist), shows very low or none etch attack on the target metallic surfaces, is not poisonous and easy to handle.

#### **AX 100 fits to the following requirement profile:**

- Low or none etch attack on metallic surfaces
- Compatible to many materials, e.g. common metals used in electroplating industry
- Compatible to resist masking
- Not poisonous substance and easy to handle
- Moderate operation temperature of about 40°C

### **Intended Use**

- Usable for manual process, tank or etching equipment
- Use in laboratory or production environment only
- Use for commercial application only

### **Selectivity**

AX100 is compatible/etches selective to following materials:

- Resists: common Novolak as masking resist (e.g. AZ<sup>®</sup> Photoresist)
- Metals: no attack on Ni, Ti, TiW, Ta, Cu
- Semiconductor materials: Si, SiO<sub>2</sub>, Si<sub>3</sub>N<sub>4</sub>

(further information an request)

### **Components**

AX100 contains 10 to 50ml sulphamic acid, additives and wetting agents

### **Capacity**

The solution will not be consumed by etching. Main factor for the period of use is cross-contamination from and into the bath. The solution can be used as long as no disturbing contamination will occur. The pH level rises during the time of operation and can be considered as an indicator for expiration. When the pH level has reached 1.5, it is recommended to either dispose the solution or to replenish with sulphamic acid.

### **Order number / Article number/ Shipping form**

AX100 is shipped ready for use.  
As a standard, all compounds used are level „pure”.

Order number: Article number + Container-Code

	Article no.	Container-Code			
		1l	5l	10l	20l
AX100 (ready-to-use)	105100-40	D	F	G	H

On request:

- Certificate of Analysis with individual requirements regarding elements
- Solution in other purity grade or special grade regarding specific elements

### **Mixture**

AX100 solution is shipped ready for use.

### **Operation conditions**

Temperature: 40°C  
Tank: Tank for batch process, Petri dish for manual application  
Agitation: medium;  
Circulation; stirring bar; autom./ man. agitation of work piece  
Pretreatment: none / oxygen plasma

### **General application notes**

#### **Pretreatment**

Substrates with resist masks should be pretreated in oxygen plasma, in order to remove any potential organic residues and to improve the wetting properties of the solution on resist masks. The surface is getting hydrophilic.

#### **Process operation**

In order to achieve the desired activating results, it is fundamental to perform the process at higher temperatures. The recommended temperatures are between 35°C and 50°C, ideally at 40°C.

The duration of the process should be at least 1 minute. A process duration of more than 2 minutes does not lead to a better result.

A sufficient exchange of the solution on the metallic surface should be effected, preferably by stirring bar or circulation. An agitation of the work piece is possible, too.

A light or moderate agitation of the bath or of the work piece is sufficient.

The work piece should be rinsed thoroughly before the next process step. Further processing should be performed immediately after rinsing and preferably wet-in-wet.

### Post treatment

Thorough cleaning with VE/DI-water / quick dump.

DO NOT PERFORM DRYING. To get best results with the subsequent coatings, it should be operated wet-in-wet.

### Know issues / trouble shooting

Inhomogeneous result

- Poor wetting / no plasma executed
- Etching solution is consumed
- Not enough agitation
- Intermediate drying of surface

### Safety and disposal notes

AX100 is classified as dangerous according to Regulation (EC) No. 1272/2008. Refer to the safety and handling recommendations of the material safety datasheet before use.

Do not empty etching solutions into drains or the aquatic environment. Collect used or unused solution in containers and perform waste disposal according to official state regulations. Cleaned containers may be recycled.

### Technical Support

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