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Product Data Sheet

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PRODUCT #: N8032

NC ACID CLEANER

Non Chloride Acid Copper Cleaner

DESCRIPTION: An acid, organic, non-etching cleaner that has been specifically formulated to remove organic and inorganic contaminants. ***NC ACID CLEANER*** removes soils such as fingerprints, oxides and chromate conversion coating prior to photoresist lamination, oxide treatment, and multilayer lamination to improve adhesion. It is compatible with photoresists making it effective for pattern plate cleaning. Its non-chelating formula cleans and conditions copper surfaces and can be followed by a microetch for optimum performance. It is effective in both spray and soak applications.

BENEFITS:

- **Effectively removes antitarnish compounds**
- **Provides complete cleaning of both organic and inorganic soils**
- **No chelating ingredients for easier waste treatment**
- **No chlorides**

SPECIFICATIONS:

Density:	1.31 gm/ml, 10.9 lbs./gal.
pH:	< 2
Flash Point:	None
VOC Content (EPA Method 24):	None
Shelf life:	Indefinite

INSTRUCTIONS:

	Spray	**Soak**
Concentration:	10-20% by volume	10-20% by volume
Temperature:	75º-130ºF	75º-130ºF
Time:	20 seconds - 1 minute	40 seconds - 2 minute

A working solution of ***NC ACID CLEANER*** will process 2000-3000 square feet per gallon of concentrate. Solution should be dumped when the copper level exceeds 2000 PPM of copper, or once per month.

Equipment should be constructed of polypropylene, polythylene, or CPVC. Heaters should be quartz or Teflon®.

CAUTIONS: ***NC ACID CLEANER*** is acidic; glasses or goggles, gloves and protective clothing should be worn when handling this product. In case of contact with skin or eyes, flush immediately with water and obtain medical attention. For further information, refer to Material Safety Data Sheet.

DISPOSAL: Analyze for metal content. If above local limits, treat with caustic to precipitate metals. Add caustic to raise pH to 7.0 - 8.0. Dispose of in accordance with all local, state and federal regulations.

NC ACID CLEANER

Solution Strength Analysis

ANALYSIS:

Equipment required:

50 ml burette
250 ml Erlenmeyer flask or 250 ml beaker
10 ml volumetric pipette
Dropper
pH meter (optional)

Reagents required:

1.0N Sodium Hydroxide standard solution
Distilled water
Mixed indicator (equal parts of 0.1% phenolphthalein indicator solution and 0.1% thymolphtalein indicator solution)

Procedure:

1. Pipette 10 ml of ***NC ACID CLEANER*** working solution into a 250 ml Erlenmeyer flask (or beaker for pH end point procedure).
2. Add 50 ml of distilled water and mix.
3. Add 10-15 drops of mixed indicator solution.
4. Titrate with 1.0N sodium hydroxide until the color changes from colorless to purple.

OR

Titrate to a pH end point of 9.76, using a pH meter and record ml used.

Calculation: ml of 1.0N sodium hydroxide X 0.84 = % strength ***NC ACID CLEANER***

Copper Concentration

ANALYSIS:

Equipment:

3 ml pipette
250 Erlenmeyer flask
50 ml burette
Graduated cylinder

Reagents required:

0.1N Sodium Thiosulfate standard solution
Potassium iodide crystal, reagent grade
Glacial acetic acid
Ammonium hydroxide
Starch indicator

Procedures:

1. Pipette a 3 ml sample of the bath into a 250 ml Erlenmeyer flask.
2. Add 100 ml distilled water.
3. Add ammonium hydroxide until the sample is just alkaline to litmus paper, then add 7 ml glacial acetic acid.
4. Add about 3 grams of reagent grade potassium iodide, and mix until dissolved.
5. Titrate immediately with sodium thiosulfate solution until the color changes to a pale straw yellow.
6. Add 3ml starch indicator, and titrate to the disappearance of blue color.

Calculation: ml sodium thiosulfate X N sodium thiosulfate X $\frac{63.54}{\text{sample size}}$ = g/l copper