Product Bulletin
Product Name: Super Clean 34
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Super Clean 34

Super Clean 34 is a stabilized Hydrogen Peroxide solution which when mixed with sulfuric acid solutions produces an excellent pickling solution for copper and its alloys. The surface of the copper is left clean, bright, and oxide free.

Super Clean 34 based pickling solutions can be employed in spray or immersion equipment and are non-chelated. The life of the pickling solutions is indefinite if the excess cupric sulfate is removed from the solution by crystallization.

Super Clean 34 based pickling solutions can be used as a stand-alone process or in conjunction with other cleaning steps. These solutions have excellent stability and are very easy to operate and control. It is an excellent replacement for pickling solutions based on nitric or chromic acid, and bichromate/sulfuric acid mixtures.

Features & Benefits

High stability	Longer life, cost efficient
Versatile	Use in spray and or immersion applications; smaller inventory footprint

Typical Applications

This product may be employed in the following processes:

- Cleaning for final finishing
- Pickling for annealing or rolling operations
- Pre-treatment for buffing operations
- Pre-treatment for electroplating

Operating Conditions

	Copper Recovery (Crystallization)	No Copper Recovery (No Crystallization)
Super Clean 34 Concentration	2 – 5% By Volume	2 – 5% By Volume
Sulfuric Acid Concentration	15 – 20% By Volume	7 – 10% By Volume

Copper Saturation Level At 120° F	6 oz of copper metal per Gal. of solution	8 oz of copper metal per Gal. of solution
Temperature	90°F – 120° F	70°F – 120° F
Time	0.5 – 3 Minutes	0.5 – 3 Minutes

Operating bath make-up

1. Fill a clean process tank with water to 50% of its final operating volume.
2. If the process tank or heater is stainless steel, add 2 oz of cupric sulfate per gallon of operating bath in order to prevent attack of the stainless steel.
3. Slowly and with mixing, add the required amount of sulfuric acid for your application (recovery or no recovery).
4. Allow the bath to cool to less than 120°F.
5. Add the required amount of Super Clean 34 with mixing to bring to operating concentration.
6. Add water to the process tank to bring the tank to its final operating volume.
7. Turn on the heating mechanism and set to operational temperature.

Note: Super Clean 34 contains Hydrogen Peroxide and a stabilizer system.

The table below is a general guideline for copper that can be removed by employing the Super Clean 34 pickling solution. It is preferred that a copper removal rate test be performed on the exact type of copper or copper alloy that will be pickled in order to determine the optimum operating levels for the required amount of copper removal.

Copper Removal Rate (Micro inches/Min)	10	20	30	40	50
Super Clean 34 Concentration (% By Volume)	2	2	3	3 – 4	4 – 5
Temperature (F)	75	100	110	120	120

Chemical/analytical control

CHEMICAL ADDITIONS	
Super Clean 34	Add to maintain copper removal rate or add based on results of chemical analysis
Sulfuric Acid	Add to maintain copper removal rate or add based on results of chemical analysis

Equipment considerations
All equipment should be constructed of materials that are compatible with Hydrogen Peroxide/Sulfuric Acid solutions.
Tanks can be Polyethylene, Polypropylene, or stainless steel (300 series). Pumps can be Polyethylene, Polypropylene, stainless steel (300 series), or PVC.

Caution

Super Clean 34 contains Hydrogen Peroxide and should not be allowed to become contaminated with metals or other materials which may cause rapid decomposition. When pumping the hydrogen peroxide solution, always use a clean, specially dedicated pump and do not allow the etching solution to back siphon into the container.

Super Clean 34 should be stored in a cool place, preferably not in direct sunlight. It should be stored away from incompatible materials such as reducing agents, etc.

Do not switch the caps (bungs) of the Super Clean 34 that the container was originally supplied with by substituting another cap. Each container is equipped with a vented cap that has been specifically designed for that container.

Spent Super Clean 34 baths should not be placed in a container without first lowering the hydrogen peroxide concentration to less than 2% by volume, based on Super Clean 34 being 34% by volume.

Super Clean 34 baths (fresh baths, operating baths, and spent baths) contain oxidizers and are corrosive in nature. Care should be taken in the proper use of this product. Safety equipment should include, but not be limited to goggles, gloves, and protective clothing when handling this product. Avoid prolonged breathing of the vapors. In event of skin or eye contact, remove contaminated clothing, wash with water and seek medical attention.

It is best to review the Material Safety Data Sheets prior to handling this or any chemical.

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