



SS2 Copper Conditioner

DESCRIPTION

SS2 Copper Conditioner is used in batch solder stripping applications to remove the intermetallic layer and provide a clean tarnish resistant copper surface. It is also used as a copper cleaner and conditioner prior to hot air leveling or other molten solder applications. SS2 quickly removes surface tarnish with a controlled micro-etch and leaves the copper surface solderable for days without any mechanical or other chemical steps. In addition, SS2 is suitable for use prior to the solder mask applications.

Benefits:

1. Long lifetime. Excellent stripping capacity.
2. Wide operating window.
3. Excellent copper finish

Application:

SS2 Copper Conditioner is used as the second step of a two-part tin/solder strip system. SS1 is the first step which is used to remove the tin/lead coating down to the intermetallic. SS2 removes the tin/copper intermetallic leaving behind a bright copper surface. SS2 can also be used in a variety of pre-clean applications as a replacement to conventional microetches.

OPERATING PARAMETERS

Make-Up	Dilute SS2 at 50% by volume with water
Temperature	Room temperature
Immersion Time	30 sec to 2 min in vertical batch mode
Process	Batch/dip tank
Agitation	Mechanical in batch mode
Ventilation	Advised
Tanks	Polypropylene, CPVC
Racks and Baskets	PVC coated
Heaters	Not necessary
Filtration	Not necessary



PHYSICAL PROPERTIES

Specific gravity	1.09-1.11
Appearance	Brown liquid
pH	1-3
Odor	Neutral
Flash Point	>200F

CONTROL PROCEDURES

Control the copper micro-etch depth between 10-40 micro-inches. When the etch time becomes excessive, replace the SS2 solution. A fresh SS2 bath at 50% by volume has an etch rate of about 10 microinches per min. When the etch rate drops to below about 3 microinches per minute, the solution should be replaced.

Copper level can also be used as a rough measure of bath life. The SS2 bath should be replaced when the copper content exceeds 6 grams per liter.

ANALYSIS

Micro-Etch Rate

1. Weigh a copper clad coupon to 4 decimal places.
2. Etch the coupon for 2 min in the SS2 solution.
3. Rinse and dry thoroughly.
4. Weigh the coupon again to 4 decimal places.
5. Calculation: Etch rate (microinches per min) = { (grams of Cu etched) x 3412 / (sq. inch area of coupon) }

Copper Analysis

1. Pipet 5 mL of SS2 solution into a 100 mL volumetric flask.
2. Dilute to the mark with 10% HCl by volume, and mix well.
3. Pipet 1 mL of the dilute mixture into a 50 mL volumetric flask.
4. Dilute to the mark with 10% HCl by volume, and mix well.
5. Calibrate the AAS with copper standard solutions in the range of 1 – 10 ppm.
6. Analyze the 2nd dilute solution from step 4, for copper.
7. Calculation: Copper content (g/L) = (ppm Cu from AAS)

SAFETY AND STORAGE

SS2 is acidic and should be handled with care. Avoid open flames. Do not store in direct sunlight, high temperature or below freezing.

WASTE TREATMENT

Please ask a Florida CirTech technical sales rep. for more information regarding waste treatment of this chemistry. Reference our complete line of waste treatment products if additional help or information is desired.

MISCELLANEOUS

SS2 comes in 5-gallon pails and 55-gallon drums. Consult MSDS sheet for additional information.