



CB-710 Copper Cleaner Solution

DESCRIPTION

CB-710 is an acid cleaner, liquid concentrate. It is used to clean copper surfaces by removing contaminants and oxidation. **CB-710** contains a concentrated blend of acids and surfactants developed and designed to remove and dissolve surface films. It does not contain any ammoniated products, which could produce problems during waste treatment. **CB-710** is based on sulfuric and phosphoric acids. It is much more "equipment-friendly" than halide based acid cleaners. **CB-710** leaves behind an active, bright surface, which will retard oxidation.

OPERATING PARAMETERS

Make-Up	15-25% by volume, diluted with water
Temperature	65 to 90°F (18 to 32°C)
Immersion Time	15 seconds to 2 minutes
Process	Batch Tank or Horizontal Spray
Agitation	Will speed cleaning action
Ventilation	Advised
Tanks	Polypropylene, Polyethylene
Racks/Baskets	Stainless Steel (316), Plastisol Covered Steel
Heaters	Quartz, Teflon, Stainless Steel (316)

PHYSICAL PROPERTIES

Specific Gravity	1.33-1.37
Appearance	Clear to light amber liquid
pH (1% solution)	<1
Odor	Acridic
Flash Point	>200F

CONTROL PROCEDURES

Replenishments can be made to **CB-710** working solution. The concentration of the solution should be maintained between 15 and 25% by volume through analysis and additions of **CB-710** concentrate. When the



copper concentration exceeds 3,000 ppm, the solution should be replaced. A method of analysis for both copper and **CB-710** concentration follows.

ANALYSIS

CB710 Percent Concentration

1. Pipet 5 mL of the working solution into a titration flask.
2. Dilute to 50 - 75 mLs with de ionized water and add 3 to 4 drops of phenolphthalein indicator
3. Titrate with 1.0 N NaOH to a pink endpoint and record the volume titrated.
4. Calculation:

$$\text{CB-710 concentration (\% vol)} = (\text{mL NaOH}) \times (\text{N NaOH}) \times 1.54$$

Maintain the bath concentration between 15 and 25% by volume of **CB – 710**.

Copper Concentration

1. Pipet 10 mL of CB-710 bath into a titration flask and then add 50-75 mL of DI water.
2. Add approximately 10 mL of ammonia buffer and 5 mL 1.0 N sodium hydroxide.
(ammonia buffer: 68g ammonium chloride and 570mL of 29% ammonium hydroxide diluted to 1 liter)
3. Add 4 - 6 drops of PAN indicator (0.1% solution in ethanol)
4. Titrate with 0.05 M EDTA to a color change from blue to apple green.
5. Record the volume of EDTA used.
6. Calculation:

$$\text{Copper content (g/L)} = (\text{mL EDTA}) \times (\text{M EDTA}) \times 6.35$$

Maintain copper content below 3 grams/liter (3000 ppm) through replacement of part of the bath.

SAFETY AND STORAGE

CB-710 is an acidic solution containing sulfuric, and phosphoric acids. Avoid breathing vapors. Use in a well-ventilated area. When handling concentrate or working solution, wear protective clothing, gloves and chemical safety goggles. In case of skin contact, remove contaminated clothing and flush affected area with plenty of cold water. In case of eye contact, flush immediately with plenty of cold water and seek medical attention immediately.

Store **CB-710** in its original container. Keep away from direct sunlight and temperature extremes. Protect from freezing.

WASTE TREATMENT

CB-710 contains a blend of acids and wetting agents. In the process of cleaning the imaged surface of copper clad material, copper will be removed and dissolved in solution. The spent working solution of **CB-710** may be treated by pH adjusting the solution to a pH above 10 with dilute caustic soda. Allow the precipitate to settle. Filter the solution and adjust the final pH to between 6 and 8 with dilute sulfuric acid before sending the spent solution to the sewer. Consult with local officials for further waste disposal regulations. Please ask a Florida CirTech sales rep. for more information regarding waste treatment of this chemistry and our complete line of waste treatment chemistry if additional help or information is desired.

MISCELLANEOUS

Available in 5-gallon pails and 55 gallon drums. Consult MSDS for additional information.