



TECHNICAL BULLETIN
AC-171
Accelerator Solution for OMEGA II

I. Description

AC-171 is the third step in the **OMEGA II Direct Metallization** plating process. It is used after the **CT-160** activator solution and produces the final conductive coating. **AC-171** produces a metallic conductive coating on the surface that has significant enough thickness to allow for electrolytic plating.

II. Operating Conditions

Make-Up	Add to De-Ionized water 25 % AC-171A 6-8 % AC-171R Then add with mixing 8 mls per liter AC-171B or 30 mls per gallon
Temperature	60° C to 65° C 140° F to 150° F
Immersion Time	5 to 7 minutes
Agitation	Will promote conditioning action
Circulation	Continuos to promote conditioning action
Ventilation	Advised
Tanks	Polypropylene, Polyethylene, PVC
Racks/Baskets	Stainless Steel, Plastisol covered steel
Heaters	Titanium, Stainless Steel, Teflon Coils

III. Physical Properties

Property	AC 171A	AC 171B	AC 171R
Appearance	Clear liquid	Clear, blue liquid	Clear liquid
Specific gravity	1.15 – 1.20	1.08 – 1.12	1.30 – 1.34
pH	> 9	< 3	> 13

IV. Control Procedures

The preferred method of analysis is a simple bench analysis. The **AC-171R** concentration should kept between 8 % and 10 %. Additions of **AC-171B** should be made regularly to keep the concentration of copper above 300 ppm. An addition of 100 mls of **AC-171B** should be made for every 1000 surface square feet processed. The solution should be discarded and replaced when 500 surface square feet are processed through each working gallon of solution.

V. Analysis

REAGENTS AND EQUIPMENT NEEDED

Reagents and Equipment

1.0 Normal Sulfuric or Hydrochloric Acid
250 ml. Erlenmeyer flask
50 ml. Buret
10 ml. Pipet
Phenolphthalein indicator solution

Procedure:

1. Pipet 10 ml. of the working solution into the Erlenmeyer flask. Add 2 to 3 drops of Phenolphthalein indicator solution and 50 mls of de-ionized water.
2. While stirring the solution, titrate with 1.0 N acid and note color change from purple to light blue.
3. CALCULATIONS:
 $\% \text{ Concentration of AC-171R} = (\text{ml. acid}) \times (\text{Normality of acid})$

Maintain concentration between 7 and 8%

To raise concentration by 0.5 %, add 5.3 mls per liter of **AC-171R** or 20 mls per working gallon of solution. For long term stability add 0.10 % **AC-171A** for every 1 % add of **AC-171R**.

COPPER CONCENTRATION

Either atomic absorption or test sticks can analyze the copper content in the **AC-171** working solution. Contact our sales department if you request to purchase the test sticks

VI. Safety and Storage

AC-171 is an alkaline solution. It contains wetting agents and surface conditioners. 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 **AC-171A** in its original container. Keep away from direct sunlight and temperature extremes.

AC-171B is an alkali solution containing copper sulfate. 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.

AC-171R is an alkali material in its original container. Keep away from direct sunlight and temperature extremes. Protect from freezing.

VII. Waste Treatment

AC-171 working and spent solutions contain surface conditioners and copper salts. In the process of conditioning copper clad material, some copper is removed and dissolved in solution. Diluting the solution and then removing the copper before sending the spent solution to the sewer may treat the spent working solution of **AC-171**. Consult with local officials for further waste disposal regulations.

VIII. Miscellaneous

AC-171A is supplied in 5 gallon and 55 gallon drums

AC-171B is supplied in 1 gallon and 5 gallon pails
AC-171R is supplied in 5 gallon and 55 gallon drums.

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