AC-178 Accelerator Solution

DESCRIPTION

AC-178 is a post-catalyst solution designed to accelerate the electroless copper coverage on catalyzed material. It has been designed to help dissolve the hydroxide tin complex, which was produced in the rinse steps following activator CT-164. AC-178 will remove excess tin hydroxide from the copper surface thereby aiding in the adhesion of electroless copper to the copper foil.

Used prior to the electroless copper, AC-178 will help prevent the accidental drag in of catalyst into the electroless copper bath and helps increase its stability.

OPERATING CONDITIONS

Make-Up	10% by volume diluted with water
Temperature	65°F to 90°F (18°C to 32°C)
Immersion Time	2 to 4 minutes
Process	Batch tank
Agitation	Will speed activity
Ventilation	Advised
Tanks	Polypropylene, Polyethylene
Racks / Baskets	Stainless steel, Plastisol covered steel
Heaters	Stainless steel, Teflon coils, **Titanium should NOT be used.**

PHYSICAL PROPERTIES

Specific Gravity	1.10 – 1.13
Appearance	Clear liquid
pH	< 1.0
Odor	Acidic

CONTROL PROCEDURES

Replenishment additions can be made based on workload processed. An addition of 35 mls. of AC-178 concentrate should be made to the process tank for every 100 sq. feet processed. This amount will vary depending on the condition of the work processed. The preferred method of analysis is a simple bench analysis. An active AC-178 bath should be maintained between 8% to 10%. Additions can be made up to 2 times the concentration of the original working solution, or when the copper concentration exceeds one gram per liter in concentration.

ANALYSIS

Reagents and Equipment

0.1 N Sodium Hydroxide

Bromophenol Blue Indicator Solution

250 ml. Erlenmeyer Flask

50 ml. burette

5 ml. pipette

Procedure

1. Pipette 5 ml of the working solution into an Erlenmeyer Flask.
2. Add 50—75 mL of DI water.
3. Add 4-6 drops of Bromophenol blue indicator solution.
4. While stirring the solution, titrate with 0.1 N base to a blue endpoint.
5. Calculation:

   AC-178 content (% by vol) = (ml. base) x (Normality of base) x 8.8

Maintain the AC-179 content between 8 and 10% by volume.

SAFETY AND STORAGE

AC-178 is an acidic, fluoride solution. It contains organic surface conditioners and inorganic 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 AC-178 in its original container. Keep away from direct sunlight and temperature extremes. Protect from freezing.

WASTE TREATMENT

AC-178 contains acidic fluorides, and organic surface conditioners. In the process of removing excess tin hydroxides from the copper clad material, some copper may be removed and dissolved in solution. The spent working solution of AC-178 contains dissolved tin, palladium and copper salts. It may be treated by pH adjusting the solution to a pH above 12 with dilute caustic soda, allowing the precipitate to settle. Filter the solution. Then lower the 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.

MISCELLANEOUS

- Comes in 5-gallon pails and 55-gallon drums.

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