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Technical Bulletin

IS-127 Acid Cleaner for Silver

I. DESCRIPTION

IS127 is a biodegradable and non-hazardous liquid concentrate which is used to clean copper prior to the immersion silver process. It does not contain ammonia, chelators or solvents. **IS127** will remove light oils, fingerprints, and copper oxides from copper surfaces, leaving an active, bright surface for immersion silver plating. **IS127** is designed to be easily rinsed away. It is also useful for the removal of silver tarnish, if necessary. **IS127** will not damage silver, and will leave a bright, solderable silver surface.

II. OPERATING PARAMETERS

Make-Up	5% to 10% by volume of IS127 diluted with water
Temperature	110 to 130°F (43 to 54°C)
Immersion Time	2 to 4 minutes
Process	Batch Tank
Agitation	Will speed cleaning action
Ventilation	Advised
Tanks	Polypropylene, Polyethylene
Racks/Baskets	Plastisol Covered Steel
Heaters	Quartz, Teflon Coils

III. PHYSICAL PROPERTIES

Specific gravity	1.20 – 1.24
Appearance	Clear liquid
pH	1.0 – 2.0
Odor	none
Flash Point	>200F

IV. CONTROL PROCEDURES

Replenishments should be made to **IS127** working solution based on analysis. When the total volume of additions equals the initial make-up concentration, the solution should then be replaced.

V. ANALYSIS

IS127 CONCENTRATION

PROCEDURE

1. Pipet 10 mL of the working solution into an Erlenmeyer flask.
2. Dilute with 75-100 mL of DI water.
3. Add 3 to 4 drops of phenolphthalein indicator
4. Titrate with 1.0 N sodium hydroxide from clear to the pink endpoint.
5. Calculation:

$$\text{IS127 (\% by vol.)} = (\text{mL NaOH}) \times (\text{N NaOH}) \times 1.03$$

VI. SAFETY AND STORAGE

IS127 is an acidic solution containing organic 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 **IS127** in its original container. Keep away from direct sunlight and temperature extremes. Protect from freezing.

VII. WASTE TREATMENT

IS127 contains organic acids. In the process of cleaning copper clad material, some copper may be removed and dissolved in solution. The spent working solution of **IS127** may be treated by pH adjusting the solution to above 10 with dilute caustic soda. Allow the precipitate to settle, filter the solution, and pH adjust it 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.

VIII. MISCELLANEOUS

Available in 5 gallon pails and 55 gallon drums.

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