Florida CirTech
LEADERS IN PCB TECHNOLOGY

Product Data Sheet

MT-80 Multilayer Oxide Coating

DESCRIPTION

MT-80 has been designed to produce a fine grain oxide coating on copper panels. This coating consisting of cupric oxide is homogeneous in form, allowing for excellent bonding characteristics. It contains a concentrated blend of alkali and surfactants developed to ensure consistent results.

OPERATING PARAMETERS

	Brown Oxide	Black Oxide
Make-up	55% MT-80A 25% MT-80B 20% Water	35% MT-80A 40% MT-80B 25% Water
Temperature	145°F to 175°F (63°C to 79°C)	
Immersion Time	3 to 6 minutes	
Process	Batch Tank	
Agitation	Will speed cleaning action	
Ventilation	Advised	
Tanks	Polypropylene, Polyethylene	
Racks/Baskets	Plastisol Covered Steel, Stainless Steel	
Heaters	Titanium, Teflon Coils	

PHYSICAL PROPERTIES

	MT-80A	**MT-80B**
Specific gravity	1.25-1.27	1.08-1.10
Appearance	Clear-yellow	Clear
Odor	Chlorine	None

CONTROL PROCEDURES

Replenishments can be made to **MT-80** working solution. Additions are made based on analysis for both components. When the total volume of additions equals the initial makeup volumes, the solution should then be replaced. Alternately, the working solution should be replaced when 150 surface square feet of board surface is processed for every working gallon of **MT-80**.

ANALYSIS

ANALYSIS of MT-80A

REAGENTS AND EQUIPMENT NEEDED
0.1 Normal Sodium Thiosulfate solution
50% by wt. solution of Potassium Iodine (500 grams KI dissolved in 500 mL of water)
Starch Indicator Solution
50% by vol. Sulfuric Acid Solution
0.5 ml Pipet
25 ml graduated cylinder
250 ml Erlenmeyer flask

PROCEDURE
1. Pipet 0.5 ml of the working solution into a 250-ml Erlenmeyer flask.
2. Dilute solution with 50-75 ml of de-ionized water.
3. Add 10 mls of 50% Sulfuric Acid and 5 mls of Potassium Iodine solution and mix.
4. Titrate solution with 0.1 Normal Sodium Thiosulfate solution to a straw yellow endpoint.
5. Add 3 to 5 mls of Starch Indicator solution and continue to titrate until the solution turns from dark blue to gray white again.
6. Calculations:

MT80A concentration (% vol) = (ml Sodium Thiosulfate) x (N of Sodium Thiosulfate) x 14.49

Maintain MT-80A between 25% and 45% with additions of MT-80A concentrate.

ANALYSIS of MT-80B

REAGENTS AND EQUIPMENT NEEDED
1.0 Normal Hydrochloric acid
275 mL titration flask
10 ml pipet
50 ml buret
Phenolphthalein indicator

PROCEDURE
1. Pipet 10 mls of the working solution into a titration flask.
2. Dilute with 50 - 75 mls of De-ionized water.
3. Add 1-2 drops of phenolphthalein indicator.
4. Titrate with 1.0N HCl from pink to the clear endpoint.
5. Calculations:

MT-80B concentration (% vol) = (mLs of 1.0N HCl used) x 4.3

Maintain MT-80B between 25 and 45% with additions of MT-80B concentrate.

SAFETY AND STORAGE

MT-80 is a strong alkaline solution containing inorganic and organic alkali. Avoid breathing vapors. Use product 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 **MT-80A and MT-80B** concentrates in its original container. Keep away from direct sunlight and temperature extremes. Protect from freezing.

MT-80A AND THE WORKING SOLUTION OF MT-80 CONTAINS SODIUM CHLORITE. CONTAMINATION WITH ORGANIC MATERIALS AND OR ACIDS MAY START A CHEMICAL REACTION WHICH WILL GENERATE THE EMISSION OF CHLORINE DIOXIDE, A POISONOUS, EXPLOSIVE GAS. A FIRE OR EXPLOSION MAY OCCUR.

WASTE TREATMENT

MT-80 contains organic and inorganic alkali. In the process of cleaning the imaged surface of copper clad material, some copper may be removed and dissolved in solution. The spent working solution of MT-80 should be treated for copper before sending the spent solution to the chemical sewer. Consult with local officials for further waste disposal regulations.

MISCELLANEOUS

Components are available in 5-gallon pails and 55-gallon drums.