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# COLMATTE SN

TECHNICAL DATA  
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## COLMATTE Sn

### MATTE ACID TIN PLATING PROCESS

COLMATTE Sn	is a stable leveling, matte acid tin plating process that produces a soft white to gray matte finish, exhibiting excellent solderability.
COLMATTE Sn	baths operate over a wide concentration permitting highly economical deposition from baths with low tin metal content.
COLMATTE Sn	baths are maintained with two additives, which are not consumed during electroplating, however, the additives are lost via drag-out. The additives must be replaced according to volume of drag-out.
COLMATTE Sn	additives are stable so organics are minimally co-deposited with the tin.
COLMATTE Sn	process is extremely simple to control, requiring only a fraction of the lab and analysis time needed by competitive systems.

## OPERATING PARAMETERS

	<u>OPTIMUM</u>	<u>RANGE</u>
Tin Metal (barrel):	3.0 oz/gal (22.5 g/L)	2.5 - 7.0 oz/gal (18.75 - 52.5 g/L)
Tin Metal (rack):	5.0 oz/gal (37.5 g/L)	4.0 - 8.0 oz/gal (30 - 60 g/L)
Sulfuric Acid:	10% by volume	8 - 12% by volume
COLGLEAM Sn MAKEUP:	2.5% by volume	2 - 4% by volume
COLMATTE Sn MAINTENANCE:	1% by volume	0.5 - 2% by volume
Temperature:	70° F (21° C)	60 - 90° F (15° - 32° C)
Average Anode Current Dens.:	10 amps/sq. ft. (1 amp/sq. dm)	1 - 30 amps/sq. ft. (0.1 - 3.25 amps/sq. dm)
Average Cathode Current Dens.:	15 amps/sq. ft. (1.6 amps/sq. dm)	5 - 30 amps/sq. ft. 0.5 - 3.25 amps/sq. dm)
Agitation: Cathode Rod: (Not required for barrel plating)	10 ft./min. (3 m/min)	3 to 25 ft./min. 1m - 7.5 m/min)

## SOLUTION MAKEUP

	<u>100 GALLONS</u>	<u>100 LITERS</u>
Stannous Sulfate (Barrel):	46 pounds	5.56 kg
Stannous Sulfate (Rack):	59 pounds	7.1 kg
Sulfuric Acid C.P.	10 gallons	10 liters
COLGLEAM Sn MAKEUP	2.5 gallons	2.5 liters
COLMATTE Sn MAINTENANCE	1 gallon	1.0 liter

1. Using protective clothing, gloves, eye shields, etc., cautiously add the required amount of sulfuric acid to the plating tank which contains approximately half the final volume of cold water. Stir continuously during addition. Do not allow solution temperature to exceed 150°F during mixing. If a new tank is used for makeup, it should be leached with 5% sulfuric acid for at least 24 hours prior to use.
2. In a separate container prepare a slurry of stannous sulfate in cold water and slowly add this to the above sulfuric acid mixture with continuous stirring.
3. Fill the tank with cold water to a few inches of final operating level.
4. Continue mixing and allow tank to cool to approximately 75 - 80° F (24 - 26° C).
5. Dilute the required amounts of COLGLEAM Sn MAKEUP and COLMATTE Sn MAINTENANCE with approximately equal amounts of water and add to the bath in the above order slowly with good mixing.
6. Fill the tank to final operating level. No dummieing or working in period is required.

## EQUIPMENT

Voltage:	6 volts low ripple DC
Cooling Coils:	Teflon or Teflon coated copper preferred
Filtration:	Continuous, through polypropylene fiber wound cartridges
Anodes:	99.99% pure tin slabs
Anode Hooks:	Monel or titanium, plastisol coated
Anode Bags:	Not normally required
Plating Tank:	Steel lined with polyethylene, polypropylene, PVC neoprene, or acid res. fiberglass

## MAINTENANCE ADDITIONS

Maintenance and control of the COLMATTE Sn process is extremely simple. COLMATTE Sn additives are not consumed during the electroplating process. However, the additives are lost during the drag-out process.

The additives should be replaced in accordance with the drag-out rate. The best way to judge the amount of drag out is by determining the amount of sulfuric acid needed to be replaced. When acid additions are made, add 1-quart (1 liter) of COLGLEAM Sn MAKEUP and 13 fluid oz. (380 mL) COLMATTE Sn MAINTENANCE for each gallon of sulfuric acid.

Tin metal and sulfuric acid contents should be analyzed on a regular basis depending upon bath use and drag-out, and should be maintained within recommended limits.

**NOTE:** Always dilute the COLMATTE Sn additives with equal amounts of water before adding to tank. Mix well during additions.

## HANDLING & STORAGE

Columbia Chemical recommends referring to the specific product Safety Data Sheets for safety, handling, and storage precautions.

## NON-WARRANTY

The data contained in this bulletin is believed by Columbia Chemical Corp. to be accurate, true, and complete. Since, however, final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.