



Product Data Sheet

Date: 03/14/08

Supersedes: 03/18/02

PRODUCT #: N7175, N7176, N7177

TINCOTE 333

Immersion Tin

DESCRIPTION: An immersion tin designed to coat a copper substrate with a dense, pure tin deposit. *TINCOTE 333* produces a flat, uniform, surface, without concern for thickness distribution variations in electroplating. It eliminates electrolytic plating processes for increased throughput. It can be applied in soak tank or flood module.

BENEFITS:

- Uniform deposit thickness
- Greatly reduced tin strip time
- Simple deposition process in tank or conveyorized system

SPECIFICATIONS:

	TINCOTE 333	TINCOTE 333-S	TINCOTE 333-T
Specific Gravity:	1.07 g/ml 8.9 lb/gal	1.03 g/ml 8.6 lb/gal	1.20 g/ml 10.0 lb/gal
Flash Point (TCC):	None	None	None
pH:	<1	<1	<1
VOC Content:	0	0	0
Shelf life:	Six months	Six months	Six months

INSTRUCTIONS:

Bath Make-up: Use *TINCOTE 333* as supplied (at 100%) in tank or flood application

Temperature: 110° - 140°F

Agitation Mechanical, and continuous circulation through a 5 micron filter. Do not use air agitation.

Tin Metal: 17.0 g/l ± 1 g/l (Do not use air agitation)

Plating Rate: 1 to 1.5 microns (39-59 microinches) in 20 minutes

Minimum tin thickness for uniform coverage is 0.7 microns (27 microinches), which is obtained by immersion for 10 minutes at 110°F. Under these conditions, *TINCOTE 333* will cover 165-175 square feet of copper surface per gallon.

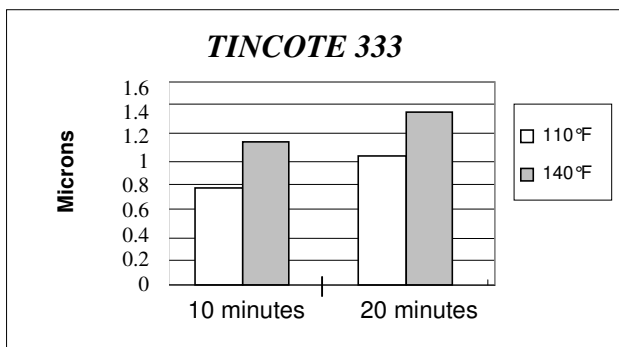
- Process:**
1. *CIRCUTEK ME-515* microetch 85°F ± 5°, 1-2 minutes.
 2. Double counterflow rinse.
 3. Sulfuric acid 1-2% by volume, room temperature, 30 seconds.
 4. Deionized water rinse.
 5. *TINCOTE 333* 10 minutes at 110°F.
 6. Double counterflow rinse and dry.

Maintenance: Analyze for tin according to procedure on reverse. Maintain tin concentration between 12 to 16 grams per liter. To maintain the solution level, remove a volume of bath equal to the volume of *TINCOTE 333-T* and *TINCOTE 333-S* to be added.

To increase tin concentration by 1 gram per liter, add *TINCOTE 333-T* and *TINCOTE 333-S* according to the chart below.

	Per liter of bath	Per gallon of bath
<i>TINCOTE 333-T</i>	9 ml	35 ml
<i>TINCOTE 333-S</i>	15 ml	50 ml

For additions for drag-out, add *TINCOTE 333*. For evaporative losses, add deionized water.



Use *TINCOTE 333* in equipment made of PVC, CPVC or polypropylene. Do not use or store in metal containers. Heaters should be made of Teflon or quartz.

CAUTIONS:

Acidic solution. Contact with eyes can cause severe burns. In case of contact with eyes, flush immediately with water for at least 15 minutes and obtain medical attention. In case of contact with skin, flush with water for at least 15 minutes; remove contaminated clothing. Refer to Material Safety Data Sheet for more information.

DISPOSAL:

Neutralize and treat to remove tin and copper. Dispose of in accordance with all local, state and federal regulations.

ANALYSIS:

Tin Metal Analysis

Equipment required: 5 ml pipette 500 ml Erlenmeyer flask
50 ml burette
Starch Indicator

Reagents required: Reagent hydrochloric acid, concentrated
0.05N Iodine Solution

Procedure:

1. Pipette 5ml of working solution into a 500 ml Erlenmeyer flask, and add 100 ml concentrated hydrochloric acid. **CAUTION:** Adding concentrated acid HCl generates fumes and is highly corrosive. Avoid breathing fumes.
2. Add 1-2 ml of starch indicator
3. Titrate with 0.05N iodine solution to the first blue-black end point.

Calculation: Tin, grams per liter = mls of 0.05N Iodine solution X 0.60

This product should be used only for its intended purpose. The information stated above is based on our laboratory tests and experience, and is accurate to the best of our knowledge. Since actual use is beyond our control, the recommendations or suggestions are made without warranty, expressed or implied.