

**Gobright TCL-61
Immersion Gold Process**

TCL-61 is a specially designed immersion gold plating process for Surface Mount and Flip Chip Package applications. For proper operation, an adequate electroless nickel deposit is required. As a result, the Nimuden NPR-4 Electroless Nickel process is recommended.

Materials

TCL-61-M5: Used for make-up (20% by vol.) and replenishment
Auruna 6700 Gold Salts : Used to make-up and replenish gold
Reagent grade ammonia: Used to increase solution pH
Citric acid: Used to decrease solution pH
Potassium cyanide: Used for bath maintenance

Make-Up Instructions for 100 liter Bath

Add 60 liters of D.I. water to the clean process tank. Add 20 liters of TCL-61-M5 (20% by volume) with constant stirring. Separately dissolve 6.43 troy ounces of gold metal as Auruna 6700 Gold Salts in DI water and add the dissolved gold metal to the process tank. Adjust to final volume with D.I. water and analyze solution pH. Adjust solution pH if required.

Operation Conditions

	Optimum	Standard Control Range	Maximum Limits
Temperature	185 ⁰ F (85 ⁰ C)	183-187 ⁰ F	176-195 ⁰ F
pH	4.6	4.5 - 4.7	4.0 - 5.0
Gold Metal Conc.	2.0 g/l	1.8 - 2.2 g/l	1.5 - 2.5 g/l
Agitation	Rocker and Solution		

Equipment Requirements

Tank Material: Polypropylene or FRP.
Heater: PTFE coated heater or quartz
Solution Agitation: 5 cycles/hr (minimum)
Rocker Agitation: 0.5 to 1 meter/min. total travel
Filtration: 1 to 2µm polypropylene filter cartridge

Bath Replenishment

TCL-61-M5 is added when replenishing gold to the solution. The amount of TCL-61-M5 added is dependent on the percent plated area on the circuit boards. The following table depicts the normal amount of TCL-61-M5 required per gram of gold metal deposited as a function of percent plated area:

<u>Pattern Ratio</u>	<u>Replenishment volume of TCL-61-M5 Per gram of gold metal</u>
50 %	20 mls / gram of gold
30 %	25 mls / gram of gold
20 %	30 mls / gram of gold
10 %	40 mls / gram of gold
5 %	45 mls / gram of gold
1 %	50 mls / gram of gold

Control of bath pH is performed either with citric acid or reagent grade ammonia.

If the bath is heated for over 6 hours at operating temperature, add 0.05 g/l KCN.

If the bath is not used for over 3 days, add 0.05 g/l KCN.

DI water should be used as a pre-rinse before immersing in TCL-61 solution.

TCL-61-M5 should be stored in a cool location.

WARRANTY AND DISCLAIMER

The information herein is believed to be reliable, However, no warranty, express or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for any purpose. Uyemura International Corporation shall not be liable for damages, loss or expense to persons or property resulting from its use. Suitability and merchantability are solely the responsible of the user. The only obligation of the seller or manufacturer is to replace the product if defective in material or workmanship at the time sold. Nothing herein shall be construed as a recommendation for use in violation of any patent.

Rev. 9/00, A

**UIC Corporate Office
3633 Inland Empire Blvd. Suite 575
Ontario, CA 91764
Tel: 909-466-5635
Fax: 909-466-5177**

**UIC Technical Center
240 Town Line Road
Southington, CT 06489
Tel: 860-793-4011
Fax: 860-793-4020**