

GT4A2N

Technical chart

Last revision

12/10/2012

READY TO USE THICK PLATING BATH 4g/l GOLD 2N COLOR

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Colour **Yellow**

[L: 84,0 a: 2,5 b: 27,6 c: 31,2]

Product description

Legor Plating Division R&D Labs have now released the new thickness gold plating solutions GT4A2N, based on the positive recent experiences with organic additives in acid plating baths for the electronics industry. This series of baths can be considered a radically improved version of the classic, slightly acid, electrolytic system using transition metals as brightening agents.

Recommended applications

The GT4A2N series products allow to obtain hard, brilliant gold depositions of 20-21 caratage, with an excellent wear and corrosion resistance, and the following characteristics:

- Perfect functioning even at low gold concentration
- Wide current flow range
- Excellent distribution
- Low density gold deposits
- Easy to control and to maintain

Deposit data

Density [g/cm ³]	16,5 - 17,0
Hardness [HV 0.01]	155 - 220
Thickness [μm]	0,5 μm/min (5
Appearance	Shiny

Operating data

	Range	Optimum
Gold concentration (g/l)	3.0 - 6.0	4.0
Indium concentration (g/l)	1,5 - 2,5	2,0
pH	3.2 - 4,2	3.5
Time of exposure [s]	60 - 360	120
Operating temperature [°C]	40 - 50	45
Voltage [V]	2,8- 4.0	3,2
Solution density [°Bé]	8 - 12	10
Current density [A/dm ²]	2 - 6	4
Cathode efficiency [mg/Amin"]	20 - 35	
Deposition rate at 5 A/dm ² [μm/min]	0.5	
Agitation	Necessaria	
Solution stirring	Filter pump for volumes > 10 l	
Nichel concentration (g/l)	2,0 - 3,0	2,5

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Additional informations

Packaging

The product comes in a high-density polyethylene bottle.

IMPORTANT: when you receive the product make sure that the cap is intact.

Preparing objects

For maximum performance the objects to be treated should be cleaned beforehand using ultrasound washing treatments and special cleaning agents, then subjected to electrolytic degreasing treatment. For best results use of the SGR1 (see technical sheet) electrolytic degreaser is recommended.

Temperature

GT4A2N gives excellent performance in a temperature range between 35°C and 45°C.

Equipment

In order to operate with best results using GT4A2N, processing systems assembled in PVC (polyvinylchloride) or PP (polypropylene) are advised, complete with:

- Complete rectifier with amperometer and voltmeter, with low alternate current residue
- Thermoregulated heaters
- Ampereminutes or Amperehours counter
- Platinum or Platinum plated titanium anodes
- Magnetic entrainment filtering pumps with woven polypropylene cartridges (5-15 micron), boiled and washed before usage.

Preparing 10 l of plating bath

The products for GT4A2N bath forming are ready-to-use, please compare the GT series datasheets.

Post-treatment

In order to stabilize more quickly the colour deposited, immersion in hot water of the plated pieces (60-70°C for 30-60 seconds) is advised.

Galvanic Bath Maintenance

Gold additions

Gold plated from the bath must be reintegrated with high quality, stable in acid electrolytes, Potassium Gold cyanide at 68% concentration (Code: AUS680, AUS683). The gold metal concentration shall not be lower than 75% of the nominal value, therefore the quantity of additions shall be decided on the basis of the bath volume.

Brighteners and other additives addition

With every gold addition it is necessary to add the brighteners and the other additives in order to obtain the desired colour.

When 50 g of Potassium Gold Cyanide 68% (34 g of Pure Gold) are added, or after 1000 Ampere/minutes ,the following additions are to be performed:

- 100 ml of GT1INR
- 50 ml of GT4NIR
- 50 ml of GTADR

In case there should be an incorrect equilibrium of any of these additions, our Technical Customer Service shall advise the proper modifications or corrections.

pH

The solution pH should be held at the nominal value; it is possible to correct it by adding a concentrated solution of cytric acid to lower it, or potassium hydroxide to raise it.

Solution density

In case a strong entrainment is present, the solution density should be brought back to its initial value by adding GT-SC conductive salts, knowing that 20 g/l raise the density of 1 Bé.

Effects of the various parameters on the deposited colour

All the operative parameters influence the colour deposited, especially temperature and pH. It is strongly recommended to consult our Technical Customer Service before modifying the nominal operative conditions

Safety Information

Caution: GT4A2N gold plating bath is a chemical solution of acid nature. Caution should be exercised when using the product, avoiding contact with the eyes and skin. Use gloves and safety goggles. For further information please refer to the relative safety sheet.

Solutions for plating	Code
Thick gold plating solution	GT4A2N
Indium replenishing solution (40 g/l) for GT4A2N thick gold plating process	GT4INR
Nichel replenishing solution (40 g/l) for GT4A2N thick gold plating process	GT4NIR
Replenishing solution for GT4A-GT4A2N thick gold plating process	GTADR
Replenishing salts for thick GT4A-GT4A2N gold plating process	AUS683