

### READY TO USE THICK PLATING BATH 4g/l PURE GOLD COLOR

Colour **Yellow**

[ L: 82,0 a: 8,1 b: 33,6 c: 34,6 ]

#### Product description

Legor Plating Division R&D Labs have now released the new thickness gold plating solutions GT4A, 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 GT4A series products allow to obtain hard, brilliant gold depositions of 22.5-24 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 <sup>3</sup> ]	16,5 - 17,0
Hardness [HV 0.01]	155 - 220
Thickness [μm]	0,5 - 3
Appearance	Shiny

#### Operating data

	Range	Optimum
Gold concentration (g/l)	3.0 - 6.0	4.0
Cobalt concentration (g/l)	0.5 - 1.5	1.0
pH	3.2 - 3.8	3.5
Time of exposure [s]	30 - 180	120
Operating temperature [°C]	35 - 45	40
Voltage [V]	3.5 - 4.5	4
Solution density [°Bé]	8 - 12	10
Current density [A/dm <sup>2</sup> ]	0.5-10	4
Cathode efficiency [mg/Amin"]	20	
Deposition rate at 5 A/dm <sup>2</sup> [μm/min]	0.5	
Agitation	Necessaria	
Solution stirring	Filter pump for volumes > 10 l	

## READY TO USE THICK PLATING BATH 4g/l PURE GOLD COLOR

Colour **Yellow**

[ L: 82,0 a: 8,1 b: 33,6 c: 34,6 ]

### Additional informations

**Packaging**

The product comes in a high-density polyethylene bottle with a heat-sealed poly laminate aluminium-polyethylene underlid.

**IMPORTANT: when you receive the product make sure that the underlid is intact. When the package is opened before pouring the solution the underlid should be completely removed using a sharp-tipped knife or scissors. Once the package is opened the solution should be transferred to the container in which it is to be used; under no circumstances should the solution be stored inside its original packaging.**

**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**

GT4A gives excellent performance in a temperature range between 35°C and 45°C.

**Equipment**

In order to operate with best results using GT4A, 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 GT4A 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 100 g of gold are added, the following additions are to be performed:

- 100 ml of GT4COR 5g/100 ml
- 100 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 (KOH) 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:** GT4A 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	GT4A
Cobalt replenishing solution (50 g/l) for GT4A thick gold plating process	GT4COR
Replenishing solution for GT4A thick gold plating process	GTADR
Replenishing salts for thick GT4A gold plating process	AUS683