



# JEWELRY PLATING

## GT4A3N

3N YELLOW GOLD MICRON SOLUTION FOR BATH PLATING 4 G/L (READY-TO-USE)

### GENERAL INFORMATION

GT4A3N is a mildly acidic gold plating electrolyte that deposits a color which precisely corresponds to the normalized NIHS standard 3N gold. 3N can be described as a rich yellow color in 14 kt. This plating bath substitutes the common gold plating alloy nickel, with iron to produce a coating which is 100% hypoallergenic. The additional metals which are co-deposited with the gold as an alloy allow for an achievable thickness of 3 micron in a deposit which remains 99.7% gold by weight. The wider range of obtainable thicknesses combined with the ability to solder the plating deposit, allow for this electrolyte to be used in both technical and decorative applications.

#### Product form

Metal concentration	4 g/l (Au)
Solution form	Liquid
Plating solution color	Yellow
Storage time	2 years
Volume	1 liter

#### Deposit data

Solution appearance	Shiny
Hardness [HV 0.01]	155-220
Density [g/cm <sup>3</sup> ]	17.0
Plating solution color	3N Gold Yellow
Thickness range [μm]	0,5 - 3



Operating data	RANGE	OPTIMAL
Deposition speed	0.08-0.125 micron/min	0.1
pH	3.4 - 4.0	3.7
Solution density (°Bé)	10.0 - 14.0	12.0
Voltage [V]	0.5 - 3.0	2.0
Current density [A/dm <sup>2</sup> ]	0.5 - 1.5	1.0
Working temperature [°C]	30 - 35	35
Exposure time (sec)	1 micron in 8 - 12 min	
Cathode efficiency [mg/Amin]	17 - 20	
Anode-cathode ratio	higher than 2:1	higher than 2:1
Anode type	Titanium platinized or mixed oxides	
Agitation	Moderate	

#### Color coordinates

L*	83.2
a*	6.1
b*	28.3

Metal concentration (g/l)	Range	Optimal
Gold (Au)	2.0 - 4.0	4.0
Indium (In)	0.2 - 1.0	0.4
Iron (Fe)	0.05 - 0.15	0.1

**JEWELRY  
PLATING****GT4A3N**

3N YELLOW GOLD MICRON SOLUTION FOR BATH PLATING 4 G/L (READY-TO-USE)

**PREPARATION**

GT4A3N is a ready-to-use plating bath at the concentration of 4 g/l of gold. Not other preparation is required.

**EQUIPMENT**

Working vessel materials: Pyrex glass / PVC / polypropylene  
Power supply: DC current rectifier with low residual AC (<5%)  
Heating element  
Anode type: Platinized titanium [1.5-2.5 µm] or stainless steel  
For larger bath volumes:  
Magnetic driven filter pumps with 5-15 µm cartridge (before use, boil and wash the cartridges with demineralized water for 3 hours to prevent organic contamination)  
Amp/min counter

**PRE TREATMENT**

GT4A3N can be deposited directly onto Palladium, Nickel, and precious metal substrates. An intermediate deposit of Palladium or Nickel is required over Silver, and all alloys containing copper to prevent copper migration. An intermediate deposit or precious metal plating strike is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron.

**POST TREATMENT**

Electrolyte should be removed from the surface as quick as possible. Rinse off the bath rests in a recovery rinse (still rinse). Rinse the parts in circulating deionized water and dry.

**WATER PURITY**

To prevent contamination of the bath both during its preparation and any replenishing operations, use demineralized water with a conductivity of less than 3µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

**BATH MAINTENANCE**

This process is easy to maintain, but will initially requires frequent analytical controls in order to obtain a correct concentration level of all the metals present. Metal concentrations greatly influence the final deposited color; therefore, an incorrect management of these parameters shall inevitably lead to unwanted colors.

Gold additions: Guideline.

Gold consumed must to be reintegrated with high quality, stable in acid electrolytes, Potassium Gold cyanide at 68.3% concentration (Code: AUS683). In order to maintain the plating solution always at its optimum conditions the gold metal concentration shall not be lower than 75% of the nominal value; therefore the quality of additions shall be decided on the basis of the bath volume.

Add to the plating solution 100 g of Gold Potassium Cyanide salt and 1 unit of complete gold iron system replenisher AUFER every 3500-4000 A/min.

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

Please note that the values reported higher on Guideline must suffer variations according with the plant features, type of items to be worked and used working process.

**SUPPLEMENTARY INFORMATION**

The solution pH should be held at the nominal value; it is possible to correct it by adding acidic conducting salts KSCA to lower it, or alkaline conducting salts KSCB to raise it.

**SAFETY INFORMATION**

Being an acidic solution, the electrolyte is an irritant to the skin, eyes and mucous membranes. Caution should be exercised when using the product, avoiding contact with the eyes and skin. Use gloves and safety goggles. Keep away from acid based chemicals. For further information please refer to the relative MSDS.

**DISCLAIMER**

All recommendations and suggestions in this bulletin concerning the use of our products are based upon tests and data believed to be reliable. Since the actual use by others is beyond our control, no guarantee expressed or implied, is made by Legor Group, its subsidiaries or distributors, as to the effects of such use or results to be obtained, nor is any information to be construed as a recommendation to infringe any patent.

**GT4A3N**

3N YELLOW GOLD MICRON SOLUTION FOR BATH PLATING 4 G/L (READY-TO-USE)

**RELATED PRODUCTS LIST****Prodotto Complementari**

AUS683	Gold (I) potassium cyanide 68.3%
--------	----------------------------------