

Technical data sheet and product guideline



GT4A3N

3N yellow gold micron solution for bath plating 4 g/l (ready-to-use)

Color coordinates



L	83.2
a	6.1
b	28.3
c	

Product form

Metal concentration	4 g/l (Au)
Form	Liquid
Material color	Yellow
Storage time	2 years
Volume	1 liter

Operating data

	Range	Optimal
Voltage (V)	0.5 - 3.0	2.0
Current density (A/dm ²)	0.5 - 1.5	1.0
Working temperature (°C)	30 - 35	35
Exposure time (sec)	1 micron in 8-12 min	5-12 min
pH	3.4 - 4.0	3.7
Cathode efficiency (mg/Amin)	17 - 20	17 - 20
Deposition speed	0.08-0.125 micron/min	0.08-0.125 micron/min
Solution density	10.0 - 14.0	12.0
Anode/cathode ratio	higher than 2:1	higher than 2:1
Anode type	Titanium platinized or mixed oxides	
Agitation	Moderate	

Metal concentration

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

Deposit data

Hardness (HV 0.01)	155-220
Density (g/cm ³)	17
Thickness (um)	0.5 - 3
Appearance	Shiny
Color	3N Gold Yellow

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Preparation

GT4A3N is a ready-to-use plating bath at the concentration of 4 g/l of gold. No preparation is required while filling the working tank.

Equipment

Working vessel materials: Pyrex glass / PVC / polypropylene

Power supply: DC current rectifier with low residual AC (<5%)

Heating element

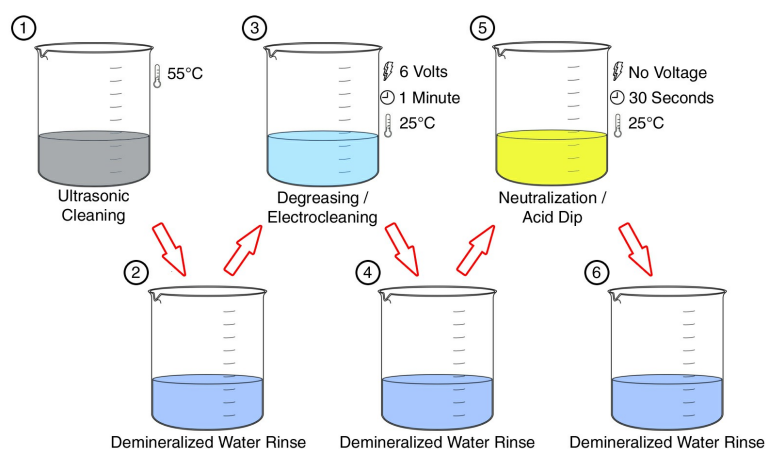
Anode type: Platinized titanium [1.5-2.5 µm] or stainless steel

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



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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.

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 subsequent replenishing operations, use demineralized water with a conductivity of less than 3 μ S/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

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.

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Additional hints

For maximum performance and in particular in terms of resulting color do not use an excessive agitation. A moderate agitation of the pieces to be plated will be sufficient. For larger volumes it is sufficient the use of a magnetic drive filter pump with a not too much high capacity.

GT4A3N gives excellent performance in a temperature range between 35°C and 45°C.

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.

In case a strong entrainment is present, the solution density should be brought back to its initial value by adding the same acidic or alkaline conducting salts KSCA and KSCB respectively, knowing that about 30 g/l raise the density of 1 Bè.

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.

Packaging

