

## Technical data sheet and product guideline



# GT4A2N

**2N yellow gold micron solution for bath plating 4 g/l (ready-to-use)**

### Color coordinates



L	<b>84</b>
a	<b>2.5</b>
b	<b>27.6</b>
c	<b>31.2</b>

### Product form

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

### Operating data

	Range	Optimal
Voltage (V)	<b>2,8 - 4,0</b>	<b>3,2</b>
Current density (A/dm <sup>2</sup> )	<b>2 - 6</b>	<b>4</b>
Working temperature (°C)	<b>40 - 50</b>	<b>45</b>
Exposure time (sec)	<b>60 - 360</b>	<b>120</b>
pH	<b>3,2 - 4,2</b>	<b>3,5</b>
Cathode efficiency (mg/Amin)	<b>20 - 35</b>	
Anode type	<b>Titanium platinized or mixed oxides</b>	
Agitation	<b>Moderate</b>	

### Metal concentration

Metal	Range (g/l)	Optimal (g/l)
Gold	<b>2.0 - 4.0</b>	<b>4.0</b>
Nickel	<b>2.0 - 3.0</b>	<b>2.5</b>
Indium	<b>1.0 - 2.0</b>	<b>1.5</b>

### Deposit data

Hardness (HV 0,01)	<b>155-220</b>
Density (g/cm <sup>3</sup> )	<b>17</b>
Thickness (um)	<b>0,5</b>
Appearance	<b>Shiny</b>
Color	<b>2N Gold Yellow</b>

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### Preparation

GT4A2N 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

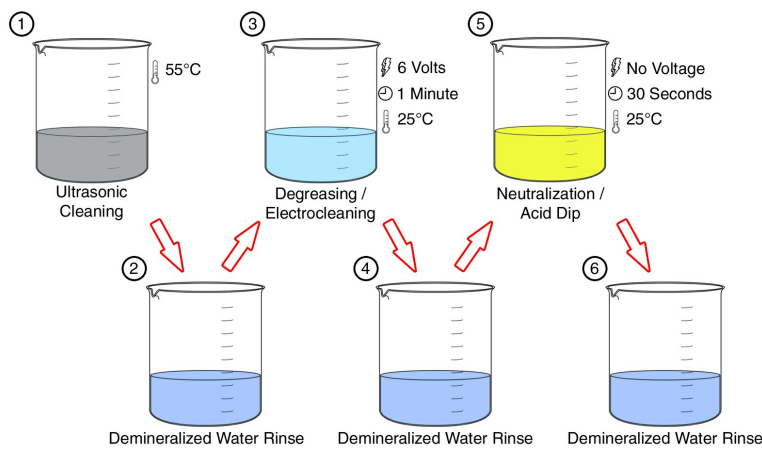
Anode type: Platinized titanium [1.5-2.5 µm] or stainless steel

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. Gold plated from the bath must be reintegrated with high quality, stable in acid electrolytes, Potassium Gold cyanide at 68,3% concentration (Code: AUS683).

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.

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 color.

When 100 g of fine gold is added (equal to 146.4 g of AUS683), the following additions are to performed:

- 100 ml of GT4INR 4 g/100 ml (Indium replenisher)
- 100 ml of GT4NIR 4 g/100 ml (Nickel replenisher)
- 100 ml of GTADR (complete organic part repleniher)

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

### 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  $\mu$ 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.

GT4A2N 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 a contrated solution of cytric acid to lower it, or potassium hydroxide (KOH) to raise it.

In case a strong drag-out 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 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**

