

Technical data sheet and product guideline

GT4A

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



Color coordinates



L	82
a	8.1
b	33.6
c	34.6

Product form

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

Operating data

	Range	Optimal
Voltage (V)	3.5 - 4.5	4
Current density (A/dm ²)	0.5 - 10	4
Working temperature (°C)	35 - 45	40
Exposure time (sec)	30 - 180	120
pH	3.2 - 3.8	3.5
Cathode efficiency (mg/Amin)	10 - 40	16 - 20
Deposition speed (µm/min)	0.47 micron/min @ 5 A/dm ²	0.47 micron/min @ 5 A/dm ²
Anode type	Platinized titanium or mixed oxides	
Agitation	Moderate	

Metal concentration

Metal	Range (g/l)	Optimal (g/l)
Gold	2.0 - 4.0	4.0
Cobalt	1.0 - 1.5	1.25

Deposit data

Purity (%)	99.7
Hardness (HV 0,01)	155-220
Density (g/cm ³)	17
Thickness (µm)	0,5 - 3
Appearance	Shiny
Color	24 kt Gold Yellow

Preparation

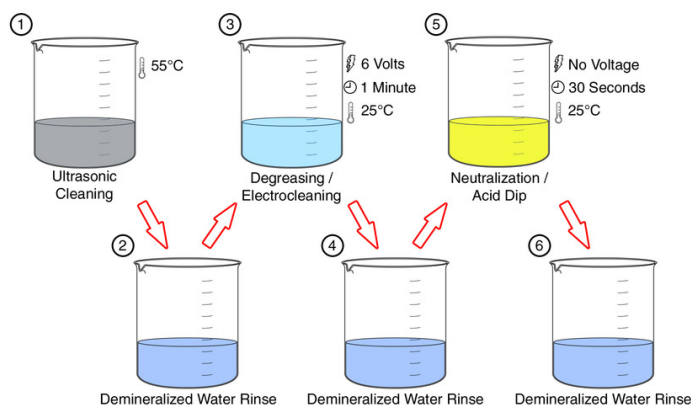
GT4A is a ready-to-use plating bath at the concentration of 4 g/l of gold. No preparation is required while filling the working tank.

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 Cleansing procedure



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 colour.

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

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 $\mu\text{S}/\text{cm}$ (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.

Supplementary Information

Agitation

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.

PH

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.

Temperature

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

Drag-Out

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.

Info

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.

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 of 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.

Related products

AUS683	Gold replenisher in salt form (100 g, Gold title: 68.3%)
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Packaging



LEGOR GROUP S.p.A. - Via del Lavoro, 1 - 36050 Bressanvido (VI) Italy - tel. +39 0444 467911 - fax +39 0444 660677 - info@legor.com - www.legorgroup.com