


GENERAL INFORMATION

GF4N is a gold electrolyte intended for bath plating, which deposits a uniform, shiny layer in a 4N color. 4N can be described as a salmon yellow with warm undertones and is a common color throughout South East Asia. GF4N is intended for decorative use therefore has been designed for flash plating permitting a deposition thickness of up to 0.2 micron. This yellow gold plating solution is Nickel, Lead, and Cadmium free, and despite being a traditional cyanide based alkaline bath, it is easily transported given the toxic level contained is below the limit established by international transportation laws.

Product form

Metal concentration	0.8 g/l (Au)
Product's pH	Alkaline
Solution form	Ready-to-use
Solution form	Liquid
Plating solution color	Transparent
Storage time	2 years
Volume	1 liter

Deposit data

Purity (%)	99.9
Solution appearance	Shiny
Hardness [HV 0.01]	90-100
Density [g/cm ³]	19.0
Plating solution color	4N Yellow
Thickness range [μm]	0,1 - 0.2



Operating data	RANGE	OPTIMAL
pH	10.00 - 10.50	10.3
Voltage [V]	3.5-5.5	4.5
Current density [A/dm ²]	0.5 - 2.0	1.2
Working temperature [°C]	55-65	60
Exposure time (sec)	20 - 50	40.0
Cathode efficiency [mg/Amin]	8 - 14	10.0
Anode-cathode ratio	>1:1	
Anode type	Platinized titanium or stainless steel	
Agitation	Moderate	

Metal concentration	METAL	RANGE (g/l)	OPTIMAL (g/l)
	Gold	0.4 - 1.0	0.8

Color coordinates

L*	87.4
a*	5.4
b*	24.6
c*	25.1

**PREPARATION**

GF4N is a ready-to-use plating bath at the concentration of 0.8 g/l of gold. No 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

GF4N 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 subsequent replenishing operations, use demineralized water with a conductivity of less than 3 µS/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. Some general guidelines for maintenance are below described:

- Adding GF1AGR will lead the colour towards green-/pale hues.
- Adding GF1CUR will lead the colour towards red/pink hues.
- Adding GF10AUR will lead the colour towards yellow hues.
- Adding AUS683 is used to replenish the gold content
- Potassium cyanide concentration must be frequently controlled to be maintained at the correct working concentration (0.6-1.2).

SUPPLEMENTARY INFORMATION

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.

SAFETY INFORMATION

Being an alkaline 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

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