

READY TO USE FLASH PLATING BATH 0.8g/l GOLD 4N COLORColour **Yellow**

[L: 87,4 a: 5,4 b: 24,6 c: 25,1]

Product description

GF4N is a ready-to-use 4N colour gold plating bath ready-to-use. The main features of this electrolyte are as follows:

- **Flash gold plating**
- **Working temperature: 45-55°C**
- **Good penetrating power**
- **Good distribution**

Recommended applications

GF4N can be used for flash plating. GF4N can be deposited directly on palladium, gold, nickel and silver; an intermediate deposit of nickel or palladium (unless 0.2µm) is necessary before it can be used to plate on copper or brass; an intermediate specific treatment is required for plating on stainless steel.

Deposit data

Purity [%]	99.9
Density [g/cm ³]	19.0
Hardness [HV 0.01]	90-100
Thickness [µm]	0,1-0,2
Appearance	Shiny

Operating data

	Range	Optimum
Voltage [V]	2.5 - 3.5	3
Current density [A/dm ²]	0.5 - 2.0	1.2
Operating temperature [°C]	40 - 55	50
Treatment time [s]	20-50	40
pH	10.00 - 10.50	10.30
Anodes		Pt or Ti/Pt
Agitation	Moderate	Moderate
Anode/Catode surface ratio	>1:1	
Cathode efficiency [mg/Amin"]	8 - 14	10
Solution filtering	>15 lit.	
DC rectifiers	0-12V/0-10-30-100 A	
Free cyanide content (g/l)	0.6 - 1.2	1.0

Colour **Yellow**

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Additional informations

Packaging

The product comes in a high-density polyethylene bottle.

IMPORTANT: When you receive the product make sure that the cap is intact.

Equipment

It is more practical to use glass containers for quantities up to 5 litres, whereas for greater quantities it is best to install PTFE or polypropylene plants equipped with:

- A current rectifier with an ammeter and voltmeter, with low residual AC «5%).
- Amp/min counter.
- Platinum-coated titanium anodes, coated with 2.5 µm of platinum or stainless steel AISI 316.
- Magnetic drive filter pumps with 5-15 µm cartridge.

Note: Before use boiling and washing of the cartridges with demineralized water is recommended to prevent organic contamination.

Preparation instructions on the GF4N gold plating process (only for volumes superior to 10 liters)

NOTES: For inferior volumes, usage of GF4N ready-to-use plating bath is recommended. Legor Plating Division does not provide the potassium cyanide substance.

Before starting the preparation of the galvanic gold plating GF4N bath, it is mandatory to activate all the safety procedures that will guarantee a totally safe process both for the operator and for the working environment.

1. Fill half of the working vessel.
2. Dissolve 35 g/l of GF-SF, and 1 g/l of potassium cyanide.
3. Add 7 ml/l of GF1AGR (correctly dissolved - please refer to GF1AGR technical datasheet).
4. Add 15 ml/l of GF1CUR (correctly dissolved - please refer to GF1CUR technical datasheet).
5. Add 8 ml/l of GF1AUR (correctly dissolved - please refer to GF1AUR technical datasheet).
6. Reach final volume and reach working temperature.
7. Proceed to a further solution mixing by stirring.

Demineralized water

To prevent contamination of the bath, both during its preparation and in any subsequent topping up operations, use demineralized water with a conductivity of less than 3 µS/cm (containing no traces of any organic compounds, Silicon or Boron). To achieve maximum deposit quality we recommend using our high-grade purity WATER.

Agitation of the solution and/or pieces

For maximum performance, particularly in terms of colour, do not use excessively vigorous agitations. So, for processing tanks containing considerably large volumes agitation of the solution using a magnetic drive filter pump of not too high a capacity is recommended, while for containers of modest size moderate agitation of the pieces is adequate.

Temperature

Best performances are obtained at 45-55°C working temperature.

Analytical controls

This process is easy to maintain, but it initially requires frequent analytical controls in order to obtain a correct concentration level of all the metals present. Clearly, 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 white/pale hues.
- Adding GF1CUR will lead the colour towards red/pink hues.
- Adding GF10AUR will lead the colour towards yellow hues.
- Potassium cyanide concentration must be frequently controlled to be maintained at the correct working concentration.

Safety Information

Being an alkaline solution, the GF4N bath is irritant to 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. For further information please refer to the relative safety datasheets.

Bath plating solutions	Code
Ready-to-use plating bath (0,8 g/l package)	GF4N
Bath formation salts for GF series gold plating (1 kg package)	GF-SF
Silver replenishing solution for GF series gold plating	GF1AGR
Copper replenishing solution for GF series gold plating	GF1CUR
Gold replenishing solution for GF series gold plating	GF10AUR