

GF24CF

READY TO USE FLASH PLATING BATH WITHOUT CYANIDE 1G/L PURE GOLD
COLOR

DESCRIPTION

GF24CF is a gold electrolyte without cyanides intended for bath plating, which deposits a uniform, shiny layer in a 24 kt color . The color is that of pure gold as no other metals are used as an alloy in the deposit. GF24CF is intended for decorative use therefore has been designed for flash plating permitting a deposition thickness of up to 0.2 micron. Besides to be 100% cyanide free, this yellow gold plating solution is also Nickel, Lead, and Cadmium free, thus its shipment does not require any particular or specific rule.

- Totally cyanide free
- Uniformity of color deposition
- Good stability of the solution
- Easy to maintain
- Completely free from toxic chemicals
- Good hardness and resistance

DEPOSIT DATA

Purity (%)	99.9
Hardness [HV 0.01]	160 - 300
Density [g/cm ³]	19.0
Thickness from-to [µm]	0.02 - 0.20
Aspect	Shiny
Color	24 kt yellow

PRODUCT FORM

Metal concentration	1 g Au/l
Product pH	Alkaline
Format	Ready to use liquid
Color of the product	Orange
Storage time	1 year
Volume	1 L

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PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	1.5 - 1.8	1.6
Current density [A/dm ²]	0.3 - 0.8	0.5
Working temperature [°C]	45 - 65	50
Treatment time [min]	1 - 5	3
Cathodic efficiency [mg/Amin]	4 - 8	6
pH	10 - 11	10.5
Anode/cathode ratio	2:1 - 4:1	
Anode type	Ti/Pt	
Stirring	Moderate	

METAL CONCENTRATION**METAL**

Au 1 g Au/l

COLOR COORDINATES

L *	88.5
a*	6.3
b*	34.8
c*	35.4

Note: Color coordinates here reported have been measured on a white underlayer and they are to be intended as PURELYINDICATIVE being strongly dependent on underlayer color, on thickness of the deposit and on specific design(shape)of the surface.

USER GUIDE**READY TO USE SOLUTION PREPARATION**

GF24CF is a ready-to-use plating solution at the concentration of 1 g/l of gold. No preparation is required. Pour it directly into working tank, heat it up to the preset temperature and once reached start to plate.

ANODES

Use Titanium Platinized anodes with a layer in platinum not lower than 1.5 µm.

WORKING TANK MATERIALS

For small volume amount solutions - in beaker scale - use Pyrex glass; vice versa use PP /PVC/HDPE tanks for larger volumes and equipped with an efficient exhaust fume/suction or aspiration system (the gold plating solution might develop potentially toxic or harmful fumes that can also be irritant if inhaled or with allergenic effects).

DC POWER - RECTIFIER

Use a current DC rectifier having an alternate current residue –ripple– less than 5% and having an output amperage enough to obtain a proper electroplating process. The rectifier should be equipped with:

- Amperemeter
- Voltmeter
- Ampere/minutes counter (for bigger installations only).

HEATING SYSTEM

The admitted materials for heaters are: Pyrex, quartz or PTFE.

FILTRATION AND MOVEMENT

For bigger plating installations (> 5 liters) it is advisable to keep the plating solution continuously filtered and in movement through a magnetic driven filter pump with 5-15 µm cartridges in PP that must have been previously conditioned by boiling them for at least 3 hours and then washed with DI water in order to prevent any possible organic contamination.

PLATING SOLUTION MAINTENANCE

As this gold plating solution has been thought for small sizes /volumes bath only (up to 5 liters) GF24CF can be used until the gold solution is completely exhausted without adding any rhodium concentrate replenisher. In any case it is advisable to not go down with respect the 80% of the initial concentration to maintain optimum results with GF24CF plating solution.

PRETREATMENTS

This gold plating solution for flash application can be directly deposited directly on Gold, Silver, Palladium, other precious metal substrates and Nickel. For other metals (i.e. Copper and its alloys or Silver) it is necessary to make an intermediate deposit of Palladium or Nickel to prevent copper migration. An intermediate deposit or precious metal plating strike is necessary before depositing onto Tin, Lead, Zinc, Aluminum and Iron-based materials in general.

As pre-treatment it is suggested to run a preliminary degreasing through a cycle of ultrasonic degreasing treatment -solution followed by a wash step into running water. Then proceed with the electrolytic degreasing step by using the alkaline degreasing solution SGR1. Once the items has been washed again in demineralized water, then proceed in activate and neutralize the surface of the same by dipping them into the slightly acidic solution NEUT1 for 3 – 4 times subsequently at room temperature, in order to be sure that no any alkaline residues coming from the degreasing previous steps are dragged into the rhodium solution together with the same items to be treated (which would lead to a reduction of its life). After the neutralization, wash in demineralized running water and immerse the pieces in the gold plating solution for the plating treatment.

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POST TREATMENTS

The electrolyte should be removed from the surface as quick as possible. Wash off the plating solution residues in a recovery rinse (static rinse). Rinse the parts in circulating deionized water and dry. A possible last rinse in hot static water before dry can help in gain more brightness and luminosity.

WATER PURITY

To prevent contamination of the plating solution during any replenishing operations, use demineralized water with a conductivity of less than 3 $\mu\text{S/cm}$ (containing no traces of organic compounds, Chlorine, Silicon, or Boron). To achieve maximum deposit quality we suggest to use our high-grade purity WATER.

ITEMS AND PLATING SOLUTION MOVEMENT

For maximum performance, especially in terms of color, do not use excessive agitation. For bigger tanks it is advisable the use of a magnetic driven pump with a not too much high feed; while for lower volumes it will be sufficient just the moderate agitation for items to be gilded.

ABOUT pH

pH needs to be maintained within optimum values. If it will be necessary to raise it add slowly concentrate potassium hydroxide solution (20-30%) vice versa add 20-30% of a phosphoric acid solution to lower it (the latter possibility happens rather seldom).

SAFETY INFORMATION

The pH of GF24CF is slightly alkaline, not too much aggressive. Nevertheless, we recommend caution while using the product and protections for the skin, eyes and mucous.

The use of laboratory glasses, gloves and vest are strongly suggested. Classification and designation are noted in the Material Safety Data Sheet (according to the European legislation). The safety instructions and the instructions for the environmental protection have to be followed in order to avoid hazards for people and environment. Please consider the explicit details in our Material Safety Data Sheets.

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 or 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.