

DESCRIPTION

GFX1 is a strongly acidic gold strike plating solution designed for technical applications. The acidic nature of the electrolyte allows it to deposit onto substrates that traditionally create adhesion problems such as bronze substrates. It can also be used as a pretreatment to activate some stainless-steel alloys by breaking down the natural oxide layer due to the aggressive chemical make-up. The use of this gold strike plating solution requires subsequent steps to bring a substrate to an acceptable finish.

- Gold strike plating solution
- Stainless steel activator
- Good pre-treatment for difficult to plate substrates

DEPOSIT DATA

Purity (%)	99.7
Hardness [HV 0.01]	170 - 190
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	Acidic
Format	Ready to use liquid
Color of the product	pink
Storage time	2 years
Volume	1 L

PRODUCT USAGE

	RANGE	OPTIMAL
Voltage [V]	2.5 - 3.5	3.0
Current density [A/dm ²]	1 - 5	3
Working temperature [°C]	40 - 50	45
Treatment time [min]	1 - 2	1.5
Cathodic efficiency [mg/Amin]	15 - 20	16
pH	1.0 - 1.5	1.2
Solution density [°Bé]	8 - 12	10
Anode/cathode ratio	> 1:1	2:1
Anode type	Ti/Pt	
Stirring	Moderate	

METAL CONCENTRATION

METAL	RANGE	OPTIMAL
Au	0.5 – 1.0	1 g/l
Co	0.25 – 1.0	0.50 g/l

USER GUIDE**READY TO USE SOLUTION PREPARATION**

GFX1 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.

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.

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) GFX1 can be used until the gold solution is completely exhausted without adding any gold concentrate replenisher.

PRETREATMENTS

GFX1 has been designed to deposit directly onto substrates that traditionally create adhesion problems such as bronze, nickel, stainless steel, and alloys containing tin, zinc, and iron. 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 SGR 1. 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 gold 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.

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

Being this gold plating an acidic solution, hydrogen bubbles tend to adhere to the items and must be removed by agitating the solution, by moving the rack or by tapping or knocking on the rack. Otherwise, darker stains on the parts may occur. The movement of the rack can be provided by a cathodic bar movement system at a speed of 5-10 cm/s. For maximum performance do not use an excessive agitation. A moderate agitation of the pieces to be plated will be sufficient.

SAFETY INFORMATION

AVOID ANY DRAG IN OF CYANIDES IN GOLD PLATING SOLUTION TO AVOID THE DEVELOPMENT OF HIGHLY TOXIC FUMES! 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.

DISCLAIMER

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