

GFGREEN

READY TO USE GREEN GOLD FLASH PLATING SOLUTION WITHOUT CADMIUM 1G/L

DESCRIPTION

GFGREEN is a ready-to-use plating solution able to deposit shiny layers uniform and of green color without Cadmium in its formula. The color given by GFGREEN permits to the goldsmiths and jewelry producers to get an alternative in color with respect to the common yellow shades or pink nowadays available on the Market.

GFGREEN is FOR FLASH DECORATIVE APPLICATION ONLY being able to deposit thicknesses not higher than 0.2 microns. Moreover, it is important to highlight that this solution is completely WITHOUT CADMIUM, Nickel, Lead being REACH compliant.

- Green gold color
- Good tarnishing resistance
- Decorative layers up to 0.2 micron
- Good color repeatability and stability

DEPOSIT DATA

Purity (%)	85.0
Hardness [HV 0.01]	160 - 220
Density [g/cm ³]	17.0
Thickness from-to [μm]	0.02 - 0.20
Aspect	Shiny
Color	Green

PRODUCT FORM

Metal concentration	1 g Au/l
Product pH	Acidic
Format	Ready to use liquid
Color of the product	Colorless
Storage time	2 anni
Volume	1 L

PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	3.0 - 4.0	3.5
Current density [A/dm ²]	1.0 - 2.0	1.0
Working temperature [°C]	40 - 60	50
Treatment time [min]	1 - 2	1.5
Cathodic efficiency [mg/Amin]	2 - 3	2.5
pH	2.5 - 3.5	3
Solution density [°Bé]	6 - 10	8
Anode/cathode ratio	2:1 - 4:1	2:1
Anode type	Ti/Pt	
Stirring	Moderata	

METAL CONCENTRATION

METAL	RANGE	OPTIMAL
Au	0.6 – 1.0	1.0 g Au/l

COLOR COORDINATES

L *	70.8
a*	-4.5
b*	14.6

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**

GFGREEN is a ready-to-use plating solution at the concentration of 0.4 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 beacker 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) GFGREEN can be used until the gold solution is completely exhausted without adding any gold replenisher.

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.

POST TREATMENTS

The excess of electrolyte dragged out together with the gilded pieces hanged in rack must be removed as soon as possible. For this reason, after a rinse step inside a tank filled of static pure water follow with a washing operation in pure running water tank. Then, after washing carefully dry.

Since the green deposit is obtained thanks to organic additives also, it is strongly recommended not to carry out any post-treatment of degreasing or ultrasonic cleaning to avoid degradation of the organic components with a consequent decrease in the green tone.

For the same reason reported above this plating layer is sensitive to high temperatures therefore cannot be e-coated with varnishes that requires a curing phase under temperatures greater than 80°C. Moreover, we recommend ambient temperature drying methods and discourage the use of steam cleaning or oven drying techniques.

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 using 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.

SUPPLEMENTARY INFORMATION

Attention! The color of the plating solution can gradually shift from absolutely transparent and colorless aspect to more yellow tones during time. This fact will not compromise the technical performance of the plating solution GFGREEN.

SAFETY INFORMATION

The pH of GFGREEN is slightly acidic, 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 must be followed in order to avoid hazards for people and environment. Please consider the explicit details in our Material Safety Data Sheets

DISCLAIMER

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