GFBROWN-K

READY TO USE GOLD FLASH PLATING BATH BROWN COLOR

DESCRIPTION

Brown gold or otherwise known as Chocolate Gold is now obtainable through a plating deposition. GFBROWN-K gives jewelers and electroplating operators everywhere an alternative gold color option away from the standard yellow and red tones that are available today, granting more design options. Chocolate Gold is also an excellent way to highlight brown stones in a setting, bringing out the stones color with less contrast and giving more emphasis to the highlight color. GFBROWN-K is intended for decorative use therefore has been designed for flash plating permitting a deposition thickness of up to 0.2 micron. This brown gold plating solution is Nickel, Lead, and Cadmium free.

- Chocolate brown gold color
- Good tarnishing resistance
- Decorative layers up to 0.2 micron
- Good color repeatability and stability
- Low gold content
- Nickel, lead, and cadmium free
- Contains no free cyanide

DEPOSIT DATA

Purity (%)	85.0
Hardness [HV 0.01]	160 - 220
Density [g/cm³]	17.0
Thickness from-to [µm]	0.02 - 0.20
Aspect	Shiny
Color	Brown

PRODUCT FORM

Metal concentration	0.35 g Au/l
Product pH	Acidic
Format	Ready to use liquid
Color of the product	Light blue
Storage time	1 year
Volume	1 L

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PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	3 - 5	3.5
Current density [A/dm²]	1.5 - 3.0	2.0
Working temperature [°C]	60 - 70	65
Treatment time [sec]	20 - 60	45
Cathodic efficiency [mg/Amin]	8 - 14	10
pH	3.5 - 4.5	4.0
Solution density [°Bé]	12 - 16	14
Anode/cathode ratio	2.5:1	2.5:1
Anode type	Ti/Pt	
Stirring	Strong	

METAL CONCENTRATION

METAL	RANGE	OPTIMAL
Au	0.25 – 0.4	0.35 g Au/l

COLOR COORDINATES

L *	77.1
a*	8.1
b*	22.3
c*	23.7

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.

RELATED PRODUCTS - MAINTAINING

AUS683.100G*	Replenisher salt for gold plating 68.3 g Au/100 g
GF10AUR.100ML*	Gold replenisher for GF gold plating series 10 g/100 ml
GFBROWNKR1	Replenisher additive 1 for GFBROWN-K gold plating solution - 1 L
GFBROWNKR2	Replenisher additive 2 for GFBROWN-K gold plating solution - 1 L

* Product which is subject to the international regulations concerning transportation of dangerous goods

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USER GUIDE

READY TO USE SOLUTION PREPARATION

GFBROWN-K is a ready-to-use gold plating solution. 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 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 enoughto 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

For volumes up to 5-6 liters it is advisable to use GFBROWN-K without any replenisher and until its exhaustion. For bigger tanks it is possible to maintain this electrolytic system by using the appropriate replenisher solution GFBROWNKR1 (the blue solution, sold in 1 liter bottle containing 10 replenisher units in total) and GFBROWNKR2 (transparent solution, sold in one liter bottle containing 10 replenisher untis in total) within the following guideline: add every 3000 Aminutes (which are corresponding to a consumption of about 10 g of fine gold) 14.6 g of AUS683 salts (gold potassium cyanide 68.3%) together with 1 unit replenisher for both GFBROWNKR1 and GFBROWNKR2 which is equal to the addition of: 100 ml of GFBROWNKR1 + 100 ml of GFBROWNKR2.

Anyway, we here repeat that this is just a general guideline as a frequent chmical analysis (by Atomi Absorption or ICP or even chemical titration) of the plating solution is strongly suggested in order to know exactly the real metal species concentration in the same system and run the replenishing operation in the most appropriate way.

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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 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. As this deposit is well passivated versus tarnishing if a post treatment as protective e-coating on its top is required, the pieces plated with GFBROWN-K must be properly activated. In doing so it will be necessary to run preliminarily a short anodic degreasing process for 5-7 seconds at 3 V in order to remove the very thin layer of passivation for the brown gold layer and after that it will be then possible the subsequent treatment.

WATER PURITY

To prevent contamination of the plating solution during any replenishing operations, use demineralized water with a conductivity of less than 3 µS/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 THE APPLIED VOLTAGE

When used at higher voltage, GFBROWN-K will give layers which result in a deeper brown color. If the voltage is too high , burning will occur. For the darkest color range achievable for the selected surface, it is advisable to find the maximum admitted voltage to apply without taking burning at the high current density areas.

SAFETY INFORMATION

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. For further information please refer to the relative MSDS.

DISCLAIMER

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