

**JEWELRY
PLATING**
GT4A1N

1N-14 YELLOW GOLD MICRON SOLUTION FOR BATH PLATING 4 G/L (READY-TO-USE)

DESCRIPTION

- 1N-14 or 14 kt gold color
- Thickness up to 3 micron
- Contains no free cyanide
- Lead & cadmium free

GT4A1N is a mildly acidic gold plating electrolyte that deposits a color which precisely corresponds to the normalized NIHS standard 1N-14 gold. 1N-14 can be described as a pale yellow color in 14 kt and it is common to country's such as Germany, France, and Switzerland. The popularity of the color throughout Europe has made 1N-14 the color of choice for the majority of European fashion houses. The additional metals which are co-deposited with the gold as an alloy allow for an achievable thickness of 3 micron in a deposit which remains 99.7% gold by weight. The wider range of obtainable thicknesses combined with the ability to solder the plating deposit, allow for this electrolyte to be used in both technical and decorative applications.

PRODUCT FORM

Metal concentration (g/l)	4 g/l (Au)
Form	Liquid
Material color	Green
Storage time	2 years
Volume	1 liter


DEPOSIT DATA

Purity (%)	99
Hardness (HV 0,01)	200 - 400
Density (g/cm³)	17.0
Thickness (µm)	0.5 – 20
Appearance	Shiny
Color	1N Gold Yellow

Color coordination

L	82.6
a	5.99
b	24.23
c	24.96

OPERATING DATA	RANGE	OPTIMAL
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Voltage (V)	1.5 – 2.5	2.0
Current density (A/dm ²)	0.2 - 1.0	0.75
Working temperature (°C)	20 - 30	25
pH	3.2 – 4.0	3.6
Solution density (Bé)	12 - 15	13.5
Cathode efficiency (mg/Amin)	30 - 50	40
Deposition rate at 1 A/dm ² (µm/min)	0.143	
Anode type	Titanium platinized or mixed oxides	
Agitation	Moderate	

Metal concentration (g/l)	Range	Optimal
Gold (Au)	2.0 - 4.0	4.0
Nickel (Ni)	2.4 - 2.6	2.5
Indium (In)	2.4 - 2.6	2.5

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PREPARATION

GT4A1N is a ready-to-use plating bath at the concentration of 4 g/l of gold. No preparation is required while filling the working tank.

EQUIPMENT
Working vessel materials:

- Pyrex glass / PVC / polypropylene
- Power supply: DC current rectifier with low residual AC(<5%)
- Heating element
- Anode type: Platinized titanium [1.5-2.5 µm] or stainless steel

For larger bath volumes:

- Magnetic driven filter pumps with 5-15 µm cartridge (before use, boil and wash the cartridges with demineralized water for 3 hours to prevent organic contamination)
- Amp/min counter

PRE TREATMENT

GT4A1N can be deposited directly onto Palladium, Nickel, and precious metal substrates. An intermediate deposit of Palladium or Nickel is required over Silver, and all alloys containing copper to prevent copper migration. An intermediate deposit or precious metal plating strike is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron.

POST TREATMENT

Electrolyte should be removed from the surface as quick as possible. Rinse off the bath rests in a recovery rinse (still rinse). Rinse the parts in circulating deionized water and dry.

WATER PURITY

To prevent contamination of the bath both during its preparation and any subsequent replenishing operations, use demineralized water with a conductivity of less than 3 µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

BATH MAINTENANCE

This process is easy to maintain but will initially requires frequent analytical controls in order to obtain a correct concentration level of all the metals present. Metal concentrations greatly influence the final deposited color; therefore, an incorrect management of these parameters shall inevitably lead to unwanted colors. It is necessary to maintain the plating solution into its optimum working parameters by the addition of gold in form of 68.3% gold potassium cyanide salt (Code: AUS683) better if previously dissolved in hot deionized water to get a solution which concentration in fine gold is 100 g/liter. The complete replenisher units are sold in 100 ml.

To restore the solution the guideline is the following:

100 g of fine gold are consumed every 2000-3000 A/min and need to be restored together with 1 unit (100 ml) of K1NR complete replenisher solution.

Keep in mind that to get the optimal performance, the gold metal concentration shall not be lower than 75% of the nominal value; therefore the frequency of additions shall be decided on the basis of the bath volume.

In case there should be an incorrect equilibrium of any of these additions, our Technical Customer Service shall advise the proper modifications or corrections.

Please pay attention that the guideline values must change according with the working plant features, type of items to be plated or according to the used working process.

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SUPPLEMENTARY INFORMATION

The plating time depends by the current density and the thickness to obtain, with the operating conditions report in this sheet we have an average deposit of 1 μm in 8–15 min.

All the operative parameters influence the color deposited, especially temperature and pH. It is strongly recommended to consult our Technical Customer Service before modifying the nominal operative conditions.

SAFETY INFORMATION

Classification and designation are noted in the Material Safety Data Sheet (according to the European legislation) for any product of this process. 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.