GT2A2N

READY TO USE PLATING BATH 2G/L GOLD 18KT COLOR (2N)

DESCRIPTION

Legor Plating Division R&D Labs have now released the new thickness gold plating solutions GT, based on the positive recent experiences with organic additives in acid plating baths for the electronics industry.
The GT-2N series products allow to obtain hard, brilliant gold depositions of 20-21 cartage, with an excellent wear and corrosion resistance, and the following characteristics:

- Perfect functioning even at low gold concentration
- Wide current flow range
- Excellent distribution
- Low density gold deposits

DEPOSIT DATA	
Hardness [HV 0.01]	155 - 220
Density [g/cm³]	16.5 - 17.0
Thickness from-to [µm]	0.5 µm/min
Aspect	Shiny
Color	gold

PRODUCT FORM	
Metal concentration	2.0
Product pH	3,5
Format	Ready to use liquid
Color of the product	green
Storage time	1 year
Volume	1 L

PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	2,8 – 4,0	3,2
Current density [A/dm²]	2 – 6	4
Working temperature [°C]	40 – 50	45
Deposition time [µm/min]	0,5	
Cathodic efficiency [mg/Amin]	20 – 35	
pH	3,2 – 4,2	3,5
Solution density [°Bé]	8 – 12	10
Anode/cathode ratio	Ti/Pt or Mixed oxides	
Anode type	Moderate	
Stirring		

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LEGOR GROUP S.P.A. - Via del Lavoro, 1 - 36050 (VI) - Italy - Tel. +39 0444 467911 - Fax +39 0444 660677 - info@legor.com - www.legor.com

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METAL CONCENTRATION

METAL (g/l)	RANGE	OPTIMAL
Au	0 - 2	2.0
In	1.7 - 2.1	1.9
Ni	1.0 - 1.5	1.25

COLOR COORDINATES

L *	84.0
a*	2.5
b*	27.6
c*	31.2

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
GT4NIR.100ML*	Nickel replenisher for GT gold plating series 4 g/100 ml - 100 ml
GT4INR.100ML	Indium replenisher for GT gold plating series 4 g/100 ml - 100 ml
GTADR.100ML	Replenisher additive for GT gold plating series - 100 ml
GTSC.1KG	Conducting salts for GT gold plating series - 1 kg
KSCA.5KG	Acidic conducting salts for thick plating - 5 kg
KSCB.5KG	Alkaline conducting salts for thick plating - 5 kg

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USER GUIDE

READY TO USE SOLUTION PREPARATION

For maximum performance the objects to be treated should be cleaned beforehand using ultrasound washing treatments and special cleaning agents, then subjected to electrolytic degreasing treatment. For best results use of the SGR1 (see technical sheet) electrolytic degreaser is recommended.

ANODES

Use Titanium Platinized anodes with a layer in platinum not lower than 1.5 µm. Alternatively, it also possible to use Mixed oxides anodes.

WORKING TANK MATERIALS

In order to operate with best results using GT2A2N, processing systems assembled in PVC (polyvinylchloride) or PP (polypropylene) are advised, complete with:

- Complete rectifier with amperemeter and voltmeter, with low alternate current residue
- Thermoregulated heaters
- Ampere-minutes or Ampere-hours counter
- Platinum or Platinum plated titanium anodes
- Magnetic entrainment filtering pumps with woven polypropylene cartridges (5-15 micron), boiled and washed beforeusage

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. The rate speed of the feed for the pump must not be too much high in order to realize a moderate movement for the liquid.

PLATING SOLUTION MAINTENANCE

Gold additions: Gold plated from the bath must be reintegrated with high quality, stable in acid electrolytes, Potassium Gold cyanide at 68,3% concentration (AUS683). The gold metal concentration shall not be lower than 75% of the nominal value, therefore the quantity of additions shall be decided based on the bath volume.

PRETREATMENTS

For maximum performance the objects to be treated should be cleaned beforehand using ultrasound washing treatments and special cleaning agents, then subjected to electrolytic degreasing treatment. For best results use of the SGR1 (see technical sheet) electrolytic degreaser is recommended

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POST TREATMENTS

In order to stabilize more quickly the color deposited, immersion in hot water of the plated pieces (60-70°C for 30-60 seconds) is advised.

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

Being this micron 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 and in particular in terms of resulting color do not use an excessive agitation. A moderate agitation of the pieces to be plated will be sufficient.

ABOUT WORKING TEMPERATURE

GT2A2N gives excellent performance in a temperature range between 35°C and 45°C.

ABOUT pH

The solution pH should be held at the nominal value; it is possible to correct it by adding a concentrated solution of cytric acid to lower it, or potassium hydroxide to raise it

ABOUT SOLUTION DENSITY

In case a strong entrainment is present, the solution density should be brought back to its initial value by adding GT -SC conductive salts, knowing that 20 g/l raise the density of 1 Bé.

SUPPLEMENTARY INFORMATION

As reported on the previous paragraph all the operating parameters will influence the deposited color, especially temperature and pH. For this reason it is strongly recommended to consult our Technical Customer Service before modifying the nominal operative conditions.

SAFETY INFORMATION

As reported on the previous paragraph all the operating parameters will influence the deposited color, especially temperature and pH. For this reason it is strongly recommended to consult our Technical Customer Service before modifying the nominal operative conditions.

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 of 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.

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