

DECOP-RTU

ACIDIC COPPER READY TO USE PLATING SOLUTION

DESCRIPTION

Our acidic copper DECOP permits deposits with exceptional brightness and leveling features even after long electroplating times at temperatures higher than 28°C and up to 32°C. The electrolytic acidic copper-based solution works at room temperature and it is free from micro porosity. This electrolyte is ideal for decorative applications with the aim of polishing and levelling the surfaces. Thanks to its uniformity, consistency and luminosity it proves to be an exceptional intermediate layer before finishing with nickel, bronze or other precious metals. The chemical brighteners within the plating solution are stable and do not decompose over time nor generate pollutants within the solution.

- Excellent throwing power at low current densities areas also
- Bright and shiny deposits
- Excellent throwing power at 32°C working temperature also
- Absence of pitting for higher thicknesses
- Wide operating parameter ranges and easy to manage process

DEPOSIT DATA

Purity (%)	99
Density [g/cm ³]	8.96
Thickness from-to [µm]	> 20 microns
Aspect	Shiny
Color	Pure copper

PRODUCT FORM

Metal concentration	55 g Cu/l
Format	Ready to use liquid
Color of the product	Blue
Storage time	2 years
Volume	1liter or 5 liters

PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	0.8 - 4	1 - 2
Current density [A/dm ²]	2 – 6	4
Working temperature [°C]	20 - 32	25
Treatment time [sec]	According with the required thickness; normally the thickness increases of about 0.88 micron per minute while working at 4 A/dm ²	
pH	Acidic	
Anode/cathode ratio	2:1 - 4:1	
Anode type	Copper added with phosphorous (0.04 – 0.06%) and with a shape that can be: flat, cylindrical, or in a small pieces contained in titanium made anodic baskets and equipped with "Meraklon" anti-mud sacks.	
Cathodic bar movement rate	4 – 6 m/minute	

USER GUIDE

READY TO USE SOLUTION PREPARATION

DECOP-RTU is a ready-to-use plating solution product available as 1 liter bottle or 5 liters tank. No preparation is required. Pour it directly into working tank.

ANODES

Use exclusively copper anodes with phosphorous content of 0.04-0.06% and with a flat or cylindrical shape or made in small pieces contained in titanium made baskets and equipped with "Meraklon" anti -mud sacks The anodic surface must be at least the double with respect to the cathodic.

WORKING TANK MATERIALS

The suggested materials are PP / PVC / High density PE. In case of small volume amount solutions, on a lab-scale, also Pyrex glass can be used.

WATER PURITY

To preserve every type of contamination in both set -up and in any subsequent maintenance phase, use deionized water with a conductivity less than 3 $\mu\text{S}/\text{cm}$ (and without any traces of organic compounds, chlorine, silicon and boron).

DC POWER - RECTIFIER

Use a DC current rectifier with low residual AC ripple (< 5%) and with an Ampere output sufficient to guarantee a right electrolytic process. The rectifier must be doted, when the tank size is big for industrial purposes, of a:

- Ampereminutes counter;
- Voltmeter;
- Amperemeter.

FILTRATION AND MOVEMENT

The acidic copper electroplating solution must be kept well cleaned from any particles in suspension as dust, oil and grease residues as they might be cause of several problems like rough or not shiny copper deposits or cloudy and matte deposits .

In case of small volume applications, it is advisable to filter DECOP35-RTU periodically using a paper filter. 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 to prevent any possible organic contamination. Optimal results are also obtained coupling the working tank with a PVC made system for insufflated air distribution and/or a system for cathodic bar movement.

The volume of the insufflated air must be in order to get a plating solution agitation similar to that of a boiling condition. THE INSUFFLATED AIR MUST BE COMPLETELY CLEANED AND FREE FOR MANY PARTICLES OR OILS RESIDUES.

A regular and continuous insufflation of air, even when the plating solution is not working, extends the efficiency of the brighteners thus lowering dramatically their consumption rates.

ABOUT WORKING TEMPERATURE

Over 32°C the performance of this acidic copper plating solution decreases a lot at the lower current density areas and the consumption of the different organic additives increases a lot. In particularly cold working places, it will be necessary to heat up the plating solution. In fact, below 20°C the probability to get burnt deposits at higher current density areas is higher. In case this is the situation, use suitable heaters (in Teflon, Porcelain or Titanium) according with the tank size to raise the temperature of the acidic copper solution between 20°C and 30°C by thermostat system.

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SAFETY INFORMATION

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 have to be followed in order to avoid hazards for people and environment. Please consider the explicit details in our Material Safety Data Sheets related to every single product composing the whole yellow bronze process.

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.