Future Coat Technology

New Acid Copper Plating Process

CU – HYBRID

CU-HYBRID has specialy good brightness leveling and mechanical properties and is quite versatile process with excellent features for not only plating on plastic but also on steels.

Features.

1. **Provides good leveling for a wide range of current density from high to low.**
2. **Provides especially good brightness and covering power in low current density areas**
3. **Excellent tolerant of bath temperature fluctuation.**
4. **Allows the analysis of main components and therefore precise solution control Based on it.**

Bath composition

		Optimum	Range
Copper sulphate ($CuSO_4$,$5H_2O$)	(g/L)	225	180 to 240
Sulphuric acid (H_2SO_4) Weight	(g/L)	55	45 to 90
Volume	(ml/L)	30	25 to 50
Cu Hybrid A	(ml/L)	0.3	0.3 to 0.5
Cu Hybrid B	(ml/L)	0.15	.15 to .30
Cu Hybrid Mu	(ml/L)	4ml	4ml to 5 ml

operating Conditions :

	Range
Cathode current density (A/dm^2)	1 to 6
Anode current density (A/dm^2)	1 to 3

Voltage	**(V)**	**3 to 9**
Temperature	**(◦C)**	**20 to 45**
Agitation		**Vigorous air agitation**
Filteration		**Continuous filteration without Activated carbon treatement**
Anode		**Phosphorized copper anode**
Anode bag		**P P anode bag**

Bath Make-up Procedure

1. **Fill a reserve tank with water up to 2/3 add the specified quantity of copper sulfate and agitate the solution to dissolve it.**

2 Carefully and gradually add the specified quantity of sulphuric acid.

3. Add approx.3 g/l of activated carbon and thoroughly agitate the solution for 1 to 2 hours.

4. Transfer the solution to a clean plating tank and make sure not to have the activated carbon.

5. Add the specified quantity of hydrochloric acid and bring the solution up to level with water.

6 Add the specified quantities of additives and perform dummy plating as necessary.

Control

1. Regularly analyze the operating solution and adjust it as necessary.

2. For replenishment use the Brighteners Cu-Hybrid A and B. The consumption rates may differ according to the operating conditions like the leveling required and bath temperature and the type of facilities. Add the chemicals little after diluting with water by more than two times. Use the following as references until the quantities specific to your line are established.

CU HYBRID A 30 -40 ML/KAH

CU-HYBRID B 25 - 50 ML/KAH

Notes for Handling:-

1. Do not mix Cu-hybrid A, B and MUJ

2. Special care should be employed for the purification of the made-up plating solution for acid copper plating is likely to be adversely affected by the contamination with organic impurities. Thoroughly clean new equipment including the tank and filter, pipes for agitation, anode bags and filter cloth.

3. For the conditions of use functions of brighteners and the manner of analysis, refer to the Technical Data Sheet.

For your Attention:

The information contained in this document is given to the best of our knowledge and the based on materials and information obtained to date however without warranty . For the use of the product under special conditions please take appropriate safely measures.

Trouble shooting:

Typical causes of defects associated with acid copper plating are shown below :-

causes	burning	Dull deposits in low current areas	Lack of leveling &brightness	Pits	Rough deposits	Bare spots	In sufficient adhesion
Lack of Cu Hybrid A	X						
Lack of Cu Hybrid B		X	X				
Excess of A		X					
Excess of B	X					X	X
Drop in basic chemical concentrations	X						
Contamination of plating solution		X	X	X		X	X
Inappropriate agitation	X			X			
Excess of Chlorine ions	X	X					
Lack of Chlorine ions	X						
Excessively low temperature	X						
Excessively high temperature		X					
Solid impurities					X		
Contamination of rinsing water							X
Insufficient acid activation							X