TECHNICAL DATA SHEET

CUMAX AC 230 PROCESS

PROCESS :

Cumax AC 230:

- Is an acid copper plating process.
- Produces highest brightness and most brilliant deposits.
- Deposits are low stressed and ductile copper.
- Is for functional and decorative applications.
- Shows high leveling coupled with good throwing power.
- Gives high corrosion resistance and is suited for steel , zinc , die cast and plating on plastics.

PRODUCTS :

Cumax AC 230MU :	Make up solution.
Cumax AC 230A :	Brightener and color dye additive. Improves leveling at all current density areas.
Cumax AC 230B :	Brightener for high current density areas.

PLATING EQUIPMENT :

Tank material :	Steel lined with rubber , PP or PVC coating.
Anodes :	Phosphorous copper , 99.9% (0.02 – 0.06 % phosphorous content)
Cooling / Heating :	Cooling and heating can be needed to keep the electrolyte in a certain temperature range. (20 – 35^{0}C).
Filtration :	Continuously at 1 - 5 bath volumes / hour.
Agitation :	Air agitation (oil and dust free compressed air)

	in additional mechanical agitation is recommended
Voltage :	1.5 – 6.0 V
Cathodic current density :	Barrel - 0.5 – 1.0 A / dm^2
	Rack - 1.0 – 6.0 A / dm^2
Anodic current density :	0.5 – 2.5 A / dm^2
Temperature :	20 – 35^0C
pH :	< 1

Concentration :

	Optimum	**Range**
COPPER metal	55 g/l	50 – 60 g/l
Copper sulphate	220 g/l	190 – 240 g/l
Sulphuric acid	65 g/l	60 – 70 g/l
Chloride content	100 mg/l	90 – 110 mg/l
CUMAX AC 230MU	10 ml/l	8 - 12 ml/l
CUMAX AC 230 A	0.7 ml/l	0.5 – 0.7 ml/l
CUMAX AC 230 B	0.5 ml/l	0.4-0.6 ml/l

Make up procedure :

- Fill a separate tank with 50 % DM water.
- Add required quantity of copper sulphate (5 H_2O).
- Add activated carbon 2 g / l and stir for 1 hour till the solution becomes clear.
- Now add sulphuric acid and chloride into the solution.
- Make up with DM water upto 90 % of the final volume and cool down to room temperature.

- Fill upto the final volume with DM water.
- Then add **Cumax AC 230MU, Cumax AC 230A and B** and stir well.
- Add (22 – 25 ml) HCL for 100 Lts. bath.
- Check chloride concentration and make sure Chloride mg / l (ppm) does not exceed 110 ppm.

Copper content :

The copper concentration should be kept in the required analytical ranges. If the concentration decreases drastically, it can cause burns in high current density areas or poor leveling in the low current density areas.

Chloride Content :

The chloride content must be kept in recommended range. An excess of chloride reduces the leveling and a lack of chloride reduces the degree of brightness. If the addition **Cumax AC 230** additives does not show any effect , please check the chloride content.

For increase of 1 mg (ppm) of chloride in 1000 lts bath add 1.65 gms of sodium chloride.

Sulphuric Acid :

The sulphuric acid content should be in recommended ranges and always lower than 80 g / l., for increase of 1 g / l of sulphuric acid (density 1.84) in 1000 ltr bath add 1 kg sulphuric acid.

Consumption for 10000 amp H :

Cumax AC 230A	1.01ltr	0.6 – 1.5 ltr
Cumax AC 230B	0.9 ltr	0.5 – 1.2 ltr
Cumax AC 230MU		0.2 – 0.4 just by drag out

Both brightener **Cumax AC 230A and Cumax AC 230B** have to be replenished at regular intervals. The consumption of **Cumax AC 230MU** is caused by solution drag out and can be replenished proportional to the addition of copper sulphate.

For every 100 kg of copper sulphate add 5 lts of **Cumax AC 230MU**

To remove the organic contaminations is recommended to make active carbon treatment from time to time.

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