GUANGZHOU MATEYS CHEMICALS LTD.

# 210 Acid Copper Plating Brightener

## 1、Specifications

（1）Mirror gloss & high level

（2）Stable solutions & easy maintenance

（3）Long-term use without harmful decomposition

（4）Good gloss in low area

（5）Perfect coverage & extension skill

（6）Strong heat resistance to keep good gloss even in high temperature

## 2、Applications

（1）Suitable for plating on high-need lighting, various hardware, furniture

（2）Plastic plating

（3）Plating with thickness requirements like printing barrels

## 3、Composition & Conditions

### （1）$CuSO_4$ & $H_2SO_4$

| Composition | Range | Standard |
|---|---|---|
| Cupric sulfate($CuSO_4$▪$5H_2O$) | 160--230 g/l | 200 g/l |
| Sulfuric acid($H_2SO_4$) | 50--90 g/l | 70 g/l |
| Cl ions | 50--120 mg/l | 80 mg/l |
| CU—210MU | 2—6ml/l | 6 ml/l |
| CU—210A | 0.3—0.6 ml/l | 0.6ml/l |
| CU—210B | 0.3—0.6 ml/l | 0.6 ml/l |
| Cathode current density | 1—10A/d ㎡ | |
| Anode current density | 2--25 A/d ㎡ | |
| Temperature | 25℃(20--40℃) | |
| Agitation | Strong and uniform air agitation | |
| The anode | Phosphorous copper (Titanium baskets & anode bags) | |

To get a perfect deposit within the above range, too low concentrations of Copper or $H_2SO_4$ may be easier to get dendritic lines in high area. Suggest users to keep beyond 65g/L of $H_2SO_4$.

### （2）Cl ions

To get a perfect deposit in a certain range of Cl ions, too low may get worse level in low area, while too high may cause poor level. Please take NaCl as the supplement of Cl ions. (1mg/L Cl ions = 1.7mg/L NaCl)

### （3）Brighteners

**CU—210MU**

Too less may cause bad effect on level and bright, while too much may cause foggy in low area, poor throwing power and narrow range of its gloss.

**CU—210A**

Too less may cause poor gloss in low area, while too much may easily cause dendritic lines in high area. No add-in of CU-210B but supplement after a while.

**CU—210B**

Too less may cause poor gloss in high area.

**（4）Temperature**

Proper temperature at 25℃, strong heat resistance of CU-210 which can work between 40℃ and 45℃ as actual conditions, while consumption of brighteners may increase as well.

**（5）Agitation**

Keep strong and uniform agitation to avoid scorch.

**（6）Filtration**

Continual filtration with activated Carbon can remove a certain brighteners if need, but not a necessity.

**（7）Cathode current density**

Related to the shapes of parts and working conditions. Different current density may cause changes of deposit Specifications and consumption of brighteners. Low current density may cause more consumption of brighteners, worse leveling, poor inners stress, higher hardness and so on.

**4、Maintenance**

**（1）Composition Analysis**

Keep composition analysis regularly to adjust the decrease of Cl ions as plating goes on. It should be supplemented when too less, high tolerance to metal impurities (Fe, Ni, Zn) but not $Cu(CN)_2$, some surfactants, $Cr^{6+}$. Make sure to keep the latter away.

**（2）Brighteners**

The consumption of brighteners should be related to current density, working temperature and the loss. Refer to usual consumption below.

| | |
|---|---|
| CU—210A | 50--80 ml/KAH |
| CU—210B | 50--80 ml/KAH |
| CU—210MU | 40-50 ml/KAH |

Supplement with about 3-5ml per 1 piece CU-210MU and 0.3-0.5 ml per 1 piece CU-210A after activated Carbon treatment

**（3）CU-210 Specifications**

Refer to the following data.

| |
|---|
| Level 92% (#240 Carbon stone, 3A/$dm^2$, 6μm) |

| |
|---|
| Inner stress 5kg/m (3A/dm$^2$, 10 μm) |
| Hardness 215HV (3A/dm$^2$) |

**（4）Troubles removal**

| **Troubles** | **Reasons** | **Removal** |
|---|---|---|
| Foggy in low area | Too less A/MU or too much B | Supplement with proper A |
| Poor level | Too less MU or Cl ions | Analyze Cl ions then supplement properly as conditions |
| Porosities or pits | Too less MU, too much Cl ions or too much A | Same as the above (or test the deposit of the anode whether have extra Cl ions) |
| Scorch in high area | Too less B or too low concentrations of main additives | Analyze then adjust by Hull Cell Test |
| Poor bright in low area | Too less A or too much B | Adjust by Hull Cell Test |