TECHNICAL DATA SHEET

ACID ZINC PROCESS (EB-4000-01)

Acid Zinc process (EB 4000-01) is a modern high efficiency chloride based plating process. It can be operated on wide temperature and current density range. The process EB-4000-01 produced highly level ductile chrome like finish. It can be used for Rack and Barrel plating system.

SALIENT FEATURES:

- This process provides improved yellow chromate adhesion due to excellent solubility of addition agents.
- This process provides excellent throwing power and can work trouble free even in higher bath temperature.
- Due to the wide current density rang the process can be plate easily complex shapes with both high and low current density areas on Rack and also in Barrel plating system.

SOLUTION COMPOSITOIN:

CHEMICALS	RANGE	OPTIMUM
Potassium Chloride	190-210 g/l	200 g/l
Zinc Chloride	50-60 g/l	60 g/l
Boric Acid	25-35 g/l	30 g/l
Acid Zinc Make-up EB-4000	40-80 ml/l	60 ml/l
Acid Zinc Brightener EB-4001	0.4-0.8 ml//l	0.6 ml/l

OPERATING CONDITIONS:

Parameters	RANGE	Optimum
Zinc Metal	20-40 gm/litter	30 gm/litter
Total Chloride	120-150 gm/litter	135 gm/litter
Boric	25-35 gm/litter	30 gm/litter
Cathode current density	0.5-4.0 A/dm^2	2.5 A/dm^2
Anode current density	1.0-2.5 A/dm^2	2.0 A/dm^2
Temperature	25-45^{o}C	30^{o}C
pH	5.0-5.5	5.2
Agitation	Mechanical Agitation	Mechanical Agitation
Voltage	4-8	6

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BATH MAKE UP:

- Fill the tank with 2/3rd of warm water.(60-65°C)
- Add the required quantity of Acid Zinc Basic Salts.
- After the dissolution adjust the pH to 5.0 and dummy the bath for 6-8 hours.
- Maintain the temperature at 25-30^{0}C.
- Add 1 ml /l hydrogen peroxide and start agitation for 1 hour.
- Filter the solution till the solution is clear.
- Adjust the pH to 5.0-5.2
- Add required quantities of Make-up EB-4000 & Brightener EB-4001 additives.

PROCESS CONTROL:

Zinc Metal:-

Lack of Zinc Metal degrease the throwing power and high zinc metal cause of brittle deposit. Metal content can be increase by adding zinc chloride.

Total Chloride:-

Total Chloride content increased by addition of zinc chloride and potassium chloride. Regular additions of Hydrochloric acid also increase in total chloride. Regular analysis to control total chloride is necessary.

Boric Acid:-

Boric acid is a buffering agent and the addition should be done as per the analysis. Low concentration of boric acid can cause burning in high current density`s and pH increase. Low concentration of boric acid is indicate the rapid pH increase, thus need to add hydrochloric acid more times. More hydrochloric acid addition can increase total chloride

Acid Zinc Make-up EB-4000:-

Acid zinc Make-up EB-4000 is normally consumed by drag-out, the addition should be made based upon the hull cell test. Low concentration of EB-4000 can cause dark film on the plated components, dull plating in low current density areas, and May results in clouding of the plating solution. Higher concentration of EB-4000 may reduce the overall brightness and thus increase the consumption of EB-4001 for getting the desired results. Consumption of acid zinc make-up EB-4000 is 2.5-3.5 ltr/ 10,000 A.H.

Acid Zinc Brightener EB-4001:-

This additive really responsible for brightness and thus gives a desire combination with Acid zinc Mack-up EB-4000. Addition of brightener is normally control by the hull cell test. EB-4001 is consumed by the drag-out and electrolysis process. Excess addition of brightener decrease throwing power, hardness and cloudy spots in low current density area. Consumption of acid zinc brightener EB-4001 is 1.5-2.5 ltr/ 10,000 A.H.

EQUPMENTS:-

- A PVC, PP or similar materials is suitable to contain the Acid zinc solution.
- PP, PVC lined filters having capacity of 2-3 turnover per hour is recommended.

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