

Technical Data Sheet

Cyanide Zinc Process (EB-111)

Cyanide Zinc Brightener EB-111 is a single brightener with double strength specially formulated for bright zinc plating process. This single brightener show good stability during working at elevated temperature and it is simple to operate and control. Cyanide zinc brightener is a high performance brightener system for cyanide zinc plating. The system produces brilliant bright deposits for both barrel and rack plating operations.

Make-Up Method:-

- Firstly clean & leached tank with 2% caustic for approx. 12 hours.(Use PVC/PP Tank)
- Fill tank with 2/3rd with RO water
- Add sodium cyanide and caustic together with gentle stirring.
- Add zinc oxide and mix well till solution clear transparent.
- Make sure any salt won't be settle at bottom of tank, otherwise peeling/poor adhesion problem may occur.
- Add 4ml/liter doctor solution, zinc dust 1gm/litter and leave solution overnight for settlement. Filter solution after 12hours and add recommend quantity of cyanide zinc brightener EB-111.Now solution ready for production.

Bath Composition:

Sodium cyanide; -	90gm/liter
Zinc Oxide; -	40gm/liter
Sodium hydroxide; -	75gm/liter
Cyanide zinc brightener EB-111	6-10ml/liter (Optimum 8ml/liter)
Doctor solution	4ml/ltrs

Operating Parameters:-

	RACK/JIG	BARREL
Temperature:	20~40°C (Optimum 30°C)	20~40°C (Optimum 30°C)
Cathode Current Density	2.0~4.0 A/dm ²	0.5-1.0 A/dm ²
Bath Voltage	2.0~5.0 V	10-15 V
NACN: Zn Ratio	2.8-3.0 : 1	2.8-3.0 : 1

Replenishment/Maintenance:-

NACN: ZNO ratio should be maintain periodically through analysis. Cyanide zinc brightener EB-111 used As make-up and brightener both as single additive.

Consumption of Additive EB-111 300ml-400ml for 1000 A.H recommended, However amount required depends on solution composition, temperature, operating conditions, impurity level of bath and type of plating i.e. RACK or BARREL. Higher addition required in BARREL plating.

Zinc purifier/Doctor solution added regularly for removal of metallic impurities. Addition of purifier can be controlled by lead acetate paper. The color paper should be brown. White shows lack of purifier and black shows excessive purifier.

Passivation:-

Zinc Deposit Procedure from the system, readily accept and conventional chromate passivation treatment from Blue, Golden, Olive, Green or Black chromate passivation's.

Zinc Metal:-

Increase of zinc decrease the throwing power. A lack of zinc metal cause of low throwing power and produces dull deposit. High zinc metal can be controlled by re placing zinc anode with steel plates.

Sodium Cyanide:-

Excess cyanide reduce brightness, thus more EB-111 is needed. Lack of cyanide produces a more brittle zinc layer. The high cyanide electrolyte type is less sensitive against impurities.

Sodium Hydroxide:-

Excess hydroxide speeds up zinc dissolution too much. Lack of hydroxide reduces brightness, burning limit, and leads to passive anodes.

Sodium Carbonate

Excess carbonate reduces brightness, thus more EB-111 is needed. Further, it is responsible for passive anodes leading to a bad current distribution in the electrolyte and a too low zinc dissolution rate.

Contaminating Metal's

Like CU, Cd, Sn, Ni deteriorate brightness and appearance of the zinc layer and should be removed with the purifier. Chromium (VI) reduces current efficiency and coverage in the low current density area. It affects the chromatability and appearance and must be reduced to Chromium (III) with sodium dithionite.

Cautions:

- Must Wear PPE's Rubber Gloves, Long shoes and apron during chemicals mixing.
- Care should be taken while adding sodium Cyanide.
- Fume collector recommended.

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