ZINCOBRITE CAZ

INTRODUCTION

Zincobrite CAZ is a concentrated brightener which produces a mirror bright finish over a wide current density range.

BENEFITS

- Bright lustrous finish over a wide current density range.
- Highly concentrated – cost effective.
- High temperature tolerance.
- Ideal for rack and barrel.

SOLUTION MAKE -UP

Zinc oxide	19g/L
Sodium cyanide	42g/L
Sodium hydroxide	56g/L
Zincobrite CAZ	0.5 - 2ml/L

It is essential that the tanks to be used for Zincobrite CAZ are thoroughly cleaned and leached before any product is introduced.

If in any doubt as to the cleaning procedure please contact PMD Technical Department.

1. Clean the process tank with water then leach with a 50g/L solution of sodium hydroxide overnight, pumping through all pumps and pipework. Pump out and rinse thoroughly with water.
2. Fill the tank approximately one third full of water and dissolve the required amount of sodium hydroxide carefully with stirring.
3. Add the zinc oxide and stir to dissolve as much as possible.
4. Add the sodium cyanide and stir to dissolve. This will also dissolve any residual zinc oxide.
5. Make up to final volume with water.
6. Add the Zincobrite CAZ Brightener and stir thoroughly.

OPERATING DATA

	Range	**Optimum**
Ratio NaCN: Zn	2.3 – 3.2:1	**2.75:1**
Zinc	11 - 37g/L	**15g/L**
Sodium cyanide	26 - 120g/L	**41g/L**
Sodium hydroxide	60 - 90g/L	**75g/L**
Temperature	18 – 50°C	**28°C**
Current density rack	2-4 ASD	
barrel	0.5 – 1.0 ASD	

EQUIPMENT

Tanks	Welded mild steel, polypropylene or rubber lined mild steel.
Heaters	PTFE or mild steel immersion.
Cooling	Mild steel coil or heat exchanger.
Filtration	Not normally necessary unless excessive sludge is causing roughness.
Anodes	High purity zinc balls, bullets, ovals or slab in steel cages.

MAINTENANCE AND CONTROL

The solution should be analysed regularly and replenished as necessary. (See analysis methods).

Maintain zinc and cyanide concentrations as detailed in operating data.

Sodium hydroxide should be maintained at an optimum of 75g/L.

Zincobrite CAZ Brightener additions will vary depending on the type of solution, degree of drag-out etc, but a useful guide is 50-70ml / 1000 amp/hours. Higher temperatures may require higher addition rates.

NOTES ON THE USE OF ZINCOBRITE CAZ

Sodium hydroxide	High sodium hydroxide tends to increase efficiency but decrease throwing power.

Sodium carbonate	Carbonate will increase in concentration as a result of cyanide breakdown and carbon dioxide absorption, but will usually, because of drag-out, reach an equilibrium below harmful levels. If it reaches 50-75g/L some deterioration in performance will be seen (lower efficiency, reduced conductivity, grainy deposits). It can be removed by freezing out.
Temperature	Exceeding the optimum range will cause increased efficiency, reduced brightness, reduced throwing power. Low temperatures reduce efficiency and conductivity.
Anodes	Anode current density should be 1-2A/sq.dm. Chemical dissolution may cause the zinc content to rise, in which case it may be necessary to replace some zinc anodes with mild steel up to a maximum of 1/3 total anode area. Zinc anodes should be removed during idle periods to prevent dissolution.

ANALYSIS METHODS

1. Zinc

Reagents

25% hydrochloric acid
Ammonia solution
Eriochrome Black T indicator
0.1M EDTA (standard volumetric solution)
10% formaldehyde solution

Method

1. Pipette a 2.0ml aliquot of the bath into a 250ml conical flask.
2. In a fume cupboard add 25% hydrochloric acid dropwise until solution turns cloudy.
3. Add 10ml of ammonia solution and 100ml DI water.
4. Add 10ml of 10% formaldehyde
5. Add a spatula tip of Eriochrome black T indicator and titrate to a blue end point with 0.1M EDTA.
6. Record titre = t mls.

Calculation

t x 3.27 = g/L zinc

Replenishment

For every 1g/L zinc required add 1.24gm/L zinc oxide.

2. Sodium hydroxide

Reagents

11-13 indicator
1N hydrochloric acid (standard volumetric solution)
Sodium cyanide

Method

1.Pipette a 5.0ml sample into a 250ml conical flask.
2.Add 100ml DI water and 1gm sodium cyanide.
3.Add 5-6 drops of BDH 11-13 indicator.
4.Titrate to a yellow end point with 1N hydrochloric acid.
5.Record titre = t mls.

Calculation

t x 8 = g/L sodium hydroxide

Replenishment

For every 1g/L required add 1g/L sodium hydroxide.

3.Sodium cyanide

Reagents

10% potassium iodide solution
50% sodium hydroxide solution
0.1N silver nitrate (standard volumetric solution)

Method

1.Pipette a 2.0ml aliquot of the bath into a 250ml conical flask.
2.Add 25ml of 50% sodium hydroxide solution and 50ml DI water.
3.Add 1ml 10% potassium iodide solution.
4.Titrate to first permanent turbidity with 0.1N silver nitrate solution.
5.Record titre = t mls.

Calculation

t x 4.9 = g/L sodium cyanide

Replenishment

For every 1g/L required add 1g/L sodium cyanide.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Zincobrite CAZ	**581022**
Zinc oxide	**MC129**

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