



PT. SINAR CEMARAMAS ABADI

- VERCOPPER (ACID / CYANIDECOPPER)
- VERNICKEL
- VERCHROME
- VERZINC ACID / CYANIDE ZINC
- CLEANER (ELEKTRO / SOAK)
- PHOSPHATING
- CHROMATING
- ELECTROLESS NICKEL

FOR HIGHTECT ELECTROPLATING :

- ELECTROLESS NICKEL PLATING FOR ALUMINIUM AND ZINC DIE CAST, MAGNESIUM
- GOLD PLATING
- PTFE FORELECTROLESS NICKEL
- HARDCHROM
- SAND CAST ALUMINIUM ALLOYS PLATING
- MAGOXID - COAT FOR PROTECTING MAGNESIUM SUBSTRATES

- KEPLA - COATING FOR ALUMINIUM AND TITANIUM ALLOYS
- ELECTROLESS NICKEL PLATING WITH INTEGRATED SILICON CARBIDE PARTICLES (SIC)
- GLISS - COAT

- A CLEAN SOLID FILM LUBRICATION FOR A MAINTENANCE FREE PERMANENT LUBRICATION OF ALL KIND OF FRICTION PAIRINGS
- SEPA - COAT (ANTI ADHESIVE COATING AND ACTIVATOR) FOR THE REMOVAL OF PART FROM MOULDS

HR 440 SC

BRIGHT CYANIDE ZINC PROCESS

1. DESCRIPTION

The **HR 440 SC** process has been designed to produce brilliant zinc deposits over a wide plating range from low, medium and high cyanide plating baths. This new economic zinc brightener designed for rack and barrel operations produces exceptionally bright work.

2. SOLUTION MAKE-UP

	<u>Low</u>	<u>Medium</u>	<u>High</u>
Zinc Cyanide	15 gm/l	35 gm/l	60 gm/l
Sodium Cyanide	10 gm/l	25 gm/l	60 gm/l
Sodium Hydroxide	75 gm/l	75 gm/l	75 gm/l
Brightener HR 440 SC	0.6 ml/l	0.8 ml/l	1 ml/l
Purifier HR 221	1 ml/l	1 ml/l	1 ml/l

Dissolve the required amount of sodium hydroxide followed by the sodium cyanide in approximately two-thirds the total volume of water. The reaction should be done with care as it is exothermic. In a separate container make a slurry of the zinc cyanide and water, agitate the sodium hydroxide / sodium cyanide solution and slowly add the slurry. Dilute to final volume and allow to cool to be below 30⁰ C, purify the basis solution using 0.1 – 0.2 gm/l zinc dust sprinkled over the surface and stir for one hour. Allow the solution to settle, then filter (or decant) into the plating tank and add the Brightener **HR 440 SC**. Alternatively baths can be made in identical fashion using good quality zinc oxide.

Head Office :

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Add the **PURIFIER HR 221** mix well and than add the **HR 440 SC Brightener**.

	Low	Medium	High
Zinc Oxide	10 gm/l	25 gm/l	40 gm/l
Sodium Cyanide	25 gm/l	60 gm/l	110 gm/l
Sodium Hydroxide	65 gm/l	50 gm/l	35 gm/l
Brightener HR 440 SC	0.6 ml/l	0.8 ml/l	1 ml/l
PURIFIER HR 221	1 ml/l	1 ml/l	1 ml/l

3. WORKING DATA

Zinc Metal	8 gm/l	20 gm/l	32 gm/l
Sodium Cyanide (total)	20 gm/l	50 gm/l	100 gm/l
Sodium Hydroxide	75 gm/l	75 gm/l	75 gm/l
Ratio NaCN : Zn	2-3 : 1		
Anodes	99.95% pure zinc		
Temperature	24-35 °C		
Cathode Current Density			
Rack	2-8 A/dm ² (20-80 A/ft ²)		
Barrel	0.5-2 A/dm ² (5-20 A/dm ²)		

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Voltage

Rack	2-5 Volts
Barrel	8-16 volts

4. BRIGHTENER CONSUMPTION HR 440 SC

10 Kah	0.6– 1 L	for Racks
	0.5 - 1 L	for Barrels

Purifier is stable and retains its activity even during shut down periods. Consumption will depend on the following factors :

1. Bath position
2. Bath temperature
3. Desired brightness
4. Impurity levels
5. Drag out

5. DEPOSITION RATE

Rack	1 micron in ca. 1.5 minutes at 3 A/dm ² 0.0001” in ca. 4 minutes at 3 A/dm ² (30 A/ft ²)
Barrel	1 micron in ca. 5 minutes at 1 A/dm ² 0.0001“ in ca. 13 minutes at 1 A/dm ² (10 A/ft ²)

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6. TOLERANCE TO IMPURITIES

The **HR 440 SC** Cyan. Zinc system shows good tolerance to normal metallic impurities such as cadmium, lead and copper. These kinds of impurities can be checked by the Lead acetate Paper. If the colour Lead acetate Paper is slight brown after check in the zinc bath, the content of **Purifier HR 221** is enough. Excessive amounts of these impurities are corrected by conventional means-either **Purifier HR 221** or zinc dust additions (usually 0.1 gm/l will be sufficient). Occasional filtration through a carbon pack. Small additions (ca. 0.1 ml/l) of **Brightener HR 440 SC** may be necessary after carbon treatment.

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