



PT. SINAR CEMARAMAS ABADI

- VERCOPPER (ACID / CYANIDE COPPER)
- 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 250

CYANIDE FREE ALKALINE BRIGHT ZINC PROCESS

1. PROPERTIES

- Excellent metal distribution (only about 25 % of variance on a 1 A – 30 min Hull Cell panel)
- A high brilliant Zinc deposit, easy to chromate.
- Very ductile, without blistering.
- Perfectly suited for rack as well as for barrel or continuous applications.
- Easy plating even on parts with difficult shapes.
- High burning limit, suited for high current densities.
- Simple waste water treatment.
- Excellently adapted for an external zinc generator.

2. SOLUTION MAKE-UP :

	Range	Optimum
Zinc Oxide	10 – 16 g/l	12.5 g/l
Sodium hydroxide	110 – 150 g/l	120 g/l
Sodium carbonate	10 – 80 g/l	50 g/l
HR 251 Carrier	5 – 15 ml/l	10 ml/l
HR 252 Brightener	0.5 – 2 ml/l	1 ml/l
HR 253 Conditioner	5 – 15 ml/l	10 ml/l
HR 254 Purifier	0 – 4 ml/l	if necessary

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



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

a) Bath make-up

Fill the tank to 1/3 with demineralized water, add and dissolve the sodium hydroxide in small portions while stirring the solution (attention : the solution becomes hot). Add the Zinc oxide and stir until the solution is clear. Dissolve the sodium carbonate and fill the tank with demin. water to its final volume. Add the **HR 251 Carrier** and the **HR 253 Conditioner**. Dummy plate the solution at low current density for 6-8 hours. Finally add the **HR 252 Brightener**.

b) Analytical Values :

	Range	Optimum
Zinc	8 – 13 g/L	10 g/l
Sodium hydroxide	110 – 150 g/l	120 g/l
Sodium carbonate		< 80 g/l

3. Maintenance

Analyse zinc and caustic soda. Keep the zinc content constant by regulation of the anode surface or by an external zinc generator. Dose caustic soda corresponding to the analysis.

a) Consumption:

	due to drag out* (ml per kg NaOH)	Electrolytical (l per 10 kWh)
HR 251 Carrier	83	0.5 – 1.5
HR 252 Brightener	17	0.5 – 1.5
HR 243 Conditioner	83	0

*Valid only for the given make-up values

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



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

The total consumption consists of the drag out and the electrolytical consumption. For the dosage both have to be considered.

4. OPERATING PARAMETERS

Temperature	: 20 – 40 °C
Cathodic current density	: 0.5 – 6 A/dm ²
Current efficiency	: 55 – 80 %
Deposition rate (1 A/dm ²)	: 0.2 µm/min
Tank Material	: Plastic or steel with plastic coating
Agitation	: Cathode movement with 3 – 5 m/min
Filtration	: Continuous filtration is necessary
Cooling	: Necessary at high current load depending on the electrolyte volume
Exhaustion	: Strongly recommended, specially when using inert anodes.

5. TROUBLE SHOOTING

Before consulting the following list, it should be verified that temperature, current density and analytical values stay within the above limit values. Hull cell tests should be done with a 250 ml Hull cell at 1 A. 15 minute on thorough fully pretreated steel panels. The plated hull cell panel should be rinsed in 0.5 vol% nitric acid for 15 s, rinsed again with tap water and dried with hot air.

Error	Cause	Remedy
Bright uniform layer within the whole current density range	Electrolyte is o.k	None

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



PT. SINAR CEMARAMAS ABADI

- VERCOPPER (ACID / CYANIDE COPPER)
- 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

Bad throwing power	Concentration of carrier HR 251 is too low	add HR 251 in steps of 2 – 5 ml/l confirm each step by the way of Hull cell tests before addition to the bath
Low but uniform brightness within the whole current density range	Concentration of Brightener HR 252 too low	add HR 252 in steps of 0.25 ml/l confirm each step by the way of Hull cell tests before addition to the bath
Dull irregular regions in the Zinc deposit	a) Bad pretreatment	improve the pretreatment (note : pretreatment of Hull cell panels is also very important for good test deposits)
	b) Water hardness too high	For water conditioning, add HR 253 to the electrolyte in steps of 3-5 ml/l, confirm each step by the way of Hull cell tests before addition to the bath
Dendrites, distributed in all current density regions	overdosage of HR 252	Work out

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



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

Bad current efficiency, no deposits in low current density area	a) Overdosage of HR 251 b) Impurities of chromium (VI)	Work out Add reduction agent sodium dithionite according to Hull cell tests
Discolored chromating layers	a) Chromating bath wrongly adjusted	Check chromating bath and activation
	b) Metal impurities in the zinc electrolyte	Close the source of the impurities; dummy plate at low current densities
Dull grey low current density area	Lead impurities (about 1 ppm and higher)	a) Treatment of the electrolyte with 1 g/l zinc dust b) Add HR 254

6. Conversion of a strange electrolyte to HR 250

For a complete conversion test, at least 3 litres original electrolyte are necessary.

a) First indication:

- 1) Plate a hull cell panel in a freshly prepared **HR 250** electrolyte according the instructions of the chapter “Trouble Shooting”.
- 2) Plate an “original” panel in the strange electrolyte without any additions. If the original panel is already bright, you can only try the overdosage effect, if it less bright than panel 1, you can already get an indication on the receptivity of the old system for HR 240.
- 3) Add 5 ml/l HR 241 and 0.5 ml/l HR 242 to the 250 ml Hull cell 2 and plate again. If there is a positive effect (panel 3 is the same as or better than panel 2), a conversion is possible without an immediate problem.

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



PT. SINAR CEMARAMAS ABADI

- VERCOPPER (ACID / CYANIDE COPPER)
- 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

b) Middle term compability :

- 1) Fill 1.8 litre original bath into a 2 litres beaker, hang in a small Hull cell soluble zinc anode and a pretreated Jiggle cell panel (or, if not available, a 15 cm long and about 4 cm wide steel sheet) as a cathode, put it onto a magnetic stirrer and stir slowly, connect anode and cathode to the rectifier and plate with 1 A for 8 h.
- 2) Fill 250 ml of this treated electrolyte into a Hull cell and plate a Hull cell panel according to the instructions of the chapter “trouble shooting”.
- 3) Add 5 ml HR 241 and 0.5 ml HR 242 to the Hull cell and repeat the test.
- 4) Repeat (3) until a good result is achieved.

c) Long term compability

- 1) Prepare 1 litre of a fresh HR 240 electrolyte with the desired concentrations of zinc and NaOH or KOH and add 10 ml/l HR 241, 1 ml/l HR 242, 10 ml/l HR 243 and 10 ml/l HR 701.
- 2) If the first indication test (see above) had shown a lack of brightness in the original bath, then add 0.5 ml/l HR 242 to the untreated strange electrolyte.
- 3) Prepare 5 dilutions with a total volume of 250 ml each of the strange electrolyte (if necessary + HR 242 with the HR 240 electrolyte mentioned above).

- a) 225 ml original bath + 25 ml **HR 240** electrolyte
- b) 175 ml original bath + 75 ml **HR 240** electrolyte
- c) 125 ml original bath + 125 ml **HR 240** electrolyte
- d) 75 ml original bath + 175 ml **HR 240** electrolyte
- e) 25 ml original bath + 225 ml **HR 240** electrolyte

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



PT. SINAR CEMARAMAS ABADI

- VERCOPPER (ACID / CYANIDE COPPER)
- 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

Plate a Hull cell panel in each electrolyte mixture.

There should not be any negative effect in any dilution. If e.g. the panel plated in bath c) had an unexpected e.g. uncorrectable spottiness, possible problems must be expected after about 5 weeks of conversion (barrel application) resp. 15 – 20 weeks (rack application).

If every dilution can be adjusted to a good panel, no problems are expected by the conversion itself.

Technical specification

AT 20 ° C

HR 241

HR 242

HR 243

Appearance

Density pH – value

(g/ml) (concentrate)

liquid, yellowish, clear

1.0208.4

liquid, yellowish, clear

1.0176.3

liquid, colorless

1.40 12.0

Ingredients

- Polymeric amines
- Organic Nitrogen Compounds

Stock keeping

To prevent interruptions due to logistic problems, a certain stock is indispensable. We recommend to keep the following amounts per 1000 l bath.

- Carrier	HR 241	90 kg
- Brightener	HR 242	30 kg
- Purifier	HR 243	90 kg

Ecology

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com



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

Used solutions of **HR 240** and its rinsing waters have to be worked up and disposed corresponding to national and local regulations. **HR 241** and **HR 242** itself are hazardous for water, Water Hazard Class 2 (self-assessment). **HR 243** is slightly hazardous for water, Water Hazard Class 1 (self-assessment).

Product safety

- **HR 241** is not subject to classification according to General EC Classification Guidelines for Preparations.
- **HR 242** is subject to classification according to General EC Classification Guidelines for Preparations.
Hazard Symbol/Designation: Xn harmful
- **HR 243** is subject to classification according to General EC Classification Guidelines for Preparations.
Hazard Symbol/Designation: Xi irritant
- Please consult also the EC safety data sheet.

Guarantee

The technical information and recommendations in the working instruction are based on practical testing and reliable, but are given without warranty or guarantee. The use of our products might vary according to local conditions and materials to be processed.

We reserve the right to change or amend the working instruction based on technological advances.

The sale of our products is subject to the sales condition of our company.

Head Office :

Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :

Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com