



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

ART NICKEL HR 550

Working Instruction for Slightly Black Nickel

DESCRIPTION

This mild alkaline, cyanide-containing electrolyte is suitable for deposition of anthracite coloured coatings, e.g. on Copper, Brass, Nickel, Silver and Zinc in form of rack and barrel articles.

Only thin layers may be deposited and therefore they preserve the brightness.

If a better corrosion protection of the base material is desired, we recommend deposition of a respective strong intermediate bright or pearl bright nickel layer. To improve the corrosion and abrasion resistance, subsequent varnishing may be advantageous, depending upon the field of application.

By rubbing thorough or scratching, so called antique colourations are obtained.

Possible field of application : tubular furniture, metal fittings, lamps, keys, hollow articles, etc.

BATH MAKE-UP FOR 100 LITRES

HR 550 : 13 kg

MAKE-UP PROCEDURE : The usual precaution for the handling of cyanide containing electrolytes have to be observed. For the make-up, deionised water must be applied.

Dissolve small portion (approx, 3 kg) of the **HR 550** salt in approx. 80 l water while stirring constantly. The dissolution is simplified if the water is heated to 30 – 40 °C. If the salt is dissolved completely, top up to 100 litre volume with water. After cooling-down, the clear electrolyte is ready for use.

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

EQUIPMENT

- Tanks : Unalloyed steel tanks with hard rubber or plastic lining. Prior to use, the tanks have to be cleaned.
- Exhaustion : Necessary
- Barrels and open-ended barrels : Plastic (PVC or polyethylene)
- Heating : If necessary, direct by immersion heaters, made of glass or porcelain.
- Filter Unit : Filter discs

OPERATING CONDITIONS

- Density at 20 ° C : $d=1.10 \text{ g/cm}^3 = 13^0 \text{ Be}$ (make-up)
- pH : 9.2 – 10, Preferably 9.5
- Operating temperature : 20 – 25 ° C
- Current density : 0.1 – 0.3 A/dm², preferably 0.2 A/dm²
- Anodic current density : max. 0.5 A/dm²
- Anode material : Nickel anodes DIN 1702
- Voltage : The required voltages is mainly dependent upon the plant and operating conditions.
Rack articles approx. 3 – 5 V
Barrel approx. 6 – 10 V
- Rectifiers : The rectifiers must provide a residual ripple of less than 5 % within the whole current range.
- Treatment time : Rack articles : 3 – 10 min
Barrel articles : 15 – 20 min
- Article agitation : Treating rack articles a horizontal cathode rod movement is necessary.
(vertical agitation may result in irregular coloration of the deposit)
Speed of cathode rod movement : 3 – 4 m/min.

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

- Electrolyte Agitation : Electrolyte agitation by pumping in addition to article agitation possible.
Air agitation is not allowed.
- Filtration : In general, periodic filtration is sufficient. For continuous strong load, continuous filtration might be advantageous.
- Deposition rate : the coatings which are deposited at the prescribed current density and treatment time are very thin. The coating thickness is evidently lower than 2 μm .
- After treatment : Anthracite coloura ions are possible by rubbing through or scratching.
For improvement of the corrosion resistance varnishing is recommended.

MAINTENANCE

For maintenance of the electrolyte, only control of the pH and the density is necessary. During operation, the pH continuously decreases and has to be adjusted to the nominal value with diluted chem. Pure potash lye (abt. 10 %).

Only in exceptional cases, e.g. if the pH has been adjusted to a value evidently exceeding 10, correction with strongly dilute (2 - 5 %) chem. Pure sulphuric acid becomes necessary.

Caution! The acid has to be mixed-in slowly and with constant stirring while the fume extraction system is switched on. Prussic acid might develop. Therefore, only instructed employess may add the acid !

CORRECTION:

For correction of the density, i.e. reinforcement, the antique nickel salt is applied (as for the make up). To increase the density by 1^o Be, 1.3 kg antique nickel salt have to be added per 100 litre.

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

Please note !

Although nickel anodes are applied, these anodes are insoluble, which means that the antique nickel layer is deposited from the dissolved salts. Hence, the salt content of the electrolyte will be increased by the necessary reinforcement.

In dependence upon these reinforcement additions and possible drag-in or drag-out, reinforcement additions might not completely dissolve after a longer period of operation.

A part of the electrolyte must then be discarded. The remaining solution is thereby diluted and has to be reinforced again. Insoluble components have to be filtered off.

If the through-put is very high, a fresh make-up may be more economic.

Attention Addition of other chemical than indicated in our Technical Data Sheet may cause disturbance and have a negative influence on the electrolyte and the quality of the deposits.

EFFLUENT TREATMENT

The electrolyte contains heavy metals, cyanide and complexing agent. Concentrates and rinse water have to be disposed off in compliance with the legal regulations.

PERTAINING TO THESE OPERATING INSTRUCTIONS.

Instruction sheet	C 1	- Protective measure Working Precautions for operation of Plating Solutions.
	C 5	- Trouble Shooting List Antique Nickel
	C 234 C	- Purification of Electrolyte Tanks prior to commencement of Operation.

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

FOR THE MAKE-UP AND MAINTENANCE OF THIS PROCESS, THE FOLLOWING CHEMICALS ARE NEEDED :

LPW-chemical	:	Cat. No :
Antique nickel salt	:	1/14.404
Potassium hydroxide, chem pure	:	2/10.021

FOR YOUR KIND ATTENTION :

The information contained in these operating instructions is given to the best of our knowledge and based on careful tests carried out in practice and in the laboratory, however, without warranty.

As we do not have any influence on the careful handling and proper application of our product, we can assume responsibility only for a faultless quality of our products at the time of delivery.

Despite closely following these operation instructions, defects may occur which are caused by faults beyond our control. May we ask you, therefore, to draw our attention to possible special source of trouble when sending us electrolyte samples or when you are visited by our experts.

Send electrolyte samples only in packages approved for transport !. Fill in the tag precisely !.

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



- 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

TROUBLE SHOOTING LIST

FOR SCA-HR 550

Possible	Remedy	Remarks
1. Wrong Colour-too blue Lack of HR 550	Add HR 550 determination of the addition by measuring of the density or by analysis	Defect may be checked by angle sheet metal test on brass sheets
pH too low	Correction by KOH-solution (200 g KOH/l) until the nominal pH value is obtained	pH reduces during electrolysis
Lack of potassium cyanide	Addition of Potassium cyanide	Addition subsequent to analys
Extreme contamination with Cr^{3+} and Fe^{+2} Ions	If necessary, fresh make up of the electrolyte	An efficient method to remove the foreign metals is not known
2. Colour too dark outgoing from the low current density range Current density too high	Check current density control ampere meter whether the current has been adjusted correct	Strong formation of gas within the high current density range
Rough crystalline powdery deposit with bad adhesion	Check current density	Strong formation of gas within the high current density range

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

3. Blue Iridescent colour : the bass material resp, the prevlous deposit shines through, areas which are not covered with HR 550

Treatment time too short	Prolong treatment time	Check rectifiers
pH	Correction with KOH solution (200 g KOH/l) until the nominal pH is obtained	During adjustment of the pH, the electrolyte may colour dark for a short while
Hydrophobic intermediate layer or basic material	Thorough degreasing improve rinsing	Wetting agents may not be dragged-in

4. The deposits peel off

Passive Intermediate layer of base material	Cathodic activation (degreasing)	Activation of the surface in a cathodic degreaser for brass (e.g. RADIKAL 1012)
Extremely long treatment time in the HR 550 solution	Control treatment time	

5. Stained HR 550 deposits

Insufficient rinsing Drag-in of wetting agents	Renew rinsing Purification with activated carbon subsequent to laboratory test	
Inadequate pretreatment	Control the degreasing effect	If necessary, make-up of a new degreasing solution (only if HR 550 is directly deposited on the base material)
Faulty deposited intermediate layer	Ensure perfect intermediate layer	

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

6. Darkstains in the high current density range

Strong overdosing of potassium cyanide of Reduce current density to max, $0,1 \text{ A/dm}^2$

It is possible that the treatment times have to be prolonged to obtain the desired colour

7. Deposition of Grey HR 550 deposit

Electrolyte does not contain potassium cyanide Addition of the required quantity potassium cyanide

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