



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 693

CONCENTRATED BLACK CHROME

1. PROPERTIES

- Liquid
- 3 component process with make-up and maintenance concentrate
- Very long service life due to tailor-made maintenance additives
- Forms brilliant, uniform black chromate layers
- Exceed corrosion norms according DIN 50 021 SS
- For cyanide, alkaline cyanide free and acid zinc

2. APPLICATION

- Make-up :

HR 693 A	6 vol%	(5 – 8 vol%)
HR 693 II	2 vol%	(1,8 – 2,2 vol%)
Acetic acid (98%)	4 vol%	(1 – 5 vol%)

To $\frac{3}{4}$ of the final volume as demin.water (chloride free), add the calculated amount of HR 693 A and the Acetic acid. Then add slowly the adequate volume HR 693 II while stirring.

Fill up to final volume with demin.water. A slight turbidity has no negative effect. We recommend to keep ca. 10% of the old solution for a new black chromate make-up.

Head Office :

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b) Analytical values :

HR 693 I	7 vol%	(6 – 9 vol%)
HR 693 II	2 vol%	(1,8 – 2,2 vol%)

c) Temperature : 20 °C (15 – 35 °C)

d) Time : 30 S to 5 min (deppending on concentration, temperature, pH-value, bath age)

e) pH-value : 0,8 – 3,0

Optimum for rack 1,7

Optimum for barrel 2,2 – 2,6

(adjust with diluted sulfuric acid or diluted sodium hydroxide)

f) Tank : Steel with acid resistant plastic coating

g) Maintenance : analyse **HR 693 I** and adjust; add **HR 693 II** in a ratio of 1 : 3 to part I; use **HR 693** a for make-up only.

3. PROCESS :

a) Zinc plating (minimum layer thickness 5 µm)

b) Cold rinse

c) Activation (0,5 – 1% nitric acid in demin. Water)

d) Cold rinse (demin. Water)

e) Balck chromate HR 693

f) Cold rinse (3 g/l chromic acid + 5 m/l acetic acid or 5% balck hromate solution in demin Water)

g) Cold rinse (demin. Water)

h) Drying (to increase scratch resistance and corrosion protection, an additional dip in HR 548, 549, or 550 in appropriate)

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4. TECHNICAL SPECIFICATION

	HR 693 A <i>Make-up</i>	HR 693 I <i>Maintainer</i>	HR 693 II <i>Make-up/Maintainer</i>
Colour :	brown	brown	clear
Smell :	etching	etching	slightly etching
Density :	1,40 g/ml	1,27 g/ml	1,08 g/ml

5. TROUBLE HOOTING LIST

PROBLEM	POSSIBLE REASON	ADEQUATE ACTION
1. Soft, bad adhesion Of chromate	a). concentration too high b). pH value too low c). temperature too high d). dip time too long	a). diluted the bath b). rise pH value c). lower temperature or chill d). shorten immersion time
2. Surface not brilliant Enough	a). temperature too high b). rinse water too warm c). calsium containing water	a). lower temperature or chill b). use cold rinse c). demin. Water for 1 rinse
3. Insufficient corrosion Protection	a). chromate layer too thick b). temperature too high c). rinse water too warm	a). shorten dip time b). lower temperature or chill c). use cold rinse
4. Colour not black Enough (grey, dark Brown or indescent)	a). bath concentration too low b). HR 693 I too low c). pH value too high d). dip time too short e). temperature too low f). chloride or cyanide impurities	a). add HR 693 I and II in ratio 3:1 b). add HR 693 I c). lower pH value d). extend immersion time e). rinse temperature f). add HR 693

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6. DETERMINATION OF CONCENTRATION

Reagent : conc. hydrochloric acid, Potassium iodide, 0,1 N sodium thiosulfate solution,
1% starch solution

Process : Pipette 1 ml bath solution into a 250 ml erlenmeyer beaker, dilute with demin. Water to 100 ml, Add 10 ml conc. hydrochloric acid and 2 g potassium iodide. Titrate with 0,1 N sodium thiosulfate. Solution from brown to light yellow. Add 3 drops of starch solution and titrate again until discolouration.

Calculation : consumption in ml x 8,73 = ml/l **HR 693 L**

7. ECOLOGY

Used solution of **HR 693** and its rinsing waters have to be worked up and disposed corresponding to national regulation. The hexavalent chromium of the solution and rinse water must be reduced and precipitated. HR 693 A and it self are strongly hazardous for water, Water Hazard class 3.

HR 693 II it self is hazardous for water, Water Hazard Class 2 (self – assessment).

8. PRODUCT SAFETY

HR 693 A and I are subject to classification according to general EC classification Guedelines for preparations Danger symbol/designatio : T toxic, O oxidising, C corrosive

HR 693 II is subject to classification according to general EC classification Guidelines for preparation.

Hazard symbol/designation : C corrosive

Please consult the respective safety data sheets.

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9. GUARANTEE

Our guarantee extends to the continuous quality of our product as they leave our factory and not to their usage in the field. Our technical service will be pleased to answer any question you may have concerning operation and use of our products.

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