



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

HC 80

HARD CHROMIUM PROCESS

Hard Chromium-process with high current efficiency and good throwing power

1. PROPERTIES

Hard Chromium plating process HC 80 is a fluoride free hard chromium plating process with a high cathodic current efficiency and a good throwing power for the deposition of micro-cracked deposits with a hardness of approximately 1000 HV 0,1 (950 – 1050 HV 0.1).

Hard Chromium Plating Solution HC 80 combines the good properties of conventional sulphuric acid electrolytes, i.e. only slight attack on iron and iron alloys and a cathodic current efficiency which usually only can be achieved with catalysts on the basis of complexed fluorides.

2. WORKING CONDITIONS

a) Bath Make up for 100 litres

Chromium acid	30	kg
HC 80 Make up solution	5	litres
Sulfuric acid 96% chem. Pure	0,2	litres

Head Office :

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b) Make-up

New and used tanks must be thoroughly cleaned by washing prior to use.

- 1) Place around 60 % of the desired volume deionised water in the tank.
- 2) Heat to 60 °C.
- 3) Add Chromium acid and agitate until the salt is fully dissolved.
- 4) With constant stirring add HC 80 Make up solution and Sulphuric acid.
- 5) Dilute to full volume with deionised water and adjust the temperature to 55 – 65 °C.
- 6) Put a dummy cathode in the tank, and with current on place the anodes in the bath.
- 7) Dummy plate for around 2 – 3 hours at 40 A/dm².
- 8) The electrolyte is now ready for use.

3. OPERATING PARAMETERS

- | | |
|---------------------------|------------------------------------------------|
| c) Tanks | SM-Steel with rubber or special plastic lining |
| d) Heating | Immersion heaters (porcelain or PTFE) |
| e) Anodes | Lead-Tin anodes (93:7) |
| f) Temperature range | 55 –65 °C |
| g) Voltage | 6 – 12 Volt (max. 15 Volt) |
| h) Current density | 50 (20 – 60) A/dm ² |
| i) Anodic current density | 20 – 30 A/dm ² |
| j) Rectifier | 12 V, 15 V-rectifiers for higher applications |
| k) Fume extraction | required |

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4. MAINTENANCE

The chromic acid and sulphuric acid levels should be controlled regularly by analysis.

Bath values	Range	Optimum
Chromium acid	280 – 320 g/l	300 g/l
Sulphuric acid	1,1 – 1,4 %	1,25 %
in % of Chromium acid)		
Chromium (III)-oxide	2 – 6 g/l	3 g/l

Replenishment For each 10 kg Chromium acid add 3 litre HC 80 Addition solution additionally.

Always add chem. pure sulphuric acid.

Too low concentration result in milky, dull deposition. Excessive concentration reduce the maximum applicable current density and result in dull and nodular deposition in the highest current density range.

An excess of HC 80 Addition solution can only be “removed” by diluting the electrolyte. We recommend to add the solution always according to the standard value 1 kg : 300 mL.

However the ratio of addition can also be influenced by drag-out and recycling.

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5. SAFETY

The solution is very corrosive and contains Chromium (VI) which is a known carcinogen and skin sensitiser.

When handling the solution protective clothing, gloves and goggles should be worn. Splashes on the skin or eyes should be washed out with water for 10 – 15 minutes. If irritation becomes apparent seek medical advice.

The hazards of the working solution may differ from those of its components. A risk assessment should be carried out as required by current regulations using information given in the individual safety data sheets.

6. CHEMICAL TO BE USED IN THIS PROCESS

HC 80 Make up solution

HC 80 Addition solution

Chromium acid

Sulphuric acid

Barium carbonate

7. WASTE WATER TREATMENT

Rinse waters must be reduced with sodium bisulphite at pH < 2,5 before neutralisation with alkali and calcium hydroxide. If you require any further toxicological or ecological information related to the disposal of this product, please refer to the individual safety data sheets.

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8. GUARANTEE

The technical information and recommendations in the working instruction are based on practical testing and are 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.

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