

TECHNICAL DATA SHEET

HARD CHROME 105 PLATING PROCESS

Hard Chrome 105 plating process is a specially formulated soluble catalyst based hard chrome plating bath to meet modern requirements.

ADVANTAGES :

- Gives high rate of deposition, hardness, wear resistance and corrosion resistance.
- Easy to operate and is highly tolerant to metallic contamination.
- Gives high Current efficiency (>50%) and excellent throwing power.
- Oil retention capability due to cracked structure of Hard chrome 105 it is highly suited for cylindrical liners and crank shaft.

BATH MAKE -UP :

	Optimum	Range
Hard Chrome 105 Salt	300 g/l	250-350 g/l
Hard Chrome 105 conducting salt	8 g/l	6-12 g/l

OPERATING CONDITIONS :

	Optimum	Range
Cathode current density	25 A/dm ²	20-60 A/dm ²
Anode current density	10 A/dm ²	10-30 A/dm ²
Temperature	55°C	50 - 65°C
Density	19° Be.	18-22°Be
Voltage	8 volts	6-15 volts

PRE TREATMENT:

- Soak cleaning.
- Water rinse.
- Water rinse.

- Acid dip.
- Anodic etching in chromic/sulphuric bath for 1-3 minutes.
- Hard chrome plating.
- Water rinse.
- Hot water rinse.

SOLUTION PREPARATION :

- Fill the tank with 2/3rd volume of water and heat the water to 50°C.
- Slowly with stirring dissolve required quantities of hard chrome salt.
- After dissolution make up the operating level and heat the solution 50°C.
- Place the anodes in the tank.
- Electrolyse the bath for 2-3 hours for building Trivalent chrome at 250-350amp/sq.ft and the bath is ready for plating.

EQUIPMENT :

TANKS:

Flexible CPVC lined tanks should be used. For lead lined tanks should be lined with CPVC.

ANODES:

Lead-tin alloy anodes. (93% lead, 7-9% Tin) are used. Anode must be removed when the bath is not in use. Platinised titanium anodes can also be used.

POWER SUPPLY :

3 phase 8-16 volts rectifier with ripple usually less than 5%.

SOLUTION REPLENISHMENT:

The electrolyte operates at a make-up concentration of 220-280 gm/l, preferably 250 gm/l. of salt

Density should be maintained between at 21-27⁰ Be.

To increase the density by about 1 Be, add 15 gm/lts

Hard Chrome 105 Conducting Salt contains sulphate and is consumed only by drag out losses.

The solution should be analysed and maintained by ratio 250-300 gm chromic : 2.5-3.0 gm sulphate.

For neutralizing 1 gm of sulphate add barium carbonate 2 gm/l.

(Time to deposit 1 micron)

Current Density A/dm ²	Hard Chromium	Conventional
15	7	11.7
20	4.5	7.7
30	2.4	3.6
40	1.5	2.6
50	1.2	2

CAUTION :

Operator should be provided with protective clothing, rubber gloves and chemical goggles and care should be taken to avoid breathing dust from the product. In the event of contact with eyes or skin flush with ample quantity with water.

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