



HSCA

INTRODUCTION

HSCA enables you to deposit hard chromium electrolytically at much faster rates than conventional chrome baths. The unique catalytic system enables a higher current efficiency during the electroplating. Moreover, the current density at which burning occurs is higher than in conventional chrome baths. The process does not etch low current density regions of components.

The hardness obtained by the **HSCA** process is in the range of 1000 to 1100 KHN₁₀₀. The deposit is smooth, lustrous and bright. The deposits also have at least 1000 cracks per inch.

BATH PREPARATION

Use deionized water and dissolve the chromic acid and sulphuric acid taking proper precautions. Heat the solution to the working temperature and measure the sulphate content (see below). Run a dummy plate for about 6 to 8 hours in order to allow the bath ingredients to reach an equilibrium.

BATH OPERATING CONDITIONS

The following bath parameters which have to be maintained are given in the following table:

Parameter	Ideal	Range
Chromic acid, g/L	250	220-280
Sulphate, g/L	2.7g/L	depends on ratio
Ratio chromic acid to sulphate	90:1	80:1 to 100:1
Bath temperature, deg. C.	60 deg. C.	55 to 60 deg. C
Cathode current density, ASI	4.0	2.0 to 5.0

DEPOSIT PROPERTIES

The deposition speed varies according to the current density. At 3 A/sq.in., the deposition speed is 50 microns per hour. At 4 A/sq.in., the deposition speed is 70 microns per hour. At 5 A/sq.in., the deposition speed is about 88 microns per hour. The plating deposition speed is inversely related to the temperature.

BATH MAINTENANCE

The electroplating bath can easily be maintained by bath analysis and with the help of the HSCA Additive. The consumption is approximately 1.5 to 1.6 kg of chromic acid per 10000 A.h. Per kg of chromic acid addition, **add 4 to 6 mL** of HSCA Additive.

The major contaminants of hard chrome plating baths are iron and trivalent chromium. Both have the property of reducing the conductivity of the bath. The impurities may be removed by the use of ion exchange resins.

PLATING EQUIPMENT AND ACCESSORIES

PVC-lined tanks are recommended, lead-lined tanks should be avoided. Rectifiers with 9 to 15 Volts D.C. output with ripple of less than 5% must be employed. Tin-lead alloy anodes with about 7% tin are recommended.

BATH ANALYSIS

Chromic acid content can be analyzed by any standard procedure. If you do not have one, please contact us.

The determination of sulphate ion must be carried out gravimetrically, preferably using the centrifuge method. Please consult our laboratory for more information.

The HSCA Additive is a specially formulated product whose concentration in the bath has to be maintained properly. Apart from maintaining the HSCA Additive concentration based on ampere-hour consumption, we recommend you to send a sample regularly to our technical services laboratory located in your region.

EFFLUENT TREATMENT

Hexavalent chromium is a known carcinogen. Proper care must be taken while disposing ANY solution containing hexavalent chromium. All local laws and regulations must be complied with. Please ensure that all occupational safety steps are followed. MSDS for the HSCA Additive will be sent upon written request.

Warranty: The above information is based on our knowledge and experience and is given in good faith. RRR does not have control over the goods and over their usage, once they leave our premises. The normal precautions while handling chemicals must be followed (hand gloves, spectacles and so on), even when no hazard label is evident on the packing. The local regulations for treatment and discharge of chemicals must be followed. No liability arises out of handling or use.

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