Handbook on Electroplating with Manufacture of Electrochemicals

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Format: Paperback
ISBN: 9788178331706
Code: NI300
Pages: 496
Price: Rs. 1,695.00 US$ 150.00
Publisher: Asia Pacific Business Press Inc.
Usually ships within 5 days

Electroplating is an electro deposition process for producing a dense, uniform, and adherent coating, usually of metal or alloys, upon a surface by the act of electric current. The term is also used for electrical oxidation of anions onto a solid substrate, as in the formation silver chloride on silver wire to make silver/silver-chloride electrodes. Electroplating is primarily used to change the surface properties of an object (e.g. abrasion and wear resistance, corrosion protection, lubricity, aesthetic qualities, etc.), but may also be used to build up thickness on undersized parts or to form objects by electroforming.

Electrochemical deposition is generally used for the growth of metals and conducting metal oxides because of the following advantages: (i) the thickness and morphology of the nanostructure can be precisely controlled by adjusting the electrochemical parameters, (ii) relatively uniform and compact deposits can be synthesized in template-based structures, (iii) higher deposition rates are obtained, and (iv) the equipment is inexpensive due to the non-requirements of either a high vacuum or a high reaction temperature. An electrochemical process where metal ions are transferred from a solution and are deposited as a thin layer onto surface of a cathode.

In the recent years, developments in electronic and chemical engineering have extended the process of electroplating to a wide range of materials such as platinum, Alloy, Silver, Palladium, Rhodium, etc. The electroplating market is an application driven market, which depends largely on the net output of the manufacturing industry.

The electroplating technology allows electro-deposition of multiple layers as thin as one-millionth of a centimeter which makes it an indispensable part of the semiconductor industry. Rising demand for computing devices is expected to create significant market opportunities for electroplating service providers. Growing net output of manufacturing industry, rising demand for consumer goods which mandates more surface finishing services, growth of the electronics industry are some of the key factors driving the growth of the global electroplating market.

It is a very useful book that covers all important topics of Electroplating. It will be also a standard reference book for professionals, entrepreneurs, those who are interested in this field can find the complete of Electroplating. It will be very helpful to consultants, new entrepreneurs, technocrats, research scholars, libraries and existing units.

Contents

1. Electrochemical Processing
   INTRODUCTION
   THE ELECTROCHEMICAL CELL
   INORGANIC
   Hardware for Electrochemical Processing
   PRODUCTION CONDITIONS
   Electrolysis of Chloride Solutions
   Organic
   HARDWARE FOR ELECTRO-ORGANIC PROCESSING
   Cells
   Electrodes
   Electrolytes
   Diaphragms
   Cell Designs
   Scale-Up-Consideration
2. Metal Surface Treatments
   CLEANING, PICKLING, AND RELATED PROCESSES
   Cleaning
   Solvent Cleaning
   Wiping
   Emulsifiable Solvents
   Emulsion Cleaning
   Diphasic Chlorinated Solvents
   Vapour Degreasing
   Ultrasonic
   Alkaline
   Immersion
   Spray
   Ultrasonic Alkaline
   Steam
   Electrocleaning
   Pickling
   (a) Chemical for Pickling
   Sulphuric Acid:
   Hydrochloric Acid:
   Nitric Acid:
   Phosphoric Acid:
   Chromic Acid:
   Hydrofluoric Acid:
   Other Pickling Acid:
   The practice of Electrolytic Pickling:
   CHEMICAL AND ELECTROLYTIC PICKLING COMPARED
   Anodic Cathodic Pickling Compared:
   Tin and Lead Additions:
Regeneration of Pickling Solutions
Pickling Before Electroplating
3. Electrolytic Machinery Methods
PRINCIPLES OF THE ECM PROCESS
The Solution Gap
Electrolytes
Temperature Effects
Corrosion products
Pressure Effects
TYPES OF ECM OPERATIONS
MODERN DEVELOPMENT OF THE ECM PROCESS
Electrolyte Development
Fundamental Investigation
Innovations in ECM Operation
Static Fixture Finishing and Sizing
Embossing
Broaching
Uses
4. Electroless Plating
THEORY
EQUIPMENT
Plating Tanks
Rack Design and Loading Factors
Safety and Waste Disposal
Plating on Metals
Preparation of the Substrate
Plating on Nonconductors
Plating of Plastics
Process Details
Printed Circuits
Printed-Circuit Etchants
Emerging Printed-Circuit Technologies
Plating on Glass
Architectural Glass
Ceramic Plating
Composite Plating
ELECTROLESS COMPOSITE COATINGS
USES AND APPLICATIONS:
Nonelectrolytic Plating Processes
Immersion Plating
Autocatalytic Plating
POSTPLATING TREATMENTS
SPECIFICATION AND TESTS
Thickness
Corrosion Resistance
Adhesion
APPLICATIONS
Decorative Plating
Plating for Protection
Special Surface Effects
Engineering Applications
Electroforming
5. Electroplating
THE SUBSTRATE IN ELECTROPLATING
PREPARATION OF THE SUBSTRATE
Cleaning
Rinsing
Acid Dipping
Drag-Out and Drag-In
Special Preparation Cycles
Aluminium and Magnesium
Zinc-Base Die Castings
Refractory Metals
Other Metals
Nonconductors
The Electroplating Process
Continuous Plating
Materials of Construction
Economics
Safety
Waste Disposal and Metal Recovery
PLATING SOLUTIONS
Current Density Range
Throwing Power
Acidity
Anodes
Temperature
Purity
Bright Plating
Maintenance of Plating Baths
INDIVIDUAL PLATING BATHS
6. Electroplating Plant
PLANT REQUIREMENTS
Buildings
Supporting the Work to be Plated
Tanks
Filtration
Air Agitation
Water Supply
Heaters
Maintenance of the Solution
Effluent
ELECTROPLATING PLANT
7. Electroplating of Aluminium
Surface Roughening
Anodising
Zincating
Note:
Alstan Process
Plating Process
Silver-Tin Plating
Alstan Process
8. Electroplating of Cadmium
The Solution
Additions to the Solution
Anodes
Thickness of Deposit
Operating Conditions
Anti-Corrosion Properties of Cadmium
Nickel on Cadmium
Heat Treatment of Cadmium Deposits
Cadmium and Food Stuffs
Bright Cadmium Plating
Applications of the Cadmium-Plating
9. Electroplating of Chromium
The Electrolyte
Chromium Plating Process
Regeneration of Chrome Plating Solutions
Coloured Chromium Plating
Chromium Plating on Aluminium
10. Electroplating of Cobalt
Principles
Functions of Constituents of Bath
Operating Conditions
Maintenance and Controls
PREPARATION OF BASIS METALS AND FINISHING OF DEPOSITS
Tests of Deposits
11. Electroplating of Copper
COPPER SULPHATE PLATING BATH
Operating Condition
BRIGHT PLATING
CYANIDE BATH
Composition
SODIUM FORMULATION
Operating Condition
POTASSIUM FORMULATIONS
12. Electroplating of Gold
STRIPPING GOLD
GOLD BATHS
Bath for Gold Gilding
Current-Density, 0.15 Ampere
GOLD BATHS FOR HOT GILDING
Tanks for Gold Baths
Execution of Gold-Plating
FOR GOLD-PLATING IN THE COLD BATH THE PROCESS
IS AS FOLLOWS :
Re-Gilding
Application of Gold-Deposition
GOLD THREAD
Process
GOLD PLATING OF STAINLESS STEEL ORNAMENT
Methods of Plating Stainless Steel
Plating Procedures
13. Electroplating of Iron
Principles
THE IRON CHLORIDE BATH
THE IRON SULPHATE BATH
THE FLUOBORATE BATH
14. Electroplating of Lead
ANALYSIS OF LEAD SOLUTION

Free Acid

APPLICATIONS OF LEAD PLATING

15. Electroplating of Nickel

TYPES OF NI SOLUTIONS

Engineering Application

NI AND UR PLATING BUTTERWORTHS

Electroplating Baths used

Watts Nickel Bath
Hard Watts Bath
Nickel Sulphate Bath
Nickel Sulphonate Bath
Nickel Fluoborate Bath
Barrel Nickel Plating
Black Nickel:
Black Ni Plating Processes

TYPES OF NICKEL PLATING SOLUTIONS USED

16. Electroplating of Bright Nickel

CARRIERS

NICKEL ELECTROPLATING BRIGHTENERS

17. Electroplating of Silver

Silver (Atomic weight=107.88) and Its Properties:
Silver Bath for a Heavy Deposit of Silver (Silvering by Weight):

PREPARATION OF BATH I, WITH SILVER CHLORIDE
PREPARATION OF BATH II WITH SILVER CYANIDE
SILVER BATH FOR ORDINARY ELECTROPLATING

Tanks for Silver Baths
EXECUTION OF SILVER-PLATING

Silver Plating by Weight

BRIGHT SILVER PLATING

Source of Brightening in Carbon Disulphide Electrolytes

18. Electroplating of Alloy

Electrodeposition of Zinc-Iron Alloy

Lead-Tin Plating
Speculum Plating
Gold Alloy Plating
Bright Alloy Plating
Ni-Alloy Plating
Bronze Plating
Copper Solution

19. Electroplating of Platinum

(1) KEITAL AND ZSCHIEGNER PROCESS
(2) POWELL AND SCOTT PROCESS

CONDITIONS OF OPERATION

MAINTENANCE OF ELECTROLYTE

20. Electroplating of Palladium

(A) SOLUBLE ANODE PROCESS
Condition of Operation
Properties of the Deposit
(B) DIAPHRAGM PROCESS
Condition of Operation

21. Electroplating of Rhodium

PREDEPOSITION
Palladium Plating
SOLUTION AGITATION
Raw material used for Palladium Plating
Equipment
RHODIUM PLATING
Tank
Tank Installation
Solution Heating
Rectifier
Rectifier Control
Current Control
Temperature Control
Making of Rhodium Plating Bath
RHODIUM
Method A—Colorimetric
Discussion of the Method
Method B
Discussion of the Method
Method C—Hydrazine Reduction
Discussion of the Method
Sulphate
APPLICATIONS OF THE PRECIOUS METALS
22. Electroplating of Bright Zinc
BRIGHT ZINC-PLATING PROCESSES
Chemical Control
Electrolytic Impurities
Anodes
ADVANTAGES OF BRIGHT ZINC PLATING
23. Electroplating of Tin
INTRODUCTION
24. Electroplating of Plastics
THE PLATING OF PLASTICS AND NON-METALLIC MATERIALS
1. Polishing with Plumbago
2. Metallising with Copper Bronze Powder
3. Metallisation by Molten Metal Spraying
4. Metal Surfacing of Ceramics by “Firing”
5. Vacuum Evaporation and Electrical Sputtering
6. Silver Mirror Process as Applied to Plastics
Removal of Glaze
Cleaning
“Sensitising”—The next step is to
Silvering
Coppering
Silver Recovery
25. Electroplating of Barrel
BARREL NICKEL-PLATING
Barrel Coppering
Brass Barrelling
Barrel Cadmium
Barrel Zinc
Barrel Silver
Electro-Galvanising Tray
Barrel Polishing
Barrel Tin
APPLICATIONS
26. Zinc Electroplating Brightener
USES AND APPLICATIONS
PROPERTIES OF THE BRIGHTENER
FORMULATIONS
OPERATING CONDITIONS
Temperature
Current Efficiencies
Throwing Power
Conductivity and polarization
MANUFACTURING PROCESS
FORMULATION
27. Colouring of Metals
   1. Direct Coloration of Iron and Steel by Cupric Selenite :
   2. Coloration of Copper and Brass with Cupric Selenite :
METAL BROWNING BY OXIDATION
COPPER COLOURING
   (a) Blacking Copper
   (b) Red Colour to Copper
COLORING OF BRASS
Brass Colouring
Coloring Brass
BRONZING
Art Bronzes :
Antique Bronzes
Vert Antique
Brass Bronzing
Copper Bronzing
BRONZING OF CAST IRON
Liquid for Bronze Powder
Bronzing of Cannon
Green Bronzing
BRONZING OF STEEL
TIN BRONZING
ZINC BRONZING
28. Metal Treatments
MECHANICAL TREATMENTS
Workability Testing
Plastic Deformation
Hot Working
Cold working
Primary Forming Processes
Secondary Forming Processes
THERMAL TREATMENTS
Annealing
Heat Treatment of Steel
Homogenization
Thermo mechanical Processing
RECENT DEVELOPMENT AND OUTLOOK
Powder Metallurgy of Superalloys
29. Electrodeposition of Precious Metals
Physical Properties

NIIR Project Consultancy Services (NPCS) 8/13
30. Electropolishing of Stainless Steel

**Application**

**BATHS**

**EXPERIMENTAL**

Bath Composition  
Hull Cell Studies  
Rates of Dissolution  
Effect of Polishing Time  
Life of the Bath

**PRACTICE OF ELECTROPOLISHING**

(i) Sequence of Operations  
(ii) Electropolishing  
(iii) Treatments After Electropolishing  
(iv) Equipment for Electropolishing  
(v) Technical and Economic Aspects

**APPLICATIONS OF ELECTROPOLISHING**

1. Decorative Finishing  
2. Polishing of Parts Exposed to Friction  
3. Electropolishing Cutting Tools  
Drills and Taps  
Wood Working Tools  
Solutions Employed  
4. Polishing of Measuring Instruments

31. Case Hardening

**PROCESSES**

Carburizing  
Gas  
Liquid  
Pack  
Carbonitriding  
Gas  
Cyaniding  
Nitriding  
Gas  
Liquid  
Microcasing  
Ionitriding  
Siliconizing  
Boronizing  
Tufftriding  
Triniding  
Applied Energy  
Induction Hardening  
Flame Hardening  
Other  
Hardening

32. Electroless Coating of Gold, Silver  
Methods for Mirroring

**ELECTROLESS PROCESS**

Equipment  
SILVER COLOURING FOR MIRROR (SILVER COATING)

Formulation-1  
Preparation
PROCESS OF MANUFACTURE
1. Selection of glass sheet
2. Cleaning of glass sheet
3. Sensitizing
4. Silvering on glass

PLATING PROCEDURE
SILVERING OF GLASS
Chemical Silvering
To prepare the bath
Cleaning

GOLD COLOURING FOR MIRROR (GOLD COATING)

FORMULATIONS FOR ELECTROLESS GOLD BATH

MANUFACTURING PROCESS FOR GOLD PLATING

BLUE SILVERING ON GLASS WITH COPPER COATING

FORMULATION OF BLUE SILVERING ON MIRROR

MANUFACTURING PROCESS
COPPER COATING

PLATING BATH FORMULATION

Bath Constituents
THE OPERATION OF ELECTROLESS COPPER BATHS

Red Mirror by Electroless Dipping Method

Electroless Copper Plating of Plain Glass to Manufacture Red Mirror

MANUFACTURE PROCESS OF RED MIRROR

TEST FOR ELECTROLESS PLATED RED MIRROR ADHESION

Baking Test
Burnishing Test

TEST FOR CONTINUITY
Ferroxy Test

MARKING

33. Buffing and Industrial Metal Polishing Compounds

Abrasives for Buffing
1. Tripoli
2. Vienna Lime
3. Aluminium Oxide (Sophire)
4. Rouge
5. Amorphous Crystalline Silica
6. Emery

Buffing & Polishing Compositions

MANUFACTURING METHOD OF BUFFING COMPOUNDS

CARBORUNDUM FOR POLISHING

34. Tin and its compounds

Discovery
Mineralogy
Extraction
Metallurgy
Refining of Crude Tin
Properties of Tin
General Account of Tin and its Compounds

35. Lead and its compounds

Discovery

MINERALOGY
Smelting in a Blast Furnace
Purification of Lead
Properties of Lead
Chemical
Technology
White Lead, Pb (OH)2 . 2PbCO3
Super-sublimed White Lead
36. Manufacture of phosphorus
Modern Electric Process
Manufacture in India
Purification
Smithel’s Cold Flame
Luminescence
Manufacture of Red Phosphorous
37. Hydrides of phosphorus
Phosphorous Trihydride, or Phosphine PH3
Properties
Phosphonium Iodide, PH4I
Hydrogen Hemiphosphide, P2H4
Hydrogen Diphosphide, P12H6
Other Hydrides of Phosphorous
38. Chemistry of sodium
Mineralogy
Metallurgy
Down’s Process—Electrolysis of Sodium Chloride
Castner’s Process (From fused sodium hydroxide)
Properties
Technology
Caustic Soda Industry in India
39. Copper and its compounds
Mineralogy
Extraction
Extraction from sulphide ores
Concentration
Metallurgy furnace for Smelting Copper
Extraction from Non-Sulphide Ores
Properties
Chemical
Technology
Cupric Sulphate, CuSO4 5H2O
Properties
40. Silver and its compounds
Mineralogy
Metallurgy
Purification
Properties
Chemical
Technology
Silver Nitrate
Industrial Applications
Photography
41. Gold and its compounds
Mineralogy
Metallurgy
Cyanide Process
Purification
Properties
Chemical
Technology
Electroplating
42. Complex salts of copper, silver and gold
Complex compounds of Silver
Complex Salts of Gold
43. Aluminium and its compounds
Mineralogy
Extraction
Metallurgy
Properties
Chemical
Technology
Aluminium Chloride, AlCl3
Properties
Potash Alum, K2SO4. Al2(SO4)3. 24H2O
Amalgam Metallurgy
44. Hydrides of silicon
Silicon Tetrahydride, Silicane, or Monosilane, SiH4
Preparation
Properties
Silicoethane, Disilicane,Disilane, Si2H6
Properties
Silicopropane, Trisilicane or Trisilane, Si3H3
Preparation
Properties
Silicobutane, Tetrasilicane or Tetrasilane, Si4H10
Silicopentane, Si5H12 and Silicohexane, Si6H14
Silico-acetylene, (Si2H2)n
Structural Considerations
Short Note on Silicones
45. Chemical and Electrochemical Conversion Treatments
PHOSPHATING
Coating Formation
Process Parameters
Uses
ANODIZING
METAL COLOURING
ENERGY CONSIDERATIONS
46. Electrostatic Sealing
THEORY
THE TECHNIQUE
SEAL PROPERTIES
USE
47. Photographs of Plant & Machinery with
Supplier’s Contact Details
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