

# Electroplating, Anodizing & Metal Treatment Hand Book

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Surface finishing is a broad range of industrial processes that alter the surface of a manufactured item to achieve a certain property. Currently, the trend is towards surface treatments. Surface engineering techniques are generally used to develop a wide range of functional properties, including physical, chemical, electrical, electronic, magnetic, mechanical, wear-resistant and corrosion-resistant properties at the required substrate surfaces. In general, coatings are desirable, or even necessary, for a variety of reasons including economics, material conservation, unique properties, or the engineering and design flexibility which can be obtained by separating the surface properties from the bulk properties. Surface engineered products thus increase performance, reduce costs, control surface properties independently of the substrate and medium, thus offering an enormous potential in the finishing Industry.

Electro depositing of metals is a very significant industrial process. Electroplating is both an art and science. It entailed adhering a thin metal coating to an object by immersing it into an electrically charged solvent containing the dissolved plating metal. Electroplating served a number of functions, such as protecting from corrosion and wear, decoration, and electrical shielding. Anodizing most closely resembles standard electroplating. Anodizing or anodizing is an electrolytic passivation process used to increase the thickness of the natural oxide layer on the surface of metal parts. Anodizing increases corrosion resistance and wears resistance, and provides better adhesion for paint primers and glues than bare metal. Anodic films are most commonly applied to protect aluminium alloys.

The aim of this handbook is to give the reader a perspective on several metal surface treatment techniques which are generally followed in the finishing Industry. This is a unique compilation and it draws together in a single source technical principles of surface science and surface treatments technologies of plastics, elastomers, and metals along with various formulae of bath solutions, current density, deposit thickness, manufacturing processes, various ingredients used in these processes. It is a very useful guide for the readers, engineers, scientists, practitioners of surface treatment, researchers, students, entrepreneurs and others involved in materials adhesion and processing.

## Contents

### I. METAL SURFACE PREPARATION AND CLEANING

#### 1. Basic Metal Surface

Nature of the Surface

Brightness

#### 2. Polishing, Brushing and Buffing

Polishing

Adhesives  
Lubrication  
Brushing  
Deburring  
Buffing and Polishing Equipment  
3. Mass Finishing Methods  
Vibratory Finishing Equipment  
Centrifugal Barrel Finishing  
Parts to Media Ratios  
Mass Finishing Media and Compounds  
4. Electropolishing  
The Electropolished Surface  
Types of Metal Electropolished  
Electropolishing Equipment  
5. Solvent Cleaning  
Solvent Cleaning  
Diphase Cold Cleaning  
Stability  
Materials of Construction  
Design Consideration  
Location of Vapour Degreaser  
Shutdown Procedure  
Choosing a Vapour Degreasing Solvent  
Water Removal  
6. Alkaline Cleaning  
Soils  
Machining and Forming Oils  
Alkaline Descalers  
7. Oxide Removal  
Oxide Removal from Copper Alloys  
Equipment for Pickling and Bright Dipping

## II. TYPICAL PROCESSING AND OPERATING SEQUENCES

8. Metals  
Pretreatments  
Preliminary Treatment  
Final Treatment  
Low-Carbon Steel  
High-carbon and Low-Alloy Steels  
Stainless Steels  
Cast Irons  
Copper and Copper-Base Alloys  
Zinc-Base Die Castings  
Magnesium and Its Alloys  
Lead and Lead Alloys  
Powder Metal Compacts  
Less common Metals  
Intermediate Electrodeposited Coating as Basis Metal Surface  
9. Plastics  
Plating  
Electroless Plating  
10. Wastewater Control and Treatment  
Water Supply

Water and Chemical Conservation  
Chemical and Water Recovery  
Evaporative Recovery  
Reverse Osmosis  
Electrodialysis  
Ion Exchange  
Waste water Treatment-Segregation and Collection  
Hexavalent Chromium Reduction  
Pretreatment  
Neutralization  
Flocculation  
Special Treatment Methods  
Solids Management  
Maintenance  
11. Plating Bath Compositions and Operating Conditions  
Effects of Hydrogen  
Stripping and Salvaging of Defective Plated Items

### III. TESTING ELECTRODEPOSITED COATINGS

12. Thickness Tests  
Microscopic-Optical Methods  
Double-Beam Interference Microscope, Interferometry  
Magnetic Method  
Eddy Current  
Mass per Unit Area  
Weight Gain Method  
X-Ray Methods  
Beta Backscatter (BBS)  
Microresistance Technique  
13. Corrosion Tests  
Outdoor Exposure Tests  
Electrolytic Corrosion (EC) Test  
14. Inspection  
Factors in Visual Inspection  
Arriving at a Standard of Acceptability  
Degree of Finish  
Inspection of Coloured and Other than Bright Finishes  
Inspection Equipment  
Inspection Personnel

### IV. SURFACE PROTECTION AND FINISHING TREATMENTS

15. Phosphate Coating Processes  
Amorphous Phosphate Coatings on Aluminum Surfaces  
Process Cycles  
Discussion of Process Steps in Practical Procedures  
Immersion Processes  
Spray Processes, with Solution Recirculation  
Design Features  
Simplified and Specialized Processes  
16. Chromate Conversion Coatings  
Metals Commonly Chromated  
Control of Electroplating Solutions  
Coatings for Conversion Coatings

17 Sulfuric and Chromic Acid Anodizing of Aluminium  
Sulfuric Acid Anodizing  
Colouring  
Power Supply  
Coating Properties  
Chromic Acid Anodizing  
Processing Steps  
Electrolyte Maintenance  
Designation System for Anodic Coatings  
Anodizing and Surface Conversion Treatments  
for Magnesium  
Pickling  
Tank Equipment for Cleaning Acid Pickling  
Anodizing Processes  
18. Electroplating Formulae of Various  
Electroplating and Allied Chemicals  
Electroplating not aluminium  
Gold Electroplating  
Iron Electroplating  
19. Principles of Electroplating  
Polarisation  
20. Properties of Electroplating 428  
Conducting Salts  
Plating Quality  
21. Electroplating or Coatings on Silver, Copper and leads  
Coating of Silver  
Alkaline Bath  
Plant and Machineries Details for Electroplating Baths Salts  
22. Conservation of Materials and Energy in  
Electroplating Industries with Effluent Treatment  
Regeneration and Recovery Techniques Applications  
for Waste Water Treatment  
Techniques for Uniform Metal Distribution Chemicals  
will exceed the costs associated with purchasing  
Choice of Finish and Process  
Plating From Low Concentrated Solutions at  
Room Temperature  
23 Black Chrome Plating for Solar Energy Conversion  
Hull Cell Studies  
Effect of Plating Time on Optical Properties  
24 Pickling of Metals  
Chemical and Electrolytic Pickling Compared  
Tin and Lead Additions  
Regeneration of Pickling Solutions  
25 Pickling Conditions and Solution Compositions  
Pickling of Cast Iron  
Pickling in Salt Baths  
Pickling of Copper and Copper Alloys  
Pickling of Copper Alloys  
Pickling of Aluminium  
Acid or Cold Pickling  
Pickling of Magnesium  
Pickling of Silver

Pickling of Titanium  
26 Cadmium Plating  
27 Cobalt Plating  
28 Copper Plating  
Coppering by Simple Immersion  
Bath Preparation  
29. Iron Plating  
30 Nickel Plating  
Nickel fluoborate bath  
Precautions  
Semi-Bright Nickel Plating  
Stabilisers  
Barrel Nickel Plating  
Heavy Nickel Plating  
Nickel Electroforming & Electrotyping  
31 Silver Plating  
Application of silver Plating  
32 Gold Electroplating  
Stripping Gold  
Current-Density, 0.15 Ampere  
Gold Baths for Hot Gilding  
Tanks for Gold Baths  
For Gold-Plating in the Cold Bath the Process Is As Follows  
Gold Thread  
Methods of Plating Stainless Steel  
33 Nonelectrolytic Metal Coating Processes  
Non-Catalytic Chemical Methods  
Maintenance of Immersion and Contact Baths  
Sensitizing for Chemical Reduction  
34 Vapour-Phase Methods  
Vacuum Evaporation  
Coating Properties  
Sputtering  
Range of Applicability  
Apparatus Configuration  
Ion Plating  
Chemical Vapour Deposition (CVD)  
Apparatus Configuration  
35 Catalytic Methods  
Catalytic Chromium Plating  
Electroless Copper Plating  
Reducing Agents  
The Operation of Electroless Copper Baths  
Electroless Copper Treatment Sequence  
Solution Formulations  
Analysis of Deposit  
Corrosion Resistance of Deposits  
Applications for Electroless Nickel  
Boron Nickel Alloys  
36 Electroforming  
Mandrel Types and Materials  
Mandrel Design and Fabrication  
Preparation of Mandrel Surfaces

Electroforming Solutions and Deposit Properties  
Control of Electroforming Processes  
Machining and Final Finishing of the Electroform  
37. Industrial Anodising of Aluminium and its Alloys  
Impurities and Bath Control  
38. Environmental-Regulatory Restrictions, Response of Paint Industry and Eco-Friendly Coating  
Enactment of Rule 66 on the Use of Organic Solvents  
Strategy of Paint Industry  
Powder Coatings  
39 Plating of Precious Metals  
Silver Plating  
Operating Conditions  
Materials of Construction  
Maintenance and Control of Solutions  
40. Control of Electroplating Solutions Using Hull  
Cell Studies  
Hull Cell  
Case Studies using Hull Cell  
Current Efficiency Test  
41 Corrosion and their Preventive Measures and  
Pollution Control Consideration  
The Mechanism of Basic Corrosion  
Protection of Intergranular Corrosion

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