

The Complete Technology Book on Aluminium and Aluminium Products

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Aluminium, the second most plentiful metallic element on the earth, became an economic competitor in engineering applications as recently as the end of 19th century. It was become a metal for its time. Aluminium possesses many characteristics that make it highly compatible with recycling. It is resistant to corrosion and it thus retains a high level of metal value after use, exposure, or storage. Once produced, it can be considered a permanent resource for recycling, preferably in to similar products. It is essentially a soft and weak metal which has to be strengthened by alloying with suitable elements. The elements which are added to aluminium is appreciable quantities to increase its strength and improve other properties are surprisingly limited to only four, namely, magnesium, silicon, copper and zinc. These are added singly or in combination. It is theoretically 100% recyclable without any loss of its natural qualities. It is the most widely used non ferrous metal. The applications of aluminium are grown in many fields for example; electric conductors, windows and building components, aircraft, foil packaging etc. It has a major role in packaging industry especially in pharmaceuticals. It includes different types of packaging; unit packaging, bunch wrapping, strip packaging, thermoformed unit packaging and sachets Aluminium alloys with a wide range of properties are used in engineering structures. Aluminium alloys are divided into two major categories; casting compositions and wrought compositions. Further differentiation for each category is based on the primary mechanism. The most commercially mined aluminium ore is bauxite, as it has the highest content of the base metal. The primary aluminium production process consists of three stages. First is mining of bauxite, followed by refining of bauxite to alumina and finally smelting of alumina to aluminium. India has the fifth largest bauxite reserves with deposits 5% of world deposits. Indian share in world aluminium capacity rests at about 3%; it will touch almost 13% to 15% of the growth rate.

This book basically deals with aluminium production, heat treatable and non heat treatable alloys, properties of cast aluminium alloys, testing of liquid & solidification contraction of aluminium alloys, trends in the improving economic use of aluminium, laboratory investigation of carbon anode consumption in the electrolytic production of aluminium, alumina extraction from a pennsylvania diaspore clay by an ammonium sulfate process, the recovery of alumina from its ores by a sulfuric acid process, initial softening in some aluminium base precipitation hardening alloys, basic properties of aluminium foil, how to select a flexible foil packaging laminate, printing on aluminium foil, designing aluminium foil packs etc.

The present book covers the need within the industrial and academic communities for up to date information about production of aluminium and extrusion process due to the ever increasing use of this technology. The book provides concepts in the different areas of extrusion technology. It is hoped that its presentation will be very helpful to new entrepreneurs, technocrats, research scholars, libraries and existing units.

Contents

1. GENERAL INTRODUCTION

- Aluminium Production
- Production Statistics
- Aluminium Alloys
 - Heat-Treatable and Non-heat-Treatable Alloys
- Properties
- Manufactured Forms
- Standardized products
- Engineered Products
- Finishes
 - Mechanical Finishes
 - Chemical Finishes
 - Electrolytic Finishes
 - Non-Electrolytic Coatings
- Product Classifications
- Building and Construction Applications
- Containers and Packaging
- Transportation
- Electrical Applications
- Consumer Durables
- Machinery and Equipment
- Other Applications

2. PROPERTIES OF CAST ALUMINIUM ALLOYS

201.0

4.6Cu-0.7Ag-0.35Mn-
0.35Mg-0.25Ti

- Commercial Names
- Specifications
- Chemical Composition
- Applications
- Mechanical Properties
- Mass Characteristics
- Thermal Properties
- Electrical Properties
- Fabrication Characteristics

204.0

4.6Cu-0.25Mg-0.17Fe-0.17Ti

- Commercial Name
- Applications
- Mechanical Properties

206.0, A206.0

4.5Cu-0.30Mn-0.25Mg-0.22Ti

- Specifications
- Chemical Composition
- Applications
- Mechanical Properties
- Mass Characteristics
- Thermal Properties
- Electrical Properties
- Chemical Properties
- Fabrication Characteristics

208.0

4Cu-3Si

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

238.0

10.0%Cu-4.0%Si-0.3%Mg

Commercial Names

Specifications

Applications

242.0

4Cu-2Ni-2.5Mg

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Electrical Properties

Thermal Properties

Fabrication Characteristics

295.0

4.5Cu-1.1Si

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

296.0

4.5Cu-2.5Si

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

308.0

5.5Si-4.5Cu

Commercial Names

Specifications

Chemical Composition

Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties
Fabrication Characteristics

319.0

6Si-3.5Cu

Commercial Names
Specifications
Chemical Composition

Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties
Fabrication Characteristics

332.0

9.5%Si-3.0%Cu-1.0%Mg

Commercial Names
Specifications

Applications
Mechanical Properties

336.0

12Si-2.5Ni-1Mg-1Cu

Commercial Names
Specifications
Chemical Composition

Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties
Fabrication Characteristics

339.0

12.0%Si-1.0%Ni-1.0%Mg-2.25%Cu

Commercial Names
Applications

354.0

9Si-1.8Cu-0.5Mg

Commercial Name
Specifications
Chemical Composition

Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Fabrication Characteristics

355.0, C355.0

5Si-1.3Cu-0.5Mg

Specifications
Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

356.0, A356.0

7Si-0.3Mg

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Radiation Effect on Properties

Fabrication Characteristics

357.0, A357.0

7Si-0.5Mg

Specifications

Chemical Composition

Applications

Mechanical properties

Mass Characteristics

Thermal Properties

Fabrication Characteristics

359.0

9Si-0.6Mg

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Fabrication Characteristics

360.0, A360.0

9.5Si-0.5Mg

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

380.0, A380.0 8.5Si-3.5Cu

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

383.0

10.5Si-2.5 Cu

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

384.0, A384.0

11.2Si-3.8Cu

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

390.0, A390.0

17.0Si-4.5Cu-0.6Mg

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

413.0, A413.0

12Si

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

443.0, A443.0, B443.0, C443.0

5.2Si

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

514.0

4Mg
Commercial Names
Specifications
Chemical Composition
Applications
Mechanical Properties
Mass characteristics
Thermal properties
Electrical properties
Fabrication Characteristics
518.0

8Mg
Commercial Names
Specifications
Chemical Composition
Applications
Mechanical Properties
Mass characteristics
Thermal Properties
Electrical Properties
520

10Mg
Commercial Names
Specifications
Chemical Composition
Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties
Fabrication Characteristics
535.0, A535.0, B535.0

7Mg
Commercial Names
Specifications
Chemical Composition
Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties
Chemical Properties
Fabrication Characteristics
712.0

5.8Zn-0.6Mg-0.5Cr-0.2Ti
Commercial Names
Specifications
Chemical Composition
Applications
Mechanical Properties
Mass Characteristics
Thermal Properties
Electrical Properties

Fabrication Characteristics

713.0

7.5Zn-0.7Cu-0.35Mg

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Chemical Properties

Fabrication Characteristics

771.0

7Zn-0.9Mg-0.13Cr

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

850.0

6.2Sn-1Cu-1Ni

Commercial Names

Specifications

Chemical Composition

Applications

Mechanical Properties

Mass Characteristics

Thermal Properties

Electrical Properties

Fabrication Characteristics

3. PHYSICAL METALLURGY OF ALUMINIUM ALLOYS

Aluminium-Magnesium Alloys

Al-Si alloys

Al-Cu alloys

Hardness Data for Al-3.8% Cu Alloy

Aluminium-zinc alloys

Complex Alloys

Aluminium-Zinc-Magnesium Alloys

Al-Cu-Mg alloys

Al-Mg-Si alloys

Effect of Plastic Deformation on Precipitation

Intermetallic Compounds and their Effects

Corrosion of Aluminium Alloys

4. TESTING OF LIQUID & SOLDIFICATION CONTRACTION OF ALUMINIUM ALLOYS

1. Derivation of Correlations

2. Experimental procedure

3. Results and Discussion

5. TRENDS IN THE IMPROVING ECONOMIC USE OF ALUMINIUM

1. Reduction in Dimensions and Weight
 2. More Efficient Use of Metal
 3. Improvements in Methods of Protection
 4. New Concepts in Design
- Corrosion Studies Applied to Roofing Sheet and Water Pipes
Using Structural Aluminium Efficiently
Aluminium Electrical Conductors
Overhead Conductors
Underground Cable
Transformer Windings
Development of Welding Techniques and Weldable Alloys
Welding Processes
Development of Alloys
Conclusion

6. LABORATORY INVESTIGATION OF CARBON ANODE CONSUMPTION IN THE ELECTROLYTIC PRODUCTION OF ALUMINIUM

- Introduction
Materials
Anode Carbon
Electrolyte Materials
Apparatus
Procedure
General
Operation at Different Current Densities
Operation at Different Temperatures
Operation at Different Electrolyte Compositions
Results
Effect of Anode Current Density
Effect of Electrolyte Temperature
Effect of Carbon Baking Temperature
Effect of Electrolyte Composition
NaF/AlF₃ Ratio
Alumina Content
Calcium Fluoride Content
Sodium Chloride Content
Graphite and Coke
Mechanism of Anode Consumption
Erosion of Particles of Coke from the Active Anode Surface
Formation of CO

7. ALUMINA EXTRACTION FROM A PENNSYLVANIA DIASPORE CLAY BY AN AMMONIUM SULFATE PROCESS

- Introduction
Related Literature
Raw Material
Procedure
Results and Discussion
Crushing and Grinding
Mixing and Pelletizing

Roasting
Leaching and Primary Crystallization
Alum Purification
Alumina Precipitation and Ammonium Sulfate Crystallization
Conclusion

8. THE RECOVERY OF ALUMINA FROM ITS ORES BY A SULFURIC ACID PROCESS

Introduction
The C.S.I.R.O. Process
Synopsis of Process
Experimental Procedures
Extraction Efficiency
Nature of Ore
Particle Size
Pulp Density and Liquor Concentrations
Temperature
Time
Excess Acidity
Control of Impurities
Silica
Titanium
Other trivalent Metals
Bivalent Metals
Univalent Metals
Phosphate
Recycling Operations
Digestionâ€™Modification
Reduction
Hydrolysisâ€™Calcination
Acid Regeneration
Calcination
Liquid-Solid Separations
Digestion
Modification Residue
Modified Liquor
Hydrolysis
Costing
Raw Materials
Energy
Equipment

9. AN IMPROVED ALUMINIUM CONDUCTOR

Electrical Properties of Aluminium
Experimental Work
The PM-2 Conductor
Corrosion Tests
Earthing Tests
Conclusion

10. INITIAL SOFTENING IN SOME ALUMINIUM BASE PRECIPITATION HARDENING ALLOYS

Experimental Procedure
Preparation of Alloys
Heat Treatment

Hardness Measurements
X-ray Diffraction Studies
Results
Dissussion
Quenched Hardness
Extent of Softening
Time to Reach Minimum Hardness
Range of Softening
X-ray line width
Conclusion

11. BASIC PROPERTIES OF ALUMINIUM FOIL

Introduction
Production of Aluminium
Manufacture of Aluminium Foil
Metal Purity
Alloying
Annealing
Soft Foil For Flexible Packaging
Safety of Foil For Food Packaging
Strength
Perforations or Pinholes
Foil Costs
Need For Standardization
Future of Foil in Packaging

12. HOW TO SELECT A FLEXIBLE FOIL PACKAGING LAMINATE

Introduction
Materials
Physical Properties of Foil
Physical Properties of Paper
Physical Properties of Films
Cellulose Film
Polyamide (Nylon)
Polyester (Terylene)
Polythene
Polypropylene
PVDC
Note
Laminating Processes
Wax
Hot Melts
Pastes
Polythene
Lacquers
Characteristics of Laminates
Physical Characteristics
Economic Characteristics
Briefing The Supplier
Typical Foil Laminates
For Sweets and Chocolates
For Cakes and Biscuits
For Dairy Trades
For Toiletries

Miscellaneous

General

The Future

13. DESIGNING ALUMINIUM FOIL PACKS

Introduction

Package Design Factors

Co-ordination of Design Policy

The Corporate Image

Packaging for Export

Aspects of Designing with Aluminium Foil

Methods of Rendering

14. PRINTING ON ALUMINIUM FOIL

The Printing Processes Used

1. Gravure

2. Letterpress

3. Flexography

4. Offset Lithography

5. Silk Screen

Special Requirements for Printing Aluminium Foil

Advantages and Limitations of the Printing Processes Used

Technical Considerations

Gravure

Flexography

Letterpress

Offset Lithography

Silk Screen

Economic Considerations

Other Printing Processes

Web Offset Lithography

Electrostatic Printing

15. HEAT SEALING FOIL PACKS

Importance of Heat-sealing

Principles of Heat-sealing

Sealing Coated Aluminium Foils by Heat

Determination of Optimum Heat-sealing Conditions

Factors Controlling the Heat-seal Strength

Failure by Peeling

Paper/Foil Laminates

Types of Thermoplastic Coatings

Sealing Temperatures of Typical Foil Laminates

16. AUTOMATIC PACKAGING IN FOIL

17. LIQUID PACKAGING IN ALUMINIUM FOIL

Introduction

Marketing and Economic Considerations

1. Economics

2. Convenience

3. Presentation

Types of Foil Pack that are Formed, Filled and Sealed from the Reel

Sachets
Two-cavity Sachets
Production of Sachets
Rectangular and Tetrahedral Packs Incorporating Aluminium Foil
For Milk and Cream
For Fruit Juice
Gusseted Bottom Packs
Other Liquids And Semi-liquids
The Value of Foil In Sealable Laminates
What of the Future?

18. ALUMINIUM FOIL IN PHARMACEUTICAL PACKAGING

Introduction
Aluminium Foil as a Cap Liner Facing for Rigid Containers
Unit Packaging
Bunch Wrapping
Strip Packaging
Thermoformed Unit Packaging
Sachets

19. STERILIZABLE ALUMINIUM FOIL FOOD PACKS

Introduction
Reasons for Using a Processable Pouch
Laminate Structure
Pinhole Damage in Foil
Sterilizing Techniques
Filling and Sealing Pouches
Pouch Integrity
Microbiological Aspects
Storage Testing and Heat Penetration
The Commercial Situation
Summing-up

20. BENEFICIATION OF BAUXITE

Experimental Procedure and Results
Evaluation of the Economics of Bauxite Beneficiation
A Proposed Scheme for Beneficiation by Dry Screening

21. ALUMINIUM IN ENGINEERING

Transport Industry
Air
Road
Rail
Marine
Automobile Ancillaries
Airconditioning and Refrigeration
Bearings
Electrical Machinery
Construction Industry
Mining Industry
Other Applications

22. ALUMINIUM DIE CASTINGS IN AUTOMOBILES

Automotive Applications
Recent Trends for Bigger Automotive Castings
Aluminium Die Castings in Indian Automobile
Conclusion

23. NON-FUSION JOINING OF ALUMINIUM

Soldering
Joint Design
Soldering Methods
Friction Soldering
Flux Soldering
Organic Flux Soldering
Chloride Fluxes
Reaction Soldering
Selection of Solders
Soft Soldering
Hard Solders
Brazing
Joint Types
Performance of Joints
Typical Applications
Cold Pressure Welding
Pressure Welding Technique
Butt Welding
Lap Welding
Applications
Ultrasonic Joining
Explosive Joining

24. SELECTIVE ABSORPTION OF FLUORINE FROM THE GASES FROM ALUMINIUM REDUCTION CELLS WITH VERTICAL SPIKE SODERBERG ANODES

Introduction
Theoretical Analysis
General Principles of Selective Absorption of Hydrogen Fluoride
A Continuous Process Based on Controlled Addition of Alkali
General Description
Absorption of Hydrogen fluoride
Absorption of Sulfur Dioxide
Process Working with Pure Water as Absorbent
General Considerations
Absorption of Hydrogen Fluoride
Absorption of Sulfur Dioxide
Pilot Plant Investigations
General
Process with Controlled Alkali Addition
Process Using Pure Water
Comparison of the Two Processes
Further Development of the Pure Water Process
General Considerations
A New Type of Gas Washer, Combining a very High Absorption Efficiency for Hydrogen Fluoride with Complete Selectivity and a High Dust Removal Efficiency
Results of Technical Scale Operation

25. THE FLUORINE PROBLEM IN ALUMINIUM PLANTS

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