The Complete Technology Book on Asbestos, Cement, Ceramics and Limestone

Author: Dr. H. Panda Format: Paperback ISBN: 9788178331669

Code: NI297 Pages: 592

Price: Rs. 1,875.00 US\$ 150.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within 5 days

Asbestos is the generic term for a group of naturally occurring fibrous minerals with high tensile strength, flexibility, and resistance to thermal, chemical and electrical conditions. Asbestos fibers are of high-tensile strength, flexible, heat and chemical resistance, and good frictional properties. Cement is the most essential raw material in any kind of construction activity. Ceramics also known as fire clay is an inorganic, non-metallic solid article, which is produced by the art or technique of heat and subsequent cooling. Limestone is a sedimentary rock, mainly composed of calcium carbonate (CaCO3). It is the principal source of crushed stone for construction, transportation, agriculture, and industrial uses.

Emerging applications in commercial sectors such as asbestos, cement and ceramic are poised to fuel demand in the coming years. Growing demand for limestone in the production of cement as well as in several other chemicals that are used in the production of high-value every-day products offers significant opportunities for growth. Global Limestone consumption is projected to reach 5.7 billion tons and expected to grow at an average annual rate of 4–5% in coming years. Presently, cement production is 330 million tonnes and expected to double to reach almost 550 million tonnes in future.

The major contents of the book are asbestos, monitoring and identification of air-borne asbestos, asbestos in industrial applications, asbestos – cement products, non – occupational asbestos emissions and exposures, cements, mortars and concrete, raw materials, additives and fuels for cement, processes of manufacturing of cement, cement based on natural and artificial pozzolanas, fast-setting cements, special portland cements, packing of cement, storages of cement, ceramics, lime & limestone, glass & glass ceramics etc. It describes the manufacturing processes and photographs of plant & machinery with supplier's contact details.

It will be a standard reference book for professionals, entrepreneurs, those studying and researching in this important area and others interested in the field of these industries.

Contents

Chapter I
Asbestos
Commercial Uses
Properties and Composition
Method of Analysis
Chrysotile
Procedure

Crocidolite and Amosite

Procedure

Chapter II

Monitoring and Identification of Air-borne Asbestos

Synposis

Introduction

Membrane Filter Method

- I. Outline Technique
- II. Definitions of Fibre which are evaluated
- III. Membrane Filter
- IV. Sampling
- V. Transportation of Filters
- VI. Mounting of the Filters
- VII. Microscopical Evolution
- VIII. Accuracy of the Membrane Filter Method
- IX. Recent Developments in Fibre Evalution

Determination of Very Low Asbestos Concentrations

Direct - Reading Dust Monitoring Equipment

Miscellanous Instruments

- I. Introduction
- II. The Thermal Precipitation
- III. The Konimeter
- IV. Owens Jet Counter
- V. The Impinger

Identification of Air-borne Asbestos Fibres

- I. Itroduction
- II. Optical Techniques
- III. Electron Microscopical Techniques
- IV. Physical and Chemical Analysis

Summary

Chapter III

Alternatives to Asbestos in Industrial Applications

- I. Thermal Properties
- II. Mechanical Properties
- III. Other Properties
- IV. Price and Availability
- V. Applications

Industrial Applications of Asbestos Products

- I. Asbestos Textiles
- 1. Fire and Heat Protection Clothes
- 2. Fire Blankets, Curtains and Aprons
- 3. Electrical Insulators
- 4. Filters
- 5. Ropes, Yarns, Tapes etc
- 6. Other Applications
- II. Thermal Insulations and High Temperature Applications
- 1. Dry Asbestos Packings
- 2. Asebstos Jointings
- 3. Gaskets
- 4. Lining and Insulating Blocks
- 5. Ceramic and Mineral Fibres
- 6 Vermculite and Perlite

- 7 Solid Ceramics
- 8 Further information
- III. Asbestos millboard
- 1. Substitutes
- IV. Industrial applications of asbestos-cement
- 1. Substitutes
- VI. Friction materials
- 1. Substitutes for asbestos in friction materials
- V. Dry-rubbing bearings
- 1 Substitutes for asbestos-reinforced thermosets in bearing applications
- 2 Conclusion
- 3 Acknowledgments
- VI Electrical insulation
- 1 Substitutes for asbestos products in

electrical insulation

2 Substitute electrical insulants at high temperatures

VII Asbestos composites (not including frictional,

bearing, and electrical applications)

1 Alternatives to asbestos composites

VIII Miscellaneous applications

1 Substitutes

Health hazards of substitute materials

Conclusions

Chapter IV

Asbestos-Cement Products

Methods of Manufacture

Methods of Analysis

Procedure

Procedure

Chapter V

Non-Occupational Asbestos Emissions and Exposures

Asbestos emissions from natural sources

Asbestos emissions from human-created sources

Redistribution and fate of asbestos in the environment

- (i) Redistribution by air
- (ii) Redistribution by water
- (iii) Ultimate fate of asbestos fibres

Exposure to airborne asbestos

- (i) Exposure from ambient air
- (ii) Exposure from air near asbestos industrial facilities
- 1 Asbestos mining, milling, and product manufacture
- 2 Transportation of materials containing asbestos
- 3 Estimated atmospheric concentration and exposures
- (iii) Exposure from asbestos manufactured products
- 1 Automotive friction materials
- 2 Spray asbestos
- (iv) Exposures from disposal of asbestos products and wastes
- (v) Exposures of asbestos workers' families

Exposure to asbestos in drinking water

(i) Asbestos content of drinking water supplies

- (ii) Elevated asbestos levels
- (iii) Estimated asbestos consumption from water

Exposure to asbestos in foods and drugs

Appendix, calculation of atmospheric asbestos

concentrations in the vicinity of major U.S. Asbestos

industrial facilities

Chapter VI

Cements, Mortars and Concrete

Hydraulic Cements

Cement Specifications

Methods of Analysis

Determination of Compound Composition

Determination of major components

Rapid Procedures for Major Components

Chapter VII

Raw Materials, Additives and Fuels for Cement

- 1. Raw Materials for Making Cement
- 2. Constituents of Raw Mix and their proportioning
- 2.1 Limestone
- 2.2 Silica and Alumina
- 2.3 Iron Oxide
- 3. Proportioning Constituents
- 3.1 Correcting Materials
- 4. Composition of Clinker
- 5. Quality Control
- 5.1 Commonly Found Proportions
- 6. Blended Cements
- 7. Fuels
- 8. Fuel in Shaft Kilns
- 9. Fuels for Rotary Kilns
- 10. Coals as Fuel
- 10.1 Preparation of Coal for Firing
- 10.2 Preparation of Oil for Firing
- 11. Costs of Fuels
- 12. Coals
- 12.1 Typical Compositions of Coal and Coke are
- 12.2 Typical Composition of Coal Ash is
- 12.3 Volatiles
- 13. Calorific Value of Fuels
- 14. Oils
- 15. Gas as Fuel
- 16. Specific Fuel Consumption Obtainable using Different Fuels
- 17. Requirements of Raw Materials and Fuel

Chapter VIII

Processes of Manufacturing of Cement

- 1. Process of Making Cement
- 2. Predominance of Wet Process
- 3. Marginal grade Limestone and Froth Flotation
- 3. Dry and Semi Dry Processes
- 3.1 Semi Dry Process

- 5. Dry Grinding and Blending
- 6. Semi Wet Process
- 7. Preheaters
- 7.1 Lepol Grate Preheater
- 7.2 Suspension Preheater
- 8. Clinker Coolers
- 8.1 Rotary and Planetary Coolers
- 8.2 Grate Coolers
- 9. Increase in Size of the Cement Plant Large Kilns
- 10. Calciners
- 11. Technical Collaborations
- 12. Various Processes, Machinery and Size of Cement Plant

Chapter IX

Cements based on Natural and Artificial Pozzolanas

- 1 Fly Ash based Cements
- 1.1 Composition and properties of fly ashes
- 1.2 Lime-activated fly ash binder
- 1.3 Portland-fly ash cement and fly ash concrete
- 1.4 High-volume fly ash concrete
- 1.5 Alkali-activated fly binder
- 2. Cements made with fluidized bed ashes
- 3. Binders containing natural pozzolanas and related products
- 4. Microsilica-modified Portland cement
- 5. Rice Husk ash based cement

Chapter X

Fast-Setting Cements

1. Control of Portland Cement setting by

the use of chemical admixtures

- 2. Fast-setting gypsum-free portland cement
- 3. Fast-setting cements containing the phases

C11A7.CAF2 or C12A7

- 4. Fast-setting cements containing the phase tetracalcium trialuminate sulfate.
- 5. Fast-setting blends of portland cement and calcium aluminate cement
- 6. Fast-setting magnesium phosphate cement
- 7 Fast-setting glass cement
- 8 Miscellaneous fast-setting cements

Chapter XI

Special Portland Cements

- 1. Constituents and Composition of Portland Cements
- 1.1 Tricalcium silicate (3CaO.SiO2, abbreviation C3S)
- 1.2 Dicalcium silicate (2CaO.SiO2. abbreviating C2S)
- 1.3 Tricalcium Aluminate (3CaO.Al2O3, abbreviation C3A)
- 1.4 The ferrite phase [calcium alumiate ferrite,

2CaO(Al2O3, Fe2O3)[abbreviation C2(A,F)]

- 1.5 Calcium sulfate
- 1.6 Free Calcium oxide (free lime, Cao)
- 1.7 Free Mangness oxide (periclase, MgO)
- 1.8 Alkali sufates

- 1.9 Composition of Portland clinker and Portland cement
- 2. The Hydration of Portland Cement
- 3. High-C3S Portland Cement
- 4. Portland Cement with Elevated C2S content
- 5. High-C3A Portland Cement
- 6. C3A Portland Cement
- 7. Low-Iron (White) Portland Cement
- 8. High-Iron Portland Cement
- 9. High-Mgo Portland Cement
- 10. Low-Alkali Portland Cement
- 11. Mineralized Portland Cement
- 12. High Specific Surface Area Portland Cement
- 13. Low Specific Surface Area Portland Cement
- 13. Limestone-Modified Portland Cement
- 15. Portland Cement Modified with Chemical Agents
- 16. Gypsum-Free Portland Cements
- 16.1 Low-porosity cement
- 17. Special Approaches in Portland Cement Manucacture
- 18. Special Approaches in Cement Processing

Chapter XII

Packing of Cement

- 1. Packing Cement for Despatches
- 2. Packing Machines
- 2.1 Rotary Packing Machines
- 3. Paper and HDPE/Jute Bags

Chapter XIII

Storages of Cement

- 1. Storages
- 2. Daily requirements of Various Materials
- 3. Conventions in Storing various materials
- 4. Factors Governing Storages
- 5. Storages of Semi Finished and Finished products
- 6.1 Quarry
- 6.2 Crusher
- 6.3 Stack Reclaimer
- 6.4 Raw Mill and Blending

Kiln feed

- 6.5 Preheater Calciner Kiln and cooler
- 6.6 Cement
- 7. Storage After Expansion
- 8. Storage of Coal
- 10. Space for storages

Chapter XIV

Ceramics

Clay Products, Whitewares, and Porcelains

Enamels and Glazes

Glass and Glass Ceramics

Refractories

Newer Ceramics

Methods of Analysis

Determination of the Chemical Composition Sampling Anaysis Emission Spectrometry X-Ray Diffraction

Chapter XV
Lime and Limestone
Properties
Uses
Methods of Analysis
Sampling and Handling Precautions
Composition Analysis
Basicity Tests
Physical Tests

Chapter XVI
Glass and Glass Ceramics
Constitution of Glasses
Method of Analysis
Composition Analysis
Chemical Methods for Individual Constiluents
Redox State Determinations
Chelometry
Flame Spectroscopy
Emission Spectroscopy
Spectrophotometry
X-Ray Diffraction
Microscopy
Electron Microprobe Analysis

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. Email: npcs.india@gmail.com Website: NIIR.org

Sat, 20 Apr 2024 17:09:02 +0530