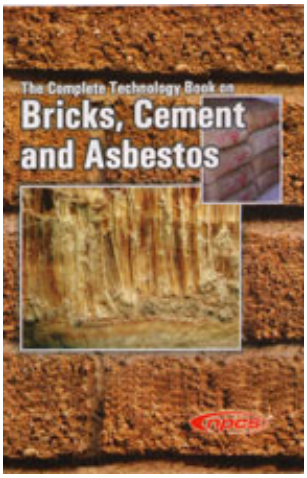
National Institute of Industrial Research

The Complete Technology Book on Bricks, Cement and Asbestos



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Bricks, cement and asbestos have major role in building and road construction. The present book contains processes of different types of bricks making, cement manufacturing and production of asbestos. The book is very useful for new entrepreneur, existing units, professionals, institutions related to building construction, research scholars etc.

Contents

Glaze, Storage, Applying the Body and Glaze, Salt-glazed Bricks

6. Production of Cement Clinker

Introduction, Preparation of Kiln Feed, Wet and

Semi-wet Processes, Dry and Semi-dry Processes, Pyroprocessing: Principal Manufacturing Processes, Wet and Semi-wet Processes, Dry Processes, Semi-

dry (Lepol) Process, Clinker Cooling, Refractories, Pyroprocessing: Physical and Chemical Processes Involved, Preheating, Calcining, Clinkering (Sintering In The Presence of a Liquid Phase) , Cooling, Thermal Efficiency of Pyroprocessing, Process Control, The Heat Balance — Process Efficiency , Electric Power Consumption

7. Grinding and Fineness of Cement

Cement Milling, Factors Influencing the Grindability of Clinker, Minor Additional Constituents, Addition of Gypsum, , Fineness of Cement, Determination of Surface Area, Particle Size Distribution

8. Tests of Cement Quality

Introduction, Chemical Composition, Setting Times, Compressive Strength, Workability, Soundness, Heat of Hydration, Concluding Remarks—Durability of Concrete,

9. Admixtures and Special Cements

Admixtures, Accelerators, Retarders, Water-reducing (Plasticising) Admixtures, Air Entrainment, Oilwell Cements, Calcium Aluminate Cement (Cac), Alkali-activated Slag and Aluminosilicate Cements, Calcium Sulfoaluminate Cements, Expansive and Shrinkage Compensated Cements, Sulfoaluminate-belite Cements, Practical Considerations

10. Characterisation of Portland Cement Clinker

Introduction, Chemical Analysis By Selective Dissolution, Optical Microscopy, Characteristics of The Principal Clinker Phases, Quantitative Deter-mination of Phase Composition, X-ray Diffraction, Quantitative X-ray Diffraction Analysis (Qxda) , Electron Microscopy, Backscattered Electron (Bse) Imaging,

X-ray Microanalysis, Concluding Remarks

11. The Mineralogy of Asbestos

Introduction, Definitions, Chemical Composition, Crystal Structures, Occurrences, Synthesis, Optical Properties, X-ray Diffraction Data, Electron Optical Characteristics, Non-asbestiform Amphibole and Serpentine Minerals

12. Monitoring and Identification of Airborne Asbestos (Synopsis)

Introduction, The Membrane Filter Method, Outline Of Technique, Definition of the Fibres which are Evaluated, The Membrane Filter, Sampling, Transportation of Filters, Mounting of the Filter, Microscopical Evaluation, Accuracy of the Membrane Filter Method, Recent Developments In Fibre Evaluation, Determination of very Low Asbestos Concentrations, Direct-reading Dust Monitoring Equipment, Miscellaneous Instruments, Introduction, The Thermal Precipitator, The Konimeter, The Owens Jet Counter, The Impinger, Identification of Airborne Asbestos Fibres

13. Alternatives to Asbestos in Industrial Application

Introduction, Industrial Applications of Asbestos Products, Thermal Insulation and High-temperature Applications, Industrial Applications of Asbestos-cement, Dry-rubbing Bearings, Substitutes for Asbestos-reinforced Thermosets in Bearing Applications, Electrical Insulation, Health Hazards of Substitute Materials,

14. Getting, Cleaning, and Delivering the Clay

Removal of Overburden, Digging and Excavating, Blasting, Digging By Hand, Mechanical Excavators, Choice of Excavators, Loading and Loaders, Expansion after Excavation, Clay Haulage and Transport, Haulage, Safety Devices, Belt Conveyors, Wagons and Tubs, Tramway Tracks, Clay Storage, Preparing the Clay, Improving Workability, Sorting or Picking, Weathering, Selecting and Blending Clays, etc., Cleaning Clays, Rendering Lime Harmless in Clay, Chemical Treatment if Clays

15. Plastic Moulding by Machinery

The Machine-moulding Process, Moulding Machines, The Wire-cut or Extrusion Process, Selection of Machinery, Power, Individual Machines, Shredding Machines , Grids, Feeders, Proportioning, Proportioning Feeders, Crushing Rolls, High-speed Rolls, Dressing the Rolls, Edge-runner Mills, Tempering Mills, Mixers, The Addition of Water, Pug-mills, a Mixer Followed by a Pug-mill, Compressing, Extruding, and Shaping, The Clay Paste, The Collar Spacer or Distance-piece, Dies or Mouthpieces, Defective Working of Mouthpiece,

Expression Roller Machines, Cutting Tables, Precautions When Cutting by Wires, Precautions in Shaping Wire-cut Bricks, Re-pressing, Precautions in Re-pressing Bricks, Die-boxes for Presses, Transport, Drying, Application of Heat, Sources of Heat, Types of Dryers, Shed Dryers, Chamber-dryers With Hot Floors, Air-heated Chamber Dryers, Corridor Dryers, Tunnel Dryers, External Air-heaters, Direct V. Inverse Dryers, Multiple-chamber or Compound Dryers, Humidity Drying, Admission of Air Into Tunnel Dryers, Fuel Consumption and Time Of Drying, Precautions in Drying, Cars and Rails For Dryers, Selecting a Dryer, Relative Costs of Drying, Control of the Dryer

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