

|                         |  |
|-------------------------|--|
| 1. Record Nr.           | UNINA9910692936003321  |
| Titolo                  | Nuclear cleanup in New Mexico [[electronic resource]]  |
| Pubbl/distr/stampa      | [Washington, D.C.] : , : Office of Environmental Management, , [1997]                                      |
| Soggetti                | Radioactive waste sites - Cleanup - New Mexico<br>Hazardous waste site remediation - New Mexico            |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Note generali           | Title from online title screen.<br>"June, 97."   |
| 2. Record Nr.           | UNINA9910971899703321  |
| Autore                  | Boateng Akwasi Acheampong <1951->  |
| Titolo                  | Rotary kilns : transport phenomena and transport processes // Akwasi A. Boateng                            |
| Pubbl/distr/stampa      | Amsterdam ; ; Boston, : Elsevier/Butterworth-Heinemann, c2008  |
| ISBN                    | 9786611145026<br>9780128037805<br>0128037806<br>9781281145024<br>1281145025<br>9780080557120<br>0080557120 |
| Edizione                | [Second edition.]  |
| Descrizione fisica      | 1 online resource (368 p.)   |
| Disciplina              | 660/.28426   |
| Soggetti                | Kilns, Rotary<br>Transport theory  |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Note generali           | Description based upon print version of record.  |
| Nota di bibliografia    | Includes bibliographical references and index.   |

Cover; Table of Contents; Foreword; Preface; Chapter 1 The Rotary Kiln Evolution and Phenomenon; 1.1 The Rotary Kiln Evolution; 1.1.1 Comparison of the Rotary Kiln with Other Contactors; 1.2 Types of Rotary Kilns; 1.2.1 Wet Kilns; 1.2.2 Long Dry Kilns; 1.2.3 Short Dry Kilns; 1.2.4 Coolers and Dryers; 1.2.5 Indirect Fired Kilns; Chapter 2 Basic Description of Rotary Kiln Operation; 2.1 Bed Phenomenon; 2.2 Geometrical Features and Their Transport Effects; 2.3 Transverse Bed Motion; 2.4 Experimental Observations of Transverse Flow Behavior; 2.5 Axial Motion; 2.6 Dimensionless Residence Time  
Chapter 3 Freeboard Aerodynamic Phenomena 3.1 Fluid Flow in Pipes: General Background; 3.2 Basic Equations of Multicomponent Reacting Flows; 3.3 Development of a Turbulent Jet; 3.4 Confined Jets; 3.5 Swirling Jets; 3.6 Precessing Jets; 3.7 The Particle-laden Jet; 3.8 Dust Entrainment; 3.9 Induced Draft Fan; Chapter 4 Granular Flows in Rotary Kilns; 4.1 Flow of Granular Materials (Granular Flows); 4.2 The Equations of Motion for Granular Flows; 4.3 Particulate Flow Behavior in Rotary Kilns; 4.4 Overview of the Observed Flow Behavior in a Rotary Drum  
4.4.1 Modeling the Granular Flow in the Transverse Plane 4.5 Particulate Flow Model in Rotary Kilns; 4.5.1 Model Description; 4.5.2 Simplifying Assumptions; 4.5.3 Governing Equations for Momentum Conservation; 4.5.4 Integral Equation for Momentum Conservation; 4.5.5 Solution of the Momentum Equation in the Active Layer of the Bed; 4.5.6 Velocity Profile in the Active Layer; 4.5.7 Density and Granular Temperature Profiles; 4.5.8 An Analytical Expression for the Thickness of the Active Layer; 4.5.9 Numerical Solution Scheme for the Momentum Equation; 4.6 Model Results and Validation  
4.7 Application of the Flow Model Chapter 5 Mixing and Segregation; 5.1 Modeling of Particle Mixing and Segregation in Rotary Kilns; 5.2 Bed Segregation Model; 5.3 The Governing Equations for Segregation; 5.4 Boundary Conditions; 5.5 Solution of the Segregation Equation; 5.5.1 Strongly Segregating System (Case I); 5.5.2 Radial Mixing (Case II); 5.5.3 Mixing and Segregation (Case III); 5.6 Numerical Solution of the Governing Equations; 5.7 Validation of the Segregation Model; 5.8 Application of Segregation Model; Chapter 6 Combustion and Flame; 6.1 Combustion; 6.2 Mole and Mass Fractions  
6.3 Combustion Chemistry 6.4 Practical Stoichiometry; 6.5 Adiabatic Flame Temperature; 6.6 Types of Fuels Used in Rotary Kilns; 6.7 Coal Types, Ranking, and Analysis; 6.8 Petroleum Coke Combustion; 6.9 Scrap Tire Combustion; 6.10 Pulverized Fuel (Coal/Coke) Firing in Kilns; 6.11 Pulverized Fuel Delivery and Firing Systems; 6.12 Estimation of Combustion Air Requirement; 6.13 Reaction Kinetics of Carbon Particles; 6.14 Fuel Oil Firing; 6.15 Combustion Modeling; 6.16 Flow Visualization Modeling (Acid-Alkali Modeling); 6.17 Mathematical Modeling Including CFD  
6.18 Gas-Phase Conservation Equations Used in CFD Modeling

Rotary Kilns-rotating industrial drying ovens-are used for a wide variety of applications including processing raw minerals and feedstocks as well as heat-treating hazardous wastes. They are particularly critical in the manufacture of Portland cement. Their design and operation is critical to their efficient usage, which if done incorrectly can result in improperly treated materials and excessive, high fuel costs. This professional reference book will be the first comprehensive book in many years that treats all engineering aspects of rotary kilns, including a thorough grounding in the therm