1. Record Nr. UNINA9911020330803321

Titolo	Electrochemical remediation technologies for polluted soils, sediments, and groundwater / / edited by Krishna R. Reddy, Claudio Cameselle
Pubbl/distr/stampa	Hoboken, NJ, : Wiley, c2009
ISBN	9786612369124 9781282369122 1282369121 9780470523650 0470523654 9780470523643 0470523646
Descrizione fisica	1 online resource (756 p.)
Altri autori (Persone)	ReddyKrishna R CameselleClaudio <1967->
Disciplina	624.151 628.55
Soggetti	Soil remediation Soils - Electric properties Contaminated sediments Groundwater - Pollution Electrokinetics Electrolysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	ELECTROCHEMICAL REMEDIATION TECHNOLOGIES FOR POLLUTED SOILS, SEDIMENTS AND GROUNDWATER; CONTENTS; PREFACE; CONTRIBUTORS; PART I Introduction and Basic Principles; 1 Overview of Electrochemical Remediation Technologies; 1.1. Introduction; 1.2. Electrochemical Technologies for Site Remediation; 1.3. Electrochemical Transport, Transfer, and Transformation Processes; 1.4. Electrochemical Removal of Inorganic Pollutants; 1.5. Electrochemical Removal of Organic Pollutants; 1.6. Electrochemical Removal of Contaminant Mixtures; 1.7. Special Considerations in Remediating

Polluted Sediments
1.8. Electrokinetic Barriers for Pollution Containment1.9. Coupled (or Integrated) Electrochemical Remediation Technologies; 1.10. Mathematical Modeling of Electrochemical Remediation; 1.11. Economic and Regulatory Considerations; 1.12. Field Applications and Lessons Learned; 1.13. Future Directions; References; 2 Electrochemical Transport and Transformations; 2.1. Introduction; 2.2. Overview; 2.3. Electrochemical Transport in Bulk Fluid; 2.4. Electrochemical Transport in Clays in the Direction of Applied Electric Field; 2.5. Electrochemical Transformations; 2.6. Summary; References
3 Geochemical Processes Affecting Electrochemical Remediation3.1. Introduction; 3.2. Soil-Fluid-Chemical System as Active Electrochemical System; 3.3. Generation of pH Gradient; 3.4. Change of Zeta Potential of Soil Particle Surfaces; 3.5. Change in Direction of Electroosmotic Flow; 3.6. Sorption and Desorption of Contaminants onto/from Soil Particle Surfaces; 3.7. Buffer Capacity of Soil; 3.8. Complexation; 3.9. Oxidation-Reduction (Redox) Reactions; 3.10. Interactions of Geochemical Processes; 3.11. Summary; References; PART II Remediation of Heavy Metals and Other Inorganic Pollutants
4 Electrokinetic Removal of Heavy Metals4.1. Introduction; 4.2. Principle of EK Removal of Heavy Metals from Soils; 4.3. Heavy Metal and Soil Type; 4.4. Enhancement Methods; 4.5. Remediation of Mine Tailings, Ashes, Sediments, and Sludge; 4.6. Summary; References; 5 Electrokinetic Removal of Radionuclides; 5.1. Introduction; 5.2. Electrokinetic Localization of Radioactive Nuclide Pollution; 5.3. Electrokinetic Cleaning of Ground from Radioactive Nuclides; 5.4. Summary; References; 6 Electrokinetic Removal of Nitrate and Fluoride; 6.1. Introduction
6.2. Pollution and Health Effects of Anionic Pollutants6.3. Removal of Anionic Pollutants by Electrokinetics; 6.4. Summary; References; 7 Electrokinetic Treatment of Contaminated Marine Sediments; 7.1. Introduction; 7.2. Contaminated Sediment Treatment Options; 7.3. Electrokinetic Treatment of Sediments; 7.4. Case Study: Tests on Electrokinetic Remediation of Sea Harbor Sediments; 7.5. Summary; References; 8 Electrokinetic Stabilization of Chromium (VI)-Contaminated Soils; 8.1. Introduction; 8.2. Materials and Methods; 8.3. Experimental Results; 8.4. Discussion; 8.5. Summary; Acknowledgments
References

Sommario/riassunto

An unmatched reference on electrochemical technologies for soil, sediment, and groundwater pollution remediation Electrochemical technologies are emerging as important approaches for effective and efficient pollution remediation, both on their own and in concert with other remediation techniques. Electrochemical Remediation Technologies for Polluted Soils, Sediments and Groundwater provides a systematic and clear explanation of fundamentals, field applications, as well as opportunities and challenges in developing and implementing electrochemical remediation technologies. Writt