Record Nr. UNINA9910458476403321 Zero-valent iron reactive materials for hazardous waste and inorganics **Titolo** removal [[electronic resource] /] / sponsored by Hazardous, Toxic, and Radioactive Waste Management Committee, Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers; edited by Irene M. C. Lo, Rao Surampalli, Keith C. K. Lai Reston, VA,: American Society of Civil Engineers, 2006 Pubbl/distr/stampa **ISBN** 0-7844-7173-8 Descrizione fisica 1 online resource (360 p.) Altri autori (Persone) Lolrene Man-Chi SurampalliRao Y LaiKeith C. K Disciplina 628.1/68 Soggetti Groundwater - Purification Hazardous waste site remediation Membrane separation Iron - Oxidation Ionic solutions Electronic books. 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. Nota di contenuto ""Table of Contents""; ""Chapter 1 Introduction""; ""1.1 Historical Development of Zero-Valent Iron for Hazardous Waste Removal"": ""1.2 Groundwater and Surface Water Standards""; ""1.3 Comparison of the Fe [sup(0)]-Based Permeable Reactive Barriers and Pump-and-Treat Systems in Hazardous Waste Removal""; ""1.4 References""; ""Section I: Removals of Chlorinated Aliphatic Hydrocarbons and Hexavalent Chromium Using Zero-Valent Iron""; ""Chapter 2 Removals of Chlorinated Aliphatic Hydrocarbons by Fe[sup(0)]: Full-Scale PRB vs Column Study""; ""2.1 Introduction""; ""2.2 Experimental Section"" ""2.3 Data Analysis""""2.4 Results and Discussion""; ""2.5 Conclusions""; ""2.6 References""; ""Chapter 3 Zero-Valent Iron and Organo-Clay for

Chromate Removal in the Presence of Trichloroethylene"; ""3.1 Introduction""; ""3.2 Experimental Section""; ""3.3 Results and

Discussion""; ""3.4 Conclusions""; ""3.5 References""; ""Chapter 4 Competitive Effects on the Dechlorination of Chlorinated Aliphatic Hydrocarbons by Zero-Valent Iron""; ""4.1 Introduction""; ""4.2 Materials and Methods""; ""4.3 Results and Discussion""; ""4.4 Conclusions""; ""4.5 References"" ""Chapter 5 Removal of Hexavalent Chromium from Groundwater Using Zero-Valent Iron Media"""5.1 Introduction""; ""5.2 Removal Mechanisms""; ""5.3 Reaction Kinetics""; ""5.4 Other In Situ Cr(VI) Removal Methods""; ""5.5 Case Studies""; ""5.6 Conclusions""; ""5.7 References""; ""Section II: Removals of Nitrate and Arsenic using Zero-valent Iron""; ""Chapter 6 Aqueous Nitrate Reduction by Zero-Valent Iron Powder""; ""6.1 Introduction""; ""6.2 Experimental Section""; ""6.3

Results and Discussion""; ""6.4 Conclusions and Recommendations"";

""6.5 References"" ""Chapter 7 Removal of Nitrate from Water by a Combination of Metallic Iron Reduction and Clinoptilolite Ion Exchange Process"""7.1 Introduction""; ""7.2 Materials and Methods""; ""7.3 Results and Discussions""; ""7.4 Summary""; ""7.5 References""; ""Chapter 8 Utilization of Zero-Valent Iron for Arsenic Removal from Groundwater and Wastewater""; ""8.1 Introduction""; ""8.2 Batch Tests with Non Mine-Impacted Waters": ""8.3 Batch Test with Acid Mine Drainage"": ""8.4 Effects of Competing Inorganic Anions on Arsenic Removal by Zero-Valent Iron""; ""8.5 Column Tests and Field Applications"" ""8.6 Mechanisms of Arsenic Removal by Zero-Valent Iron"""8.7 Alternative Materials of Iron and Aluminum Oxides for Arsenic Removal""; ""8.8 Knowledge Gaps and Research Needs""; ""8.9 Conclusions""; ""8.10 References""; ""Chapter 9 Removal of Arsenic from Groundwatera€?Mechanisms, Kinetics, Field/Pilot and Modeling Studies""; ""9.1 Introduction""; ""9.2 Mechanism of Removal and Competing Ion Effects"; ""9.3 Field/Pilot Studies and Modeling": ""9.4 Design Considerations""; ""9.5 Conclusions""; ""9.6 References""; ""Section III: Innovative Iron-based Reactive Materials"" ""Chapter 10 The Performance of Palladized Granular Iron: Enhancement and Deactivation""