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Nota di contenuto	Arsenic; Contents; List of contributors; Preface; 1. Introduction; 1.1 Arsenic origin, chemistry, and use; 1.2 Arsenic environmental impacts; 1.3 Arsenic toxicity; 1.4 Arsenic treatment and remediation; 1.4.1 Introduction; 1.4.2 Treatment and remediation of water; 1.4.3 Treatment and remediation of solid wastes, soils, and sediments; 1.4.4 Treatment of flue gases; References; 2. Arsenic Chemistry; 2.1 Introduction; 2.2 Atomic structure and isotopes of arsenic; 2.3 Arsenic valence state and bonding; 2.4 Chemistry of arsenic solids; 2.4.1 Elemental arsenic 2.4.2 Common arsenic minerals and other solid arsenic compounds2. 4.3 Arsine and other volatile arsenic compounds; 2.4.4 Organoarsenicals; 2.5 Introduction to arsenic oxidation and reduction; 2.5.1 Arsenic oxidation; 2.5.2 Arsenic reduction; 2.6 Introduction to arsenic methylation and demethylation; 2.7 Arsenic in water; 2.7.1

Introduction; 2.7.2 Aqueous solubility of arsenic compounds and thermodynamics; 2.7.3 Dissolved arsenic species; 2.7.4 Dissociation of arsenious and arsenic acids; 2.7.5 Eh-pH diagrams, and their limitations
2.7.6 Sorption, ion exchange, precipitation, and coprecipitation of arsenic in water2.8 Chemistry of gaseous arsenic emissions; References; 3 Arsenic in Natural Environments; 3.1 Introduction; 3.2 Nucleosynthesis: the origin of arsenic; 3.2.1 The Big Bang; 3.2.2 Arsenic formation in stars; 3.3 Arsenic in the universe as a whole; 3.4 Arsenic chemistry of the solar system; 3.4.1 Arsenic in the Sun, Moon, and planets; 3.4.2 Arsenic in meteorites and tektites; 3.5 Arsenic in the bulk Earth, crusts, and interior
3.5.1 Estimating arsenic concentrations of the bulk Earth and the Earth's core and mantle3.5.2 The core; 3.5.3 The mantle; 3.5.4 The Earth's crusts; 3.6 Arsenic in hydrothermal and geothermal fluids and their deposits; 3.6.1 Introduction; 3.6.2 Origins of hydrothermal fluids and their arsenic; 3.6.3 Arsenic chemistry of hydrothermal fluids; 3.6.4 Arsenic mineralogy of hydrothermal deposits; 3.6.5 Surface and near-surface oxidation of hydrothermal arsenic; 3.6.6 Arsenic chemistry in hot springs; 3.6.7 Arsenic in geothermal power plant scales; 3.6.8 Arsenic in volcanic gas emissions
3.6.9 Environmental impacts of arsenic in hydrothermal and geothermal fluids3.7 Oxidation of arsenic-bearing sulfides in geologic materials and mining wastes; 3.7.1 Oxidation of sulfide minerals; 3.7.2 Factors influencing the oxidation of arsenic-bearing sulfide minerals; 3.7.3 Environmental consequences of sulfide and arsenic oxidation; 3.7.4 Oxidation chemistry of major arsenic-bearing sulfides; 3.8 Interactions between arsenic and natural organic matter (NOM); 3.9 Sorption and coprecipitation of arsenic with iron and other (oxy)(hydr) oxides; 3.9.1 Introduction
3.9.2 Iron, aluminum, and manganese (oxy)(hydr)oxides

Sommario/riassunto

This book presents an overview of the chemistry, geology, toxicology and environmental impacts of arsenic, presenting information on relatively common arsenic minerals and their key properties. In addition, it includes discussions on the environmental impacts of the release of arsenic from mining and coal combustion. Although the environmental regulations of different nations vary and change over time, prominent International, North American, and European guidelines and regulations on arsenic will be reviewed. Includes information on recent environmental catastrophes