1.	Record Nr.	UNINA9910784598903321
	Autore	Letcher T. M (Trevor M.)
	Titolo	Thermodynamics, solubility, and environmental issues [[electronic resource] /] / Trevor M. Letcher
	Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, c2007
	ISBN	1-281-05114-4
		9786611051143
		0-08-048103-5
	Edizione	[1st ed.]
	Descrizione fisica	1 online resource (493 p.)
	Disciplina	660/.2969
	Soggetti	Thermodynamics - Industrial applications - Environmental aspects
		Solubility - Environmental aspects
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Includes index.
	Nota di contenuto	Front cover; Thermodynamics, Solubility and Environmental Issues; Copyright page; Preface; Foreword; List of Contributors; Table of Contents; Part I: Basic Theory and Modelling; Chapter 1. An Introduction to Modelling of Pollutants in the Environment; 1. Introduction; 2. Partition Coefficients; 3. Model Environments; 4. Equilibrium Partition; 5. Environmental Distribution; 6. Environmental Distribution Using a Flow Model; 7. Accumulation of Chemicals in the Food Chain; Chapter 2. Modeling the Solubility in Water of Environmentally Important Organic Compounds; 1. Introduction 2. Quantum Chemistry Methods 3. Experiment-Based QSPR Modeling; 4. Structure-Based QSPR Modeling; 5. The Quantum-Connectivity Indices; 6. Modeling Solubility with Quantum-Connectivity; 7. Concluding Remarks; Chapter 3. Modeling of Contaminant Leaching; 1. Overview of Significance; 2. Geochemical Modeling; 3. Summary; Part II: Industry and Mining; Chapter 4. Supercritical Fluids and Reductions in Environmental Pollution; 1. Introduction; 2. Supercritical Fluids; 3. References for Thermodynamic Properties of Supercritical Fluids 4. Solubility of Electrolytes and Non-Electrolytes in Supercritical Fluids5. Structure of Supercritical Water; 6. Application of Supercritical Fluids for Reducing Pollutants; 7. Concluding Remarks; Chapter 5. Phase Equilibrium Studies on Ionic Liquid Systems for Industrial

Separation Processes of Complex Organic Mixtures; 1. Introduction; 2. Solubility Studies on Ionic Liquid-Organic Mixtures and Application to Liquid-Liquid Extraction; 3. The Determination of Activity Coefficients at Infinite Dilution for the Selection of Entrainers in Extractive Distillation

4. Assessment of the Potential of Ionic Liquids as Solvents in Separation Processes 5. Conclusion; Appendix I: List of Abbreviations for Ionic Liquid Nomenclature; Chapter 6. Environmental and Solubility Issues Related to Novel Corrosion Control; 1. Introduction; 2. Corrosion of Industrially Important Metals; 3. The Layers Protecting the Base Metals; 4. Super primers on Metals; 5. Summary/Conclusions; Chapter 7. The Behavior of Iron and Aluminum in Acid Mine Drainage: Specialization, Mineralogy, and Environmental Significance; 1. Introduction

2. Geochemistry and Mineralogy of Iron and Aluminum in AMD 3. Environmental Significance; 4. Conclusions; Part III: Radioactive Wastes; Chapter 8. An Evaluation of Solubility Limits on Maximum Uranium Concentrations in Groundwater; 1. Introduction; 2. Geologic Setting of the Tono Uranium Deposit; 3. Geochemical Constraints on Uranium Solubility; 4. Evaluation of Uranium Solubility; 5. Conclusions; Chapter 9. Leaching from Cementitious Materials Used in Radioactive Waste Disposal Sites; 1. Introduction; 2. Radioactive Waste Disposal Site and Concrete; 3. Leaching from Cementitious Materials

4. Method for Predicting Durability of Concrete

Sommario/riassunto	Environmental problems are becoming an important aspect of our lives as industries grow apace with populations throughout the world. Thermodynamics, Solubility and Environmental Issues highlights some of the problems and shows how chemistry can help to reduce these them. The unifying theme is Solubility - the most basic and important of thermodynamic properties. This informative book looks at the importance and applications of solubility and thermodynamics, in understanding and in reducing chemical pollution in the environment. Written by experts in their respective fields and rep