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Nota di contenuto	Environmental and Low Temperature Geochemistry; Copyright; Contents; Acknowledgements; About the Companion Website; 1 Background and Basic Chemical Principles: Elements,Ions,Bonding, Reactions; 1.1 An Overview of Environmental Geochemistry - History, Scope, Questions, Approaches, Challenges for the Future; 1.2 The Naturally Occurring Elements - Origins and Abundances; 1.3 Atoms and Isotopes: A Brief Review; 1.4 Measuring Concentrations; 1.4.1 Mass-based concentrations; 1.4.2 Molar concentrations; 1.4.3 Concentrations of gases 1.4.4 Notes on precision and accuracy, significant figures and scientific notation 1.5 Periodic Table; 1.6 Ions, Molecules, Valence, Bonding, Chemical Reactions; 1.6.1 Ionic bond strength; 1.6.2 Covalent bonds; 1.6.3 Electronegativity; 1.6.4 Metallic bonds, hydrogen bonds and van der Waals forces; 1.7 Acid-Base Equilibria, PH, K Values; 1.8 Fundamentals of Redox Chemistry and Chemical Reactions; 1.9 Chemical Reactions; 1.10 Equilibrium, Thermodynamics and Driving Forces for Reactions: Systems, Gibbs Energies, Enthalpy And Heat Capacity, Entropy, Volume 1.10.1 Systems, species, phases and components 1.10.2 First law of thermodynamics; 1.10.3 Second law of thermodynamics; 1.10.4

Enthalpy; 1.10.5 Heat capacity; 1.10.6 Gibbs free energy; 1.10.7 Gibbs free energy and the equilibrium constant; 1.11 Kinetics and Reaction Rates: Distance From Equilibrium, Activation Energy, Metastability; 1.11.1 Reaction rate, reaction order; 1.11.2 Temperature and the Arrhenius equation; Review Questions; References; 2 Surficial and Environmental Mineralogy; 2.1 Introduction to Minerals and Unit Cells; 2.2 Ion Coordination, Pauling s Rules and Ionic Substitution
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Sommario/riassunto

Environmental and Low-Temperature Geochemistry presents conceptual and quantitative principles of geochemistry in order to foster understanding of natural processes at and near the earth's surface, as well as anthropogenic impacts on the natural environment. It provides the reader with the essentials of concentration, speciation and reactivity of elements in soils, waters, sediments and air, drawing attention to both thermodynamic and kinetic controls. Specific features include: An introductory chapter that reviews basic chemical principles applied to environmental and low