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Nota di contenuto	PARTITION AND ADSORPTION OF ORGANIC CONTAMINANTS IN ENVIRONMENTAL SYSTEMS; CONTENTS; Preface; 1 Important Thermodynamic Properties; 1.1 Introduction; 1.2 First Law of Thermodynamics; 1.3 Second Law of Thermodynamics; 1.4 Extensive and Intensive Properties; 1.5 Chemical Potential; 1.6 Chemical Potentials in Multiple Phases; 1.7 Change in Chemical Potential with Pressure; 1.8 Activity of a Substance; 1.9 Vapor-Liquid and Vapor-Solid Equilibria; 2 Fundamentals of the Solution Theory; 2.1 Introduction; 2.2 Raoult's Law; 2.3 Henry's Law; 2.4 Flory-Huggins Theory 2.5 Variation of Activity Coefficient with Concentration 2.6 Molar Heat of Solution; 2.7 Cohesive Energy Density and Solubility Parameter; 3 Interphase Partition Equations; 3.1 Partition between Two Separate Phases; 3.2 Partition between an Organic Solvent and Water; 3.3 Partition between a Macromolecular Phase and Water; 3.4 Temperature Dependence of Partition Coefficient; 3.5 Concentration Dependence of Partition Coefficient; 4 Fundamentals of the Adsorption Theory; 4.1

Introduction; 4.2 Langmuir Adsorption Isotherm; 4.3 Freundlich Equation; 4.4 BET Multilayer Adsorption Theory
4.5 Polanyi Adsorption Potential Theory 4.6 Surface Areas of Solids; 4.7 Isothermic Heat of Adsorption; 5 Contaminant Partition and Bioconcentration; 5.1 Introduction; 5.2 Octanol-Water Systems; 5.3 Heptane-Water Systems; 5.4 Butanol-Water Systems; 5.5 Substituent Contributions to Partition Coefficients; 5.6 Lipid-Water Systems; 5.6.1 Solubility of Solutes in Lipids; 5.6.2 Lipid-Water Partition Coefficient; 5.7 Correlations of Partition Coefficients; 5.8 Bioconcentration of Organic Contaminants; 6 Adsorption of Vapors on Minerals and Other Solids; 6.1 Introduction
6.2 Nitrogen Isotherm and Solid Surface Area 6.3 Micropore Volume; 6.4 Improper Surface-Area Measurement; 6.5 Adsorption of Water and Organic Vapors; 7 Contaminant Sorption to Soils and Natural Solids; 7.1 Introduction; 7.2 Background in Sorption Studies; 7.2.1 Influences of Mineral Matter, Organic Matter, and Water; 7.2.2 Soils as a Dual Sorbent for Organic Compounds; 7.3 Sorption from Water Solution; 7.3.1 General Equilibrium Characteristics; 7.3.2 Effect of Soil Organic Matter versus Sediment Organic Matter; 7.3.3 Effect of Contaminant Water Solubility
7.3.4 Behavior of PAHs versus Other Nonpolar Contaminants 7.3.5 Estimation of Sorption Coefficients for Nonpolar Contaminants; 7.3.6 Sorption to Previously Contaminated Soils; 7.3.7 Deviations from Linear Sorption Isotherms; 7.3.8 Influence of Dissolved and Suspended Natural Organic Matter; 7.3.9 Influence of Surfactants and Microemulsions; 7.4 Sorption from Organic Solvents; 7.4.1 Effect of Solvent Polarity; 7.4.2 Effects of Temperature, Moisture, and Contaminant Polarity; 7.5 Sorption from Vapor Phase; 7.5.1 General Aspects of Vapor Sorption; 7.5.2 Influence of Moisture on Vapor Sorption
7.6 Influence of Sorption on Contaminant Activity

Sommario/riassunto

Given the presence of a wide variety of contaminants in the environment, it is important to understand what drives a contaminant from one medium to another, as well as the manner and extent to which a contaminant associates with the different media or phases within a local environmental system. Partition and Adsorption of Organic Contaminants in Environmental Systems forms a comprehensive resource on the behavioral characteristics of contaminants so that appropriate strategies can be adopted to either prevent or minimize their adverse impacts on human welfare and natural resource
