

PHYSICO-CHEMICAL PRINCIPLES AND PROCESS

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Structure and basic properties of water; their significance in environmental engineering; sources of water impurities; Aquatic chemistry; chemical equilibrium and chemical thermodynamics; acid-base equilibria; complexation; solubility equilibria; oxidation-reduction equilibria; reaction kinetics, reaction rates and catalysis; surface and colloidal chemistry; Solid-liquid-gas interactions; mass transfer in solid-liquid and liquid-gas systems; transport mechanisms of impurities in water and air; advection, diffusion, dispersion; Principles of physicochemical processes; Settling of particles in water; coagulation and flocculation; filtration; ion exchange and adsorption; membrane processes;