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3.6 Coagulation and flocculation 3.7 Filtration processes; 3.8 Adsorption; 3.9 Chemical oxidation; 3.10 Membrane separations; 3.10.1 Membrane separation by hydrostatic pressure difference; 3.10.2 Membrane separations by electrical potential difference: electrodialysis (ED); 3.10.3 Membrane separations by partial vapor pressure gradient; 3.10.4 Membrane contactor (MC); 3.10.5 Design considerations; 3.10.6 Membrane modules; 3.10.7 Whose fault? membrane fouling; 3.11 Ion exchange; 3.11.1 Strong acid cation resins; 3.11.2 Weak acid cation resins; 3.11.3 Strong base anion resins
3.11.4 Weak base anion resins 3.11.5 Evaluation of resins; 3.11.6 Ion exchange systems; 3.12 Closing remarks; 3.13 Further reading; 3.14 References; Chapter 4 Biological wastewater treatment processes; 4.1 Introduction; 4.2 Kinetics of biochemical systems in wastewater microbiology; 4.2.1 Effects of temperature on reaction rates; 4.2.2 Effects of pH and dissolved oxygen concentration on reaction rates; 4.2.3 Kinetic equations of bacterial growth; 4.3 Idealized biochemical reactors; 4.3.1 The ideal batch reactor; 4.3.2 Ideal plug-flow reactor 4.3.3 Ideal continuous-flow stirred-tank reactor (CSTR)

Sommario/riassunto

Wastes, whether they are solid wastes or wastewater, are resources from which economic values may be derived. Almost all components of agricultural and food wastewater can be and should be utilized or recovered; the stumbling block of achieving this aspiration is economical, not technical. The last one and a half decades have seen the surging of agricultural and non-agricultural commodity prices across the board and increased public consciousness of environmental impact of industrial wastewater discharge and treatment. The confluence of these new developments have generated new interests an