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3.4.3 Pressure Filter Press; 3.4.4 Drying Beds; 3.4.5 Other Dewatering Methods; 4 Aerobic Digestion; 4.1 Introduction; 4.1.1 Process Theory; 4.2 Conventional Aerobic Digestion; 4.2.1 Process Design Considerations; 4.2.2 System Design Considerations; 4.2.3 Operational Considerations; 4.3 Process Variations; 4.3.1 High-Purity Oxygen Digestion; 4.3.2 Low-Temperature Aerobic Digestion; 4.3.3 Dual Digestion; 4.3.4 Mesophilic Aerobic Digestion; 4.3.5 Autothermal Thermophilic Aerobic Digestion; 4.3.6 Technological Improvements; 5 Anaerobic Digestion; 5.1 Introduction; 5.1.1 Advantages and Disadvantages; 5.1.2 Theory of Anaerobic Digestion; 5.2 Environmental Factors; 5.2.1 Solids and Hydraulic Retention Times; 5.2.2 Temperature; 5.2.3 pH and Alkalinity; 5.2.4 Toxic Materials; 5.3 Process Variations; 5.3.1 Low-Rate Digestion; 5.3.2 High-Rate Digestion; 5.3.3 Thermophilic Digestion; 5.3.4 Two-Stage Digestion; 5.3.5 Two-Phase Digestion; 5.4 Process Design; 5.4.1 Per Capita Basis; 5.4.2 Solids Loading; 5.4.3 Solids Retention Time; 5.4.4 Volatile Solids Reduction; 5.4.5 Gas Production; 5.5 System Component Design; 5.5.1 Tank Design; 5.5.2 Digester Covers; 5.5.3 Mixing; 5.5.4 Heating; 5.5.5 Gas Usage; 5.6 Operational Considerations; 5.6.1 Reactor Performance; 5.6.2 Odor Control; 5.6.3 Supernatant; 5.6.4 Struvite; 5.6.5 Digester Cleaning; 6 Alkaline Stabilization; 6.1 Introduction; 6.1.1 Advantages and Disadvantages; 6.1.2 Process Theory; 6.2 Process Application; 6.2.1 Liquid Lime Stabilization; 6.2.2 Dry Lime Stabilization; 6.2.3 Advanced Alkaline Stabilization Technologies; 6.3 Process Design; 6.3.1 Sludge Characteristics; 6.3.2 Contact Time and pH; 6.3.3 Lime Dosage; 6.3.4 Alkaline Material Storage; 6.3.5 Lime Feeding; 6.3.6 Liquid Lime Mixing; 6.3.7 Dry Lime Mixing

Sommario/riassunto

Reap the benefits of sludge The processing of wastewater sludge for use or disposal has been a continuing challenge for municipal agencies. Yet, when sludge is properly processed, the resulting nutrient-rich product--biosolids--can be a valuable resource for agriculture and other uses. Wastewater Sludge Processing brings together a wide body of knowledge from the field to examine how to effectively process sludge to reap its benefits, yet protect public health. Presented in a format useful as both a reference for practicing environmental engineers and a textbook for graduate students