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Reaction; 2.1.1.3 Termination Step; 2.1.1.4 Overall Reaction; 2.1.2 Direct Reaction; 2.2 Advanced Oxidation Processes (AOP); 2.2.1 Ozone/Hydrogen Peroxide O3/H2O2
2.2.2 Ozone/UV-Radiation O3/UV2.2.3 Hydrogen Peroxide/UV-Radiation UV/H2O2; References; 3: Ozone Applications; 3.1 Historical Development; 3.2 Overview of Ozone Applications; 3.2.1 Ozone in the Gas Phase; 3.2.2 Ozone in the Liquid Phase; 3.3 Ozone in Drinking-Water Treatment Martin Jekel; 3.3.1 Disinfection; 3.3.2 Oxidation of Inorganic Compounds; 3.3.3 Oxidation of Organic Compounds; 3.3.3.1 Natural Organic Matter (NOM); 3.3.3.2 Organic Micropollutants; 3.3.4 Particle-Removal Processes; 3.4 Ozonation in Waste-Water Treatment; 3.4.1 Disinfection; 3.4.2 Oxidation of Inorganic Compounds
3.4.3 Oxidation of Organic Compounds3.4.3.1 Landfill Leachates-Partial Mineralization; 3.4.3.2 Textile Waste Waters-Color Removal and Partial Mineralization; 3.4.3.3 Other Applications; 3.4.4 Particle-Removal Processes; 3.5 Economical Aspects of Ozonation; References; Part II: Ozone Applied; 4: Experimental Design; 4.1 Experimental Design Process; 4.2 Experimental Design Steps; 4.2.1 Define Goals; 4.2.2 Define System; 4.2.3 Select Analytical Methods and Methods of Data Evaluation; 4.2.3.1 Ozone; 4.2.3.2 Target Compound M; 4.2.4 Determine Experimental Procedure; 4.2.5 Evaluate Data
4.2.6 Assess Results4.3 Reactor Design; 4.3.1 Reactor Types; 4.3.1.1 Operating Mode; 4.3.1.2 Mixing; 4.3.2: Comparison of Reactor Types; 4.3.3 Design of Chemical Oxidation Reactors; 4.3.3.1 Reaction System; 4.3.3.2 Ancillary Systems; 4.3.3.3 Process Integration; 4.3.3.4 Controllability; 4.3.3.5 Site Integration; 4.4 Checklists for Experimental Design; 4.4.1 Checklists for Each Experimental Design Step; 4.5 Ozone Data Sheet; References; 5: Experimental Equipment and Analytical Methods; 5.1 Materials in Contact with Ozone; 5.1.1 Materials in Pilot- or Full-Scale Applications; 5.1.1.1 Reactors
5.1.1.2 Piping5.1.2 Materials in Lab-Scale Experiments; 5.1.2.1 Reactors; 5.1.2.2 Piping; 5.2 Ozone Generation; 5.2.1 Electrical Discharge Ozone Generators (EDOGs); 5.2.1.1 Chemistry; 5.2.1.2 Engineering and Operation; 5.2.1.3 Type of Feed Gas and its Preparation; 5.2.1.4 Ozone Concentration, Production Capacity and Specific Energy Consumption; 5.2.1.5 Use of EDOGs in Laboratory Experiments; 5.2.2 Electrolytic Ozone Generators (ELOGs); 5.2.2.1 Use of ELOGs in Laboratory Experiments; 5.3 Reactors Used for Ozonation; 5.3.1 Overview of Hydrodynamic Behavior and Mass Transfer
5.3.2 Directly Gassed Reactors

Sommario/riassunto

The leading resource on ozone technology, this book contains everything from chemical basics to technical and economic concerns. The text has been updated to include the latest developments in water treatment and industrial processes. Following an introduction, the first part looks at toxicology, reaction mechanisms and full-scale applications, while Part B covers experimental design, equipment and analytical methods, mass transfer, reaction kinetics and the application of ozone in combined processes.