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Preface

The safe and effective conversion of organic compounds in aqueous waste streams to CO_2 and water is the desired outcome of many waste water treatment processes. The last several years have witnessed a great deal of interest in and development of advanced oxidation processes that take advantage of the oxidation potential of the hydroxyl radical (OH). There are different routes available for generating hydroxyl radicals in aqueous solutions, and these have led to the development of different treatment processes. The different processes may share common features when one considers the oxidation chemistry, however. A better understanding of the oxidation pathways, kinetics, and mechanisms could lead to improved processes and also to a unified view of the controlling chemistry in all of the processes.

This special issue of the *Journal of Hazardous Materials* contains a collection of papers that focuses on the rates, products, and mechanisms of the underlying chemical reactions for different advanced oxidation technologies. It also contains reports on the development or analysis of novel reactors for advanced oxidation processes. This issue has its origin in a symposium entitled "Advanced Techniques for Liquid-phase Oxidation of Hazardous Wastes: Degradation Pathways, Kinetics, and Mechanisms" that I organized for the 1993 Annual AIChE meeting in St. Louis. The symposium brought together researchers and technology developers working on different advanced oxidation processes for treating aqueous streams. Seven of the papers presented at this symposium are published in this special issue. The papers provide insights into the chemical kinetics and reaction engineering issues encountered during waste treatment by ozone, hydrogen peroxide, a pulsed corona discharge, and UV/ozone and UV/hydrogen peroxide combinations.

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