- U.S. EPA bioremediation program
- Trichloroethylene biodegradation
- Fixed film reactors
- Slurring phase bioremediation
- Packed column bioreactor for air stripper off-gas
- Anaerobic treatment
- PCB degradability
- Phenol biosensors

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Chemical Oxidation: Technologies for the Nineties, by W.W. Eckenfelder, Jr., A.R. Bowers and J.A. Roth, Technomic Publishing, Lancaster, PA, 1991, ISBN 0-87762-895-5, 313 pp., $65.00.

In the preface the authors write:

"New regulations governing the discharge of toxic pollutants has focussed increased emphasis on physical-chemical technologies which can treat these pollutants in a cost-effective manner. Foremost among these technologies is chemical oxidation.
While chemical oxidation technology has been known and used for many years, the application to wastewater treatment is relatively recent."

Recent this technology is and needed too. More stringent U.S. EPA discharge guidelines for both direct discharges (to bodies of water) and indirect discharges (to sewers), are compelling industry to seek cleanup processes far more efficient than historically used biological systems.

The volume contains 23 papers presented at symposium held at Vanderbilt University in February 1991. They cover a wide range of topics from very basic research to operating system description.

Oxidants discussed include: hydrogen peroxide, ozone, chlorine dioxide, and potassium permanganate. Chemicals destroyed include NO_x, phenols, and other aromatics in the following media: ground water, soil, and industrial wastewater, respectively.

Taken together, the published papers present an excellent overview of the field. The wide variety of papers are certainly up-to-date, generally well written (with the minor exception that some papers could have been improved by editing), and comprehensive. Anyone seriousy interested in the field of chemical oxidation will want to obtain these proceedings — and the successor volume, which I hope will follow a 1993 conference on the same topic.

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