

Overview

The Symposium is organized as a series of five sessions: (I) Feasibility and Applicability; (II) Bioremediation of PAHs; (III) In situ Bioremediation; (IV) Bioremediation of Hazardous Chemicals; and (V) Enhancement of Bioremediation.

Section I deals with the economics of bioremediation technology and compares them with other technologies. Data demonstrates that associated costs are significantly lower compared with other technologies, with competition playing a large role in cleanup costs. The role of screening strategies in lab- and pilot-scale for evaluating bioremediation as a treatment option supports the philosophy for upfront planning prior to full-scale operations.

Section II addresses the significant problems associated with sites contaminated with polynuclear aromatic hydrocarbons (PAHs), compounds that are relatively recalcitrant and comprise a number of carcinogens. The goal for their successful bioremediation is to ensure PAH-degrading organisms are present and can target all constituents of interest. Compared with other petroleum products, cleanup costs are higher. This technology is clearly demonstrated at bench-, pilot-, and full-scale levels.

Section III provides data concerning in situ bioremediation applications. Successful applications are found to be dictated by the contaminant and its concentration, cleanup goals, physical restraints depending on geology/hydrogeology, cost, and time. Rhizosphere communities, where plants and microbes act symbiotically, are shown to play a significant role in bioremediation of agrochemicals.

Sections IV and V address bioremediation of hazardous chemicals and advanced applications of bioremediation, respectively. Recent advances in biological treatment of compounds demonstrate aerobic/anaerobic combinations are required for their bioreduction. Further discussions were generated during a poster presentation on their topics. In addition, data demonstrates a role for biological treatment of lead and organic wastes. The presentations of beach cleanup following the Exxon-Valdez spill in Alaska, and fixed-based facilities for cleanup of contaminated soil, demonstrate the significance of bioremediation as a cost effective technology now and in the future.

The success of this Symposium is a result of the efforts of the speakers as well as the session chairs and reviewers. Their efforts are recognized by the quality of this Symposium. Acknowledgements are also due to the staff of ASTM for their organizational and editorial input, and to members of ASTM Subcommittee F20.24 for their longterm commitment and their interest in Bioremediation Technology.

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