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Pesticide Waste Management

Pesticide Waste Management Technology and Regulation

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Foreword

THE ACS SYMPOSIUM SERIES was first published in 1974 to provide a mechanism for publishing symposia quickly in book form. The purpose of this series is to publish comprehensive books developed from symposia, which are usually “snapshots in time” of the current research being done on a topic, plus some review material on the topic. For this reason, it is necessary that the papers be published as quickly as possible.

Before a symposium-based book is put under contract, the proposed table of contents is reviewed for appropriateness to the topic and for comprehensiveness of the collection. Some papers are excluded at this point, and others are added to round out the scope of the volume. In addition, a draft of each paper is peer-reviewed prior to final acceptance or rejection. This anonymous review process is supervised by the organizer(s) of the symposium, who become the editor(s) of the book. The authors then revise their papers according to the recommendations of both the reviewers and the editors, prepare camera-ready copy, and submit the final papers to the editors, who check that all necessary revisions have been made.

As a rule, only original research papers and original review papers are included in the volumes. Verbatim reproductions of previously published papers are not accepted.

M. Joan Comstock
Series Editor

Preface

THE OCCURRENCE OF PESTICIDE RESIDUES in surface water and groundwater has been documented in a plethora of research published in a wide variety of scientific journals and books over the past 30 years. Pesticide residues in surface water and groundwater originate as point or nonpoint sources. Point sources are defined as those arising from routine handling procedures, spills, and waste disposal associated with commercial operations, which generally include agrochemical retail dealerships, manufacturing facilities, warehouses, and means of transportation. Nonpoint sources of pesticide contamination are diffuse, arising from the practices of many farmers during the course of routine operating practices, which traditionally include application of pesticides to the field and tank loading, mixing, and rinsing. Ironically, tank loading, mixing, and rinsing on the farm lead to the same problems as handling operations at commercial facilities—pesticide residues at high concentrations in localized areas with the potential of spreading to water resources. Regardless of the semantics used in defining the origin of pesticide contamination, all practices related to generation of spills and waste, whether they are farm or industry related, can be managed. Failure to implement waste management has resulted in high levels of pesticide residues in soil and water at pesticide-handling sites. This problem is by no means new. Two previous ACS Symposium Series books and several U.S. Environmental Protection Agency publications have addressed many pesticide waste-disposal issues.

How much have we progressed since publication of the last ACS Symposium Series book on pesticide waste in 1984? The report card is mixed; although much progress has been made in recycling containers and minimizing wastewater, we are only beginning to come to terms with past uncontrolled disposal practices at agrochemical retail facilities that have caused high levels of soil and groundwater contamination. However, we can be optimistic about future cost-effective technologies for small businesses and farms because research on innovative treatment of wastewater and unused pesticides is progressing.

In keeping with the long-standing interest of the ACS Division of Agrochemicals in the safe use of pesticides and their effect on society and the ecosystem, this book presents the current status of pesticide waste-management technology. It goes one step further than previous publications because it discusses pesticide waste regulations and implementation of these regulations from the viewpoint of several regulatory agencies. In addition to presenting eight chapters on current disposal technologies for wastewater and soil clean-up, the book includes seven chapters on container recycling and disposal, two chapters on alternative application tech-

nologies for rinsate minimization, and three chapters on remediation of contaminated sites.

The symposium on which this book is based was meant not only to inform researchers of progress in pesticide waste-disposal issues but also to produce useful information for state and federal officials who have to grapple daily with problems created by pesticide waste and with regulatory enforcement. After reading the chapter on problems of waste management in developing countries, we can conclude that the United States is doing a good job. We sincerely hope this book is useful beyond the research phase and will serve as a stimulus for action among all parties using or regulating pesticides.

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