Foreword

This book presents an overview of mixed plastics recycling technology. In addition it characterizes mixed plastics wastes, and describes collection methods, costs, and markets for reprocessed plastics products. While these studies were done for the State of Illinois, with the current national concern about recycling, the information presented will be of interest to anyone involved in municipal recycling, and the subsequent processing of post-consumer mixed plastics.

The term "mixed plastics" implies a mixture of plastic resins, or a mixture of package/product types, which may or may not be the same plastic type or color category. The term also includes products which may be the same resin type, but which have been fabricated using differing manufacturing techniques.

1989 data indicate that U.S. plastic resin production totalled 58.2 billion pounds (of which the packaging sector accounted for 14 billion pounds). About 29 billion pounds were disposed of as municipal solid waste (MSW), yet only an estimated 340 to 400 million pounds of plastics were recovered or recycled in any way that year. It becomes evident immediately that plastics recycling holds great potential as an industry coming of age.

The book is presented in two parts. Part I identifies the compositions of plastics in MSW and in recycling programs, the post-consumer plastics contributions to recycling programs, the cost of plastics collection and some of the end uses for reprocessed post-consumer plastics. Attention is given to curbside collection of recyclables because of its high recovery rate (60-90%) in comparison to other recycling methods (10-30%).

Part II discusses technologies which have been developed for the separation and processing of mixed plastic wastes. Broad scale recycling of post-consumer plastic waste is technically difficult because of the variety of plastic resins which exist and the difficulty of sorting them. While further work in processing and separating waste plastics is necessary for widespread plastics recycling, there are methods to utilize mixed plastic waste, and methods to clean and separate some types of plastics. The latter is primarily an emerging field of research in recycling technologies. Recent advances in automated sorting, by plastic type and by color, hold promise for future profit and fewer problems for this industry.

The information in the book is from the following documents:

Post-Consumer Mixed Plastics Recycling–Characterization, Collection, Costs and Markets, prepared by Bruce A. Hegberg, William H. Hallenbeck, and Gary R. Brenniman of the University of Illinois Center for Solid Waste Management and Research for the Illinois Department of Energy and Natural Resources, Office of Solid Waste and Renewable Resources, January 1991.

Technologies for Recycling Post-Consumer Mixed Plastics–Plastic Lumber Production, Emerging Separation Technologies, Waste Plastic Handlers and Equipment Manufacturers, prepared by Bruce A. Hegberg, Gary R. Brenniman and William H. Hallenbeck of the University of Illinois Center for Solid Waste Management and Research for the Illinois Department of Energy and Natural Resources, Office of Solid Waste and Renewable Resources, March 1991.

The table of contents is organized in such a way as to serve as a subject index and provides easy access to the information in the book.

Advanced composition and production methods developed by Noyes Data Corporation are employed to bring this durably bound book to you in a minimum of time. Special techniques are used to close the gap between "manuscript" and "completed book." In order to keep the price of the book to a reasonable level, it has been partially reproduced by photo-offset directly from the original reports and the cost saving passed on to the reader. Due to this method of publishing, certain portions of the book may be less legible than desired.

NOTICE