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Preface

Ecological and environmental concerns are dominating world thinking. An urgent need to reduce the environmental liability of current processes has directed political, scientific and personal agendas worldwide. These agendas are currently focusing on sustainable development, in which innovative processes are developed that meet the needs of the present without jeopardizing the ability of future generations to meet their own needs. A specific target of this concerted effort is developing strategies for waste reduction, remediation and recycling. The importance of this topic was recognized during a recent session at the 15th North American Catalysis Society Meeting held in Chicago, and it is this theme which ties together the papers comprising this issue of Catalysis Today.

The contributions to this issue span the full range of emissions produced by chemical processes, addressing pollutants in gas streams, contaminants in water streams and management of solid waste. The first two papers focus on the removal of SO_x and NO_x compounds via sorption processes for both enhanced odor abatement and the elimination of deleterious atmospheric pollutants. Processing strategies for obtaining usable and high-valued products from intractable polymeric waste through the addition of appropriate co-reactants are examined in the next two papers. The next pair of manuscripts examines the catalytic oxidation of organics in aqueous waste streams, a remediation strategy that may be used in situ for even trace amounts of organic compounds in water. The subject of remediation is continued in the following two contributions, which evaluate photocatalysis over

oxide materials to convert substituted aromatics, including chlorinated compounds, in both the gas and aqueous phases. The next two manuscripts are motivated by the need for an enhanced understanding of carbon-chlorine bond cleavage, which has implications for remediation of existing stockpiles of banned materials and development of strategies for producing nonchlorinated analogs of restricted substances with minimal impact on the environment. Finally, the last paper examines the feasibility of vapor phase carbonylation of methanol over a heterogeneous catalyst, which has the potential to eliminate the need for catalyst recovery and recycle as it is currently practiced industrially.

The editor thanks all of the contributors to this issue of Catalysis Today and the referees for their careful selection of the contributions. Although the technologies examined in the papers comprising this issue are diverse, the strategies described are unified by a common theme, with the potential to offer new insight into current waste management practices in a variety of industries. It is hoped that this collection of manuscripts will further stimulate the growing attention paid to waste reduction, remediation and recycling, and as a result, novel technologies that can be implemented in practice will continue to emerge.

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