

Preface

I have appreciated the many positive comments I have received from you this past year about the Catalysis series. Volume 13 represents an effort to continue to bring to you topics that are both interesting, and important.

A recent paper by R.M. Lambert of Cambridge reminded me of the importance of catalysis to our daily lives, and to the economies of the world (R.M. Lambert, *Introduction to Heterogeneous Catalysis*, NATO ASI Series E, Vol. 331, 1997, p. 1-26). More than 20% of the entire world's GNP is derived from heterogeneously catalysed processes, corresponding to \$5 trillion per year. More than 90% of the output of the world's chemical industry depends on these same types of processes. I expect that this is more than you would have guessed; it is certainly more than I did. I hope that this volume helps our understanding of this important area of work in which we are involved.

This volume consists of five chapters. The first is by Dr. Ian Metcalfe of Imperial College, and deals with solid electrolyte cells for catalyst screening. These materials are important as sensors and control monitors the solid catalysts we all use.

Dr. Israel Wachs of Lehigh University discusses molecular engineering on oxide catalysts. These materials are especially important for partial oxidation reactions, in which selectivity is difficult to control. This chapter focuses on vanadium-based catalysts, and the approach is applicable to other supported catalysts as well.

Drs. Yoshihiro Sugi and Yoshihiro Kubota next present a review of the zeolite-catalysed alkylation of polynuclear aromatics. Their chapter gives an especially useful and general approach to understanding deactivation in these materials.

Drs. Gianpiero Groppi, C. Cristiani, and R. Forzatti discuss the preparation of hexaaluminate materials for high temperature catalytic combustion, where temperatures are typically over 1400 °C. They discuss these unusually stable materials, how they can be modified for specific needs, and how they can be prepared in a simple way.

Finally, Drs. Georgios Papadogianakis and Roger Sheldon review catalysis in aqueous systems. These types of reactions are especially important in a new class of environmentally benign synthesis processes that are being developed in industry.

I want to thank the authors for the uniformly high quality of their manuscripts

and their attention to the reviewers' comments. I especially appreciate the patience of Dr. Metcalfe, whose manuscript was submitted very early in this publication cycle. I also appreciate the work of Sharon Davis and Jan Shirley of RTI's Publication and Design Services. They re-drew figures and provided a thorough and professional editing of the final manuscripts. I look forward to working with them on future volumes.

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