



Preface

Oxidation remains one of the major possibilities for the activation of molecules and, in particular, represents one of the few methods for activating alkanes which are noted for their low reactivity. In view of this, selective oxidation of hydrocarbons remains a topic that receives considerable attention. There are many processes operated industrially and many are understood in great detail, for example, the oxidation and ammoxidation of propene and the oxidative dehydrogenation of butene to butadiene.

Selective alkane oxidation has received intense attention and yet is not as well developed as alkene oxidation. To date, most attention has been given to butane oxidation to maleic anhydride using vanadium phosphates or the related oxidation of xylene to phthalic anhydride. To some extent the success of these reactions lies in the stability of the products. Unfortunately, many desired products, e.g., acetic acid from ethane, have much higher reactivity and lower stability. Hence, the oxidation of alkanes in general remains a major research goal.

With the announced gas-to-liquids projects, there is an added need to address alkane oxidation. It is against this

background that a special issue related to selective oxidation was considered an important addition to the literature. This collection of eleven papers deals with approaches to hydrocarbon oxidation using both homogeneous and heterogeneous catalysts and immobilised homogeneous systems. Although considerable interest has been shown in oxidation catalysis using gold, this topic has been specifically not emphasised in this collection, since it has been covered extensively in the recent second International Conference on Gold. The issue focuses on the selective oxidation of C₁–C₄ hydrocarbons, and we hope it will inspire renewed interest in this interesting, yet demanding, topic.

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Available online 2 July 2004