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Catalysis Today 61 (2000) 1

CATALYSIS TODAY

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Preface
Outlooks for selective oxidation

This issue collects a selection of contributions presented at the Sixth European Workshop on Selective Oxidation (ISO'99) "Innovation in Selective Oxidation by Solid Catalysts" held in Rimini, Italy on 9–10 September 1999 just after the end of the Europacat 4 meeting.

The objective of the workshop was ambitious: to define state-of-the-art and guidelines for innovation in the field of selective oxidation using solid catalysts. The scope was to emphasize new discoveries, new trends and new concepts in this area. In particular, the focus of the workshop was on the following topics: (1) new concepts in selective oxidation, (2) insight into the reaction mechanisms of selective oxidation reactions, (3) dynamic aspects of selective oxidation reactions, (4) interaction between reactor and catalyst design and (5) new reactions and oxidants in selective oxidation.

Seventy-four contributions (including oral, short oral and poster presentations) were given at the workshop. About 200 people from 30 countries attended the meeting, of which around 40% were from companies indicating the considerable industrial interest on the topic of innovation in selective oxidation. This interest is worldwide as confirmed by the "1998 White Paper" on catalysis (http://www.atp.nist.gov/atp/97wp-cat.htm) published in the US by NIST, which indicated that selective catalytic oxidation is among the five key reactions selected for mapping technological challenges to achieve economic benefits.

The definition of pathways for innovation in selective oxidation was also a guideline for the selection of the contributions to the workshop and to this issue. Sixty-one manuscripts were submitted, of which only 49 were accepted after evaluation by *at least* two referees. The manuscripts are organized into the six topics listed above and an additional specific topic "Advances in the conversion of alkanes" which is a major new research area. The subjects discussed do not cover systematically all the aspects relevant for innovation in the specific topic, but rather give a good overview of the principal trends and of the state-of-the-art.

Research in the area of selective oxidation is rapidly changing. Traditional approaches in terms of catalyst development, analysis of the reaction mechanism, and structure–activity relationships tend to be replaced by more general and integrated models which will be the driving force for the development of new generation catalysts. Progress is being made regarding the dynamic aspects of selective oxidation reactions and the correlation between the real state of the catalysts under reaction conditions and the catalytic activity. At the same time, research is being focused on the exploration of new reaction media like supercritical fluids, extreme reaction temperatures, new types of oxidants and ways to generate active oxidation sites. Although breakthrough results have not yet been reported, the data are encouraging and show that the area of selective catalytic oxidation may hold interesting prospects for both fundamental and applied catalysis.

Clearly there is a future for selective catalytic oxidation and we think that the ISO'99 Workshop and this issue of Catalysis Today are further steps in this exciting direction.

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PII: S0920-5861(00)00349-7