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Preface

This issue of *Catalysis Today* reports the full manuscripts of the oral communications presented at the world conference on Environmental Catalysis – *For a better World and Life*. The conference was held in Pisa, Italy, from 1st to 5th May, 1995 and was the 529th event of the European Federation of Chemical Engineering in the framework of the activity of the Working Party "Chemical Engineering in the Applications of Catalysis". The conference was the first of a triannual series of meetings aimed at promoting a new global and interdisciplinary approach to catalysis for a better environment and quality of life. The congress followed the 1st European Meeting on Environmental Industrial Catalysis held in Louvain la Neuve (Belgium, 1992) (see *Catal. Today*, Vol. 17, Nr. 1–2) and was organized from the Division of Industrial Chemistry of the Italian Chemical Society, the Universities of Bologna and Pisa and the Politecnico of Milano, Italy. About 400 researchers from 32 countries attended to the congress with a large participation of scientists from industry (about 50%). During the meeting, a number of communications were presented in the form of posters of recent research reports in addition to those given in the oral form. Extended abstracts (4 pages) of all these communications were printed in the proceedings of the congress (*EFCE Publication - Series 112*) edited by G. Centi, C. Cristiani, P. Forzatti and S. Perathoner and published by Società Chimica Italiana (Roma, Italy) (ISBN 88-86208-02-2, 1995).

The primary objectives of the conference were: (i) to outline the new directions of research in the field of catalysis applied to environmental problems; (ii) to show the new possibilities given by advanced catalysts and catalytic technologies for the improvement of environment and quality of life; and (iii) to stimulate the integration of fundamental and applied knowledge in the fields of chemical and chemical engineering of catalytic technologies for environmental protection.

The scientific programme was organized around eight main areas of interest for environmental catalysis: control of emissions from stationary sources; mobile engine emission control; clean fuel; more friendly chemical production and catalysts; pollution abatement in water; catalytic combustion; reduction of the greenhouse effect; and non-steady-state technologies. Most of the scientific contributions at the congress were centred around the problem of the elimination of pollutants emitted from stationary and mobile engines. In the first area, the contributions were selected mainly from those of companies, in order to outline new directions of research; for example, the problem of the combined destruction of dioxins together with the conversion of NO to N_2 in the treatment of gas from municipal waste incineration. The contributions in the area of the control of emissions from mobile engines were centred especially around new developments of catalysts for diesel, lean-burn or natural gas engines. The contribution of Toyota research group on automotive lean-burn engines which is based on the use of a NO_x storage and reduction catalyst is an exam-

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ple of a new development in this area presented during the conference. In the field of the end-of-pipe clean-up technologies, a central topic was the deep oxidation of VOC's over both noble metal and mixed oxide catalysts and the influence of process conditions. A few contributions were also concerned with catalytic combustion for power applications. The theme of clean fuels was addressed in some specific contributions devoted to the upgrading of middle and heavy distillates, hydrodesulfurization, isomerization and synthesis of high octane number ethers. Some selected examples were also given on the design of novel, intrinsically safe and clean catalytic processes and of novel industrial achievements in the design and development of less polluting and intrinsically more safe catalysts. This direction of research represents the future for environmental catalysis; however, progress is slow due to the complex technical and economical problems to be solved. Finally, specific sections of the congress were reserved for discussion of catalysts and technologies to reduce pollution in water, to the elimination of emissions of greenhouse gases and to application of non-steady-state technologies.

The conference showed the increasing interest on these topics and the necessity for more integrated approaches to solve the complex phenomena characteristic of the field of environmental catalysis (complex reaction mixtures, trace components, non-steady-state conditions, up-stream constrains on process conditions, etc.) A number of examples showed the usefulness and the requirement for such approaches that force research to explore new areas and to integrate lightly chemical and chemical engineering concepts.

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We should like to mention also that the International Advisory Board has decided that the next meeting on this series will be held in the USA, in 1999. Further information may be obtained from Dr. J. Armor (Air Products and Chemicals, 7201 Hamilton Boulevard, Allentown, PA 18195-1501, USA).

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(Chairmen)