

Preface

Environmental catalysis is continuously occupying a prominent place in both fundamental and applied research. Although efforts to develop new catalytic processes for a sustainable growth of chemical, refinery and petrochemical industries, and particularly in new devices for energy production using renewable sources were rapidly expanding over the last two decades, the development of new advanced catalytic technologies for cleanup of pollutants from exhaust gases of automotive and stationary sources as well as in-house applications remain in the centre of interest. They refer to catalytic cleanup technologies for reducing emissions of environmentally unacceptable compounds, in particular NO_x and VOC removal from stationary sources, emission control from mobile sources and greenhouse gas abatement or conversion. It seemed thus timely to organise within the framework of the European Congress on Catalysis EuropaCat-VI to be held in Innsbruck from 31 August to 5 September 2003 a Microsymposium "Air Pollution Abatement". This issue collects a selection of contributions presented at the symposium, in form of 11 lectures and 19 poster presentations.

The opening lecture was given by B.E. Nieuwenhuys (University of Leiden) on "The Beneficial Effect of Adding Base Metal Oxides to Noble Metal Catalysts on Reactions Relevant to Air Pollution Abatement". Low temperature oxidation of CO, NO_x reduction, total oxidation of methane and propene, ammonia oxidation as well as selective oxidation of CO to CO_2 in the presence of H_2 were discussed.

In other orals all the main topics of environmental catalysis were presented:

- selective NO_x reduction (SCR processes);
- oxidation of volatile organic compounds (VOCs) and halogenated volatile organic compounds (HVOCs);

- decomposition of N_2O and NO;
- new processes of "green chemistry".

The mechanisms of reactions were discussed and new promising catalysts were described. Some authors tried to correlate the catalysts performance with the nature of the active sites.

The second plenary lecture entitled "From Three-way to deNO_x Catalysis: A General Model" was given by G. Djega-Mariadassou (Université Pierre et Marie Curie, Paris). The model postulates dissociation of NO on metallic sites leading to the formation of N_2 . In lean conditions three functions of the catalysts are assumed: oxidation of NO to NO_2 , reduction of NO_2 with hydrocarbon to form oxygenated hydrocarbon species and NO, and reduction of NO to N_2 by the oxygenated hydrocarbon species.

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