

Several factors, including the gradual phasing out of giant central power stations, combined with increased use of natural gas for power generation, and liberalisation of the power market all favour fuel cells. With many nuclear power stations reaching the end of their lives, there is a need to replace them with power generation systems which do not create large amounts of greenhouse gases.

Overview

In overview, it is now clear that all the key players involved in the fuel cell industry are now assembled. There are many reasons why this

technology is being so actively researched, promoted and is becoming successful. The use of fuel cells for all aspects of power supply is gradually occurring and the next few years will reveal whether their long awaited promise will be fulfilled.

It is anticipated that the Seventh Grove Fuel Cell Symposium will take place in London in September 2001.

Reference

- 1 D. S. Cameron, *Platinum Metals Rev.*, 1997, 41, (4), 171; G. A. Hards, *Platinum Metals Rev.*, 1995, 39, (4), 160; D. J. Lovering, *Platinum Metals Rev.*, 1991, 35, (4), 209

Carbonylation Reactions Using Platinum Metals Catalysts

Journal of Molecular Catalysis A: Chemical: Recent Achievements in Carbonylation Reactions

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This special edition of the *Journal of Molecular Catalysis A: Chemical* is devoted to carbonylation and covers recent significant contributions to the field in several important research areas: (i) water soluble catalysis; (ii) reaction mechanism and rational design of ligands; (iii) exploration of new catalytic systems and; (iv) synthesis of fine chemicals. Approximately 85 per cent of the 32 articles deal with carbonylation reactions using platinum group metals as catalysts.

In the area of biphasic catalysis, Boy Cornils reviews the field with special emphasis on processes involving carbonylation, such as the manufacture of *n*-butyraldehyde from propylene via hydroformylation and the synthesis of phenylacetic acid using benzyl chloride as the starting material via hydrocarboxylation. F. Bertoux and co-workers emphasise the industrial and academic importance of biphasic hydrocarbonylation of organic halides, alcohols and olefins, and in a second contribution describe findings that the addition of polyvinyl alcohol and salts improves the thermal stability of water soluble catalysts in hydrocarbonylation.

The investigation of homogeneous catalyst structure and mechanism remains an active area of interest. A molecular modelling study by R. Paciello and co-workers reports on the relationship between ligand structure and catalyst activity for the rhodium catalysed hydroformylation of alkenes. M. Diéguez and colleagues also investigate hydroformylation and the influence of pressure, temperature and chelating ring

size for structurally related bisphosphines.

An important area covered by this journal is that of new catalytic systems and reactions. An interesting paper by M. C. Bonnet and colleagues reports on the palladium catalysed chlorocarbonylation of olefins using carbon monoxide and hydrogen chloride to yield acyl halides. J. S. Kim and co-workers report the first example of the catalytic formation of polyamides, a high strength polymeric material, from aryl chlorides, diamines and carbon monoxide. The reaction is catalysed by palladium.

The final topic area to be covered is fine chemical synthesis. E. M. Campi and co-workers describe the synthesis of fused 6,7 oxygen heterocyclic compounds via hydroformylation. These compounds could be used in the synthesis of cyclic polyether natural products.

M. Sperrle and colleagues used cationic palladium complexes containing chiral ligands to catalyse the enantioselective bis-alkoxycarbonylation of 1-olefins to substituted succinates; these compounds have application as intermediates to pharmaceuticals. E.-I. Negishi and co-workers report a study that details the scope of the synthetically useful intramolecular trapping of acylpalladium compounds with *O*-enolates.

Overall, this issue covers recent developments in the area of carbonylation well, with relevant, up-to-date articles from a good cross-section of contributors and research topics. Practitioners in the field will find the sections on new reactions and applications in synthesis of particular interest.

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