

Among items appearing in this issue:

### **Johnson Matthey's Sustainability Initiative**

An Editorial contribution from Johnson Matthey's Chief Executive, Neil Carson, outlines the company's commitment to the principles of sustainable development, and the role of *Platinum Metals Review* in that initiative.

### **New Palladium-Based Catalyst for Methanol Steam Reforming a Miniature Fuel Cell**

Researchers at BASF Catalysts LLC, U.S.A., developed a novel palladium-based catalyst for use in a miniature fuel cell power source for portable applications, incorporating a polymer electrolyte membrane (PEM) fuel cell. Oleg Ilinich, Ye Liu, Christopher Castellano, Gerald Koermer, Ahmad Moini and Robert Farrauto describe the testing of the new catalyst for the production of hydrogen, the fuel for the cell, in a ceramic microreactor *via* the catalytic reaction of methanol steam reforming. The new Pd-based catalyst is more durable and stable under operating conditions than are traditional copper oxide, zinc oxide and alumina-containing catalysts.

### **Platinum, Palladium and Gold Catalysts for Mercury Oxidation**

The use of noble metals as catalysts for mercury oxidation in flue gas remains an area of active study. In this article, Albert Presto and Evan Granite (National Energy Technology Laboratory, United States Department of Energy, U.S.A.) introduce bench-scale experimental results for gold, palladium and platinum catalysts tested in realistic simulated flue gas. Initial results reveal intriguing characteristics of catalytic mercury oxidation and provide insight for future research into this potentially important process.

### **Efficient OLEDs Using Platinum Group Metal Complexes**

"Highly Efficient OLEDs with Phosphorescent Materials" is a new book on organic light emitting diodes, covering complexes of the platinum group metals (pgms). Rob Potter (Johnson Matthey Technology Centre, Sonning Common, U.K.) reviews the book, which contains in-depth discussions of the design, synthesis, modelling and behaviour of a diverse range of molecules.

### **Immobilised Ruthenium Complexes for Olefin Metathesis**

Ileana Dragutan and Valerian Dragutan (Institute of Organic Chemistry "Costin D. Nenitescu", Romanian Academy) present the second and final part of their series on new routes for immobilisation of ruthenium alkylidene complexes. They systematically address Schiff bases, arenes, anionic ligands and specifically tagged (ionic liquid tag, fluoro tag) substituents as suitable participants for immobilisation.

### **Novel Formulations of Potential Platinum Antitumour Drugs**

Wei-Ping Liu, Qing-Song Ye, Yao Yu, Xi-Zhu Chen and Shu-Qian Hou (Platinum-Based Drug Lab, Kunming Institute of Precious Metals, P.R. China); Li-Guang Lou and Yong-Ping Yang (Shanghai Institute of Materia Medica, Chinese Academy of Sciences, P.R. China); and Yi-Ming Wang and Qiang Su (Tsinghua University, Department of Chemistry, P.R. China) describe the liposomal formulation of a novel lipophilic platinum(II) compound containing salicylate derivative, which shows potential to be developed as a new tumour-target drug.

### **Palladium-Catalysed Cross-Coupling**

Thomas Colacot (Johnson Matthey, Catalysis and Chiral Technologies, U.S.A.) attended the third CRC International Symposium on Cross Coupling and Organometallics on 25th September 2007 at the Université de Lyon, ESCPE Lyon, France. His conference review concentrates on the presentations dealing with palladium- and nickel-catalysed carbon-carbon bond formation.

### **Water Disinfection Using PGM-Containing Electrodes**

Electrodes with pgms or their oxides as active coatings can be used for convenient and efficient electrochemical water disinfection. The technique works without the addition of chemical compounds to the water to be treated, but is nevertheless based on the biocidal action of various chemical substances. Alexander Kraft (Gesimat GmbH, Germany) gives a short historical and technical overview of the process, augmented by some application examples.

### **Processing of Iridium and Its Alloys**

Iridium and its alloys have been considered to be difficult to fabricate due to their high melting temperatures, limited ductility, sensitivity to impurity content and particular chemical properties. Evan Ohriner (Oak Ridge National Laboratory, Materials Science and Technology Division, U.S.A.) reviews the variety of processing methods used for iridium and its alloys, including purification, melting, forming, joining and powder metallurgy techniques. He also discusses coating and forming by the methods of electroplating, chemical and physical vapour deposition and melt particle deposition.

### **Latest Market Information on Supply and Demand**

Johnson Matthey published its latest market review of platinum group metals supply and demand, "Platinum 2008", in May 2008.

### **Accurate and Precise Determination of Platinum Using ICPES**

Peter Ash (Johnson Matthey Technology Centre, Sonning Common, U.K.) describes the use of inductively coupled plasma emission spectrometry for quantitative determination of pgms. The technique can be used to quantify platinum and the other pgms in a range of materials, from low loadings, for example in emission control catalysts, to fuel cell catalysts with high percentage loadings.

### **Abstracts and New Patents**

There is a selection of abstracts from the recent scientific and patent literature.

### **Contact**

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