include the use of porous diaphragms to separate the anode and cathode in an attempt to eliminate these side reactions.

For alloy deposition, melts containing mixtures of the metals were prepared by the methods described. Although platinum is again more noble the metals will now co-deposit. Deposit composition was not constant in its thickness nor did it bear any relation to the melt composition except at high current density (20mA/cm^2) when deposition was diffusion limited. Alloy deposition was not seen as a practical process unless the side reactions outlined for the individual metals could be controlled.

The deposits were described as being sound and coherent and with mechanical properties comparable to the wrought metal, but no details of the deposit thicknesses obtained are given except in the case of platinum. Platinum formed columnar deposits with a visibly crystalline surface at 75 microns. Nodular deposits formed at greater thickness.

The carefully controlled experimental conditions used by the author of this work were previously recommended by him in his review paper (3) and the results obtained have done much to resolve apparent differences in the results of previous workers.

J. H. F. N.

References

1 J. H. F. Notton, *Platinum Metals Rev.*, 1977, **21**, (4), 122–128
2 W. B. Harding, *Plating Surface Finish.*, 1978, **65**, (2), 30–35
3 W. B. Harding, *ibid.*, 1977, **64**, (9), 48–55

Recent Patent Literature on Emission Control

Automotive Pollution Control Catalysts and Devices BY MARSHALL SITTIG, Noyes Data Corporation, Park Ridge, New Jersey, 1977, 323 pages, $39

With catalyst systems now firmly established as the means for controlling exhaust emissions from motor vehicles sold in America, it is opportune for the technology associated with this major new development to be summarised and made available to future researchers in this and related fields.

In their series of Pollution Technology Reviews, the Noyes Data Corporation have followed their previous practice in publishing a book based upon a digest of United States patents in this instance granted in the years 1970 to mid 1977. This period is particularly relevant as it spans the interval in which the major developments in catalyst and related technology were made leading to full commercial exploitation which started in 1974.

In an introductory chapter, the background to the problem of exhaust emissions from motor vehicles is described together with the legislation which has largely determined the systems which have been employed by the car industry for the control of exhaust emissions. These and other possible technical solutions are compared to complete a good summary of the subject.

The following seven chapters are concerned entirely with catalysts and the means for incorporating them into the exhaust system of a motor vehicle. A chapter on methods for making catalyst supports in the form of pellets, ceramic and metal monoliths is followed by chapters on carbon monoxide/hydrocarbon oxidation catalysts, NO_x reduction catalysts and the advanced "Three Way" systems. Both base and noble metal catalysts that have been evaluated are in many cases described in detail. The review is completed with chapters on the overall converter systems and their components and control devices.

While, there is no detailed subject index, the combined contents and subject index are adequate to enable information on a particular aspect of the subject to be found without reading the complete book.

The book is likely to be of interest to those already working in this field as a source of reference information. To others involved in catalyst research but not familiar with this particular application the book will provide an insight into new developments in support technology, the use of promoters to achieve specific activity goals and not least, the means for achieving high temperature stability and durability in conditions previously considered beyond the reach of catalyst technology.

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