

which to have fully evaluated them.

After his brief talk there was a standing ovation from the 200 delegates, almost all of whom had remained in attendance until 5.00 pm on the Saturday afternoon! Only a few sceptics remained seated. Undoubtedly much more work

will be executed and discussed before all of the essential variables necessary to repeat the effects on demand are clarified. The full consequences, both scientific and technical, can be properly assessed only when all the significant variables have been identified.

References

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- 3 F. A. Lewis, "The Palladium-Hydrogen System", Academic Press, New York, 1967
- 4 M. L. Oliphant, P Hardeck and Lord Rutherford, *Nature*, 1934, 133, 413; (see also P. I. Dee, *Proc. R. Soc.*, 1935, 148, 623)

Platinum 1990

Assistance provided by numerous people knowledgeable about the platinum industry worldwide has once again contributed to the usefulness of the annual review of the platinum group metals market, recently published by Johnson Matthey.

During 1989 supplies of primary platinum reached 3.375 million ounces troy, while total demand in the western world was 3.465 million ounces, the second highest annual requirement. For the third successive year, Japan was the largest regional market taking the equivalent of 48 per cent of the total western world's demand for platinum, and some 70 per cent of this was absorbed by the jewellery manufacturing industry.

On a worldwide basis, the largest use for platinum was, once again, for autocatalysts. Although vehicle production fell in North America, a tendency to higher loadings of platinum metals on catalysts, as well as a rise in stock levels, resulted in increased demand. Purchases were also up in Europe as manufacturers fitted catalysts in advance of EEC clean-air legislation. In January 1990 eight out of every ten petrol-fuelled cars sold in West Germany were equipped with three-way catalysts. By the year 1993 it is anticipated that platinum off-take by car manufacturers in Western Europe will be as high as 750,000 ounces. Fresh demand is expected to arise later in the decade in Eastern Europe, where air quality is a major problem.

In response to a growing public awareness of the damage being caused to the environment by the activities of man, a special seven page feature in "Platinum 1990" considers various ways in which the platinum metals are already being utilised to destroy polluting substances. Such applications are likely to grow. In addition, new technologies making use of the remarkable combinations of properties possessed by the platinum metals will result, hopefully, in processes that do not produce pollutants. Automotive spark plugs tipped with platinum metals are expected to reduce the chances of engine misfire, thus improving fuel economy and reducing emissions of unburnt fuel. In the longer term, the use of fuel cells to power electrically-driven vehicles could eliminate, or substantially reduce, the polluting emissions produced by conventional internal combustion engines.

Those who regard platinum as an industrial metal may be surprised to learn that it is also being used increasingly for the manufacture of luxury high quality watches.

Readers of *Platinum Metals Review* who do not have ready access to "Platinum 1990", and who need an authoritative source of commercial information about the platinum metals, should address their requests for a free copy of this comprehensive survey to the author Mr. Jeremy S. Coombes, Johnson Matthey P.L.C., New Garden House, 78 Hatton Garden, London EC1N 8JP.