

obtained for the dual bed system on the Ford Pinto, Table II, it is apparent that the vehicle fitted with the fuel injection system is able to meet the 1981 emissions legislation with a single bed three-way catalyst.

## Conclusion

Johnson Matthey catalysts for both single bed and dual bed applications have now been certified for use by a number of U.S. and European car manufacturers to meet 1981 U.S. legislation. While it is not yet clear how U.S. legislation may be changed in the future, the development of three-way catalysts within the Johnson Matthey Group is continuing with the aims of improving overall activity and durability and of improving the effectiveness of both the noble metal and the base metal components of the system.

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## The 1980 MacRobert Award

### PLATINUM CATALYSTS FOR THE CONTROL OF EXHAUST EMISSIONS

The highly regarded MacRobert Award, consisting of a gold medal and a cash prize of £25,000, has been made to a small team from the Johnson Matthey organisation for their outstanding work on the development and exploitation of platinum group metal catalyst systems for the control of motor vehicle exhaust emissions. Lord Robens, Chairman of the Company, received the Award from H.R.H. The Duke of Edinburgh, the Senior Fellow of the Fellowship of Engineering, at a private ceremony held at Buckingham Palace on December 16th, 1980.

The Award was instituted in 1968 and is made annually now by the Fellowship of Engineering, on behalf of the MacRobert Trusts. It aims to honour individuals or small teams who have made an outstanding contribution by way of innovation in engineering or the other physical technologies, or in the application of the physical sciences, which has enhanced, or will enhance, the prestige and prosperity of the United Kingdom.

In 1970, when the United States of America introduced legislation aimed at reducing substantially the exhaust emissions from motor vehicles, Johnson Matthey was actively engaged in improving catalyst technology. It had already successfully developed and marketed new catalyst

systems for the control of air pollution emitted from industrial processes, using ceramic honeycomb supports and mixed platinum metal catalysts. The pollutant gases present in vehicle emissions, carbon monoxide, nitrogen oxides and hydrocarbons, could each be rendered innocuous under carefully controlled conditions. However, the catalysts available at the time did not possess the activity, selectivity or durability to achieve the necessary standards in the widely differing conditions prevailing in a motor vehicle exhaust for the minimum required life of 50,000 miles.

Following intensive research and development, Johnson Matthey succeeded in producing a system to satisfy the requirements of U.S. legislation. In addition Johnson Matthey undertook to manufacture and market these catalyst systems. In order to serve both the European car manufacturers exporting to the U.S.A. and the big American manufacturers, production facilities were set up in both the U.K. and U.S.A. These were built to manufacture up to five million catalyst units per year, and have been modified since to incorporate the latest technology, thus enabling Johnson Matthey to provide a range of motor vehicle emission control catalysts that have progressively met the increasingly stringent legislation in the U.S.A.