

metallurgical characteristics of the ore are different from those currently being worked, and much work has still to be done to evaluate the deposit.

By such exploration, research and development Rustenburg Platinum Mines will contribute to the availability of platinum metals from the rich deposits in the Bushveld Igneous Complex in the quantities, and at the time, that they are required by the platinum metals users of the world.

### Acknowledgement

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## The Platinum Metals are Essential to Industry

Supply and Use Patterns for the Platinum-Group Metals, National Materials Advisory Board Publication NMAB-359, National Academy of Science, Washington, 1980, 197 pages

The platinum group metals continue to be used for a wide and increasing variety of applications because their remarkable properties, particularly their freedom from chemical attack—even at high temperatures, their ability to catalyse a large number of chemical reactions, their high melting points and strength, make them more effective than other materials that are initially cheaper and more readily available.

A most valuable study of the present and future uses of these metals and their compounds has just become available. Conducted by a panel drawn from processors, suppliers, users and minerals economists, it is based upon data compiled up until the end of November 1978 and is concerned mainly with the situation in the United States of America. However, the information it contains makes it essential reading for platinum producers and users, world wide. The geology, reserves and resources of the platinum group metals are surveyed, and as further background information a summary of their chemical and physical properties is given. This is followed by an account of their extraction, refining, and recycling after use. The production and fabrication of the metals and some of their compounds are also briefly considered.

Production and consumption statistics are given, and present and potential applications are discussed. Over the 25 year period since

1954 the total world production of the platinum metals has increased by 850 per cent, thus generally keeping pace with the enormous expansion in their utilisation as industry has responded to such crucial problems as the need to increase the world's food supply, to utilise fuel and energy more sensibly, and to limit further damage to the environment. In addition to the many industrial uses, the platinum metals are also used for a variety of other purposes including medical and dental applications, in laboratory investigations and for jewellery. It is suggested that the requirement for the platinum group metals will more than double in the next 12 to 15 years, although this increase will not be the same for all the six metals. One significant increase in demand for platinum is predicted to be for the production of first generation commercial fuel cells, an application which seems close to realising its potential as a viable, environmentally acceptable source of electrical power.

While some of the conclusions of the study relate especially to the U.S.A. most are relevant to all industrial countries, as it is stressed that the platinum metals, particularly platinum, palladium, rhodium and iridium, are essential to many of the most vital industries.

This book is now being reprinted and will be available at \$15 from the IPMI, 2254 Barrington, Bethlehem, Pennsylvania 18018, U.S.A.  
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