



Fig. 8 The 18 inch long stainless steel thermocouple probe illustrated here is just one of many components which have been successfully platinum plated by the fused salt plating process. The technique is no longer confined to laboratory conditions but is now established as a viable commercial process

include experimental spark ignition electrodes, which were found to have a considerably improved service life when platinum plated, and the plated thermocouple sheath shown in Figure 8, which has been successfully employed in a corrosive environment.

### Conclusions

It can now be stated with confidence that fused salt plating has emerged from being a critical laboratory technique to a useful and

economical method of applying platinum coatings with unique properties to a variety of substrates. Research is in progress at the Johnson Matthey Research Centre aimed at developing similar commercial fused salt plating processes for other platinum metals.

### References

- 1 R. N. Rhoda, *Plating*, 1962, **49**, (1), 69
- 2 D. Schlain, F. X. McCawley and G. R. Smith, *Platinum Metals Rev.*, 1977, **21**, (2), 38
- 3 A. S. Darling and G. L. Selman, *Platinum Metals Rev.*, 1968, **12**, (3), 92

## Russian Research on the Platinum Metals

*Alloys of the Precious Metals*, Nauka, Moscow, 1977, 292 pages (in Russian)

The great importance which the Soviet Union attaches to the platinum metals is once again in evidence with the publication of this collection of papers. There are no less than ninety-five contributions by a number of authors headed by Professor E. M. Savitskii and his colleague Madame V. P. Polyakova of the A. A. Baikov Metallurgical Institute of the Academy of Sciences, and originally given at a conference in 1974. All but four or five of the papers, despite the general title, are concerned with the properties and applications of the platinum group metals.

The subjects covered range from the mineralogy of the platinum group to the technique of welding platinum and its alloys, taking in on the way such varied subjects as gas analysis, the solubility and diffusion of impurities in platinum at high temperatures, the phase diagrams of platinum

with some of the rare earth elements, the interaction of platinum with molybdenum and rhenium, and studies of the interaction of molten platinum and palladium with various refractory materials.

Some of the more interesting applications discussed include the study of platinum alloys containing both palladium and rhodium for handling molten glass, the properties of cobalt-platinum permanent magnets, potentiometer wire and sliding contact materials, alloys for thermocouples, palladium alloys for the diffusion of hydrogen and ruthenium based catalysts.

As we have come to accept, all but very few of the numerous references are to Russian work, but clearly this fairly short book is a valuable source of information on current work in this field in the Soviet Union.

L. B. H.