

References

- 1 D. P. Dunne and C. M. Wayman, *Metall. Trans.*, 1973, 4, 137
- 2 M. Umemoto and C. M. Wayman, *Metall. Trans.*, 1978, 9A, 891
- 3 T. Tadaki and K. Shimizu, *Scr. Metall.*, 1975, 9, 771
- 4 G. Hausch, *J. Phys. Soc. Jpn.*, 1974, 37, 819
- 5 M. Foos, C. Frantz and M. Gantois, *Scr. Metall.*, 1978, 12, 795
- 6 R. Oshima, *Scr. Metall.*, 1981, 15, 829
- 7 M. Sugiyama, R. Oshima and F. E. Fujita, *Trans. JIM.*, 1984, 25, 585
- 8 M. Sugiyama, R. Oshima and F. E. Fujita, *J. Jpn. Inst. Met.*, 1984, 48, 881
- 9 R. Oshima, S. Sugimoto, M. Sugiyama, T. Hamada and F. E. Fujita, *Trans. JIM.*, 1985, 26, 523

Wiring Up Microelectronic Implants

Fine platinum and platinum-iridium wires, when insulated with silicone rubber, PTFE or a synthetic enamel, are suitable conductor materials for wiring up microelectronic implants, being neutral with regard to body tissues and the fluids they come into contact with. Of the possible ways of making connections to such wires, mechanical clamping is too clumsy, soldering is generally mechanically weak, while welding is inconvenient and may damage the wire; fortunately, a recent technical note from the Medical Research Council's

Neurological Prosthesis Unit describes a micro-brazing process which enables strong bonds to be made ('Technical Note: Microbrazing Fine Platinum Wires', P. E. K. Donaldson, *J. Med. Eng. Technol.*, 1988, 12, (1), 24-25).

Pure gold, in the form of a helix of 75 μ m diameter wire, is threaded over the platinum wires to be joined and is then heated to a temperature between 1063 and 1755°C. This may be done in a variety of ways, and the circuit of a suitable micro-arc generator for forming the braze is given.

Platinum 1988

The latest annual survey of platinum, palladium and the other four metals of the platinum group was published by Johnson Matthey during May. Compiled with the co-operation of many people in the platinum industry throughout the world, 'Platinum 1988' summarises events that affected the supply, demand and usage of the platinum group metals during 1987, and considers the outlook for 1988, and beyond.

Supplies of primary platinum were above 3 million ounces troy for the first time, aided by higher than usual exports from the U.S.S.R. Nonetheless these were insufficient to meet a record demand, which resulted, in the main, from increased use by the autocatalyst and jewellery industries. The demand for palladium was also at a record level, due to increased consumption by the electronics and dental sectors of the market. As with platinum, a deficit in the supply was met by withdrawal from world-wide stocks.

A review of exploration and mining

developments is included. In South Africa expansion programmes and new mines have been announced, based on the vast reserves of the Bushveld Complex, where the UG2 Reef is of increasing importance. However, as far as is known, none of the projects outside that country are located on geological formations of comparable platinumiferous potential.

Acknowledging the importance of Japan as a major platinum importing country, 'Platinum 1988' devotes a chapter to the demand for platinum within that country. While the requirement for platinum has grown with industrial expansion in Japan, the associated creation of wealth has led to a situation where the amount of platinum being used for investment, jewellery and decorative purposes now exceeds that taken by the industrial sector.

Requests for copies of 'Platinum 1988' should be sent to the compilers: Messrs. G. G. Robson and F. J. Smith, Johnson Matthey P.L.C., New Garden House, 78 Hatton Garden, London EC1N 8JP.