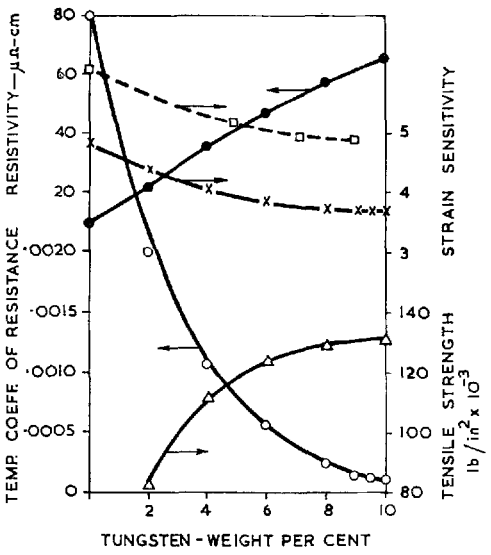

Electrical and mechanical properties of tungsten-platinum alloys. All specimens were in the annealed condition except that represented by the broken line, which was in the hard drawn state.

Strain elements wound from 0·001 inch diameter wire, annealed and stabilised by soaking at 600°C for 100 hours will have a strain sensitivity of 3.74 ±0.008 (95 per cent confidence limits) with a standard deviation of 0.126. The sensitivity will fall at the rate of 0.042 per cent per °C with increasing temperatures. Exposure to oxidising atmospheres at 600°C for periods of up to 200 hour/ indicates a drift rate equivalent to 14 μ ohms ohm/h; no significant changes in strain sensitivity or temperature coefficient of resistance will result. Successful tests have been carried out using elements of this type bonded to engine rotating parts operating at temperatures up to 600°C, as shown in the photograph. After a five-hour test, the elements were recalibrated: there appeared to be no change in temperature coefficient of resistance, drift rate or strain sensitivity. The permanent resistance change was 70 μ ohm/ ohm (equivalent to 700 lb/sq. in. in steel).

It is evident that platinum metal alloys offer significant improvements in strain sensitivity, stability and resistance to adverse environmental conditions and there is little doubt that wider acceptance of such alloys will result in greatly improved techniques.

References

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Corrosion Resistance of Iridium and Ruthenium

ATTACK BY LIQUID METALS

Recent progress in methods of fabricating iridium and ruthenium has focused attention on their special properties of high melting points and resistance to chemical attack. D. W. Rhys and E. G. Price have now reported (*Metal Ind.*, 1964 (August 20th), 243–245) the results of tests designed to show the amount of attack by nineteen liquid metals on sintered specimens of iridium and ruthenium contained in crucibles of the same material. Under the test conditions neither iridium nor ruthenium were attacked by lithium, sodium, potassium, silver, gold, mercury, indium, or lead. Copper, cadmium, tellurium and tin did not attack ruthenium, and bismuth did not attack iridium. Calcium, gallium, and bismuth only slightly attacked ruthenium, and gallium also only slightly attacked iridium.

Some alloying and/or solution occurred with ruthenium for magnesium, zinc, aluminium, and antimony. Iridium was affected by these metals and also by copper, calcium, cadmium, tin and tellurium.

The most severe attack occured with zinc by rapid solution.