Table II

Contact Angle Measurements
(Li_2CO_3 : K_2CO_3 62 : 38 mol%; under H_2 at 650°C and CO_2 at 600°C)

Material	Gas atmosphere	
	H_2	CO_2
Platinum	22	42
Palladium	40–42	38
Rhodium	68–70	38–40
Ruthenium	89–90	Wets
Silver	46	42
Gold	66	Wets
321-type Stainless steel	20	Wets
304-type Stainless steel	Wets	Wets

platinum sample had changed colour, and when studied by XPS the surface layer was found to be Li_2PtO_3. These two metals are therefore considered to be unsuitable for use at the cathode side of the fuel cell.

Contact Angles

The contact angles of the platinum group metals with molten carbonate were measured using a hot stage microscope in order to assess their wettability, wetting being defined as a contact angle of 20° or less. The unit was mounted in a wall of a glove box and this enabled the test samples and the carbonate to be handled under carbon dioxide throughout the test procedure. Contact angles were measured on 1 × 1 cm foil squares, which were placed on the workstage together with a purified crystal of carbonate. The work chamber was evacuated to 10^{-3} mbar and then either hydrogen or carbon dioxide gas was admitted to a pressure of 300 mbar. The sample was heated and the contact angle was measured. The results are given in Table II.

Rhodium, ruthenium and gold exhibited a high resistance to wetting under hydrogen and all of the samples showed improved wetting resistance when compared to 321- and 304-type standard austenitic stainless steels.

Conclusions

In current molten carbonate fuel cells nickel-chromium is generally used for the anodes. However, the platinum group metals do offer good corrosion resistance and non-wetting properties under reducing conditions, and may therefore find application. In addition, noble metals alloyed with standard materials may enhance the properties of anode components.

Acknowledgement

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Flammable Gas Detection

In the above named paper, which appeared in *Platinum Metals Rev.*, 1988, **32**, (2), 50–60, a correction should be made on page 58, right hand column, line 3. Here the word "increase" should be "decrease"; the corrected sentence then being: "The adsorbed atoms form dipoles at the metal-insulator interface resulting in a decrease in the work function of the metal at the interface."