ELECTRODE MATERIALS FOR HYDROGEN/OXYGEN FUEL CELLS

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Introduction

This work deals with measurement of catalysts for hydrogen / oxygen fuel cell electrodes. Samples were prepared on carbon black base with addition of potassium permanganate. Salts of bivalent metal were added during the preparation as dopants.

Experimental

Samples were measured in experimental fuel cell and the supporting electrolyte was 2M KOH. For measurement was used software GPES which is part of Autolab (Eco Chemie, Netherlands) device PGSTAT 12.

Two methods were used: cyclic voltammetry and chronoamperometry. Current differences for oxygen and/or nitrogen were introduced into the electrolyte. Cyclic voltammetry was measured from -0.57 V to -0.07 V against SCE reference electrode and scan rate was 1 $mV.s^{-1}$. In the case of chronoamperometry, current at constant potential was measured and the change between oxygen and nitrogen saturations of the electrolyte was observed.

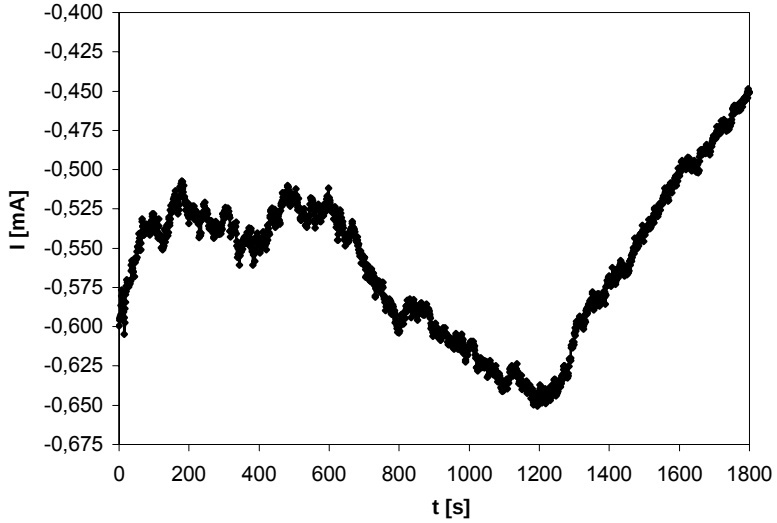

Fig. 1 *Chronoamperometry for C+MnO_X (electrode potential -0.3 V vs. SCE, gas was changed after 600 s and the current difference is approximately 0.2 mA)*

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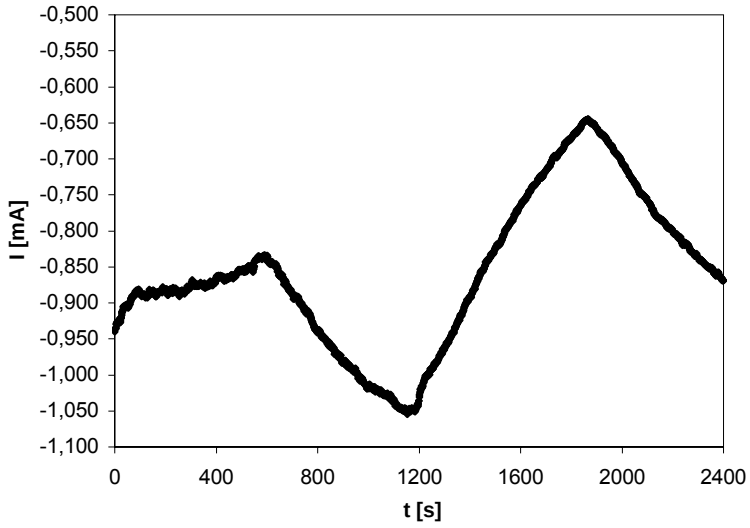

Fig. 2 *Chronoamperometry for C+MnOx+Mn (electrode potential -0.3 V vs. SCE, the current difference is 0.4 mA approximately)*

Conclusions

No catalytic activity was found by cyclic voltammetry.

Acknowledgements

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