Read me file:

University of Southampton – Faculty of Engineering and the Environment;

University of Southampton; Highfield Southampton SO17 1BJ; United

Kingdom – Carlos Ponce de Leon – capla@soton.ac.uk

The excel file contains experimental data for the paper: Mass-transfer measurements at porous 3D Pt-Ir/Ti electrodes in a direct borohydride fuel cell. In particular:

Figure 4; data for the Chronoamperometry at different mean linear flow velocities of a half-cell operating at 23 ^{o}C. Anolyte: 0.01 mol dm^{-3} of sodium borohydride in 2 mol dm^{-3} of sodium hydroxide. The anode materials is Pt-Ir/Ti mesh and the counter electrode Pt/Ti mesh.

Figure 5a and 5b; data for the limiting current density *vs*. the mean linear velocity for various Pt-Ir/Ti anode structures: plate, Plate+3TP, mesh, mesh +1TP, micromesh, fine mesh and Ti felt. The data was taken when the electrolyte contained 0.01 mol dm^{-3} sodium borohydride in 2 mol dm^{-3} of sodium hydroxide at 296 K.

Figure 6a and 6b; data for the current enhancement factor *vs*. the mean linear velocity for various Pt-Ir/Ti anode electrode materials such as: plate, Plate+3TP, mesh, mesh+1TP, micromesh, fine mesh and Ti felt. Electrolyte composition: 0.01 mol dm^{-3} $NaBH_4$ in 2 mol dm^{-3} NaOH at 296 K.

Figure 7a and 7b; double logarithmic data for the electrode performance factor k_mA_e for the oxidation of borohydride ion as a function of a) electrolyte mean linear velocity and b) Reynolds number for different electrode structures. Electrolyte: 0.01 mol dm^{-3} $NaBH_4$ in 2 mol dm^{-3} NaOH at 296 K.

Figure 8a and 8b; data of cell potential and power density versus the current density for different electrode structures in a single cell. The Pt-Ir/Ti anode of selected materials and a Pt/Ti mesh cathode. The anolyte consisted of 2.5 mol dm^{-3} $NaBH_4$ + 2 mol dm^{-3} NaOH and a 0.75 mol dm^{-3} H_2O_2 + 2 mol dm^{-3} NaOH catholyte at a mean linear fluid velocity of 4 cm s^{-1} at 296 K.

Date of data collection: from July 2017 - January 2018