

DEVELOPMENT OF EXPERIMENTAL METHOD TO MEASURE MEMBRANE CONDUCTIVITY

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The aim of this work was the development of a new test method measuring of the conductivity of polymer electrolyte membranes as a function of temperature. The cell consists of two compartments made of PMMA. In each cell half the platinum measuring electrode is built-in. The tested membrane sample with an active surface of 1.13 cm^2 is inserted between the two compartments. The cell is fixed with four socket screws. The electrodes were platinized to obtain a larger active surface in order to ensure better reproducible results. The electrolyte solution is heated and thermostatically controlled by Julabo F12 thermostat and circulated in the Teflon tubes by pump (Reglo Digital) via the cell.

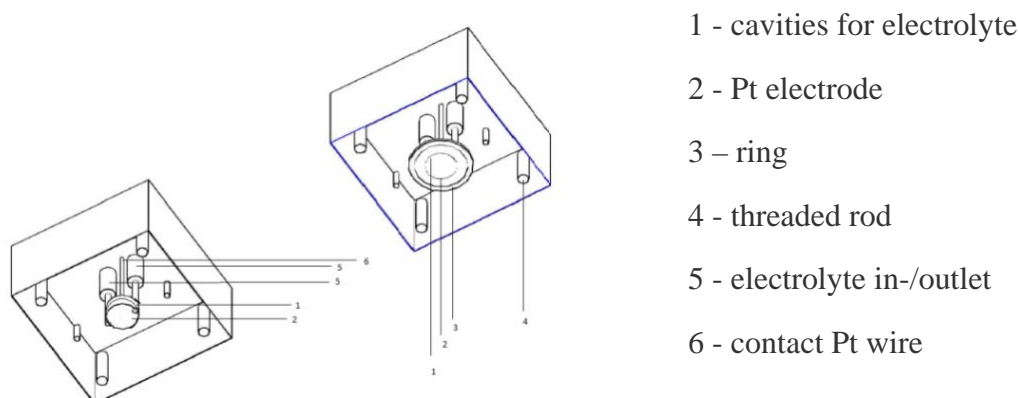


Figure 1: Schema of the newly developed cell.

The developed cell is applied to determine conductivity in HCl aqueous solution at temperatures from 25 to 90°C and the activation energies of different polymer electrolyte membranes used in low temperature fuel cells.

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