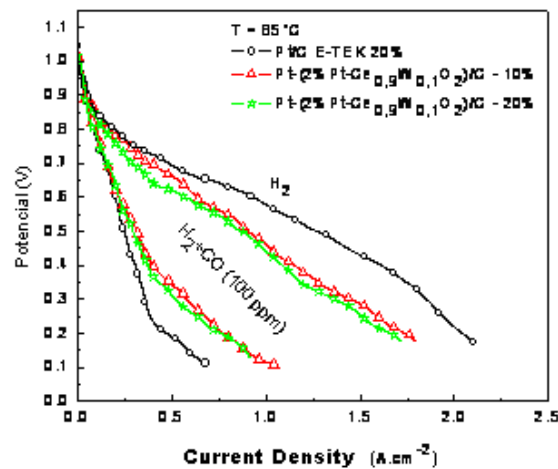


Enhanced CO tolerance in PEM fuel cell using Pt - doped ceria electrocatalyst system.

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The necessity of environmental protection and the search for substitutes for fossil fuel shows the potential of hydrogen as a global source of energy. For these purposes fuel cells can be considered a promising alternative technology.

New electrocatalyst system based on Pt-C for PEM fuel cell were prepared through the addition of doped CeO₂, as 2% Pt-Ce_{0.9}W_{0.1}O₂ over the commercial Pt-C (20%)Etek. The prepared electrocatalysts were used for the construction of 5cm² anodes for PEM fuel cell. The membrane electrode assembly was constructed using a carbon cloth diffusion layer. Polarization curves were performed using H₂ and H₂/CO (100ppm) as fuel in order to investigate the CO tolerance of the prepared electrocatalyst system. The optimal operation temperature was studied comparing the system performance to a PEM cell using a 20% Pt-C/Etek (state of art) electrocatalyst. When H₂ (100ppm CO) was feed in the anode, there was, as expected, a large loss in performance for the 20%Pt-C Etek. On the other hand for the binary Pt-doped ceria system catalyst the loss was not so pronounced. In the region of low current densities the losses are smaller, probably due to the oxidation of weakly adsorbed CO, which denotes its CO tolerance.



Keywords: Doped Ceria, fuel cell, CO tolerance, electrocatalyst.

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