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**KINETICS OF THE HYDROGEN OXIDATION ON Pt MODIFIED MoO_x
NANO-SIZED CATALYST IN THE PRESENCE OF CARBON MONOXIDE**

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Due to the importance of the HOR in fuel-cells technology, various Pt-based catalysts have been examined from the viewpoint of immunity of the electrocatalysis of the HOR from CO-poisoning of the anode catalysts. An appreciable improvement of the CO tolerance has been found at Pt with adatoms such as Ru, Sn [1,2], Pt-M (M=Ru, Rh, Os, W Sn) [3-5] based alloys, and Pt with oxides (RuO_xH_y) [6].

In the present work, the electrocatalytic of home made highly dispersed nano-sized MoO_x-Pt/C catalysts prepared by the polyole method combined by MoO_x post-deposition was investigated in the presence of CO, in 0.5 moldm⁻³ HClO₄ solution. The partial pressure of CO in CO/H₂ gas mixture was 100 ppm.

Carbon monoxide was adsorbed on the RDE for various time interval with keeping the potential at 0.05 V (RHE). The coverage of CO was determined by applying the first potential sweep (from 0.04 to 1.20 V), in N₂ saturated solution at potential scan rate of 0.1 Vs⁻¹ and compared it with the sweep on the clean electrode, by measuring the decrease in the hydrogen desorption charge, ΔQ_H .

MoO_x(20%)Pt/C catalyst exhibits an excellent CO tolerance, as it was found that the reduction in kinetic current, I_k , is negligible even at $\theta_{CO} = 0.46$. It was found for this catalyst too, that the CO adsorption rate was much slower than that of Pt and the Pt sites for HOR were not so rigidly blocked by adsorbed CO partially due to its enhanced mobility, resulting from their modified electronic structure of surface Pt sites. Voltammetric studies suggest that an excellent CO tolerance of this catalyst could be also result of the oxidation of adsorbed CO to CO₂ by oxophilic MoO_x species at low overpotentials by a redox-mediated mechanism.

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