

## **SYNTHESIS OF TRANSITION METAL OXIDES MIXTURES BASED ON NiCo AND MoCoW WITH LOW Pt CONTENT FOR OXYGEN REACTION REDUCTION IN ALKALINE MEDIA**

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The oxygen reduction reaction (ORR) remains as the limiting reaction for practical applications of fuel cells as an alternative technology for clean energy. Therefore, new materials with zero Pt loading or with low Pt content must be designed for overcoming the limiting factors. These new materials/catalysts must have high activity and stability towards this reaction. Among the new tendencies in nanomaterials for energy conversion, the transition metal oxides mixtures (TMOMs) have shown excellent electrocatalytic properties and a greater stability compared to platinum. Therefore, in the present work, we present the use of Ni, Co and Mo oxides decorated with platinum as electrocatalysts for the ORR. This study was performed using two combinations: NiCoPt and MoCoWPt (W was used in a low amount as a promoter in the Co oxides formation). The electrocatalytic activity was studied by rotating disc electrode (RDE), from which the kinetic parameters were obtained by Koutecky-Levich and Tafel plots. Small-sized TMOMs based on NiCoPt and MoCoWPt ranging 8-25 nm were obtained. Moreover, these materials presented high stability and excellent activity for ORR. Compared with a commercial Pt/C (30 wt%) catalyst, these TMOMs presented overpotentials lower than 160 mV.

**Keywords:** Oxygen reaction reduction, Transition metal oxides mixtures, electrocatalysis.

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Dear José Eduardo García Béjar  
Centro de investigación y Desarrollo Tecnológico en Electroquímica

We are pleased to inform you that your abstract entitled:

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With kind regards

The organizing committee  
Nanotech 2018



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