Preparation of carbon supported Pt and PtCo catalysts for oxygen reduction in low temperature fuel cell

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Pt catalysts were widely used in low temperature fuel cell, due to their high electrocatalytic activity. However, their expensive cost and relatively slow kinetics of oxygen reduction limited use of Pt. In order to replace Pt catalyst, many researchers have concentrated on development of alternative eletrocatalysts eg, Pt alloy, transition metal oxide, chalgogenide, porphyrin and etc. Among them, Pt based-alloy catalysts were considered as the most suitable alternative electrocatalysts, because of their high oxygen reduction activity.

In this work, carbon supported Pt and PtCo alloy catalysts with different Pt to Co compositions were synthesized by organic reduction method. The prepared catalysts were characterized by XRD, TEM, EDX and cyclic voltametry. Although the particle sizes of PtCo/C catalyst were larger than that of Pt/C catalyst, the oxygen reduction activity of PtCo were higher than that of Pt/C. The experimental results showed PtCo/C catalysts have high performance and were considered as a good candidate catalyst for oxygen reduction in low temperature fuel cell.