

Carbon Supported PtPb Intermetallic for Electrooxidation of Formic Acid

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Electrooxidation of formic acid in acidic media is attracting interest for its importance instead of methanol because formic acid exhibits much lower Nafion membrane cross over effect. Although Platinum is known as the most active catalyst for anodic reactions of liquid fuel cells, the disadvantage of Pt as the electrode material is that it is severely poisoned by the adsorbed carbon monoxide intermediate which is poisonous species and diminishes the overall electro catalytic activity.

PtPb intermetallic catalysts exhibit high durability toward CO-poisoning due to there atomic structure with high bonding length between platinum and lead atom than that of carbon monoxide.

In addition, introducing of carbon support will increase the conductivity of catalyst and provide high dispersion of catalysts.

Here in, PtPb intermetallic electrocatalysts with different carbon supports were synthesized by a polyol method. Vulcan-X and CNT and GR were used as carbon supports. The electrochemical performance of samples was investigated compared to commercial Pt/C (BASF, 20wt% Pt) catalysts in acidic solutions.