

Carbon Supported Intermetallic PtPb Electrocatalyst for Formic Acid Oxidation

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Direct methanol fuel cells(DMFC) are attractive power devices due to its impressive energy density, but there are losses because of its slow oxidation kinetics and polymer membrane crossover effects. The finding more electrochemically active and less poisoning fuel, such as formic acid, is imperative to improve the cell performance. Formic acid is a liquid at room temperature and because it shows a less crossover than methanol, it is possible that the use of concentrated fuel and thinner nafion membrane.

Intermetallic PtPb is considered as good electrochemical catalyst for formic acid oxidation due to its high CO tolerance. The carbon supported intermetallic PtPb is expected that it exhibits high electrochemical performance by increasing mechanical stability, dispersion and electric conductivity. In this work, amorphous carbon, CNT, graphene and CNT-graphene hybrid are used as support materials.