

Investigation on Polyol Method for Carbon Supported PtRu Catalyst for Methanol Oxidation

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The investigation describes the synthesis of carbon supported PtRu catalyst by Polyol Method. Mass loading, particle size and pH value influence are studied by catalyst performance in single cell and half cell test. From FTIR spectra, there is no functional group exist on the catalyst. And from EDS, the molar ratio of catalyst is 1:1. The smallest particle size, characterized by XRD pattern, achieved when pH equals to 11 at certain mass loading. At certain pH value, particle size grows as the mass loading increases, while the surface area decrease accordingly. The highest mass activity (MA) for methanol oxidation reaches when pH equals to 3 as the electrode was cycled at a sweep rate of 15 mVs^{-1} by CV in $1\text{M CH}_3\text{OH} + 1\text{M H}_2\text{SO}_4$ aqueous solutions. And when pH equals to 13.5 and mass loading equals to 40 wt%, single cell showing the highest power density during its running.