

## Properties of PtRu/C catalysts prepared by the chemical vapor deposition of Ru as anodes in PEMFCs

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Ru-promoted Pt/C catalysts were prepared by the chemical vapor deposition (CVD) of Ru on Pt/C at different atomic ratios. The performance of the catalysts as anodes in polymer electrolyte membrane fuel cells (PEMFCs), which was evaluated by half- and single-cell tests using H<sub>2</sub>/CO gases of various CO concentrations, was compared with the case of catalysts containing Ru added by a conventional impregnation (IMP) method. There were optimum amounts of Ru that yielded the lowest CO oxidation potential, respectively. The optimum amount of Ru to yield the lowest CO oxidation potential was smaller for the catalyst prepared by CVD, [Ru/Pt]<sub>CVD</sub> = 0.44, than for the case prepared by a conventional impregnation method, [Ru/Pt]<sub>IMP</sub> = 1.0. Also, catalysts containing promoter added by CVD were more tolerant to CO than those prepared by a conventional impregnation (IMP) method, when catalyst performances were evaluated by single cell test. As a result, PtRu/C prepared by CVD showed the maximum activity at the Ru content lower than in the case of IMP.