Applicability of Supercritical Water for Gasification of Hydrocarbons into Hydrogen

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An important design consideration in the development of automotive fuel cell is the technology to convert liquid hydrocarbon fuel into hydrogen and carbon dioxide. In this paper, the potential of supercritical water as an environment for gasification of liquid hydrocarbons into hydrogen and carbon dioxide was investigated in a supercritical water (SCW) reactor system. The efficacy of SCW reactor system for conversion of methanol and isooctane to hydrogen is explored at 25 MPa. The experiment results showed that the gaseous products were hydrogen, carbon dioxide, methane, and carbon monoxide. Supercritical water could be used as an environment for gasification of liquid hydrocarbon into hydrogen.