

Partial oxidation of *n*-hexadecane to synthesis gas over Pd catalyst for SOFC based auxiliary power unit (APU) system

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The developed diesel fuel reformer consists of fuel injection part working with an air-blown nozzle, fuel vaporizing part and catalytic converting part. The injected diesel fuel was vaporized on the surface of electrically heated cylindrical metallic monolith (EHC; electrically heated catalyst) catalyst. With the developed injection and vaporization system, fast start-up within 4min was accomplished with low energy consumption in a stand-alone mode, practicable for transportation application. The palladium based catalyst was prepared by dip coating method. SEM, TEM and XRD analysis showed that intensive and uniform catalyst layer was formed on the metal monolith surface, composed of palladium oxide crystallite impregnated on gamma-alumina support.