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Syngas Production from Gasification of Biomass over $Rh/CeO_2/SiO_2$ Catalyst: Pyrogasification, Steam Reforming and CO_2 Reforming

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Conventional methods for biomass gasification to hydrogen and synthesis gas are carried out at high temperature (1073-1673 K). Recently Rh/CeO₂/SiO₂ catalyst has been shown to be very effective for the catalytic gasification of biomass at low reaction temperatures. The catalytic performance of the Rh/CeO₂/SiO₂ catalyst for the pyrogasification of cedar wood biomass was compared with that of a commercial steam reforming Ni catalyst. The Ni catalyst allowed the gasification of tar but not coke during the pyrogasification at 873-1023 K. In contrast, Rh/CeO₂/SiO₂ gasified part of coke as well as tar. Testing of these catalysts for steam and CO₂ reforming of biomass found that steam reforming proceeded more easily than CO₂ reforming of methane over both catalysts.

Keywords: <u>Biomass, Cedar, Pyrogasification, Steam reforming</u>, <u>Rhodium catalyst</u>, <u>Cerium</u> <u>oxide catalyst</u>

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