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**Apparent kinetics of the water-gas-shift reaction in biomass gasification
using ash-layered olivine as catalyst**

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Abstract

Substitution of fossil fuels for production of electricity, heat, fuels for transportation and chemicals can be realized using biomass steam gasification in a dual fluidized bed (DFB).

Interaction between biomass ash and bed material in a fluidized bed leads to transformation of the bed particle due to enrichment of components from the biomass ash resulting in the development of ash layers on the bed particle surface. These ash-rich particle layers enhance the catalytic activity of the bed material regarding the water-gas-shift reaction and the reduction of tars.

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