

Sorption Enhanced Water Gas Shift Reaction of the Syngas from Oxy Gasification-melting System

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Water gas shift reaction is the intermediate step used for hydrogen enrichment of syngas from gasification. With this reaction, hydrogen and carbon monoxide concentration of syngas can be controlled according to the next utilization process. For the application to syngas from oxy gasification-melting reactor, water gas shift reaction has been performed without the catalyst in a lab scale tube reactor and sorption enhanced water gas shift has been performed with paper sludge ash which contains CaO. Effects of the reaction temperature, steam/carbon ratio, residence time and CO concentration have been performed and increase of H₂ production has been observed by sorption enhanced water gas shift with paper sludge ash.