

High-temperature water gas shift reaction over AFe_2O_4 (A=Co, Ni, Zn, Mg, and Mn) spinel type catalyst using waste-derived synthesis gas

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High temperature water gas shift (HT-WGS) reaction was studied over the spinel ferrite having general formula AFe_2O_4 (A=Co, Ni, Zn, Mg, and Mn). Though Fe_3O_4 based catalyst is the ideal choice of HT-WGS reaction, and a frontrunner in industries, there is no systematic comparison available over the other ferrites. This study presents the results of HT-WGS reaction over the ferrites AFe_2O_4 , where A = Co, Ni, Zn, Mg, and Mn. A very high very high gas hourly space velocity (GHSV) value of $40,057\text{ h}^{-1}$ was employed for the activity measurement. The condition employed in the present study can be considered to be severe because of the presence of higher CO concentration in the synthesis gas.