

Optimization of cobalt loading on Co-CeO₂ catalyst for high temperature water-gas shift reaction

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In our previous study, CeO₂ supported Co catalyst showed high catalytic performance in the high temperature water-gas shift (HTS) reaction. In this study, HTS reaction has been carried out over Co-CeO₂ catalyst prepared by a co-precipitation method. Co loading was optimized to obtain highly active Co-CeO₂ catalyst for HTS. Of the prepared catalysts, 15 wt.% Co loading of the CeO₂ catalyst showed the highest CO conversion (90% at 400 °C) as well as stability. The remarkable performance of the 15 wt.% Co-CeO₂ catalyst is mainly due to the highest Co dispersion.