The effect of promoters (MgO, CaO, and La_2O_3) on the catalytic performance over Ni-$Ce_{0.8}Zr_{0.2}O_2$ catalyst for CO_2 reforming of CH_4

장원준, 정대운, 김학민, 심재오, JHA AJAY, 전경원, 한원비, 나현석, 이열림, 노현석*
연세대학교
(hsroh@yonsei.ac.kr*)

The promoted Ni-$Ce_{0.8}Zr_{0.2}O_2$ catalysts have been applied for the CO_2 reforming of CH_4 (CDR) reaction. In addition, the coke formation and sintering phenomenon in the used catalysts have been investigated. The Ni-MgO-$Ce_{0.8}Zr_{0.2}O_2$ catalyst exhibited high activity as well as stability for the CDR reaction, even at a high GHSV of 480,000 h^{-1}. The remarkable catalytic performance of the Ni-MgO-$Ce_{0.8}Zr_{0.2}O_2$ catalyst is mainly ascribed to the benefit of MgO providing strong resistance against Ni sintering and coke formation, because of its small Ni crystallite size, strong basicity, and the intimate interaction between Ni and MgO.