

### Carbon dioxide reforming of methane on Co-Ni-CaO/MgO-Al<sub>2</sub>O<sub>3</sub>: effects of Co

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Effects of cobalt addition into Ni-CaO/MgO-Al<sub>2</sub>O<sub>3</sub> catalysts have been investigated while employing cobalt as a promoter to improve the thermal stability and resistance to carbon-deposition in carbon dioxide reforming of methane (CDR). CDR were carried out under reaction conditions; T = 750 °C, P = 1 bar, CH<sub>4</sub>/CO<sub>2</sub>/N<sub>2</sub> = 1/1/1 (molar ratio) and GHSV = 90,000 mL (CH<sub>4</sub>)/g<sub>cat</sub>/h. The Co-Ni-CaO/MgO-Al<sub>2</sub>O<sub>3</sub> catalysts were prepared by using impregnation method and characterized by N<sub>2</sub> adsorption, XRD, TGA and TPR. The Co-Ni-CaO/MgO-Al<sub>2</sub>O<sub>3</sub> catalyst showed much higher CH<sub>4</sub> conversion, stability and lower carbon deposition as compared to the catalysts without cobalt addition. It was found that addition of cobalt improved the dispersion and prevented the sintering of NiO during CDR.