

Ru effect of Co based catalyst for carbon dioxide reforming of methane

송상훈^{1,2}, Anatawahyu Budiman¹, 서형석¹, 장태선^{1,*},
신채호², 최명재¹

¹한국화학연구원; ²충북대학교
(tschang@kriect.re.kr*)

Excessive use of fossil by rapid industrial development has brought several environmental problems such as global warming. By this reason, considerable attention focused on reduction and utilization of greenhouse gases is becoming a significant issue. The carbon dioxide reforming of methane (CDR) to produce syngas becomes one of the most promising technologies for utilization of these two greenhouse gases. In this study, X (Co-Ru-Zr) under support SiO₂ catalysts were prepared in 20wt% of X by co-precipitation methods. The activity of catalyst increased gradually by the increasing of ruthenium contents. The maximum activity reaches 90% of CO₂ conversion with 0.9 H₂/CO ratios. Based on activity/Ru content ratio, 0.14 wt% of ruthenium was found as the optimum point. The catalyst properties were analyzed by XRD, TPR, XPS, H₂-Chemisoption, and O₂ titration while the process pathway was determined by the process mass. As conclusion, it could be stated that Ruthenium content is confirmed influences the reduction degree.