The Effect of pH on the catalytic activity for CO_2 reforming over silica supported cobalt catalyst

아나타[1,2], 송상훈[1,3], 장태선[1], 최명재[1,*]
[1]한국화학연구원; [2]과학기술연합대학원대학교; [3]충북대학교
(mjchoi@krict.re.kr[*])

CO_2 reforming is generally recognized as one of the most promising technology for a utilization of greenhouse gases. The preparation technique of catalysts play a major role since it can affect their structural properties and reduction behavior, and hence the catalytic performance. In this study, Co−Ru−Zr−Si catalysts were prepared via co-precipitation method with a various pH (0.1~10) of solution in prepare process. As a result, we have found that the catalytic activities at $850^{o}C$ and $20,000ml/g_{cat}\cdot h$ were affected according to the operating condition such as pH. The catalyst prepared at about pH 1 shows maximum activity close to equilibrium conversion and the highest stability. With the aid of spectroscopic and surface characterization data such as BET, XRD, XPS, TPR, SEM etc, we can conclude that the pH of solution could make the interaction between active species and support stronger than other conditions.