

Characterization and toluene oxidation of perovskite-type oxide catalyst LaCoO_3 : Effect of different preparation methods

서명지, 임선기*
한국과학기술원
(skihm@kaist.ac.kr*)

Perovskite-type oxide LaCoO_3 as a substitute of noble metal catalysts has high potential for their use in various oxidations. Perovskite structure require high calcination temperature ($> 900^\circ\text{C}$) for forming perovskite structure and hence yield perovskite-type oxides with low surface area ($< 2 \text{ m}^2/\text{g}$) due to sintering.

In this research, the effect of precursor, calcinations temperature and pH of different preparation methods for the perovskite-type oxide LaCoO_3 was studied.

LaCoO_3 obtained was characterized with XRD, N_2 -adsorption/desorption, and SEM. LaCoO_3 was applied as a catalyst for oxidation of toluene. Catalytic performance of LaCoO_3 was compared with those of LaCoO_3 . The LaCoO_3 catalyst to have high surface area and accurate perovskite structure was the most active.