

Catalytic N₂O decomposition over modified cobalt oxide catalysts

김민재^{1,2}, 김혜정^{3,2}, 이승재², 유인수², 노현석¹, 전상구^{2,†}

¹연세대학교; ²한국에너지기술연구원; ³충남대학교

(sgjeon@kier.re.kr[†])

During the last decade, the increasing concentration of N₂O is considered as an important environmental issue due to the high global warming potential (GWP). It has 310 times higher than that of CO₂. It is reported that Co₃O₄ is active for direct N₂O decomposition owing to its relatively high redox property. However, Cobalt spinel catalyst was significantly deactivated by inhibition gas at low temperature (<400°C). To solve this problem, several researchers changed the composition of catalyst. In this study, the catalytic activity of modified Co₃O₄ for decomposition of N₂O was tested at low temperature (<400°C). These catalysts showed higher activities in the presence of inhibition gas compared to that of pure cobalt spinel oxide. Modified cobalt based catalysts in this experiment were synthesized by co-precipitation method (Co:M=9:1, molar ratio). Methods of XRD, BET, O₂-TPD and H₂-TPR were used to characterize these catalysts.