Fabrication of cobalt oxide nanorods via chemical anodization

김진원[1], 이재광[2], 주형국[1], 이재영[1,2,*]
[1]광주과학기술원 환경공학부;
[2]광주과학기술원 Ertl 촉매연구센터
(jaeyoung@gist.ac.kr*)

Metal oxides have attracted a great interest in view of their applications in scientific and technological fields. Of many materials, cobalt oxide (Co_3O_4) is the most stable phase in Co-O system, and it can be used for solid-state sensors, heterogeneous catalysts, and intercalation compounds. In particular, Co_3O_4 are considering as a good catalyst to produce oxygen in water electrolysis. However, controlling the structure of materials is very difficult and complex steps using organic materials and device is required.
In this work, we firstly synthesized cobalt oxalate nanorods by simple chemical oxidation followed by thermal decomposition. Their properties such as morphology, chemical composition and crystalline have been observed by SEM, XRD, XPS and electron diffraction pattern attached to TEM. In addition, we conducted electrochemical experiments to compare ability of water electrolysis between cobalt plate, cobalt oxalate and cobalt oxide nanorods.