

Electrochemical oxidation of NH_3 , NH_4Cl , and $(\text{NH}_4)_2\text{CO}_3$ by nanostructured Ba.PbO_2 electrode in alkaline solution

Kannan Karunakaran, 문일식†
순천대학교
(ismoon@sunchon.ac.kr†)

Besides stability factor of PbO_2 , its wider potential window can make it as sensor field. It is known that Ba.PbO_2 used as perovskite material in semiconducting industry due to its enhanced electrode hardness and stability. Herein, the Ba.PbO_2 electrode was electrochemically prepared on Ti substrate and utilized as NH_3 sensor. At first, the electrodeposition was carried out at 65°C in $0.2\text{ M H}_3\text{BO}_3$. Then, effect of current density and concentration of precursor of Barium and Lead were studied and optimized through cyclic voltammetry analysis. Further, the as prepared electrodes examined through SEM and XRD analyses. Finally, the prepared electrode was subjected to oxidize NH_3 , NH_4Cl , and NH_4CO_3 through cyclic voltammetry technique in various pH solutions.