

Transition Metal Nitrides (TMNs) for Oxygen Reduction Reaction (ORR)

윤덕현, 배강홍, 한승훈, 이재성*
포항공과대학교
(jlee@postech.ac.kr*)

Much attention has been paid to transition metal nitrides as a possible replacement of Pt-group metal catalysts. Recently, early transition metal nitrides, oxynitrides and carbonitrides are used as oxygen reduction reaction (ORR) catalysts. Here, three different transition metal nitrides (Mo_2N , W_2N , NbN) were prepared by simple urea glass route, then compared their physical and electrochemical properties using XRD and half cell test (cyclic voltammetry and linear sweep voltammetry) respectively. In CV results, W_2N and NbN showed good electrochemical stability in the potential range of ORR compared to the Mo_2N which exhibited clear corrosion current originated from transformation of nitride to oxide. On the other hand, Mo_2N showed relatively high electrochemical activity for ORR than W_2N and NbN in LSV results.