

Green hydrogen production by electrocatalytic water splitting

In this research, we are reporting the alkaline hydrogen evolution reaction (HER) activity with the $\text{Bi}_2\text{Mn}_4\text{O}_{10}$ electrocatalyst. To boost the HER activity, we have also synthesized cobalt (5 atomic%) doped $\text{Bi}_2\text{Mn}_4\text{O}_{10}$ electrocatalyst. Our results revealed that the cobalt doped $\text{Bi}_2\text{Mn}_4\text{O}_{10}$ is acting as the electro(pre)catalyst during the alkaline HER and transforming into the Mn and Co doped Bi_2O_3 electrocatalyst with time. We believe that this work will enhance the scientific understanding of the mullite type crystal structure with bismuth and manganese in the A and B-sites respectively for their electrocatalytic activities in the alkaline medium.

