

Postsynthetic ligand exchange of zirconium based metal-organic framework 808 and its characterization for electrocatalysts

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Metal-Organic-Frameworks (MOFs) are highly nanoporous and chemically stable materials which are formed by combination of metal and organic linker. In various fields like gas storage/separation and electrocatalysts, MOFs have potentials to be used extensively. In this study, Zr-MOF 808s, which have octahedral and are composed that metal SBUs are connected to 6 BTC linkers and each of the linkers is coordinated to 3 SBUs, are used due to its aqueous and chemical stability and facile postsynthetic modification (PSM). Unlike other porous materials, MOFs are composed to organic ligand components and metal nodes. And metal and organic components can be easily functionalized by PSE. In this study, Formate linkers in MOF808 were exchanged with EDTA ligands by PSE. Through this process, function to capture heavy metal ions was granted on MOF808. EDTA-ligand exchanged MOF 808 was reported that it can be applied as electrocatalysts because of its superior capture of heavy metal ions (Pt, Pd ...). Zr-MOF 808s were characterized by HR FE-SEM, XRD, BET, TGA, XPS and ¹H-NMR.