

Highly selectivity using Ca-doped
Zn-MOF74 materials for the electrochemical reduction of CO₂

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Abstract:

For the first time, transition metals (Zn) and alkaline earth metals (Ca) combined with MOF74 ligands by the one-pot synthesis pathway, through that selectively converts CO₂ to CO with a low overpotential is reported. The results showed that as high as 93% of Faradaic efficiency toward CO can be obtained when ZC-2 was used as an ERC electrode, which was around two-fold higher value than that of pure Zn-MOF74 (~ 45%).

Keywords: Metal-organic framework (MOF-74); Electrocatalyst; Electrochemical reduction CO₂, CO selectivity; Bimetallic; Computational simulation.