

A novel bimetallic – metal organic framework (CuZn-MOF) cathode for effective electrochemical reduction of CO₂

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CuZn-1,3,5-benzenetricarboxylic acid metal-organic frameworks (CuZn-BTC MOFs) were synthesized using ZIF-8 as template. CuZn-BTC MOFs based catalyst has advantages like uniformly distributed bimetallic ions, less tendency towards aggregation and more stable interfacial sites. Therefore, CuZn-BTC, as the CO₂ capturing agent, was deposited on rotating disk electrode and was used as cathodes in electrochemical reduction of CO₂ into CO and CH₄. In our study, the reduction of CO₂ was carried out on an H-type cell, the results were showed much higher selectivity to CO, CH₄ and it was found that the current density and overpotentials are lower.

Key words:

Bimetallic-metal organic framework, Carbon dioxide electroreduction, MOFs catalysts, Faradaic efficiency