

CO₂ adsorption properties of CuBTC prepared in mixed solution using different synthesis methods

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Metal organic frameworks (MOFs) are a class of organic-inorganic hybrid materials made of metal ions or clusters interconnected through an organic linker. Among them, Cu₃(BTC)₂ has been studied intensively due to the interesting properties of the Lewis acid sites created after removal of water molecules in vacuum. In this work, CuBTC samples were prepared in mixed solution (DMF : EtOH : Water = 3 : 1 : 2,v/v) via three different synthesis routes : solvothermal, microwave heating, and sonochemical synthesis. Their textural properties were examined by XRD, SEM, BET-surface area measurement, and TGA, and we describe the full details of adsorption properties of Cu₃(BTC)₂ for CO₂ using different systems, viz., static, flow and high pressure.