

Conversion of Co-doped ZIF-8 hollow-sphere from Co/ZnO prepared by Ultrasonic Spray Pyrolysis

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ZIF-8 is a sub-class of metal-organic frameworks (MOFs) and it have drawn attention due to its promising applications. As ZIF-8 is relatively easy to synthesize, many researchers have investigated synthesis and application of ZIF-8 materials. Conventionally, ZIF-8 hollow-sphere structures have been synthesized from etching core-shell particles, which requires multiple steps in small-scale production. In this work, Co-doped ZIF-8 hollow particles were prepared in a facile and scalable method by conversion of Co/ZnO hollow-spheres. Co/ZnO hollow-spheres were prepared first by ultrasonic spray pyrolysis. Then Co/ZnO spheres were converted into Co-doped ZIF-8 hollow-sphere in 2-methylimidazole solution. Gas adsorption properties were evaluated using various gases.