

## Hollow Fiber Sorbent with mmen-Mg<sub>2</sub>(dobdpc) for High-performance CO<sub>2</sub> capture

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To prevent 14% of carbon emissions over 50 years, 90% of the world's coal-fired power plants will require a CO<sub>2</sub> capture system. In CO<sub>2</sub> capture field, porous solid sorbents need low energy for the CO<sub>2</sub> recovery and have low heat capacity. Especially, metal organic frameworks (MOFs) as solid sorbents are attracting attention as materials which have not only a high specific surface area due to its microporous property, but also have an excellent CO<sub>2</sub> adsorption capacity because due to its open metal sites. Recently, supported amine adsorbents are effective for CO<sub>2</sub> capture at low CO<sub>2</sub> partial pressures and can be stabilized in water via decoration on the open metal site of MOFs. In addition, hollow fiber can possess high loading of adsorbent and good mass transfer rate, as well as realize scalability and cost efficiency. In this study, using a two-step processes such as spinning and post-spinning, we have successfully synthesized the mmen-Mg<sub>2</sub>(dobdpc) MOF fiber sorbents from magnesium oxide (MgO) fiber sorbent precursors. We measured XRD, SEM, BET, and CO<sub>2</sub> sorption test under various conditions.