Rapid Synthesis Of Mil-100(Fe) By Microwave-Assissted Continious Tubular Reactor And Its Application For Co Separation

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In this work, MIL-100(Fe) framework was successfully synthesized by using a continuous tubular reactor under microwave irradiation for a short reaction time (20 - 50 min) and low temperature (80 - 110 °C). The effects of experimental conditions such as temperature and reaction time were systematically investigated. Compared to other approaches for preparation of MIL-100(Fe), this method can produce large quantity of MIL-100(Fe) for a shorter time and lower temperature. The obtained MIL-100(Fe) at optimum conditions were used for CO and CO_2 adsorption after loading with various transition metals. The results showed that Cu(I)-containing MIL-100(Fe) was a potential adsorbent for CO separation due to its high CO adsorption capacity and high CO/CO_2 selectivity, superior to some other absorbents as CuCo/13X, Cu(I)/Y, Cu(I)/AC, Cu(I)@SNW, etc.