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Abstract:

The present investigation reports the synthesis of CuBTC (BTC = 1,3,5-benzenetricarboxylate) metal–organic frameworks (MOFs) under solid-state conditions and ultrasound irradiation. Herein, we study uptake and release properties of crystal violet (**CV**) and methylene blue (**MB**) from ultrasound nano-CuBTC MOF in comparison with mechanosynthesis method (bulk structure). The ultrasound-assisted methods give a decrease in the surface area as calculated from the reduced nitrogen adsorption capability. In comparison, the uptake of guest molecules on ultrasound nano-CuBTC is remarkable and clearly exceeds that of bulk structure in the aqueous solution of guests. In bulk compound the channel length is increased so that the amount of adsorption is decreased a little. The small guest enters and leaves the cavity rapidly, whereas larger