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Amir Reza Abbasi, Maryam Karimi, Kim Daasbjerg

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Efficient removal of crystal violet and methylene blue from wastewater by ultrasound nanoparticles Cu-MOF in comparison with mechanosynthesis method

Amir Reza Abbasi ^{a*}, Maryam Karimi ^a, Kim Daasbjerg ^{b,c,d}

^a Faculty of Chemistry, Razi University, 67194, Kermanshah, Islamic Republic of Iran.

*Tel. and Fax: +98 83 34277464, *E-mail address:* ar.abbasi@razi.ac.ir

^b Department of Chemistry, Aarhus University, Langelandsgade 140, 8000 Aarhus C, Denmark.

^c Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Gustav Wieds Vej 14, 8000 Aarhus C, Denmark.

^d Carbon Dioxide Activation Center, Aarhus University, Gustav Wieds Vej 14, 8000 Aarhus C, Denmark.

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

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