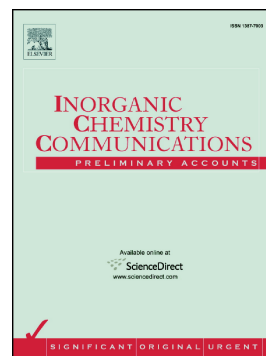


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## The sized controlled synthesis of MIL-101(Cr) with enhanced CO<sub>2</sub> adsorption property

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**Abstract:** MIL-101(Cr), a well-known chromium-benzenedicarboxylate metal organic framework with huge porosity, has been facile synthesized with particle sizes from micron-size to nano-size by using different additives as modifier. For MIL-101(Cr) synthesis in general, the addition of a modifier is a common method to adjust the morphology and improve the properties of the products. The effect of additives was thoroughly investigated in the synthesis of MIL-101(Cr), and among these additives, NaOH could largely increase the porosity ( $S_{\text{BET}} > 4000 \text{ m}^2/\text{g}$ ) of the product with particle diameter around 87 nm. Furthermore, the nano-sized MIL-101(Cr) showed enhanced CO<sub>2</sub> adsorption property (5.77 mmol/g), which is nearly twice as much as that of bulk MIL-101(Cr).

Keywords: Particles, nanosize; Porous materials; MIL-101 (Cr); CO<sub>2</sub> adsorption

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