

### Formation of a nanocomposite between mesostructured cellular silica foam and microporous copper trimesate

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A copper-based MOF(Cu<sub>3</sub>(BTC)<sub>2</sub>) was formed in the large pores of a COOH-functionalized mesostructured cellular silica foam (MCF(M)-COOH) leading to hydrophobic nanocomposite. The Cu<sub>3</sub>(BTC)<sub>2</sub> was synthesized with the sequential incorporation of Cu(NO<sub>3</sub>)<sub>2</sub>•3H<sub>2</sub>O and 1,3,5-benzenetricarboxylic acid in a water/ethanol mixture containing the MCF(M)-COOH by microwave irradiation. The nanocomposite was characterized by XRD, BET, FT-IR, TEM and solid state <sup>13</sup>C-NMR. The formation of the nanocomposite has increased the sorption rate of hydrophobic hydrocarbon vapour as compared with those of pure Cu<sub>3</sub>(BTC)<sub>2</sub> and MCF(M)-COOH as a result of their hybridization.



#### Reference

1. Y.-K Seo, I. Suryanarayana, Y. K Hwang, N Shin, D.-C A, C.-H Jun and J.-S Chang, J. Nanosci. Nanotechnol. 2008, 8, 3995.
2. Y.-K Seo, J. W Yoon, U.-H Lee, Y K Hwang, C.-H Jun and J.-S Chang, Micropore. Mesopore. Mater. in press.