Non aqueous loading of the mesoporous siliceous MCM-48 matrix with ZnO: a comparison of solution, liquid and gas-phase infiltration using diethyl zinc as organometallic precursor

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Zinc oxide species hosted in the siliceous matrix MCM-48 were prepared by an organometallic route using $ZnEt_2$ as the ZnO precursor. Gas phase as well as liquid phase infiltration of the precursor was studied in detail by ICP-AES, FT-RAIRS, ^{1}H- and ^{13}C-MAS-NMR, PXRD, TEM/EDX and UV–VIS. Highly loaded ZnO@MCM-48 materials with a Zn-content of up to 29.6 wt% were synthesized. A comparison of the different preparation techniques was carried out in order to find a convenient way of preparing ZnO@MCM-48 species for catalytic applications.