

Surface Modification of Mesoporous Silica via Dehydroxylation Route

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Since researchers at Mobil Company reported the syntheses of mesoporous silicas such as MCM-41 and MCM-48, there have been lots of developments in their synthesis, structural characterization and modification with various inorganic or organic functional groups. Most popularly, the organically modified mesoporous silicas can be prepared via post-grafting technique. However, post-grafting method is too easy cleavage of the Si-O-C bonds during applications and the loss of functionality. We propose a novel strategy for modification of mesoporous silica surface via a dehydroxylation route using Grignard reagent. The route gives not only the formation of a direct Si-C bond, which is much stronger in hydrolytic cleavage, but also preclusion from the formation of both surface bound oligomers and variable modes of attachment.