



Tin Nano Catalyst for Bayer-Villiger Oxidation Reaction

By Srilatha Konda

LAP Lambert Academic Publishing Apr 2015, 2015. Taschenbuch. Book Condition: Neu. 220x150x5 mm. This item is printed on demand - Print on Demand Neuware - Highly ordered mesoporous SBA-15 silica material was synthesized under hydrothermal conditions using P123 as template and tetraethyl orthosilicate as silica source. Tin nanoparticles were deposited on the pore surfaces of Si-SBA-15 support post synthetically using SnCl_4 as tin source. Tin containing SBA-15 catalysts were also prepared by direct synthesis using SnCl_4 and SBA-15 precursors under hydrothermal conditions. These Sn-SBA-15 catalysts were further modified by adding trifluoromethane sulfonic acid ($\text{F}_3\text{CH-SO}_3\text{H}$). These Sn-SBA-15-OTf catalysts were characterized by low angle XRD and N_2 adsorption-desorption techniques to investigate the structural intactness of SBA-15 after every modification. The deposition of Sn, its crystalline behavior, particle size, local environments and morphological aspects were characterized by FT-IR, XRD, UV-vis, XPS and SEM techniques respectively. The loading amount of Tf-OH was confirmed by CHNS analysis. Sn-SBA-15-OTf catalyst was found to be highly active and selective towards the Baeyer-Villiger oxidation of cyclohexane to ϵ -caprolactone in the liquid phase as heterogeneous catalyst. 88 pp. Englisch.



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