**Synthesis and characterization of 3-[N,N’-bis-3-(salicyliden- amino) ethyltriamine] Mo(VI)O2@SBA-15: a highly stable and reusable catalyst for epoxidation and sulfoxidation reactions**

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The efficient and reusable oxidation catalyst 3-[N,N’-bis-3(salicylidenamino)ethyl tri- amine] Mo(VI)O2@SBA- 15 has been synthesized by the anchoring of the 3-[N,N’-bis-3-(salicylidenamino)ethyltriamine] ligand (L or Salpr) on the inner surfaces of organo- functionalized SBA-15 and subsequent complexation with Mo(VI)O2(acac)2. The physico-chemical properties of the functionalized catalysts were analyzed by elemental analysis, ICP-OES, XRD, N2-sorption measurements, TG & DTA, solid state 13C, 29Si NMR, FT-IR, Raman,XPS, DRS UV-Vis, SEM and TEM. XRD and N2 sorption analyses help to find out the textural properties and ordered mesoporous channel structure of all synthesized catalysts.TG and DTA results reveal that the thermal stability of (L)Mo(VI)O2@SBA-15 was maintained up to 300 °C. The organic moieties anchored over the surface of the SBA-15 support were determined by solid state 13C NMR and FT-IR spectroscopy. Further, solid state 29Si NMR spectroscopy provides the information about the degree of functionalization of the surface silanol groups with the organic moiety. The electronic environment and the oxidation state of the molybdenum site in (L)Mo(VI)O2@SBA-15 were monitored by Raman spectroscopy, XPS and DRS UV-Vis techniques. The morphology and topographic information of the synthesized catalysts were confirmed by SEM and TEM imaging. The synthesized catalysts were evaluated in epoxidation and sulfoxidation reactions, and the results show that (L)Mo(VI)O2@SBA-15 exhibits high conversion and selectivity towards epoxidation and sulfoxidation reactions with high stability. The anchored solid catalysts can be recycled effectively and reused several times without major loss in activity. In addition, Sheldon's hot filtration test was also carried out.

Thrust Area: Surface chemistry and Catalysis

Oral Presentations