

عنوان مقاله:

Highly Efficient Solvent Free Oxidation of Ethyl benzene Using Reusable Heterogeneous Nano-catalysts: The Role of SiO₂-Al₂O₃ mixed-oxide and linker in Competency of Mn(III)-Schiff base complexes

محل انتشار:

سومین کنفرانس نانوساختارها (سال: 1388)

تعداد صفحات اصل مقاله: 3

نویسندگان:

M Arshadi - *Department of Chemistry, Isfahan University of Technology, Isfahan*

M Ghiaci - *Department of Chemistry, Isfahan University of Technology, Isfahan*

خلاصه مقاله:

SiO₂-Al₂O₃ mixed-oxide was functionalized with 3-aminopropyl triethoxy silane and 2-aminoethyl-3-aminopropyl trimethoxy silane groups. Mn(III)-Schiff base complexes covalently linked on these organo-functionalized SiO₂-Al₂O₃ mixed-oxide. The support and the type of organo-functional group influenced the electronic structure (oxidation state and redox behavior) and regioselectivity of the Mn-complexes in the oxidation of ethyl benzene with tert-butyl hydroperoxide without using solvent. The Mn ions were reduced from the oxidation state of +3 to +2 state; the tendency for this reduction on different supports decreasing in the order of: SiO₂-Al₂O₃ mixed-oxide-2-aminoethyl-3-aminopropyl trimethoxysilane > SiO₂-Al₂O₃ mixed-oxide-3-aminopropyl trimethoxysilane. Mn(III)-Schiff base complexes supported on 2-aminoethyl-3-aminopropyl trimethoxysilane-functionalized SiO₂-Al₂O₃ yielded acetophenone with 90% regioselectivity. The selectivity of the catalyst remained almost unchanged after four cycles, but the catalytic reactivity decreased gradually. The AAS analysis indicates that the decrease in the activity of the catalyst is not mainly attributed to the leaching of Mn during the catalytic runs.

کلمات کلیدی:

"SiO₂-Al₂O₃ mixed-oxide, Schiff base, manganase, acetophenone, oxidation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/84982>

