

Title: Efficient cyclohexane oxidation with hydrogen peroxide catalysed by a C-scorpionate iron(II) complex immobilized on desilicated MOR zeolite

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Abstract: The hydrotris(pyrazol-1-yl)methane iron(II) complex [FeCl₂{eta(3)-HC(pz)(3)}] (Fe, pz = pyrazol-1-yl) immobilized on commercial (MOR) or desilicated (MOR-D) zeolite, catalyses the oxidation of cyclohexane with hydrogen peroxide to cyclohexanol and cyclohexanone, under mild conditions. MOR-D/Fe (desilicated zeolite supported [FeCl₂{eta(3)-HC(pz)(3)}] complex) provides an outstanding catalytic activity (TON up to 2.90 x 10³) with the concomitant overall yield of 38%, and can be easily recovered and reused. The MOR or MOR-D supported hydrotris(pyrazol-1-yl)methane iron(II) complex (MOR/Fe and MOR-D/Fe, respectively) was characterized by X-ray powder diffraction, ICP-AES, and TEM studies as well as by IR spectroscopy and N₂ adsorption at -196 degrees C. The catalytic operational conditions (e.g., reaction time, type and amount of oxidant, presence of acid and type of solvent) were optimized. (C) 2013 Elsevier B.V. All rights reserved.

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