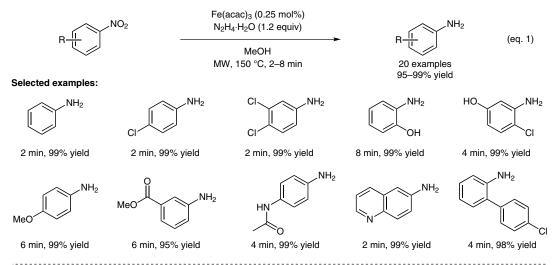
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In Situ Generated Iron Oxide Nanocrystals as Efficient and Selective Catalysts for the Reduction of Nitroarenes Using a Continuous Flow Method

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Reduction of Nitroarenes Using In Situ Generated Iron Oxide Nanocrystals

Reduction of nitroarenes using the batch system:



Continuous-flow reduction of nitroarenes:

Significance: Iron oxide nanocrystals, generated in situ from Fe(acac)₃ and hydrazine hydrate, catalyzed the reduction of nitroarenes with hydrazine hydrate under microwave conditions to give the corresponding anilines in 95-99% yield (20 examples, eq. 1). In the reduction of nitrobenzene to aniline using the batch system, the catalyst was magnetically separated from the reaction mixture and reused seven times.

performed using a continuous-flow system to afford the anilines in 95-97% yield (eq. 2). The in situ generated iron oxide nanoparticles were characterized by XRD and HRTEM analyses. ICP-MS showed 7.9% iron leaching from the catalyst during the reduction using the batch system.

SYNFACTS Contributors: Yasuhiro Uozumi, Fumie Sakurai Synfacts 2013, 9(1), 0111 Published online: 17.12.2012 DOI: 10.1055/s-0032-1317912; Reg-No.: Y14012SF

Comment: The reduction of nitroarenes was also

Category

Polymer-Supported

Key words

iron

nanoparticles

nitroarenes

reduction

flow reaction