F. A. WESTERHAUS, R. V. JAGADEESH, G. WIENHÖFER, M.-M. POHL, J. RADNIK, A.-E. SURKUS, J. RABEAH, K. JUNG, H. JUNG, M. NIELSEN, A. BRÜCKNER, M. BELLER* (LEIBNIZ-INSTITUT FÜR KATALYSE E.V. AN DER UNIVERSITÄT ROSTOCK, GERMANY)
Heterogenized Cobalt Oxide Catalysts for Nitroarene Reduction by Pyrolysis of Molecularly Defined Complexes
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Co₃O₄-Nitrogen Complex for Hydrogenation of Nitroarenes

Category

Polymer-Supported Synthesis

Key words

nitroarenes

cobalt oxide

phenanthroline

hydrogenation

SYNFACT
of the month

Preparation of a carbon-supported cobalt oxide nitrogen catalyst 1:

Results:

Significance: A carbon-supported cobalt oxide-nitrogen catalyst **1** was prepared by pyrolysis (800 °C) of Co(phen)₂(OAc)₂ on Vulcan XC72R (an activated carbon). The hydrogenation of nitroarenes was carried out with **1** (1 mol% copper) in THF-H₂O under 50 bar of H₂ to give the corresponding anilines **2a-j** in up to 99% yield.

Comment: The catalyst was reused nine times in the reaction of nitrobenzene where catalytic activity gradually decreased. The catalyst was characterized with TEM, energy-dispersive X-ray (EDX), XPS, and electron paramagnetic resonance (EPR).

SYNFACTS Contributors: Yasuhiro Uozumi, Yoichi M. A. Yamada, Heeyoul Baek
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