Heterogenized Cobalt Oxide Catalysts for Nitroarene Reduction by Pyrolysis of Molecularly Defined Complexes


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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).