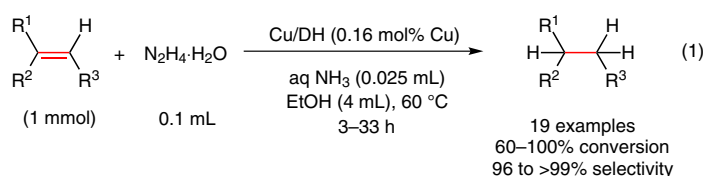
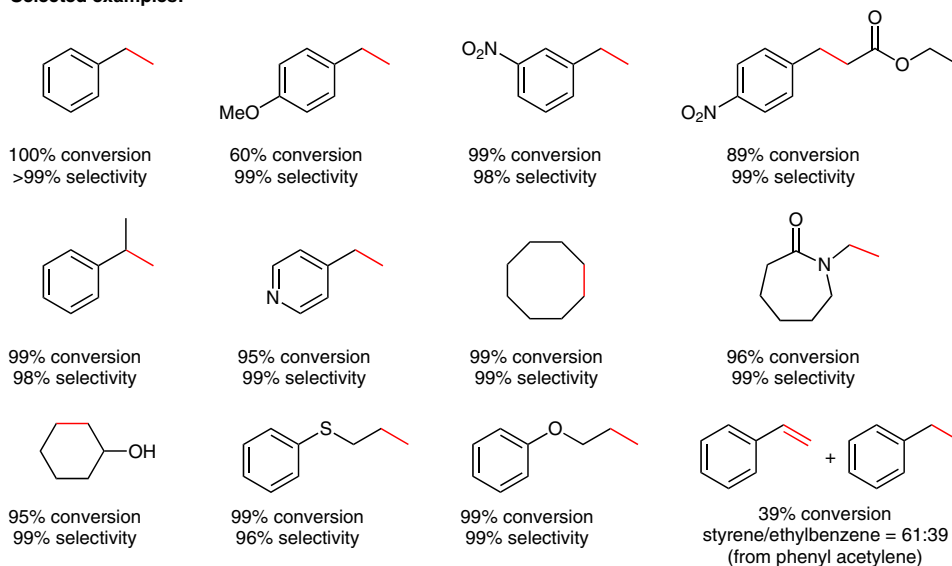


Hydrogenation of Alkenes Using Copper Nanoparticles Supported on Diamond



Selected examples:



Significance: Copper nanoparticles supported on diamond nanoparticles (Cu/DH) catalyzed the hydrogenation of alkenes with $\text{N}_2\text{H}_4 \cdot \text{H}_2\text{O}$ to give the corresponding alkanes in 60–100% conversion with selectivities of the desired products from 96 to >99% (19 examples, eq. 1). The catalyst was recovered by centrifugation and reused three times without significant loss of the catalytic activity in the hydrogenation of styrene (3rd reuse: 94% conversion, >99% selectivity).

Comment: The authors previously reported the preparation of Cu/DH and their application to the aerobic oxidation of thiols (*ChemCatChem* **2013**, 5, 241). The catalytic activity of Cu/DH was superior to that of copper nanoparticles supported on activated carbon, graphite, and multi-walled carbon nanotubes and gold and palladium nanoparticles supported on DH. Phenyl acetylene underwent the hydrogenation under similar conditions to give styrene and ethylbenzene (39% conversion; styrene/ethylbenzene = 61:39).