Supporting Information

Highly efficient and recyclable rhodium nanoparticle catalyst for hydrogenation of quinoline and its derivatives

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Materials

Toluene and *n*-heptane were purchased from Kermel and purified by distillation from an appropriate drying agent under inert atmosphere. 3-Methylquinoline, 6-methylquinoline, 8-methylquinoline, 6-methoxyquinoline and PEG_{4000} (PEG with an average molecular weight of 4000 g/mol) were supplied by Alfa Aesar. Quinoline and 2-methylquinoline were purchased from Shanghai Aladdin Reagent Co., Ltd. $RhCl_3 \cdot 3H_2O$ was received from Beijing Research Institute of Chemical Industry and used without further purification.

Analyses

Gas chromatography analyses were performed on a Tianmei 7890 GC instrument equipped with a 50 m OV-101 column (inner diameter 0.25 mm) and a FID detector (N_2 as a carrier gas). GC-MS measurement was performed on a HP 6890 GC/5973 MSD instrument (with a 30 m HP-5MS column, inner diameter 0.25 mm; He as a carrier gas). ICP-AES analyses of Rh were carried out on Optima 2000 DV (Perkin Elmer, USA). The transmission electron microscope (TEM) images were performed on a Tecnai $G^2$20 Spirit

microscope at an accelerating voltage of 120 kV.

TEM of the Rh nanoparticle catalyst

The size of Rh nanoparticle catalyst was characterized by TEM. The PEG_{4000} containing the Rh nanoparticles was diluted with a mixture of ethanol and water (*V*/*V* = 1:1). Then, a drop of the solution was placed onto a carbon-coated copper grid, which was dried at ambient temperature.

Mercury poisoning test experiment

0.5 g of Hg (0) (500 equiv. of Rh) was added to the freshly prepared PEG_{4000}-stabilized Rh nanoparticle catalyst and stirred at 80 ^{o}C for 2 h. After cooling to room temperature, the hydrogenation of quinolines was performed as described in the text under the same reaction conditions as entry 2 in Table 1.