

## Supplementary Information

### **Ag/SiO<sub>2</sub>: a novel catalyst with high activity and selectivity for hydrogenation of chloronitrobenzenes**

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#### **Preparation of Ag/SiO<sub>2</sub>**

The detailed procedure is as follows: first, 5.0 mL aminopropyltri-ethoxysilane (APTES) and 2.0 mL tetraethoxysilicate (TEOS) were added into 10 mL of a mixture water solution of ammonia (27%) and 20 mL deionized water, and after stirring at room temperature for 24 h the solution was evaporated at 80 °C. The obtained solid was further dried in air at 120 °C for 12 h, leading to aminopropyl-functionalized silica (denoted as NH<sub>2</sub>-SiO<sub>2</sub>). 2.0 g of the NH<sub>2</sub>-SiO<sub>2</sub> was added to 30 mL of an aqueous solution of HCHO (37%), which was stirred at 60 °C for 2h, filtered and dried in air at 120 °C for 3h, finally a white solid powder (denoted as CH<sub>2</sub>O-SiO<sub>2</sub>) was made. 1.0 g of CH<sub>2</sub>O-SiO<sub>2</sub> was suspended in a solution of 0.063g AgNO<sub>3</sub> dissolved in 40 mL deionized water, after being stirred at 60 °C for 2h, and following filtering and drying in air at 120 °C for 12h, a yellow powder of the Ag/SiO<sub>2</sub> catalyst was obtained. The loading of silver was found to be *ca.* 4.0% in weight. The catalytic properties of these Ag catalysts were compared with a silver catalyst supported on SBA-15 with ordered mesostructure and high surface area (700m<sup>2</sup>/g) that was prepared by a conventional impregnation method and reduced at 500 °C in H<sub>2</sub> (denoted as Ag/SBA-15-imp).

## Test of Catalytic Properties

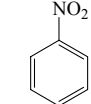
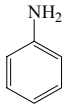
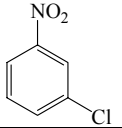
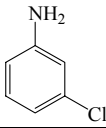
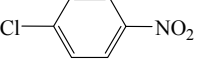
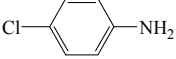
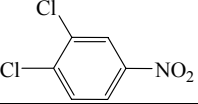
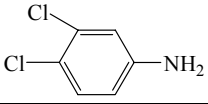
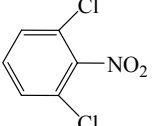
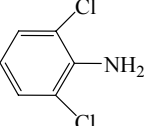


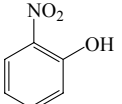
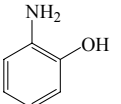
The catalytic reactions of CNBs were carried out in a Parr autoclave, of which the products were analyzed using a gas chromatography (Agilent 6890N) equipped with an SE-54 capillary column and an FID detector.

**Table S1** The catalytic recycle properties of Ag/SiO<sub>2</sub>-200 catalyst for selective hydrogenation of o-chloronitrobenzene

Cycle	Conversion (%)	Selectivity (%)	Cycle	Conversion (%)	Selectivity (%)
1	100	100	4	99.0	100
2	98.8	100	5	99.2	100
3	98.8	100	6	99.3	100

Reaction conditions: 0.1g of the catalyst, 0.5g of the substrate and 25 mL of ethanol, H<sub>2</sub> pressure 2.0MPa; reaction temperature 140°C; reaction time 3h.

**Table S2** Selective hydrogenation of various chloronitrobenzens over Ag/SiO<sub>2</sub>-200 catalyst

Entry	Substrate	Product	Conversion (%)	Selectivity (%)
1			93.9	100
2			100	100
3			100	100
4			100	100
5			100	100
6			100	100
7			100	100

Reaction conditions: 0.1g of the catalyst, 0.5g of the substrate and 25 mL of ethanol, H<sub>2</sub> pressure 2.0MPa; reaction temperature 140°C; reaction time 3h.