

were analysed at 25°C and measurements were started 10 min after the cell was placed in the DLS apparatus to allow the temperature to equilibrate.

Gas chromatography. For hydrogenation reactions, the conversion and the selectivity were determined by gas chromatography using Fisons Instruments GC 9000 series with FID detector equipped with a chiral Varian Chiralsil-Dex CB capillary column (30 m, 0.25 mm i.d.). Parameters were as follows: isotherm program with oven temperature, 90°C (ethylpyruvate) or 130°C (acetophenone and 2-acetamido acrylate); carrier gas pressure, 50 kPa.

General procedure for the preparation of surfactant/modified β -cyclodextrin stabilized rhodium(0) nanoparticles

RhCl₃·3H₂O (10 mg, 3.8 × 10⁻² mmol, 1 eq) was dissolved into distilled water (6 mL) and maintained under vigorous stirring. At the same time, cyclodextrin (RaMeCD or RaMeCDLeu) (7.6 × 10⁻² mmol, 2 eq) was added to a warm aqueous solution (14 mL) of appropriate surfactant (HEA16Cl or QCD16Br) (7.6 × 10⁻² mmol, 2 eq). The inclusion complex was stirred for 30 min before addition of sodium borohydride (3.6 mg, 9.5 × 10⁻² mmol, 2.5 eq). This mixture was quickly added to rhodium solution previously prepared above. The obtained rhodium nanoparticles were stirred for 24 h before used in catalytic test.

General procedure for atmospheric hydrogenation reactions

A 25 mL round bottom flask, charged with the aqueous colloidal rhodium(0) suspension (10 mL, 1.9 × 10⁻² mmol) and appropriate substrate ([Substrate]/[Rh⁰] ratio = 100/1), was connected to a gas burette and a flask to balance the pressure. Then the system was filled with hydrogen (P_{H₂} = 1 bar) and the mixture was stirred vigorously at room temperature. Samples were collected from time to time to monitor the reaction by gas chromatography in previously mentioned conditions.

General procedure for high pressure hydrogenation reactions

The stainless steel autoclave was charged with the aqueous colloidal rhodium(0) suspension (10 mL, 1.9 × 10⁻² mmol) and appropriate substrate ([Substrate]/[Rh⁰] ratio = 100/1). The autoclave was degassed three times and hydrogen gas was admitted to the system at a constant pressure (10 bar H₂). The mixture was stirred vigorously at room temperature. Samples were removed from time to time to monitor the reaction by gas chromatography in previously mentioned conditions.

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