Hydroformylation of Styrene Derivatives Catalyzed by Rhodium Single-Atoms Supported on CeO₂

**Significance:** A rhodium single-atom catalyst on CeO₂ (Rh₁/CeO₂) was prepared by mixing RhCl₃ and CeO₂ in deionized water, followed by calcination at 400 °C (eq. 1). Rh₁/CeO₂ catalyzed the hydroformylation of styrene derivatives with hydrogen generated in situ from water and carbon monoxide to give the corresponding linear aldehydes in ≤ 99% conversion (eq. 2).

**Comment:** Rh₁/CeO₂ was characterized by means of ICP-OES, STEM, HAADF-STEM, FT-IR, EDS analyses. In the hydroformylation of styrene, Rh nanoparticles supported on CeO₂ (NP-Rh/CeO₂) gave 3-phenylpropan-1-ol rather than 3-phenylpropanal, with 99% selectivity (eq. 3).