Supporting Information

Hydrotalcite framework stabilized ruthenium nanoparticles (Ru/HTaL): Efficient heterogenous catalyst for the methanolysis of ammonia-borane

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Figure S1. FTIR spectra of (a) HTaL (b) Ru(III)/HTaL and (c) Ru(0)/HTaL samples in the range of 500-4000 cm⁻¹.
Figure S1 shows the Fourier transform infrared spectroscopy (FTIR) spectra of HTaL, Ru(III)/HTaL and Ru(0)/HTaL. As can be seen in the FTIR spectrum, the absorption band (in both Ru(0)/HTaL and HTaL) at 3443 cm⁻¹ is assigned to the vibrational absorption of O-H (hydroxide), which can be attributed to the interlayer water molecules and the -O-H groups in the brucite-like layers. The weak peak at 1575 cm⁻¹ is assigned to the vibrational absorption coming from the interlayer water. The strong peak at 1365 cm⁻¹ is assigned to the asymmetric stretching of the CO₃²⁻ (carbonate). The bands in the range of 1030-500 cm⁻¹ are attributed to metal oxide (RuO₂, Al₂O₃, and MgO) stretching.

![Figure S1](image1.png)

**Figure S2.** ¹¹B NMR spectra of (b) NH₃BH₃ solution, (a) the aliquot taken from the reaction solution at the end of the in situ generated Ru(0)/HTaL-catalyzed methanolysis of ammonia-borane.