

Catalytic methanolysis of hydrazine borane: a new and efficient hydrogen generation system under mild conditions

(Electronic Supplementary Information)

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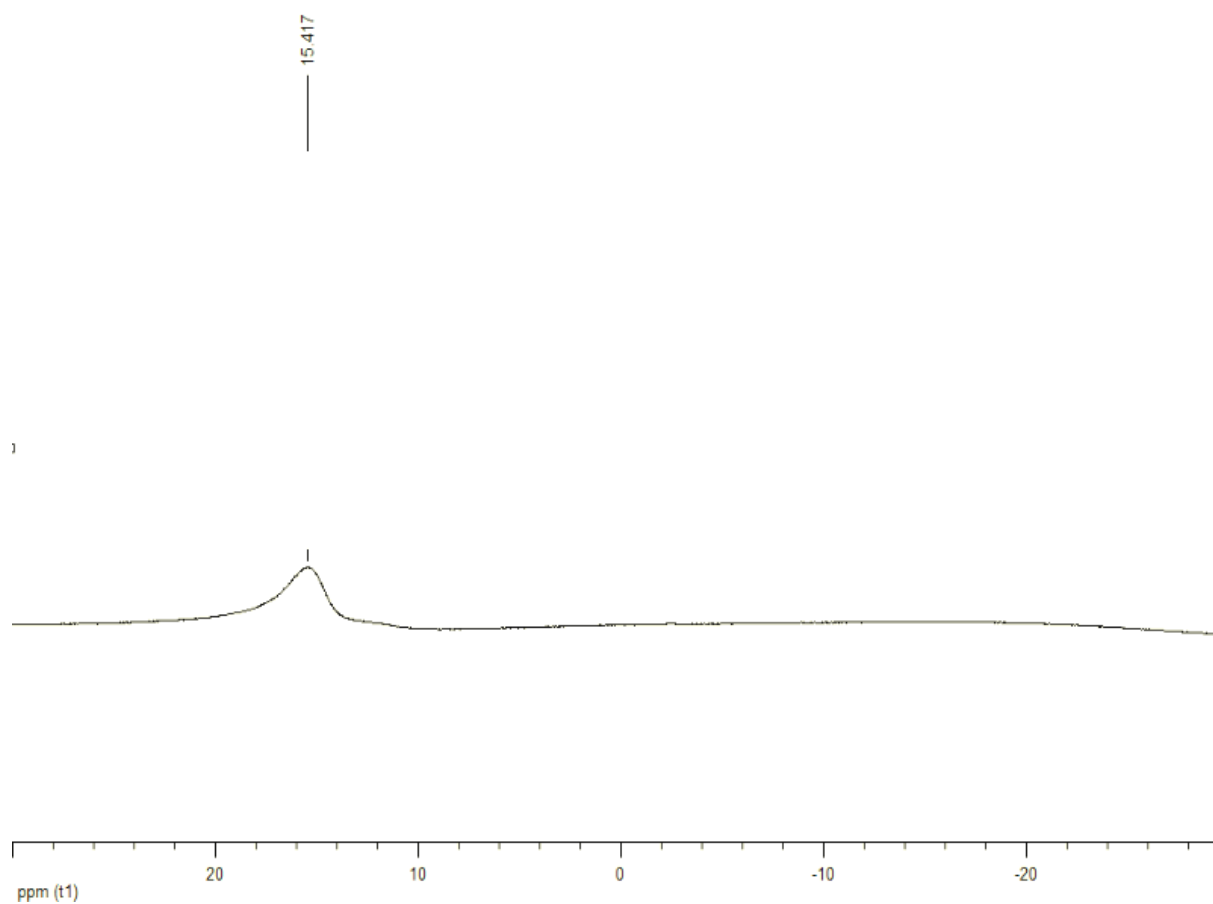


Fig. ESI-1 ^{11}B NMR spectrum of the reaction solution taken at the end of the hydrogen generation from hydrazine borane (400 mM) in a solution that contains 5 mL water and 5 mL methanol starting with NiCl_2 (5.0 mM) precatalyst at 25.0 ± 0.1 °C.

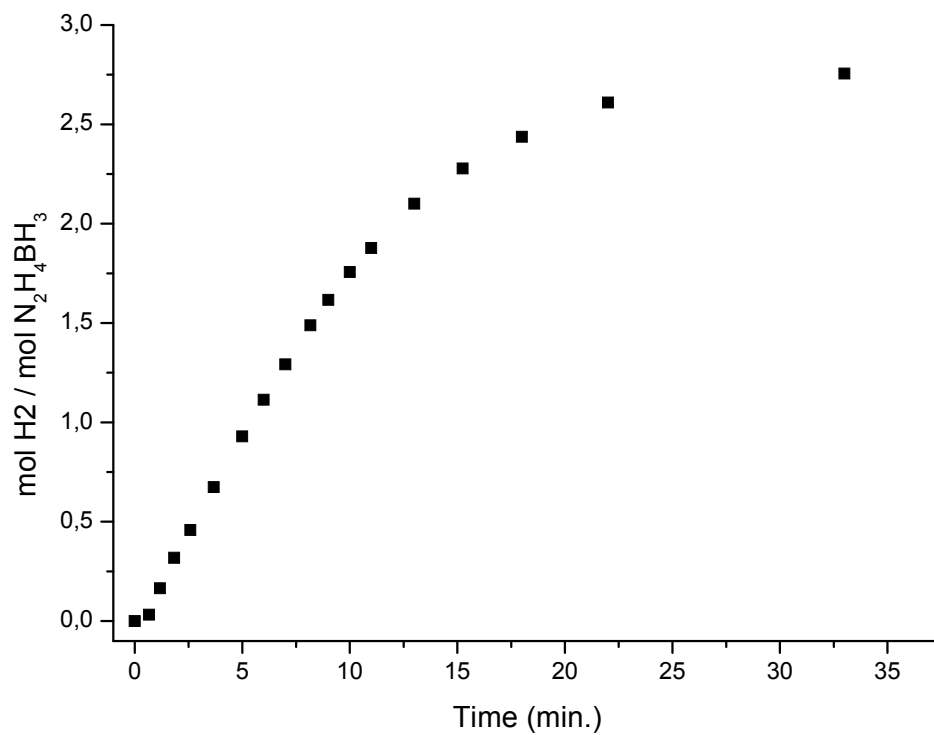


Fig. ESI-2 Volume of hydrogen (mL) versus time (min.) graph for the hydrogen generation from hydrazine borane (400 mM) in a solution that contains 5 mL water and 5 mL methanol starting with NiCl₂ (5.0 mM) precatalyst at 25.0 ± 0.1 °C.

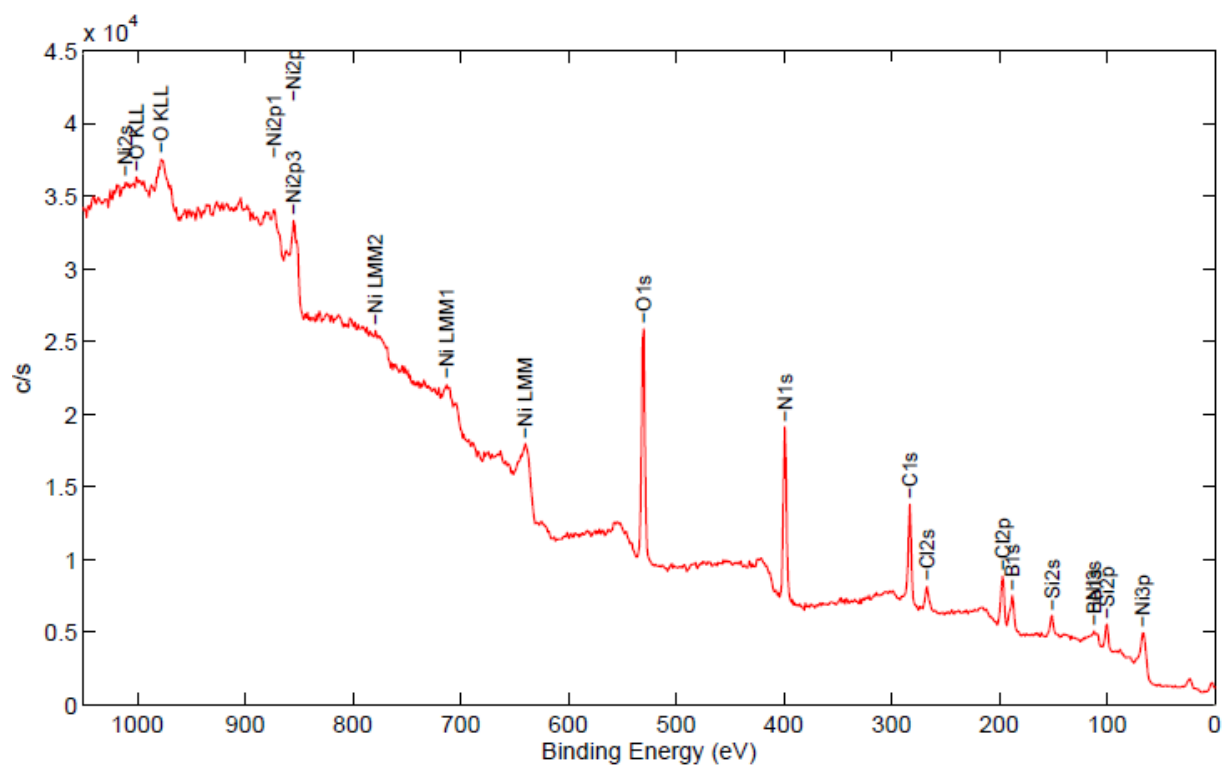


Fig. ESI-3 XPS spectrum of the isolated solid at the end of the methanolysis of hydrazine borane (400 mM) starting with 4.0 mM NiCl₂ in 10 mL methanol at 25.0 ± 0.1 °C.

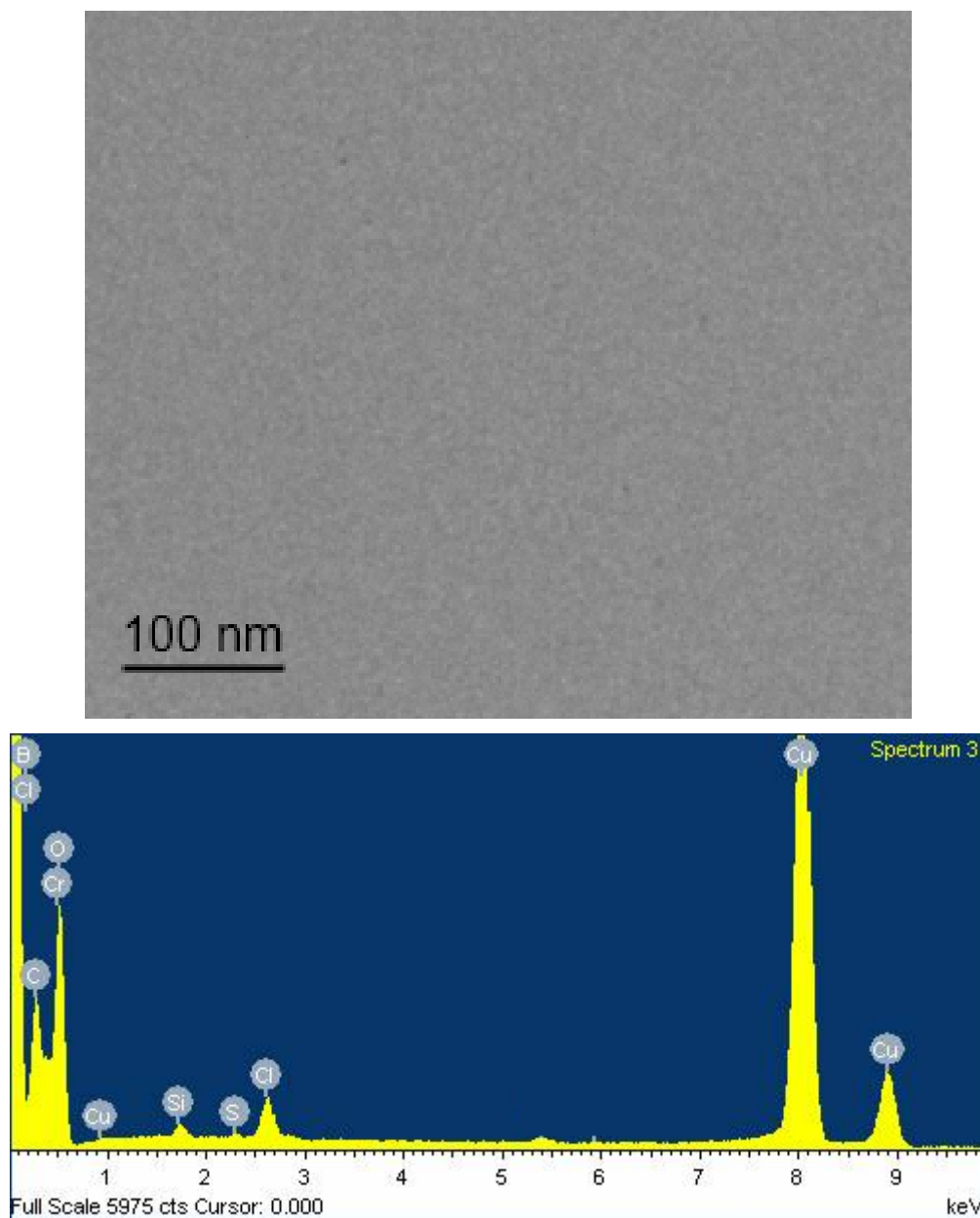


Fig. ESI-4 TEM image and corresponding TEM-EDX spectrum of the reaction solution harvested at the end of the methanolysis of hydrazine borane (400 mM) starting with 4.0 mM NiCl₂ in 10 mL methanol at 25.0 ± 0.1 °C (EDX spectrum also contains some impurities such as Si and Cu presumably coming from TEM grid).

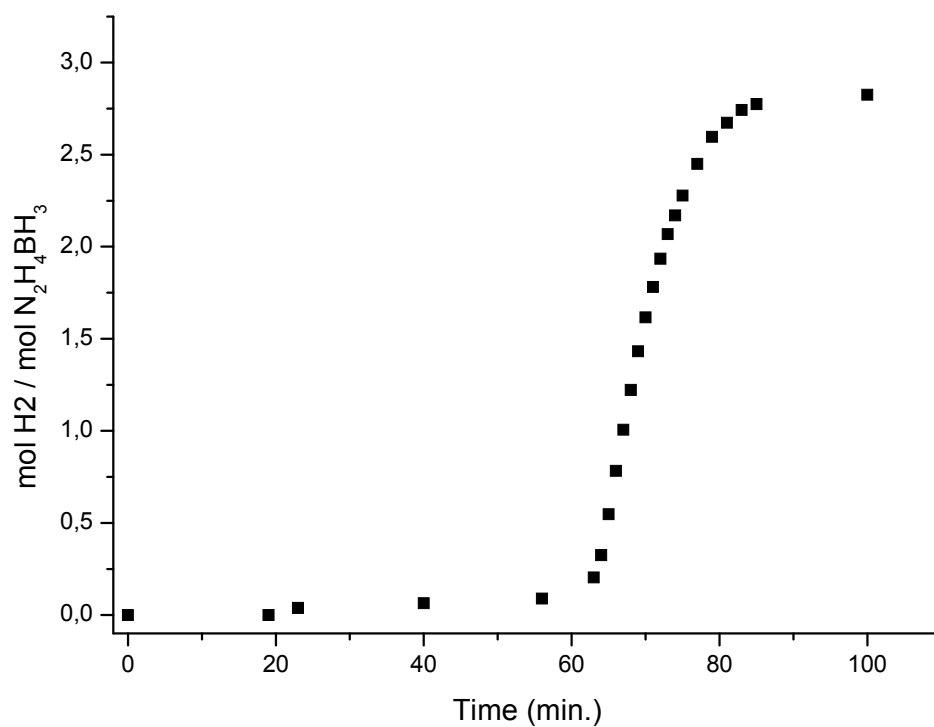


Fig. ESI-5 Volume of hydrogen (mL) versus time (min.) graph for the methanolysis of hydrazine borane (400 mM) starting with Ni(II)-2-ethylhexanoate (11.0 mM) precatalyst in 10 mL methanol at 25.0 ± 0.1 °C.