

Electronic Supplementary Information

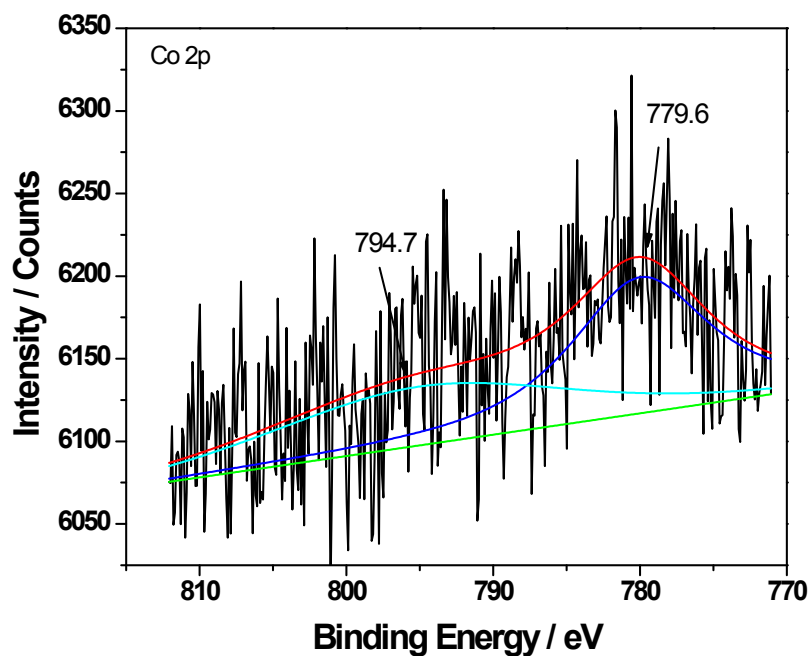


Figure S1. Co 2p spectrum of the post-milled $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.1/3\text{Co}_3\text{O}_4$ sample.

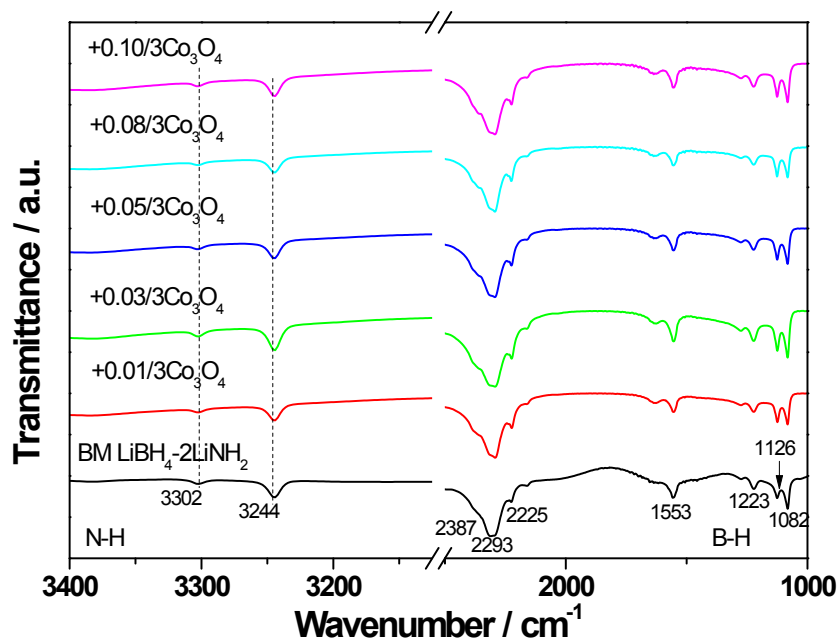


Figure S2 FTIR spectra of the as-milled $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}x/3\text{Co}_3\text{O}_4$ composites.

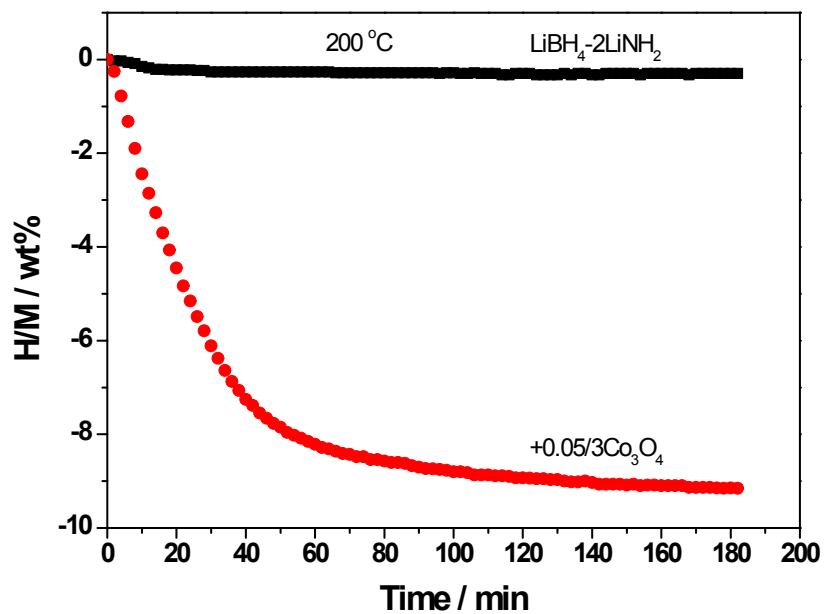


Figure S3. Isothermal dehydrogenation curves of the $\text{LiBH}_4\text{-}2\text{LiNH}_2$ and $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.05/3\text{Co}_3\text{O}_4$ samples at 200 °C.

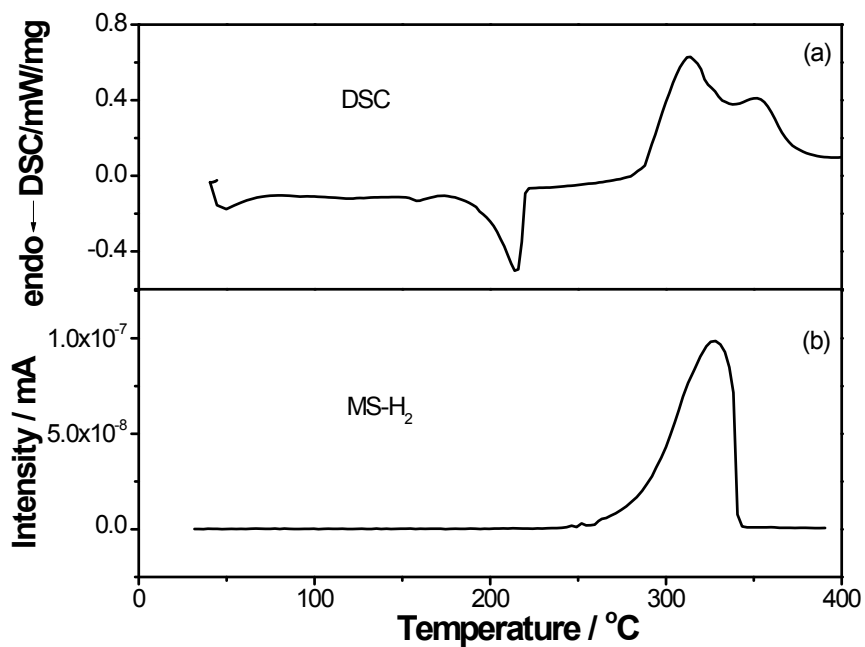


Figure S4. DSC and TPD-MS curves of the $\text{LiBH}_4\text{-}2\text{LiNH}_2$ sample. (a) DSC, (b) H_2 signal.

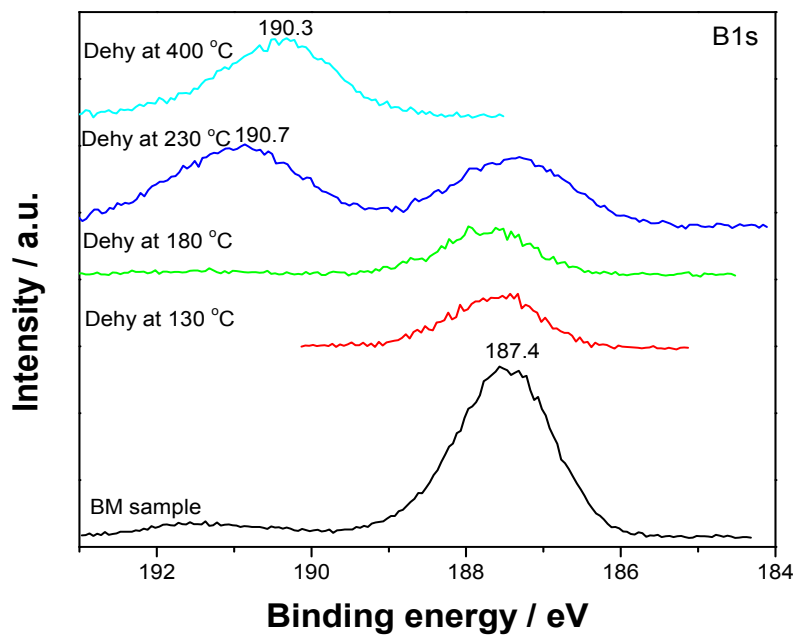


Figure S5. B 1s spectra of the dehydrogenated $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.05/3\text{Co}_3\text{O}_4$ samples at different temperatures.

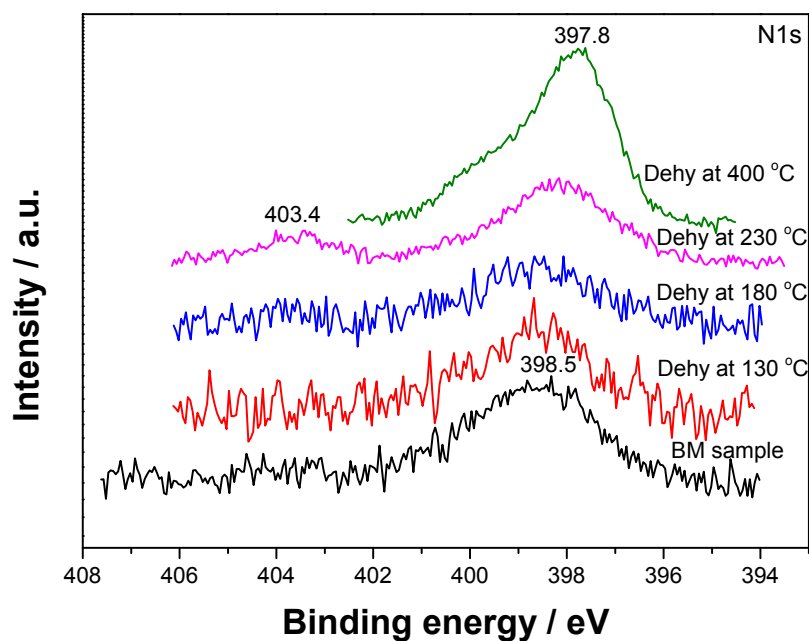


Figure S6. N 1s spectra of the dehydrogenated $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.05/3\text{Co}_3\text{O}_4$ samples at different temperatures.

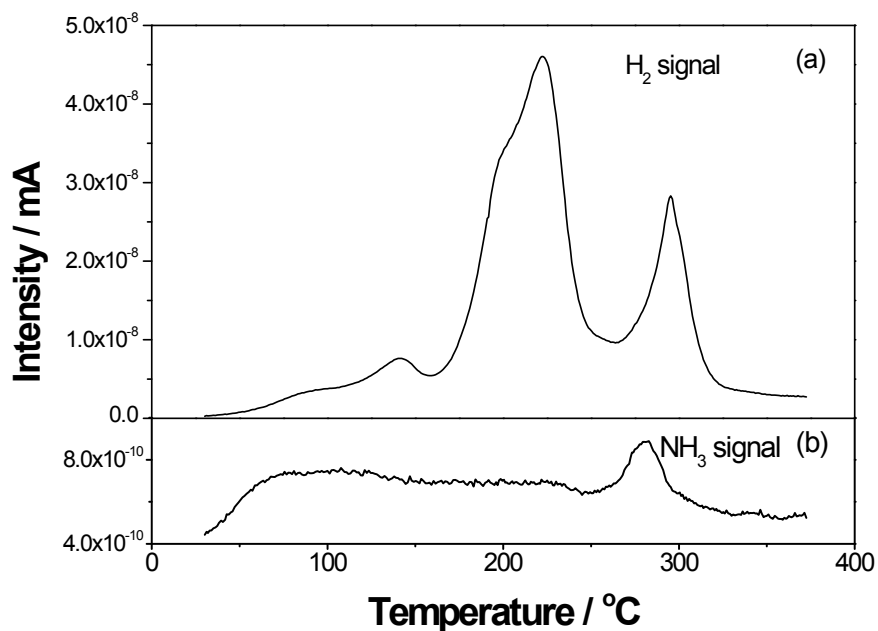


Figure S7 TPS-MS curves of the re-hydrogenated $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.05/3\text{Co}_3\text{O}_4$ sample at 220 °C and 110 bar of hydrogen pressure. (a) H₂ signal. (b) NH₃ signal.

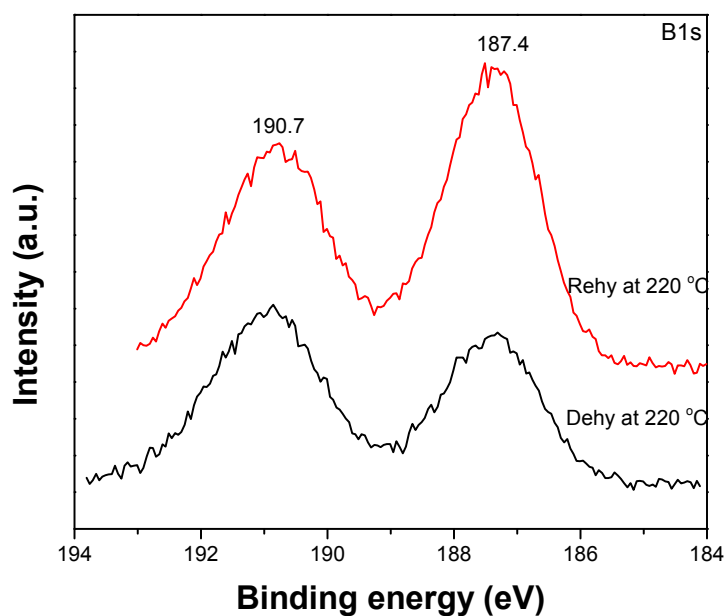


Figure S8. B 1s spectra of the re-dehydrogenated $\text{LiBH}_4\text{-}2\text{LiNH}_2\text{-}0.05/3\text{Co}_3\text{O}_4$ samples at 220 °C and 110 bar of hydrogen pressure.