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Mixed-metal (Li, Al) amidoborane: synthesis and hydrogen storage properties

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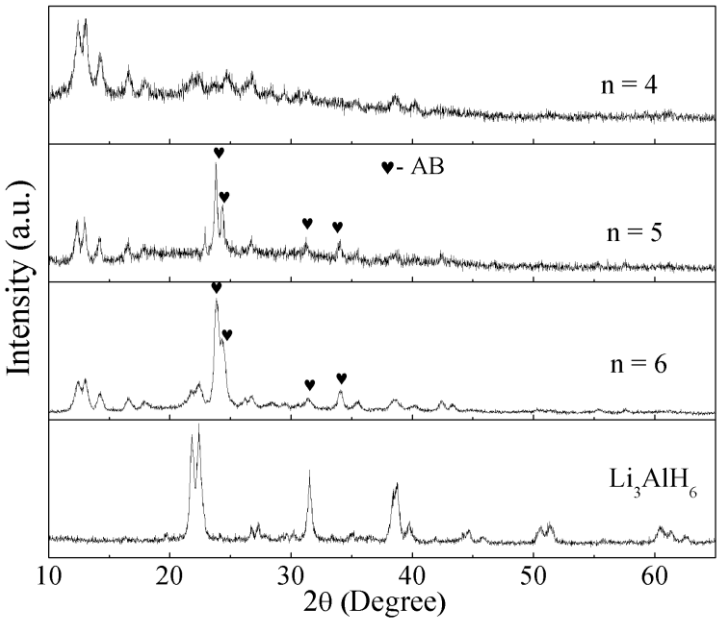

Figure S1. Powder XRD patterns of the as-prepared Li_3AlH_6 – n AB (n = 4, 5, and 6) composites, with pristine Li_3AlH_6 included for comparison.

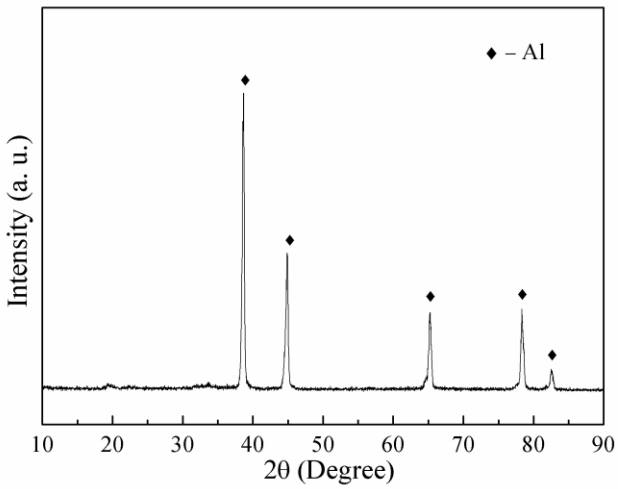

Figure S2. Powder XRD pattern for a hand-milled mixture of $LiAlH_4$ and AB in a molar ratio of 1:4.

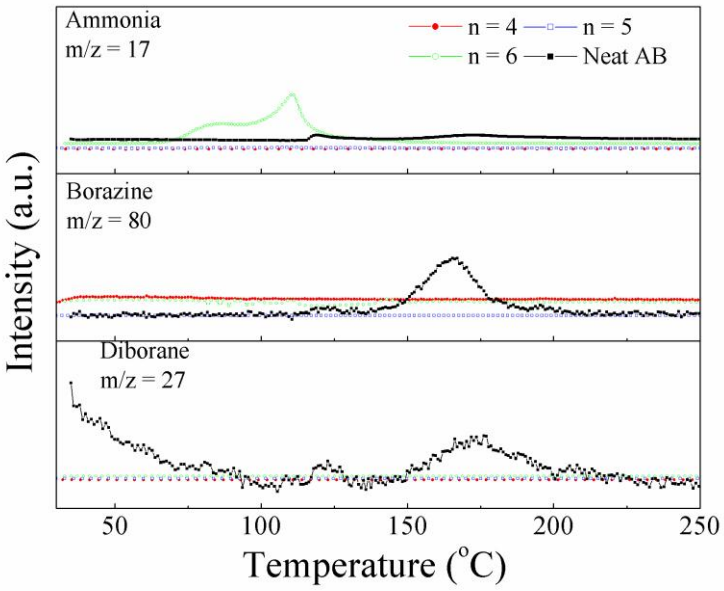

Figure S3. MS spectra for the by-products from the post-milled Li_3AlH_6 – n AB (n = 4, 5, and 6) composites, including neat AB for comparison.

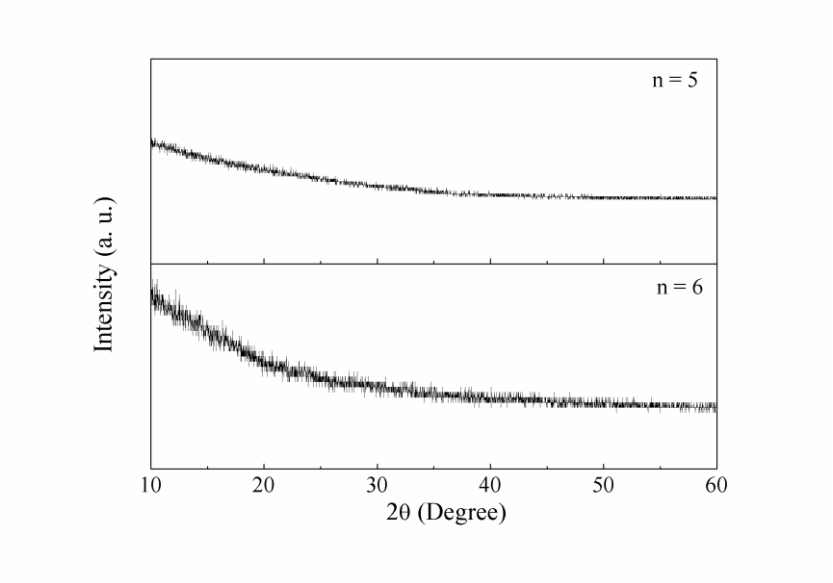

Figure S4. Powder XRD patterns of the as-prepared Li_3AlH_6 – n AB (n = 5 and 6) composites after heating to 250 ^oC

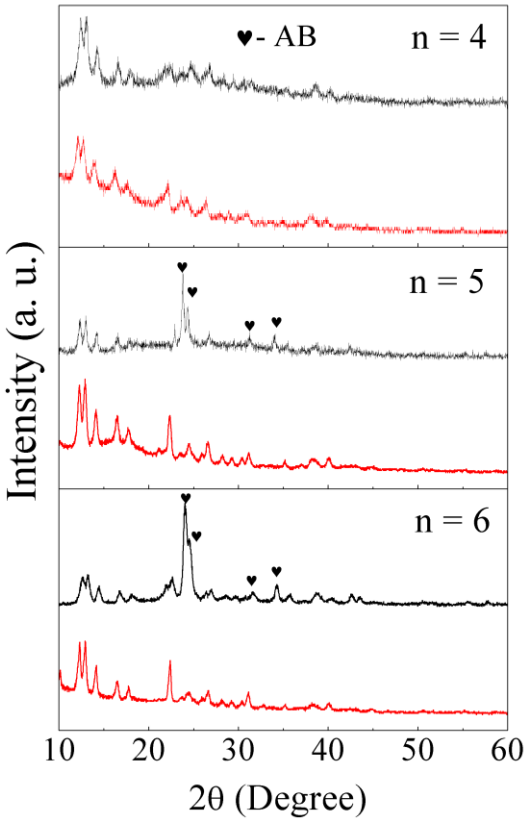

Figure S5. Powder XRD patterns for the as-prepared Li_3AlH_6 – n AB (n = 4, 5, and 6) composites (black lines) and the related products cooled down to room temperature after heating to 90 ^{o}C (red lines). For clarity, the intensity of the post-heated products was magnified 2, 2.5, and 3.5 times for n = 4, 5, and 6, respectively.

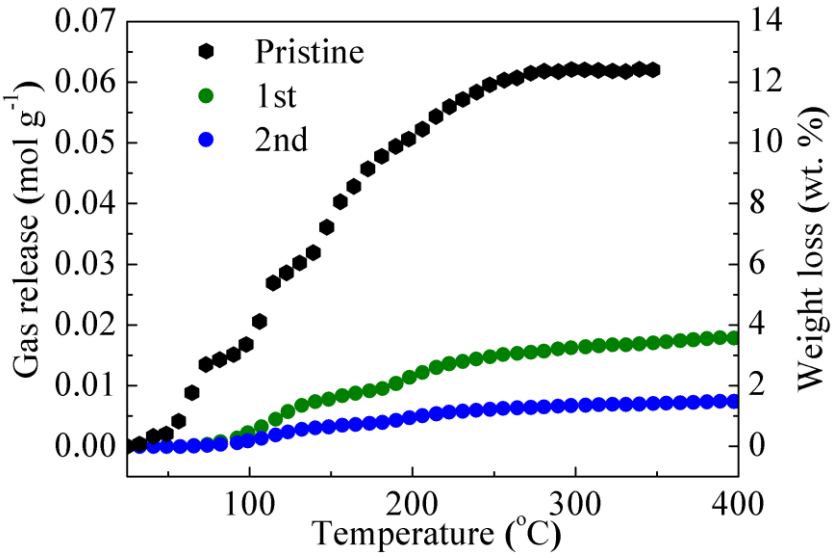

Figure S6. TPD results for the decomposition of the products after 1st and 2nd hydrogenation of the spent fuels from the post-milled Li_3AlH_6 – 6AB, including pristine Li_3AlH_6 – 6AB for comparison.

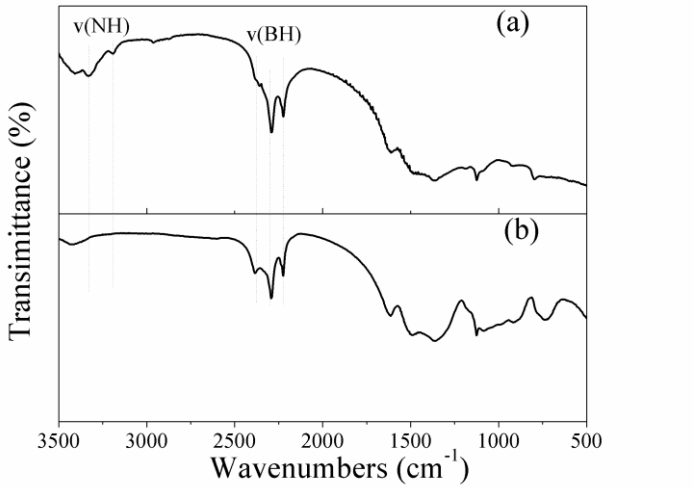

Figure S7. FTIR spectra of the regenerated Li_3AlH_6 − 4AB (a) and the dehydrogenated products after heating to 250 ^{o}C (b).