**Supplementary Information**

**Enhanced hydrogen storage properties of 2LiBH₄-MgH₂ composite with BaTiO₃ as an additive**

Jiasheng Wang, Shumin Han, Zhibin Wang, Dandan Ke, Jingjing Liu, and Mingzhen Ma

a State Key Laboratory of Metastable Materials Science and Technology, Yanshan University, Qinhuangdao 066004, PR China

b College of Environmental and Chemical Engineering, Yanshan University, Qinhuangdao 066004, PR China

E-mail: hanshm@ysu.edu.cn

Tel: +86-335-8074648; Fax: +86-335-8074648

Fig. S1 Dehydriding curves of the LiBH₄ + 20 wt.% BaTiO₃ composite and the pristine LiBH₄ composite at 350 °C
Fig. S2 Dehydrogening curves of the MgH$_2$ + 20 wt.% BaTiO$_3$ composite and MgH$_2$ at 350 ºC.

Fig. S3 XRD patterns of LiBH$_4$ + 20 wt.% BaTiO$_3$ for (a) ball-milled for 5 h, and (b) completely dehydrogenated.

Fig. S4 XRD patterns of MgH$_2$ + 20 wt.% BaTiO$_3$ for (a) ball-milled for 5 h, and (b) completely dehydrogenated.