

Supplementary information

Fast Hydrogen Release under Moderate Conditions from NaBH₄ Destabilized by Fluorographite

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The fluorographite used were purchased from CarFluor Ltd, and some information is given by the manufacturer in Table S1.

Table S1. Properties of fluorographite.

Fluorine content (%)	Density (g/cm ⁻³)	Specific Surface Areas (m ² /g)	Surface Energy (MJ/m ²)	Decomposition Temperature (°C)
56~61	2.5	>340	7.01	640

Table S2. Hydrogen capacities for the samples with different mass ratio of NaBH₄.

Sample	Mass ratio of NaBH ₄ (wt %)	Desorption temperature (°C)	Desorption capacity at 250 °C (wt %)
45NaBH ₄ /55FGi	45	130.7	4.2%
55NaBH ₄ /45FGi	55	125.6	4.8%
65NaBH ₄ /35FGi	65	129.2	4.3%
BM NaBH ₄	100	>250	~0

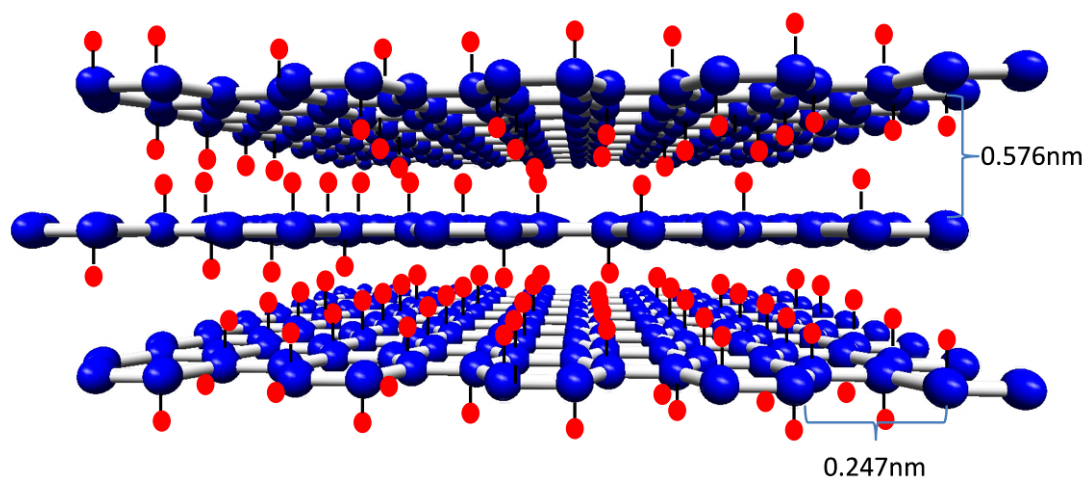


Fig. S1 Crystal structure diagram of FGi.^{S1}

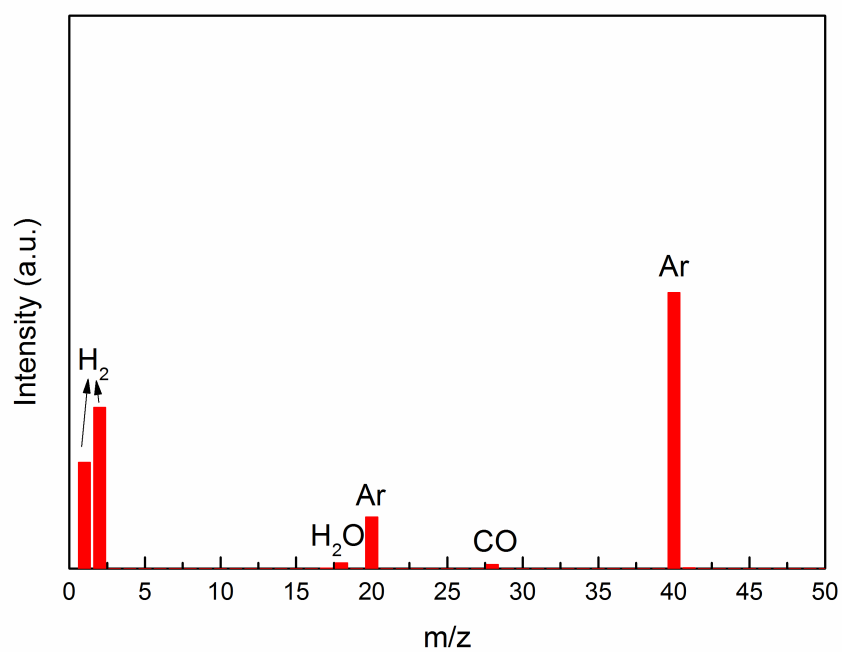


Fig. S2 MS profile of gas inside the jar after ball milling 55NaBH₄/45FGi composite for 20h.

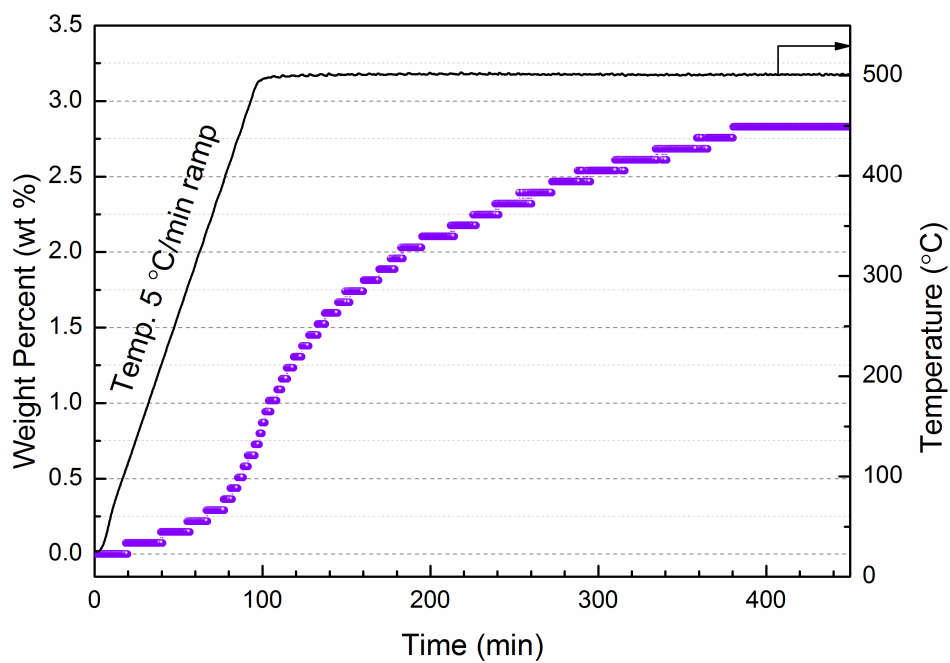


Fig. S3 Dehydrogenation profile of the rehydrogenated 55NaBH₄/45FGi composite from room temperature to 500 °C.

(S1) P Kamarchik Jr; JL Margrave. *Acc. Chem. Res.* **1978**, *11*, 296-300.