Electronic Supporting Information for

Efficient catalytic conversion of ammonia borane to borazine and its use for hexagonal boron nitride (white graphene)

Sung-Kwan Kim,[a‡] Hyunjin Cho,[b,d‡] Myung Jong Kim,[b*] Hee-Jun Lee,[a] Jin-hyung Park,[a] Young-Boo Lee,[c] Hwan Chul Kim,[d] Chang Won Yoon,[e] Suk Woo Nam,[e] and Sang Ook Kang[a*]

[a]Department of Advanced Materials Chemistry, Korea University, Sejong, Chungnam 339-700, South Korea, [b]Soft Innovative Materials Research Center,Korea Institute of Science and Technology, Eunhari San 101, Bongdong-eup,Wanju-gun, Jeollabuk-do 565-905, South Korea, [c]Korea Basic Science Institute 643-18 Keumam-dong, Dukjin-gu, Jeonju, 561-180, South Korea, [d]Department of Organic Materials and Fiber Engineering, Chonbuk National University, Jeonju, 561-756, South Korea, [e]Fuel Cell Center, Korea Institute of Science and Technology, Hawolgok-dong 39-1, Seongbuk-gu, Seoul 136-791, South Korea.

Contents

Analytical Methods. Solution NMR spectra were collected at room temperature using a Mercury-300BB spectrometer (Varian Inc., Palo Alto, CA, USA) unless otherwise stated. The spectral frequency was 96.3 MHz for ^{11}B and the NMR shifts in ppm were reported with reference to external standards of $BF_3{\cdot}Et_2O$ for the ^{11}B nucleus. Field emission-transmission electron microscopy (FE-TEM) and energy dispersive X-ray (EDX) observations were carried out on a JEOL JEM 2100F high resolution field emission microscope. Powder X-ray diffraction (XRD) data were collected on a Rigaku D/MAX-2500 (18 kW) diffractometer.

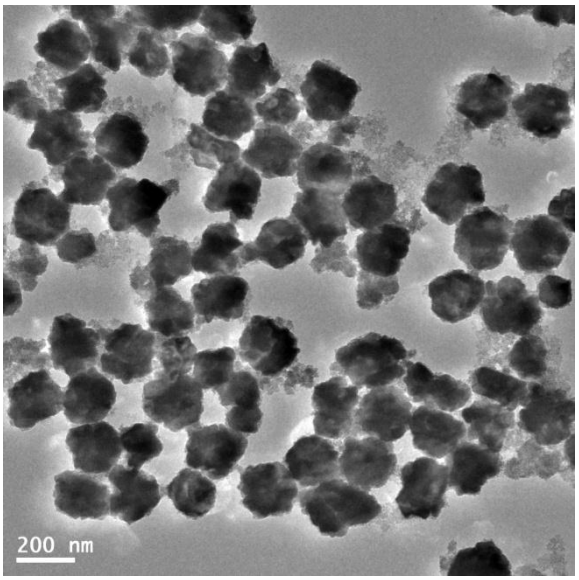

Figure S1. TEM image of NiNPs prepared from $Ni(OAc)_2{\cdot}4H_2O$. The agglomerates in the size range of 100−200 nm coexisted with the smaller 5 nm size NiNPs.

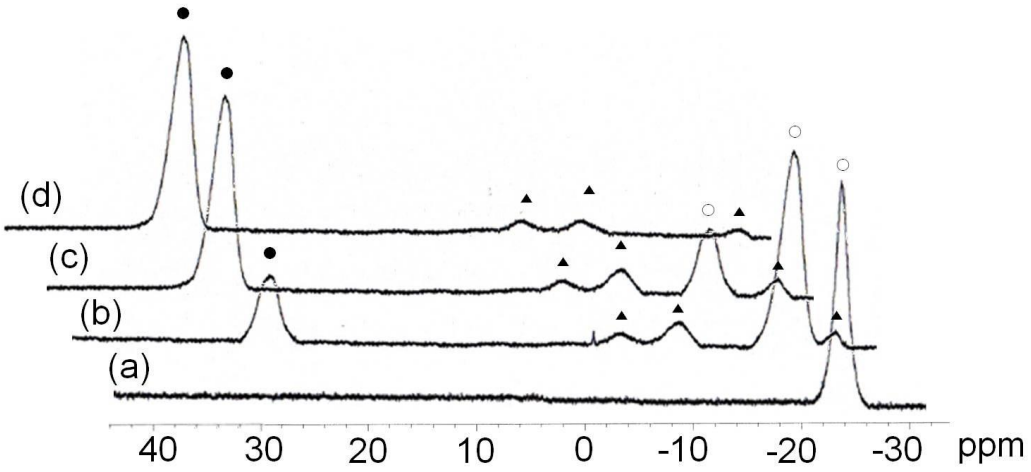

Figure S2. Evolution of the ^{11}B NMR spectra of borazine formation (96.3 MHz, C_6D_6) ● borazine; ▲ B-(cyclodiborazanyl)aminoborohydride (BCDB); ○ ammonia borane (AB). Spectra were recorded after (a) 0 min, (b) 30 min, (c) 2 h, and (d) 6 h reaction times at 80 °C.