Supporting Information

On the Stability of Surfactant-Stabilised Few-Layer Black Phosphorus in Aqueous Media

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Materials

Black phosphorus (BP) was purchased from Smart Elements (Austria). Triton X-100 was purchased from Sigma-Aldrich.

Instrumentation

Optical absorption measurements were performed with a Shimadzu UV 1800 instrument. ^{31}P NMR spectra were recorded using a Bruker 400 MHz NMR Spectrometer with 502 ppm width spectrum acquisition in D_2O. ICP-OES was performed using a Perkin-Elmer Optima 5300 dual view ICP-OES instrument.

Black phosphorus nanosheets synthesis by surfactant-assisted liquid phase exfoliation

BP nanosheets were synthesised by using an aqueous surfactant solution (1 mg mL^{-1} prepared in Triton X-100 and deionised water) which was thoroughly degassed before use. In a sealed vial, this surfactant solution (15 mL) was added with black phosphorus (100 mg, 3.2 mmol) and the vial was flushed with argon, closed and sealed with Parafilm®. Suspensions were sonicated in an Elmasonic P 70 H bench-top ultrasonic bath (820 W across four horns) operating at 37 kHz and 30% power. The temperature of the bath was maintained at 25 °C throughout via the use of a home-made cooling coil. After 36 h the dispersions were centrifuged at 1500 rpm for 45 min and the top 10 mL of the suspension was removed. Further 10 mL of surfactant solution was added to the remaining dispersion and the sediment mixture was sonicated again for 12 h under the same conditions. The dispersion was centrifuged and the supernatant was added to the previously collected dispersion.