The morphology of G-IIA samples was studied by SEM and shown in Figure S1 at magnification of 3,000× and 40,000× and their EDX for absorbed metal ions. According to the SEM images, all materials showed a typical exfoliated structure in agreement with previous studies. The elemental map obtained from EDX shows a trend of absorbed metal, which is downwards in the group IIA metals (from Mg$^{2+}$, via Ca$^{2+}$ and Sr$^{2+}$ to Ba$^{2+}$) in periodic table, the metal element can be absorbed increasingly.

**Figure S1.** Scanning electron micrographs of G-Mg, G-Ca, G-Sr and G-Ba at magnification of (A) 40,000×, (B) 3,000×, and (C) their EDX for absorbed metals. Scale bar of 100 nm and 1 µm.