The morphology of G-IIA samples was studied by SEM and shown in Figure S1 at magnification of  $3,000 \times$  and  $40,000 \times$  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<sup>2+</sup>, via Ca<sup>2+</sup> and Sr<sup>2+</sup> to Ba<sup>2+</sup>) in periodic table, the metal element can be absorbed increasingly.



**Figure S1.** Scanning electron micrographs of G-Mg, G-Ca, G-Sr and G-Br at magnification of (A)  $40,000\times$ , (B)  $3,000\times$ , and (C) their EDX for absorbed metals. Scale bar of 100 nm and 1  $\mu$ m.