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A thiourea cross-linked three-dimensional graphene aerogel as a broad-spectrum adsorbent for dyes and heavy metal ions removal

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Preparation of aerogels with thiourea dosage below 0.5 g: Graphene-based aerogels with thiourea dosage below 0.5 g were prepared by a similar route of the TCGA-1 preparation. Firstly, 40 mL of GO-water suspension (5 mg·mL^{-1}) was sonicated to form homogenous dispersions. And then, a certain amount of thiourea (0.1 g or 0.3 g) was added to the dispersions and sonicated for another 10 min at room temperature. Whereafter, the mixture solution was transferred into a 10 mL bottle and hydrothermally treated at 95 ^{o}C for 6 h to synthesize the three-dimensional black graphene hydrogel. After cooling to room temperature, the as-prepared hydrogel was washed with 15 % aqueous alcohol several times, followed by freeze-dried to obtain the graphene aerogel.

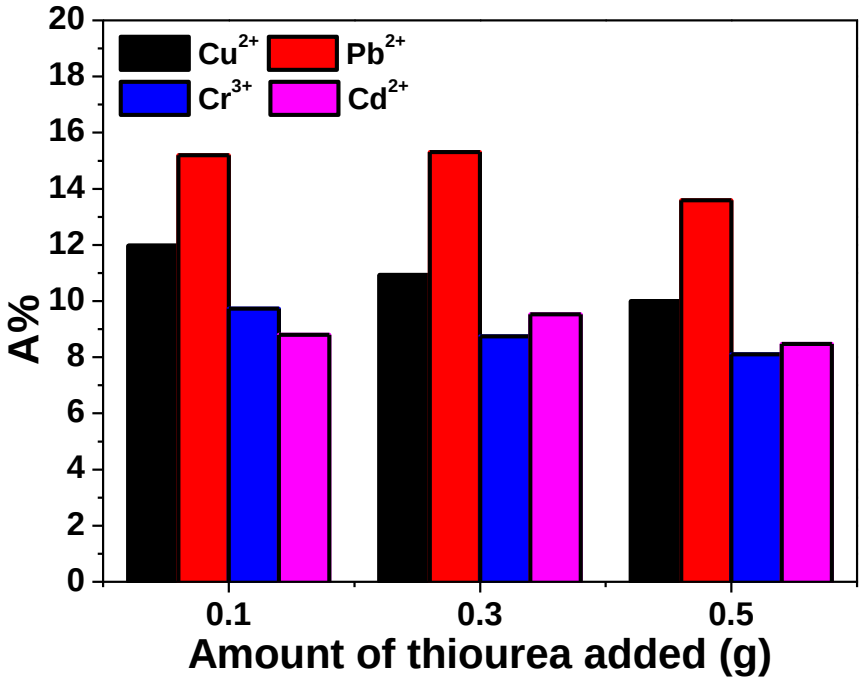

Figure S1. Effect of thiourea content on Cu^{2+}, Pb^{2+}, Cr^{3+} and Cd^{2+} removal by aerogels with thiourea dosage below 0.5 g.