

Supporting information

Crystallization of FeOOH via iron salts: an anion-chemoaffinity controlled hydrolysis toward high performance inorganic pseudocapacitor materials

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Experimental section

The FeOOH samples were synthesized by the hydrolysis of 0.1M different types of Fe²⁺ or Fe³⁺ salts, including FeSO₄, FeCl₂, FeCl₃ and Fe(NO₃)₃. After preparation of above Fe²⁺ or Fe³⁺ solution, they were transferred into oven at 80 °C for duration of 8 hours. Eventually, FeOOH samples with different morphologies were successfully prepared. As-prepared FeOOH samples were washed, centrifuged and dried. At last, as-obtained samples were sent to carry out the further characterizations. Field-emission scanning electron microscopy (FESEM, Hitachi-S4800) was used to investigate the morphology of samples. To test supercapacitive performance, cyclic voltammetry (CV) and galvanostatic charge-discharge measurements were carried out by an electrochemical work station (CHI 660D). A mixture of the as-prepared samples, acetylene black and polyvinylidene fluoride (PVDF) with weight ratio of

70:20:10 was pressed on porous nickel foil in order to act as working electrode. Pt wire was used as a counter electrode and saturated calomel electrode (SCE) was served as a reference electrode. All of the electrodes were tested in 2 M KOH solution electrolyte.

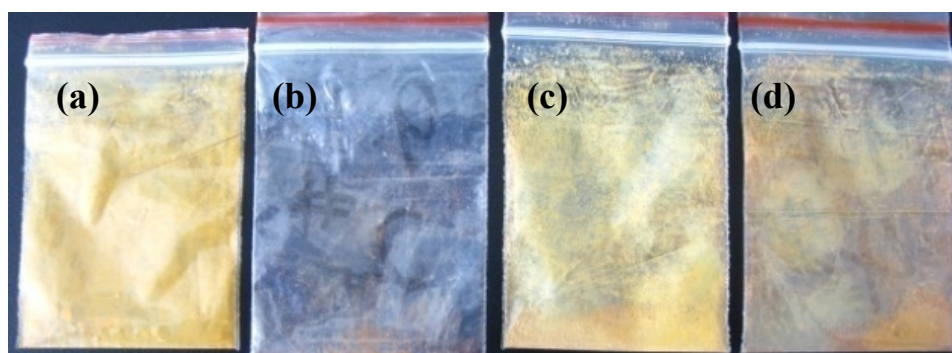


Fig. S1. Different optical colors of the as-obtained FeOOH samples by using (a) 0.1 M FeSO₄ solution; (b) 0.1 M FeCl₂ solution; (c) 0.1 M FeCl₃ solution; (d). 0.1 M Fe(NO₃)₃ solution.

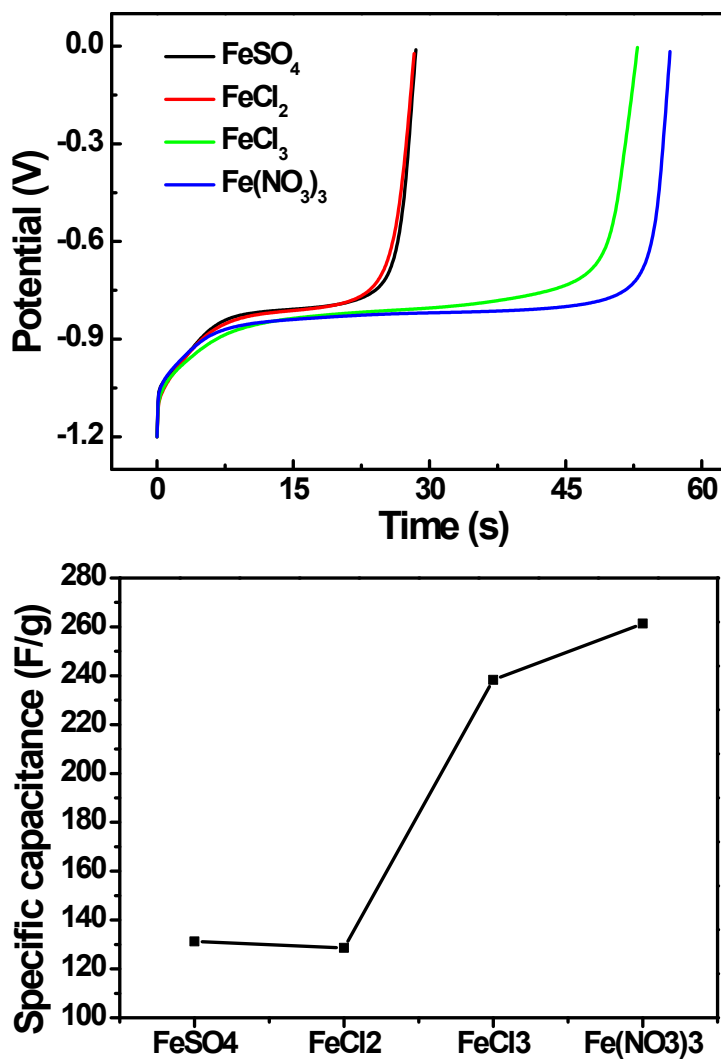


Fig S2. (a) Constant current discharge tests at the current density of 5 A/g within the potential range from -1.2 to 0 V. (c) The measured specific capacitance of the as-prepared pseudocapacitor electrodes at the current density of 5 A/g and within the potential range from -1.2 to 0 V.