Supporting Information for

The Synthesis of Calcium Arsenate/Iron Arsenate Coating Materials and Its Application for Arsenic-containing Wastewater Treatment

XRD analysis of sample 3 and 4

Sample 3 was $CaHAsO_4$@$FeAsO_4$ which was obtained by the $FeCl_3$ stability treatment of sample 1 (Fe/As=4:1, pH=4, 50 ^oC). Sample 4 was $Ca_3(AsO_4)_2$@$FeAsO_4$ which was obtained by the $FeCl_3$ stability treatment of sample 2 (Fe/As=4:1, pH=4, 50 ^oC).
Sample 3 and sample 4 were measured by XRD. Figure 4 shows the XRD pattern of sample 3 and sample 4. Compared with Figure 1, the characteristic peaks of calcium arsenate disappeared completely. The results indicated the calcium arsenate was coated by $FeAsO_4$. The crystalline of $FeAsO_4$ was low, so the characteristic peaks of $FeAsO_4$ were not obviously. This was consisting with the previous reports.[1]

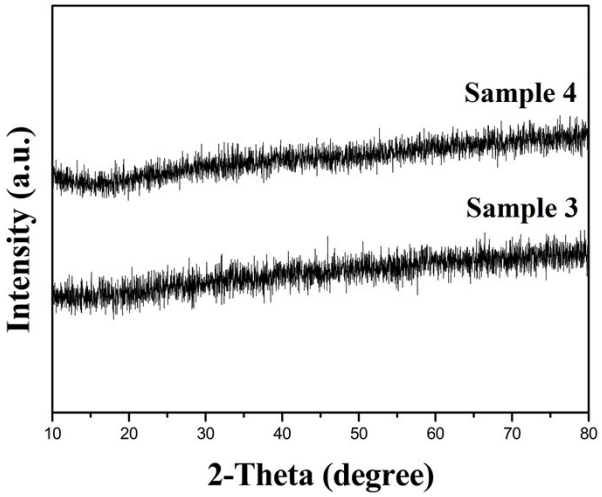

Figure S1. the XRD pattern of sample 3 and sample 4.

Eds analysis of sample 1 and 3

Figure S2 shows the elemental composition of $CaHAsO_4$. The atom percent of calcium is 49.80%, and the percent of arsenic is 50.20%. It is close to the theoretical ratio 1:1. Iron is not detected.
Figure S3 shows the elemental composition of $CaHAsO_4$@$FeAsO_4$. The atom percent of iron is 50.57%, and the percent of arsenic is 49.43%. It is close to the theoretical ratio 1:1. Calcium is not detected. The results show the surface of materials should be $FeAsO_4$, $CaHAsO_4$ is coated completely. This is consistent with the results of TCLP in the manuscript.

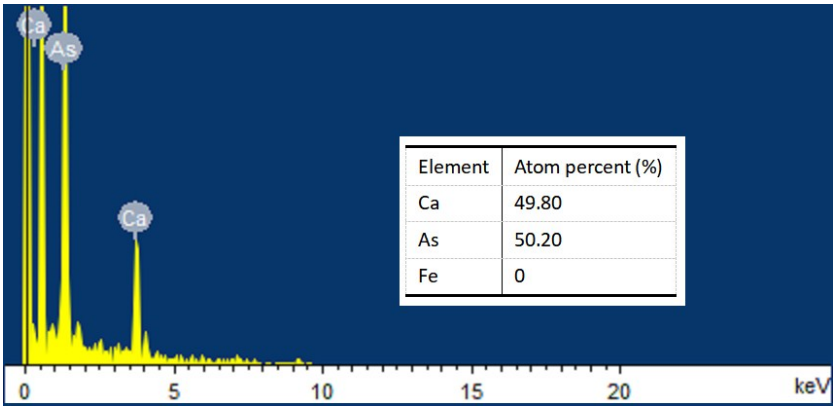

Figure S2. The results of EDS for $CaHAsO_4$

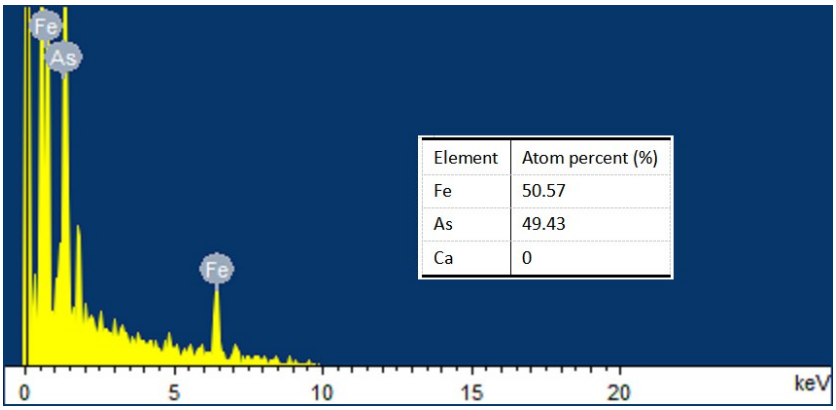

Figure S3. The results of EDS for $CaHAsO_4$@$FeAsO_4$

1. E. Krause and V. Ettel, *Hydrometallurgy*, 1989, **22**, 311-337.