

Accepted Manuscript

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PII: S1385-8947(16)31531-5
DOI: <http://dx.doi.org/10.1016/j.cej.2016.10.122>
Reference: CEJ 15978

To appear in: *Chemical Engineering Journal*

Received Date: 15 September 2016
Revised Date: 26 October 2016
Accepted Date: 27 October 2016

Please cite this article as: Y. Sun, X. Wang, Y. Ai, Z. Yu, W. Huang, C. Chen, T. Hayat, A. Alsaedi, X. Wang, Interaction of sulfonated graphene oxide with U(VI) studied by spectroscopic analysis and theoretical calculations, *Chemical Engineering Journal* (2016), doi: <http://dx.doi.org/10.1016/j.cej.2016.10.122>

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Interaction of sulfonated graphene oxide with U(VI) studied by spectroscopic analysis and theoretical calculations

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Abstract The interaction mechanism of high effective enrichment of U(VI) on sulfonated graphene oxide (GO) at ultralow pH still remains unclear. The batch characteristic results showed that sulfonated GO presented a variety of functional groups such as hydroxyl (-OH), carboxyl (-COOH) and sulfonyl (-OSO₃H) groups. The macroscopic results indicated that the sorption of U(VI) on sulfonated GO was independent of ionic strength, and the maximum sorption capacity calculated from Langmuir model was 45.05 mg/g at pH 2.0. The change of relative intensities for S 2p

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