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Full Length Article

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Hossein Molavi, Alireza Hakimian, Akbar Shojaei, Milad Raeiszadeh

PII: S0169-4332(18)30875-4

DOI: <https://doi.org/10.1016/j.apsusc.2018.03.189>

Reference: APSUSC 38937

To appear in: *Applied Surface Science*

Received Date: 17 November 2017

Revised Date: 13 March 2018

Accepted Date: 23 March 2018

Please cite this article as: H. Molavi, A. Hakimian, A. Shojaei, M. Raeiszadeh, Selective dye adsorption by highly water stable metal-organic framework: long term stability analysis in aqueous media, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.03.189>

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**Selective dye adsorption by highly water stable metal-organic framework: long term stability analysis in aqueous media**

**Hossein Molavi<sup>1</sup>, Alireza Hakimian<sup>2</sup>, Akbar Shojaei<sup>\*1,2</sup>, Milad Raeiszadeh<sup>2</sup>**

<sup>1</sup>Institute for Nanoscience and Nanotechnology (INST), Sharif University of Technology, P.O. Box 11155-8639, Tehran, Iran

<sup>2</sup>Department of Chemical and Petroleum Engineering, Sharif University of Technology, Tehran, Iran

**Abstract**

A highly water stable metal-organic framework (MOF) based on zirconium, i.e. UiO-66, was synthesized and then employed to adsorptive removal of an anionic dye, methyl orange (MO), and a cationic dye, methylene blue (MB), from aqueous solution. In this work, for the first time, the long term stability of UiO-66 in water was investigated for 12 months. X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM) and N<sub>2</sub> adsorption/desorption analysis were employed to monitor the textural alteration of UiO-66 during water aging. The results indicated that the structure of UiO-66 was mostly retained and its adsorption capacity toward dyes exhibited minor loss after long term water aging. Experimental data showed that adsorption capacity of UiO-66 toward MO was higher than

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\*Corresponding author. Tel./fax: +98-21-66166432. E-mails: akbar.shojaei@sharif.edu (Akbar Shojaei), molavi\_hossein@mehr.sharif.ir (Hossein Molvai).

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