Adsorption of N,N-dimethylamine from aqueous solutions by a metal organic framework, MOF-235

(Article in press)

- [Beltrán-Suito, R.^{a,b}](#),
- [Pinedo-Flores, A.^a](#),
- [Bravo-Hualpa, F.^a](#),
- [Ramos-Muñoz, J.^{a,c}](#),
- [Sun-Kou, M.D.R.^a](#) [Email Author](#)
- [View Correspondence \(jump link\)](#)

- ^aDepartment of Sciences, Section Chemistry, Pontifical Catholic University of Peru, San Miguel, Peru
- ^bDepartment of Chemistry, Metalorganic Chemistry and Inorganic Materials, Technical University of Berlin, Berlin, Germany
- ^cDepartment of Sciences, Peruvian University of Applied Sciences, Monterrico, Santiago de Surco, Peru

Abstract [View references \(22\)](#)

Water-resistant MOF-235 was used to adsorb N,N-dimethylamine (DMA) from aqueous solutions. It was synthesized from terephthalic acid and $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ under air-free conditions and characterized by its crystalline structure, functional groups and temperature resistance. The kinetic data results were best adjusted to the pseudo-second order model ($R^2 > 0.963$). The best-fit isotherm, Langmuir model, suggested the adsorption of DMA is localized on homogenously distributed active sites on the surface. This fit was confirmed by the value of $\beta = 1$ on the Redlich-Peterson model. Our study suggests that the manipulation of novel materials such as MOF-235 promises new avenues for water treatment solutions. Schematic structure of MOF-235 and its application as adsorbent. © 2018, © 2018 Taylor & Francis.

Reaxys Database Information

[View Compounds](#)

Author keywords

adsorptiondimethylamineMOFMOF-235water treatment

Indexed keywords

Engineering controlled terms: AdsorptionChlorine compoundsCrystalline materialsIron compoundsMetalorganic frameworksOrganometallicsSolutions

Engineering uncontrolled terms Crystalline structureDimethylaminesMetal organic frameworkPseudo-second order modelRedlich-Peterson modelsSchematic structuresTemperature resistancesTerephthalic acids

Engineering main heading: Water treatment

- **ISSN:** 01932691
- **Source Type:** Journal
- **Original language:** English
- **DOI:** 10.1080/01932691.2018.1489275
- **Document Type:** Article in Press
- **Publisher:** Taylor and Francis Inc.