Title: Performance of a Novel Microwave-based Treatment Technology for Atrazine Removal and Destruction: Sorbent Reusability and Chemical Stability, and Effect of Water Matrices

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Statement of Novelty

This study demonstrates, for the first time, the potential of a novel microporous mineral sorption coupled with microwave-induced degradation treatment as a cost-effective and practical technology for treatment of atrazine-contaminated waters. Cu(II) and Fe(III) in the micropores significantly enhanced the sorption and degradation of atrazine, with the iron-exchanged zeolites exhibiting strong stability and reusability. Testing with 17 natural water samples showed that this technology performed well, and the sorptive removal of atrazine was only compromised by the DOC level. This is an inherently cleaner technology for pollution control, is well suited for the readership of *Journal of Hazardous Materials*.