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Keynote Speakers

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Short Biography

Osama Eljamal is an Associate Professor of Environmental Engineering at the Interdisciplinary Graduate School of Engineering Sciences (IGSES), Kyushu University, Japan. He has been joined Kyushu University in October 2003 as a researcher then he obtained his Ph.D. from Kyushu University, Japan in March 2009. His specific research interests are in develop novel nanotechnology methods for environmental remediation, water, wastewater treatment, and its simulation molding. His research output includes over 80 peer-reviewed publications in high impact scientific and engineering journals and conferences. He has served as supervisor of over 30 Ph.D. and master students.
He is a chairman of annual International Exchange and Innovation Conference on Engineering & Sciences (IEICES). Osama has also served as session chair, conferences organizer, and a member of research and education program committee of many scientific conferences and international research and education programs.

Nanoscale Zero Valent Iron (NZVI)-Based Bimetallic for Water Treatment

Abstract

Nanoscale Zero Valent Iron (NZVI) is a promising multi-contaminant removal material that can treat a wide range of contaminants that exist in waters and wastewaters via several and multiple mechanisms such as adsorption, reduction, oxidation and precipitation as illustrated in Fig. 1. The nZVI synthesis is affected by several variables, as concentration and delivery rate of reductant, precursor concentration, the reaction temperature, pH value, mixing speed and reaction agent time.

NZVI has strong magnetic and van der Waals forces, therefore, its rapidly tend to agglomeration to micron size, which leads to reducing the mobility and reactivity of NZV. To overcome this limitation, the second metallic can be used to reduce the effect of agglomeration problem. However, the NZVI showed a high ability to remove the nitrate, phosphorus, cesium in the batch test scale and in the column study of porous media as well as in the continuous flow applications while NZVI-Based Bimetallic showed a higher efficiency compared with pure NZVI.

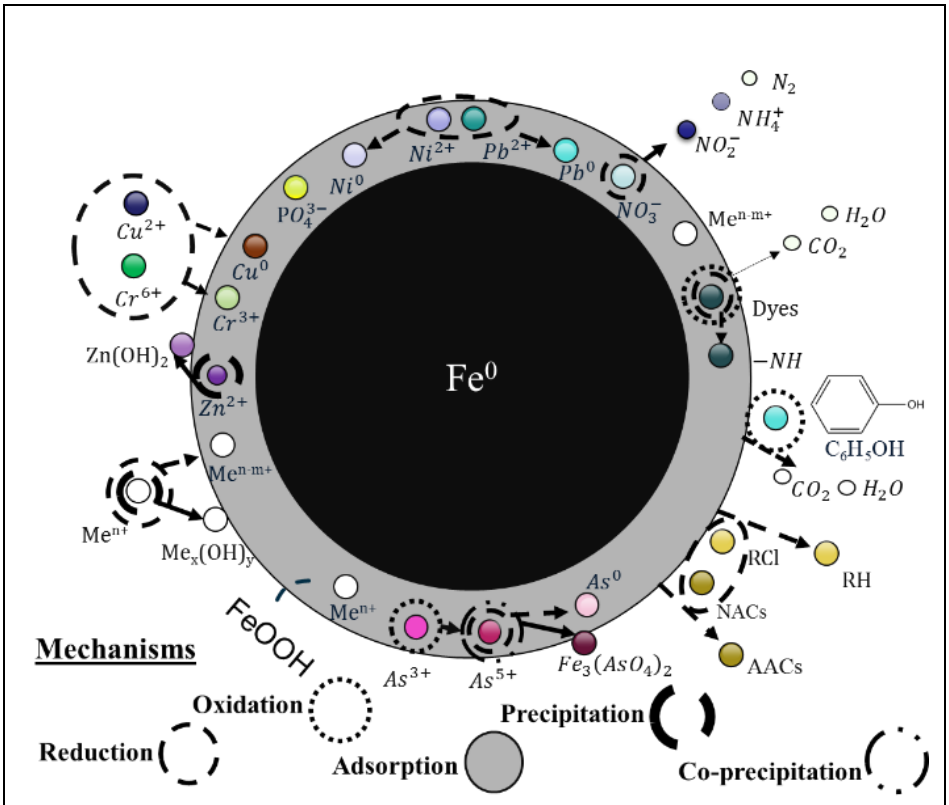

Fig. 1. Core-shell structure of nZVI for multi-removal mechanisms