Applications of Nanotechnology for Safe and Sustainable Environmental Remediations

4-Rem ANssERs: A sustainable path to protect human from exposures and health risks of engineering nanoparticles

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The Applications of Nanotechnology for Safe and Sustainable Environmental Remediation (Nano-4-Rem ANssERs) initiative is designed to understand and meet information and technology needs related to nano-enhanced remediation. Experts from the remediation community, industry, academia, and government are collaborating to:

- share their perspectives, pose questions, develop ideas, and
discuss guidelines, selection criteria, and work practices
to support safe and sustainable use of nanotechnology for environmental remediation applications.

Nano-4-Rem Background

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) corrective action sites are two main laws that regulate soil and water remedial activities.
- Traditional remediation technologies such as pump-and-treat (P&T) and permeable reactive barriers (PRBs) have been used for decades.
- Newer remediation methods involving engineered nanoparticles (ENPs) are emerging.
- Examples of novel reactive ENPs for Remed include nano zero-valent iron, bimetallic nZVI/Pd/carbon nanosystems, and titanium dioxide.
- ENPs advantages may be time-savings and cost-effectiveness for remediation of bioaccumulative toxic and persistence substances.
- Advances in nanotechnology-enabled assessment and monitoring methods such as nano-sensors may improve remediation activities.
- However, the occupational and environmental fate of the ENPs is uncertain and potential risks to human health have been reported in ENP tests in laboratory animals.

Applications of Nanotechnology for Safe and Sustainable Environmental Remediations

Inaugural Workshop
Understanding and meeting information and technology needs to prevent exposures to engineered nanoparticles

Southeastern Louisiana University
Hammond, Louisiana
June 5-7, 2013

You are invited to participate in the inaugural workshop, as well as the Nano-4-Rem Initiative. The goal of the workshop and its associate Proceedings is to support the community, and advance goals of the Nanoinformatics 2020 Roadmap and the National Nanotechnology Initiative.

Bibliography


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