

ZERO VALENT NANOIRON PRE-TREATMENT WITHIN IN-SITU CHEMICAL REDUCTION

PŘEDÚPRAVA ELEMENTÁRNÍHO NANOŽELEZA V RÁMCI TECHNIKY IN SITU CHEMICKÉ REDUKCE

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Abstract:

Application of nanoiron represents new generation of remediation technologies, which could provide solution to many environmental problems. Nanoiron acts as efficient reductant of many common pollutants. High reactivity and flexibility for in-situ applications belong within the most important properties of nanoiron. The main problem which is connected with application of nanoiron is that nanoiron tends to agglomeration. Mobility of nanoiron through soil is limited by formation of these agglomerates, which can cause plugging of soil pores, and prevent the access of nanoiron to contaminated site. In this paper, establishment of procedure enabling disperse of commercial product RNIP-10APS into stabilized suspension is described. RNIP-10APS was dispersed by using hydrated silica, and its sedimentation properties were compared to those of commercial nanoparticles. Settling properties of nanoiron were assessed in terms of sedimentation curves and solids content. Study of sedimentation profiles showed improved stability of RNIP-10APS in the presence of hydrated silica.

Keywords:

remediation, in-situ chemical reduction, nanoiron, agglomeration, sedimentation