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Characterization of the adsorption behavior of aqueous cadmium on nano zero - valent iron based on orthogonal experiment and surface complexation modeling

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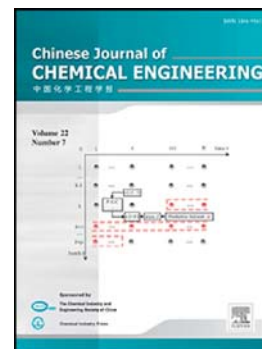
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**Characterization of the adsorption  
behavior of aqueous cadmium on  
nano zero – valent iron based on  
orthogonal experiment and surface  
complexation modeling<sup>☆</sup>**

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**Abstract:**

Polyvinylpyrrolidone K – 30 (PVP)  
was introduced into the preparation of  
nano zero – valent iron (nZVI) and the  
traditional liquid – phase reduction was  
improved. The introduction of PVP  
simplified the traditional method. The  
nZVI prepared with this new approach  
showed excellent surface characters  
and high performance on the removal  
of cadmium. TEM results showed the  
aggregates of nZVI can reach to  
several micrometers in length but less  
than 100 nm in diameter. The iron  
particles were enclosed by a layer of  
oxide film that is less than 10nm,  
demonstrated that the nZVI possess a  
core – shell structure. BET results  
indicate the specific surface area of the  
nZVI was 20.3159 m<sup>2</sup>·g<sup>-1</sup>. A three  
factors and three levels orthogonal

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