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电化学方法去除污泥中重金属的研究

Removal of heavy metals in sludge by electrochemical treatment

关键词: [污泥](#)|[重金属](#)|[去除率](#)|[电化学法](#)

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摘要: 分析了河东污水处理厂污泥中Pb、Cd、Cu、Ni的含量和形态分布特征,并以PbO₂/Ti电极板为阳极、铜板为阴极通电处理污泥,考察了电压、通电时间等因素对污泥pH及重金属去除效果的影响.结果表明,污泥中Cd和Ni的含量超过了国家农用标准(GB4284—1984),同时,Cd和Ni也具有较高的生态可利用性.不同电压对污泥重金属去除率影响较大,当电压为35 V,电流为80 mA,反应时间为6 h时,对污泥的处理效果与费用最佳,在此电压下对污泥进行处理,Cu、Pb、Cd和Ni的去除率分别为57.35%、48.42%、68.63%和49.85%.此时,阳极区污泥中的重金属含量已有较大程度的降低,均能达到国家农用标准(GB4284—1984).

Abstract: This paper analyzed Pb,Cd,Cu and Ni contents and their distributional characteristics in sludge from Hedong Sewage Treatment Plant.The sludge was treated with PbO₂/Ti anode and copper plate cathode to understand the effect of voltage and conduction time on the pH value of sludge and removal efficiency to heavy metals.The result showed that Cd and Ni contents in sludge exceeded the National Standard (GB4284—1984),but Cd and Ni were higher ecological available.The removal efficiency of heavy metals in sludge conduct by different voltages changed significantly.When the voltage was 35 V,current was 80 mA and the reaction time was 6 h,the treatment of sludge reached the optimal balance between effect and cost.Under this condition,the rate of removal of Cu,Pb,Cd and Ni was 57.35%,48.42%,68.63% and 49.85%,respectively.In this case,the content of heavy metal in the anode region reduced a lot,and met the National Agricultural Standard (GB4284—1984).

Key words: [sludge](#)|[heavy metals](#)|[removing efficiency](#)|[electrochemical treatment](#)

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