

论文

同时吸附油和六价铬离子复合材料的制备及性能

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摘要:

以亲油疏水型三元乙丙橡胶(EPDM)作为基体, 焙烧 Fe_2O_3 和阴离子交换树脂201X7作为填料, 利用熔融共混的方法, 制备一种可以同时吸附油和六价铬离子的用于污水处理的复合材料, 这种材料能够悬浮于油水界面处. 当焙烧 Fe_2O_3 和阴离子交换树脂的用量比例不同时, 材料吸附性能变化很大. 实验结果表明, 在保证复合材料密度介于油水密度之间的前提下, 随着焙烧 Fe_2O_3 含量的增加, 材料的吸油性不断增大; 随着阴离子交换树脂含量的增加, 材料对六价铬的吸附性能不断增加. 在油水共存体系中, 复合材料对两种污染物的吸附率同时达到最佳时, 两种填料的比例可以确定, 因油品的不同而不同. 在油水共存体系中, 复合材料对油和六价铬的总吸附能力要远大于复合材料分别在单一吸附介质中的吸附能力.

关键词: 吸油性 六价铬离子吸附 悬浮油水界面 污水处理

Preparation and Properties of Composite with Simultaneous Adsorption of Oil and Chromium(VI)

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Abstract:

A new kind of material for oil and Cr(VI) absorption was prepared by melt blend, with ethylene propylene diene monomer(EPDM) as the matrix and calcinary Fe_2O_3 and anion exchange resin 201X7 as the fillers. The composites can suspend in water-oil contact(WOC). The absorbencies of composites for water and oil changed greatly with various ratios of calcinary Fe_2O_3 and anion exchange resin 201X7. The results show that the absorbency of oil into the composite increased continuously while that of Cr(VI) was step-up with anion exchange resin loadings from 1% to 7%. The optimized ratio of calcinary Fe_2O_3 and anion exchange resin 201X7 was got when the absorbencies of composites for oil and Cr(VI) reached maximum simultaneously. The total adsorptive capacities of both oil and Cr(VI) were much higher than those of oil or Cr in one adsorption medium.

Keywords: Oil absorbency Cr(VI) absorbency Suspending in water-oil contact(WOC) Sewage treatment

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