

玉米芯掺杂对污泥基活性炭性能的影响

Effects of corncob addition on properties of sludge activated carbon

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英文关键词: [sewage sludge](#) [corncob](#) [activated carbon](#) [phenol](#) [nitrobenzene](#)

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中文摘要:

针对以城市污水厂剩余污泥为原料制备的污泥基活性炭微孔性差、比表面积低的缺陷, 将一定比例玉米芯掺杂到污泥中以期改善活性炭性质。通过对活性炭的比表面积、孔结构、碘值、表面官能团测定以及表面电镜分析, 探讨了不同比例玉米芯掺杂对活性炭物理化学性质的影响, 并以苯酚和硝基苯为目标物, 对比考察所制活性炭对有机物的吸附性能。实验结果表明, 随着玉米芯掺杂比例的提高, 活性炭微孔体积及比表面积明显增大, 但活性炭表面官能团种类及数量变化不明显。所制活性炭表面都以酸性基团为主。结果显示苯酚和硝基苯吸附值与活性炭表面酸性基团含量关系密切, 因此, 玉米芯的掺杂对苯酚和硝基苯的吸附没有明显的促进作用。

英文摘要:

Due to the poor microporosity and small surface area of activated carbon derived from sewage sludge, corncob was added to improve the properties of the activated carbon. By analyzing the surface area, pore structure, iodine adsorption value, superficial morphology and surface functional groups, the effects of corncob addition on the physicochemical properties of the activated carbons were discussed. Phenol and nitrobenzene were selected as the target pollutants and their adsorption behaviors were studied accordingly. Results indicate that the micropore volume and surface area of the activated carbon are greatly increased by the addition of the corncob but the species and quantities of functional groups don't change much. The surfaces of all the activated carbons are dominated by acid groups. Results indicate that phenol and nitrobenzene adsorption capacities are highly associated with the acid groups and thus are not promoted by the corncob addition.

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