

能源和环境工程

碱性条件下稻草NH₄OH-KOH蒸煮黑液的絮凝处理

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摘要 利用聚合氯化铝-聚丙烯酰胺处理稻草NH₄OH-KOH蒸煮黑液。系统讨论了聚合氯化铝用量、聚丙烯酰胺用量、反应温度和黑液pH值等工艺参数对絮凝效果的影响, 继而确定了适宜絮凝工艺条件。结果表明, 该絮凝体系对黑液COD去除率为68%, 木质素去除率为92%。仪器测试表明絮凝沉淀物中除含有大量木质素外, 氮、钾等营养元素的含量分别为23.73%、6.24%(均为干基), 为絮凝沉淀物制备固体有机肥料创造条件; 上层清液pH为9.20, 呈碱性, 杂质含量低, 补加NH₄OH/KOH后可作为蒸煮液循环使用, 使稻草制浆更易于实施清洁生产。

关键词 [稻草](#); [蒸煮黑液](#); [絮凝](#); [木质素](#)

分类号

Flocculating process of black liquor from NH₄OH-KOH pulping of rice straw in alkaline condition

Abstract

A flocculating technique was studied in which aluminium polychloride and polyacrylamide were used for flocculating treatment of black liquor from NH₄OH-KOH pulping of rice straw in alkaline condition. The effects of flocculating conditions, such as dosage of 10% aluminium polychloride, dosage of 0.1% polyacrylamide, reaction temperature and pH of black liquor on flocculation process were studied systematically by experiment to obtain suitable technological conditions. The results indicated that the rate of COD removal was 68% and the rate of lignin removal was 92% under the flocculating conditions. It was confirmed by IR and other analytic apparatus that 23.73% N(dry basis), 6.24% K(dry basis) and lots of lignin were present in the flocculation residue, so potentially it is a good solid fertilizer. The pH of supernatant was 9.20 and the content of deleterious impurities in supernatant was low, and it could be recycled as cooking liquor. It helps to realize clean production of NH₄OH-KOH pulping of rice straw.

Key words [rice straw](#) [black liquor from NH₄OH-KOH pulping](#) [flocculation](#) [lignin](#)

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