

## 印染废水处理的磁混凝—高梯度磁分离协同作用

### Synergistic effect of magnetic coagulation—high gradient magnetic

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中文摘要:

混凝过程作为工业废水的预处理技术普遍受到重视, 在混凝过程中降低污泥产生量并提高污泥分离速度是该技术发展的方向, 基于上述目标, 通过将磁粉引入絮体使之磁化并在自行研制的高梯度磁分离装置中实现磁混凝与磁分离的协同作用。以高浊度的印染废水作为试验废水, 以色度、COD及SS作为考核指标, 重点考察了磁混凝反应及磁分离的影响因素。当印染废水的色度约为900倍、COD约为595mg/L、SS约为500mg/L时, 在pH=8.5、FeSO<sub>4</sub>500mg/L、PAM3.5mg/L、磁粉400mg/L的适宜

英文摘要:

The coagulation process has been paid wide attention as pre-treatment technology in industrial wastewater treatment. The main progressing direction of this technology is to reduce sludge volume and to improve sludge separating rate. Based on these goals, the synergistic effect of magnetic coagulation-high gradient magnetic separation was realized on a self-manufactured high gradient magnetic separation (HGMS) device through magnetization of flocs. Dyeing wastewater with high turbidity was used as pilot water; color, COD and SS were inspected as assessed indexes; and the factors that influenced magnetic coagulation and separation were investigated. The result showed that, when color was about 900 times, COD was about 595mg/L and SS was about 500mg/L, at pH value of 8.5, FeSO<sub>4</sub> dosage of 500mg/L, PAM dosage of 3.5mg/L, and magnetic seeds dosage of 400mg/L, the removal rates of color, COD and SS were increased by 17.3%, 21.7% and 24.2% respectively compared to conventional coagulation. Moreover, flocs' sedimentation rate was increased by 64.3%, sludge volume was decreased by 61%, and at this point sludge compressing ratio was 0.39. Under the operating conditions, that were electric current intensity of 8A, flow rate of 2.5L/min and medium packing density of 1%, when these magnetic flocs flowed through the device of HGMS, the hydraulic surfacing charge reached 61m<sup>3</sup>/m<sup>2</sup>·h, and the drainage achieved national standards of second grade.

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