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Modeling and Control of pH in Pulp and Paper Wastewater Treatment Process

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ABSTRACT

Pulp and paper industry is responsible for large discharge of highly polluted effluents, which often be treated by biological treatment process. For biological treatment system, pH is an important environmental factor that can influence the activity of microorganisms. In general, the optimal pH for aerobic processes is around neutral pH (7_7.8) and for the anaerobic process is between 6.8_7.2. The control of pH is a difficult link in the biological treatment system due to its nonlinearity and large time-delay. Aiming at the difficult point in the pH control of the biological wastewater treatment system, a mathematical model of pH control is estab-lished in the essay. On this basis, a traditional PID control and a cascade control are adopted to carry out simulation and comparison with MATLAB. The results show that the cascade control has better comprehen-sive effect in terms of response speed, stability and disturbance resistance.

KEYWORDS

Biological Treatment, pH, MATLAB, Cascade Control

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