

Phosphorous Control in Wastewater Treatment Process

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A new cascade control structure using a systematic tuning rule was proposed to enhance the treatment performance of phosphorous removal in a biological wastewater treatment process (WWTP). The cascade control approach consists of two control loops: a primary outer loop and a secondary inner loop. The primary loop has a model predictive control (MPC) controller and the secondary loop utilizes two proportional-integral (PI) controllers, which is a cascade MPC-PI controller for the multiple input and multiple output process. The control objective is to control the phosphorous concentration in the effluent simultaneously, which can remove the effects of disturbances existed in the WWTP while maintaining better effluent quality.

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