

DESIGN AND SIMULATION OF PID CONTROLLER FOR PH NEUTRALIZATION PROCESS

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Abstract: PH control system plays an important role in a wide range industrial applications particularly in wastewater treatment management. Untreated wastewater generally contains high level of organic material, numerous pathogenic microorganisms which raised concern in environmental and health hazards. The high non-linearity and time varying in pH neutralization process and the uncertainty of the plant dynamics are the keys challenges of the pH control systems. There are many sophisticated PID tuning method, however conventional turning procedure remains effectives in industries. The overall control scheme involves controls of flows rates of acid and base solutions. Ziegler Nichols method tuning has been developed for first order and second order system, in which, also applicable for pH neutralization control model. This paper elaborates the performance of transient response for pH neutralization process by using empirical techniques through the simulation software along with Proportional-Integral-Derivative (PID) for controlling purpose. A result of comparison between Ziegler – Nichols versus First Order plus Time Delay (FOPTD) of pH control systems design for PID controller is seeing in a graph.

Index Terms: PID control, PH neutralization, ZN tuning.