

Online pH Monitoring and Control

For automation of pH dosing system to reduce wastage



Objective

Certain food and chemical industries require pH to be maintained at a constant during the reaction or mixing process. If the required pH value is not maintained during the chemical reactions, the process may fail to give the desired grade of product.

pH control is mainly done to neutralise or acidify the reaction. It is done by dosing alkali or acid at a controlled flow rate to obtain the required pH value for mixture. This process can go on for a short period of 2 hours or stretch for as long as 4-5 days.

pH control is a tricky process where the dosing needs to be done rapidly when pH differential is high, and needs to be controlled very precisely when it approaches the set point. If the sensing delay and dosing is not properly synchronised, the pH value goes higher than the desired set point and the entire product in the vessel is degraded and gets wasted.

Benefits

Improves product consistency and plant efficiency

Flexibility of generating various reports for maintenance management, planning and process optimisation

Specific safety interlocks to maximise plant safety

Project documentation for complete automation package

Case Study

Initial Problems

Long operation cycles and production wastage

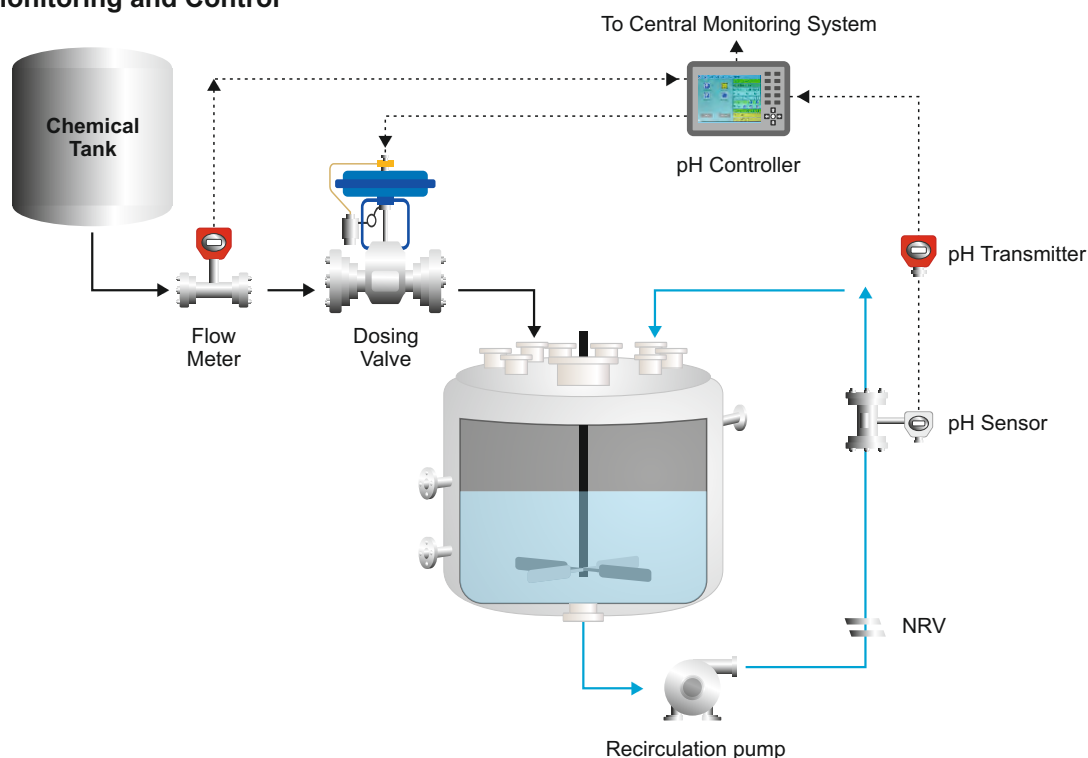
Root Cause

Traditional methods involving samples being manually extracted from the vessel, tested in the laboratory and dosing rate of alkali or acid then being manually adjusted. This process needed to be repeated till the correct product was achieved.

Solution

Forbes Marshall designed an automatic pH control system with special algorithm PCDL where by the user gets flexibility to continuously monitor the pH value and make automatic adjustments in chemical dosing when pH value is close to set point.

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