Cleaning System for Pharma Manufacturing Process

Project

The scope of this project was to design a system for dosing Citric Acid and sodium hydroxide (NaOH) into GE Healthcare’s 4200 L bio-processing tank, as part of an automated cleaning cycle. The designed system is intended to:

• Minimize employee exposure to chemicals
• Dose the necessary amount of chemicals in 3 minutes or less
• Dose the necessary chemicals within a 0.5% tolerance
• Neutralize the cleaning solution to a pH level between 6 and 9
• Have a design-life of at least 10 years

Methods

• Determine a functional system that matches requirements
• Define components for the system
• Order components and create guidelines for the installation
• Develop a testing strategy to ensure the system would function as designed

Conclusion

• We adjusted our target value until the desired value of chemical was detected and proved that the system works and the data is repeatable.
• Chemicals arrived to the 4200 L tank in 30 seconds for NaOH and 50 seconds for Citric Acid.
• We tested the pH value after NaOH and Citric Acid were run through the system. By adjusting the Citric Acid amount, we were able to reach an acceptable pH range.

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