D/3® Loop Optimizer

Benefits Realized

- Improved Control
- Increased Production Profitability
- Ease in Tuning Batch Processes

"We maintained control by manually manipulating the control valve during the initial heat up of the reactor. We could not place the control loop in automatic until the reactor was at temperature. After tuning we can operate the entire feed in automatic mode and, as a result, we're seeing much faster cycle times."

John Gaines
Senior Controls Engineer
Evonik Jayhawk Fine Chemicals

Are Slow Cycle Times Eating Your Profits?
Reducing Oscillations and Improving Set Point Tracking in Batch Reactors

OVERVIEW
Although not a financial services company, Evonik Industries fully appreciates the time value of money. That's especially true in terms of how the company manages the cycle time of its batch processes. A long cycle time often corresponds with erratic control. Evonik sees an opportunity for improvement through leveraging PID tuning technologies to improve control and to strengthen bottom-line financial performance.

Evonik Jayhawk Fine Chemicals located in Galena, Kansas has successfully modeled a variety of batch processes. Where other technologies were unable to effectively model the dynamics of batch processes, PID tuning software, equipped with patent-pending Non-Steady State (NSS) Modeling technology – has produced quick and consistent results. With improved control and shorter cycle times, Evonik is able to improve productivity.

BUSINESS CHALLENGE
The dynamics of most batch processes are tough to model during normal operation let alone during start-up. In an effort to improve control over their batch processes, Evonik tested several prominent tuning tools. Each tool failed to accurately describe the process dynamics. Then Evonik tried ours.

NOVATECH SOLUTION
Graphs below show the performance of a batch process during start-up. The "Before" image clearly shows overshoot and modest oscillation before settling out at 50° F. Settling Time for this particular loop was calculated at 133 minutes. The "After" image offers a clear contrast. The loop's Settling Time was reduced to 19 minutes and produced no overshoot. In economic terms, this presented Evonik with a golden opportunity to improve control and increase the associated production profitability.

Using a unique model-fitting technology - capable of modeling non-steady state process data - the software is altogether unique in its ability to tune batch processes that typically exhibit non-linear characteristics. It is also ideally suited for the tuning of processes at start-up where steady-state is the desired end result. That provides a unique solution for tackling complex control issues.

8% Set Point Overshoot (3.4° F)
133 Minute Settling Time
Before

No Set Point Overshoot
19 Minute Settling Time
After

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