

Corn Sweetener Facility Enhances Product Quality through Loop Performance Optimization

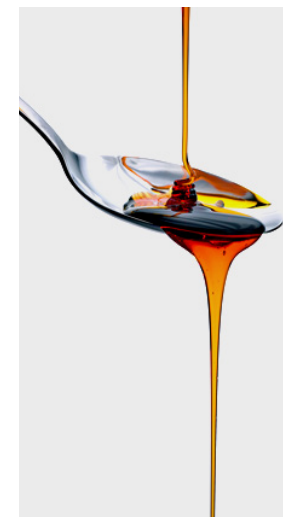
MAVERICK engineers believed that an analysis of the extensive historical data would determine patterns from which an automated system could recognize not only an under-performing loop, but also loops that trend toward an unoptimized state.

Objective

The customer needed an automated method to detect poor process loop performance in an older, legacy control system. Loops optimized during commissioning and startup quickly experienced performance degradation. The goal was to correct poor loop tuning before significant process losses were incurred and to monitor and communicate loops trending in the wrong direction.

Results

MAVERICK experts identified several poorly performing loops by analyzing data patterns and applying algorithms. Simple repeatable solutions were the core of this effort. In one case, a loop allowed periodic product loss due to poor tank level control. While the product loss was important, the volume was not sufficient to make an actionable priority. Upon further investigation, the MAVERICK team determined the product loss was an indicator of a poorly coordinated process that was ultimately affecting product quality and significantly reducing the value of the finished product.



Solution

The customer had a problem with loop stability. Loops optimized at the beginning of commissioning in an older, legacy control system quickly lost performance, creating a need for investigation and a quick solution.

Experts in MAVERICK's PlantFloor24® global operations center teamed with the Operational Consulting (OpCon) group to mine the customer's extensive historical controls database to analyze trends and data patterns.

The MAVERICK team tested algorithms to create actionable reports which were then verified to prove the underlying effectiveness of the proposed solution.

MAVERICK analyzed the total time valves were in AUTO / MANUAL mode, total valve travel, the %CV of the valve and other relevant variables and assigned a final score to each loop.

The score of each loop is updated automatically. Threshold limits were defined and triggers are set once a loop starts trending toward an unoptimized state.

Control room operators are now notified of critical loop trends. A daily report is compiled for the operations team that identifies all unoptimized loops. On a weekly basis, the operations team receives a top-ten list.

Many of the loop problems were actually symptoms or indicators of more important process issues.

For automated monitoring systems to be effective, the systems must be more robust than the systems they are monitoring. Several commercial software solutions exist; however, they are not well-suited for legacy automation systems and cannot accurately identify process issues.

The MAVERICK Difference

MAVERICK's ability to use PlantFloor24 support in conjunction with the Operational Consulting team was the most cost-efficient method to identify unoptimized loops and propose corrective actions. Ultimately, optimization of just one under-performing loop justified the cost of the entire project.



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