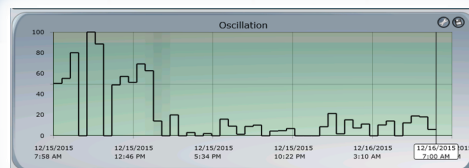


Consumer Packaged Goods:

Proactively Identifying Changes in Behavior

As consumers we all expect that the products we purchase meet a consistent standard of quality. That's especially true for consumer packaged goods (CPG) as many such products either go in or go on our bodies. So excessive variability in a production line can be a major source of concern for process engineers, and variability resulting from poor PID controller tuning can be a relatively easy issue to correct. That assumes that the engineers know which of the production facility's innumerable control loops is the culprit. With so many interacting loops it can be difficult to distinguish symptoms of poor control from the actual root-causes. In the case of this CPG plant a notable uptick in process variability was proactively flagged by PlantESP, ranking the bad actor at the top of the application's Oscillating Loop Report. One click on a hyperlink within the report presented engineering staff with detailed analysis. Shown were PlantESP's Oscillation, Average Absolute Error, and other KPIs which confirmed the increase in variability. A second click provided them with PlantESP's issue-specific recommendation for corrective action. Variability due to poor controller tuning is never a good thing, especially when your brand reputation is based on product quality. Fortunately PlantESP helps you uphold those standards!

Oscillating Loop Report						
Loop Name	Units	Likelihood of Oscillation		Likelihood of Stiction		Tuning Deviation
		Previous	Current			
TICJ41702	Other, All Loops, DI Water	17.3 %	34.0 %			
FICJ41605	Other, All Loops, DI Water	10.3 %	31.4 %			
FICJ41703	Other, All Loops, DI Water	14.7 %	31.2 %			
PICJ66331	Other, All Loops, Packaging Lines	17.4 %	23.9 %	3.6 %	8.6 %	N/A N/A
PICJ66334	Other, All Loops, Packaging Lines	17.4 %	23.4 %	8.7 %	13.1 %	1.06 1.12
FICJ66316	Other, All Loops, Packaging Lines	0.0 %	21.1 %	0.0 %	0.0 %	N/A N/A



PlantESP includes an array of reports that provide subscribers with regular updates on plant-wide performance. A single click on the loop identified at the top of the Oscillating Loop Report provided access to a comprehensive assessment. The trend shown on the lower right shows how Oscillations were nearly eliminated by tuning.

What was the cause?

In order to satisfy their control objective PID controllers require regular tuning. Various aspects of production processes evolve over time due to corrosion, fouling or even changing seasons. Failing to tune PIDs every 6-12 months can result in harmful variability as controllers lose their ability to effectively regulate processes under the new conditions. That was the case at this CPG plant. PIDs were tuned infrequently. More often than not they were tuned only when their deteriorated performance became painfully obvious.

How did PlantESP find it?

PlantESP utilizes an array of KPIs to continuously and proactively assess control loop performance on a plant-wide basis. Using a plant's existing process data PlantESP is able to isolate a range of performance issues linked to mechanical, loop interaction, and controller tuning issues. Shortly after its deployment at the CPG facility PlantESP identified the loop as having the highest Likelihood of Oscillation based on a single dominant frequency. Other of PlantESP's KPIs like AAE provided confirmation of the solution's variability assessment.