

Aberdeen Group Case Study

Aberdeen Group's Benchmark Report, "Operational Excellence in the Process Industries" included a case study on SABIC Innovative Plastics. Below is the case study from the report.

Case Study - SABIC Innovative Plastics

SABIC, the Saudi Basic Industries Corporation is a leading global manufacturer of chemicals, fertilizers, plastics and metals. Since acquiring General Electric's plastics business in May 2007, one division, SABIC Innovative Plastics (SABIC-IP), has continued to address two of its major business pressures by instituting extensive performance management initiatives in manufacturing operations across its portfolio of over 60 plants.



Building on a prior corporate directive to reduce operating costs and improve equipment uptime, SABIC-IP continued performance management initiatives centered on operational performance within plant operations. The initiative, at one plant, tackled over 1,700 process control loops. "We originally started this project three years ago because management knew we needed to reduce instability caused by the variability of our operations," Keith Phillips, a process control engineer and team leader on the project in Burkville, Alabama.

Gathering data from control systems and data historians wasn't enough to address operational performance. SABIC-IP needed to make informed decisions on how to reduce oscillations in the system, as well as tighten control limits. Operators did not have a good feel for how problems in one upstream process could affect a downstream one. Prior to this initiative SABIC-IP tuned most of its process control loops by "feel" and soon recognized that advanced control monitoring capabilities would solve many of their problems.



"One critical loop was for our hydrogen compression process, which is partially used to offset natural gas as an energy source," explained Phillips. "Once we used our new software to analyze loop interactions, we realized that a simple on/off control for an upstream fan was causing a temperature spike carrying through to our hydrogen compressor. By re-tuning our fan control loop, we were able to tighten our control limits and reduce the impact downstream. We recognized that because we had such large control limits before in the hydrogen compressor, we were not maximizing our hydrogen recovery. By tightening this upstream control and optimizing the hydrogen process we are able to save over \$1 million per year in energy consumption."

By having control data and results to reference, process control engineers can communicate benefits to plant management and to the executive staff. Phillips explained, "In the past we had to use qualitative arguments to explain where we could reduce operating costs, but now we have the data to back it up. We can now show how tightening control with smaller tolerances can save money."

In an effort aimed by continuous improvement, SABIC-IP is now looking at how they can better manage asset performance. "We are trying to address the link between a process operation problem and the way in which an asset might have been installed or how it is maintained. When we find a new problem using our performance management initiative we are connecting this to an asset performance program to address the root cause. We are also creating reliability center for asset management to drive uptime. Operations will identify and prioritize the culprit and maintenance can then address it."