

TPT Petrochemicals Increases Process Efficiency with Experion and Profit Controller



“We were looking to reduce our production costs by implementing Advanced Process Control applications on our Experion PKS platform. Through an excellent collaborative effort between Honeywell and TPT we were able to significantly improve plant performance by increasing efficiency, reducing variability and safely running the plant against multiple constraints.”

Smith Tiratrakoonwichaya, Automation Manager, TPT Petrochemicals

Benefits

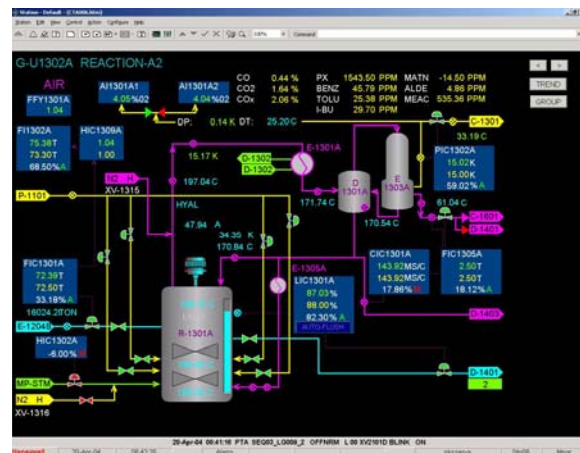
TPT Petrochemicals needed to improve plant performance to remain competitive with new plants being built in the region. TPT chose Honeywell to provide its Experion® Process Knowledge System (PKS) and Profit Controller software. Honeywell was able to deliver on a guaranteed performance improvement contract that delivered the following benefits:

- Reduced acetic acid consumption
- Reduced catalyst usage without impacting product qualities or yields
- 20-50 percent reduced variation of key product qualities
- Increased operation stability
- Improved access to data with an integrated solution that provides site-wide access to process plant information

Challenge

TPT Petrochemicals Public Company Ltd. owns a purified Terephthalic Acid (PTA) production facility with a rated capacity of 420,000 tons per year. PTA is a key intermediate step in producing polyester and polyethylene terephthalate (PET) bottles, a rapidly growing market. TPT wanted to improve efficiency of production to be more competitive in the Southeast Asia petrochemicals market.

TPT needed an automation solution that would not only give them a safe and secure environment with easy-to-use, high-performance controllers, but also a platform that would enable easy integration of advanced applications, such as Profit Controller. TPT recognized that it needed a platform like Experion if it was going to support applications that turn data into information and enable operators to respond more quickly to changing conditions. To remain competitive, TPT required a link between manufacturing capability and the rapidly changing business environment.



Experion station display provides an intuitive user interface and easy access to information.

Solution

TPT had already invested in establishing a safe and profitable operation by training operators, improving regulatory controls and establishing an ongoing plant improvement program. TPT asked Honeywell to demonstrate how it could improve plant performance by implementing advanced controls.

Honeywell analyzed the plant performance and provided the design, implementation and management services to deliver a guaranteed return. The solution focused on two Profit Controller applications around the Crude Terephthalic Acid (CTA) section:

- A reactor and crystallizer controller designed to control key CTA product qualities of the 4-CBA impurity and the optical property measured by TR340. In addition, this controller minimized consumption of acetic acid and catalyst consumption.
- A level management controller designed to control inventory levels throughout the plant, to control slurry flows to the rotary vacuum filters and to regulate the addition of fresh acetic acid into the plant.

The resulting set of applications enabled TPT to:

- Predict CTA properties online
- Maintain CTA qualities within target
- Reduce standard deviation of CTA quality by 20-50 percent

- Reduce consumption of acetic acid in the unit by minimizing burning of acetic acid in the oxidation reactors
- Reduce the usage of fresh catalyst by controlling critical calculated concentrations in the feed mix tank (specifically, the atomic ratio and Bromine concentration)

The Profit Controller applications were quickly accepted by the operators who appreciated the tight integration of the advanced applications within Experion.

TPT saw additional benefits from the implementation of Honeywell's Uniformance® PHD process historian database and the Workcenter data visualization application. These applications enabled plant information to be made available throughout the plant and improved operational efficiency with more effective business decisions.

"We expected to see improved quality control but the improved stability also enabled us to increase overall production of the plant," said Smith Tiratrakoonwichaya, Automation Manager, TPT Petrochemicals. "We were impressed with Honeywell's domain expertise in advanced control technology and in particular, how to successfully apply it to our process. We are very pleased with the result of this project. It is a reflection of the great teamwork between our staff and the Honeywell engineers. We look forward to a long and mutually beneficial relationship with Honeywell as we continue to explore solutions that will improve our competitive position."

For More Information

To learn more about how Experion can improve business performance and peace of mind, visit www.honeywell.com/ps or contact your Honeywell account manager.

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