

H&R Improves Production with Better Decision Making thanks to Honeywell Production Balance



“With Honeywell’s yield production and accounting [Production Balance], we are now able to clearly understand, identify and manipulate the critical streams that have a large impact on profitability. The products and services from Honeywell are helping us make better and more profitable operating decisions.”

Volker Goetz, DCS Engineer, H&R ChemPharm

Benefits

In today’s complex chemical environment, companies are always looking for new opportunities to improve production. The use of advanced tools such Statistical Data Reconciliation (SDR) is one significant way to achieve production gains. The activity of daily data reconciliation instead of monthly balancing has become an industry standard along with the ability to perform per-unit balancing instead of per-plant balancing. These features provide more accurate and timely information for both financial and engineering decision makers.

In the more complex environment of flexible, multi-mode, multi-product fine chemicals plants, designing a SDR model is somewhat more difficult. Due to the complexity of the plant, the yield accounting process at H&R proved to be a challenging one. H&R turned to Honeywell and its Production Balance application, a member of Honeywell’s Business FLEX® suite of advanced applications that provide solutions that enable process industry companies to efficiently unify business goals and production automation, while improving decision making, achieving faster execution, and increasing manufacturing flexibility. With the use of Production Balance, the immediate benefit was the timely availability of accurate data which enabled H&R to:

- Know the true state of production and inventory, free of gross errors
- Allocate production and consumption to production orders
- Identify both real and apparent (accounting) losses and take timely action to prevent them
- Identify erroneous measurement and missing transactions
- Reduce uncertainty around production decisions
- Close the books daily, with trustworthy data



H&R’s ChemPharm decision facility in Germany relies on Honeywell’s Production Balance for improved making

Background

H&R stands for Hansen & Rosenthal, a traditional Hamburg family firm whose chemical special product business goes back four generations. Hansen & Rosenthal is one of Europe’s biggest producers of white oils.

The company history of SRS GmbH of Salzbergen goes back to the discovery of oil shale on the SRS factory site in Salzbergen in the south of the German state of Lower Saxony in the 1860s. The site started as a refinery for lighting oils, then fuels and lubes.

With the ownership change to H&R came a shift in the company’s strategic orientation – moving more to the high-quality refining of chemical/pharmaceutical raw materials besides the production and service in the field of lubricants. The company’s efficiency in the fields of white oil and paraffin was increased further, and today H&R has a production capacity of 400,000 tons/year.

Challenge

H&R ChemPharm GmbH's yield accounting process proved to be a particularly complex one. The plant itself consists of 11 process units and more than 500 tanks and vessels, more than 1000 products and intermediates are registered. Being a highly flexible plant, process units can be run in up to 43 different modes of operation, producing a wide variety of products and grades.

Yield accounting allocates the production figures to production order, which is reflected in the mode of operation of a process unit. H&R ChemPharm operations allow a mode change to gradually happen for a process unit. When a new production order becomes effective, first the feed stream is switched to a different feedstock, later, as qualities of the process unit's output streams gradually change, light end first, bottoms last, the operating mode of each individual stream changes as the stream is connected to the new product's destination tank. For the transition phase, a process unit can therefore produce for two production orders at one time, the accounting process has to reflect this.

"We looked for something more than a straight data reconciliation process," said Volker Goetz, DCS Engineer, H&R ChemPharm. "We needed, and found, a reconciliation package to gradually switch from one production order to the next stream-by-stream."

Solution

H&R worked with Honeywell to formulate a feasibility study project that would create an evaluation system based on Honeywell's Business FLEX Production Balance SDR package with a plant model that allowed the needed stream-by-stream

More Information

For more information on Honeywell's Business Flex Solutions or any of Honeywell's automation Products, Services, or Solutions, visit our website www.honeywell.com/ps, or contact your Honeywell account manager.

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switching.

This was achieved by splitting the process units into multiple virtual units, utilizing Production Balance's missing movement solver and unmeasured flow calculator to re-consolidate the logical sub-units in the balance transparent to the user.

For developing and implementing this highly complex model, consisting of more than 1,800 logical entities and more than 3,500 flow routes, a traditional point-and-click model building tool was out of the question. Taking advantage of the open relational plant model of Production Balance, the plant model was developed in spreadsheets and loaded into the system by standard database tools.

To feed the SDR system, the existing site-wide Honeywell Uniformance® PHD historian was enhanced to provide real-time volume-to-mass conversions for the DCS-connected flow measurements, as well as full tank information system capabilities including level-to-volume-to-mass calculations and tank status information. A custom application called "Fahrweisenmaske" (which translates into Operating Mode Switching Form) has been developed and implemented to accommodate a streamlined workflow from the planning department entering production orders to operations running the process according to the operating instructions generated by the application.

"In addition to the timely and accurate data now available, the real-time system enhancements for volume-to-mass conversion and tank information have been made available to a wider audience by a variety of reports and interactive information tools," continued Goetz. "With Honeywell's help we have empowered our employees to make better informed, more timely decisions that positively impact our business."

As the next phase approaches, H&R wants to consolidate user interfaces and reporting tools into a common, web based framework. Honeywell's Experion Process Knowledge System® (PKS) Application Framework web technology has been selected by H&R to be that framework. "We are confident we'll be able to consolidate the now separate interfaces between the site's individual systems such as the laboratory database, the planning & scheduling system and the ERP system and look forward to our continued work with Honeywell."