

Hubei Yihua improves operational efficiency and stability

RESULTS

- 12% reduction in instrument investment.
- More than 10% improvement on batch control efficiency.
- 75% reduction in temperature transmitter installation.
- 15% reduction in overall maintenance costs.



APPLICATION

Essential batch processing and monitoring equipment is used in PVC plant operations at Hubei Yihua Group to facilitate temperature monitoring and process automation in order to reduce the need for human intervention and to improve service equipment efficiency. Batch control is also implemented for troubleshooting, allowing for maintenance *before* equipment failure occurs.

CUSTOMER

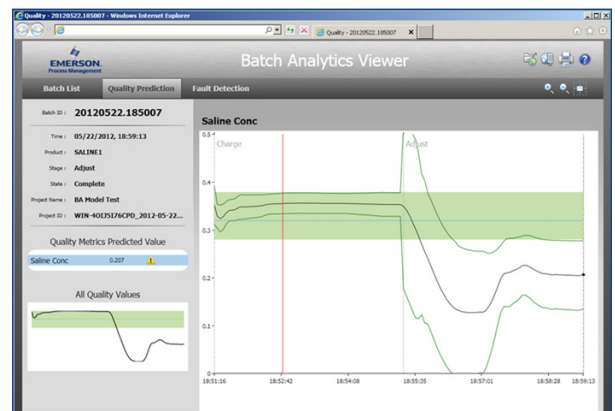
Hubei Yihua Group is one of the most influential 10 representative enterprises in the petrochemical industry of China. The total output of five PVC projects spearheaded by Hubei Yihua Group and its subsidiaries has reached 1.25 million tons per year.

CHALLENGE

The team at Hubei Yihua has responsibility for managing numerous centralized temperature measuring points as well as intermittent production and multiple-formula processes. In order to stay competitive in the complex and changing PVC production industry, it is essential to manage all of this complexity in a centralized and cost-effective way.

“Adoption of the DeltaV Batch control facilitates not only configuration, but also troubleshooting. We can determine and avoid failures quickly by examining the real-time module conditions.”

Yong Chao
Maintenance Engineer



SOLUTION

Hubei Yihua Group implemented Emerson's DeltaV distributed control system (DCS) along with the DeltaV Batch control technology to improve existing automation architecture at all manufacturing facilities. With the new system's ability to monitor production process errors and accidents in real-time, Hubei Yihua was able to dramatically reduce human intervention and increase automation production.

At the human-computer interface level, flow control and batch operation are integrated, improving efficiency by removing the need for switching between interfaces. In addition, powerful formula management functions reduce product quality fluctuation and ensure long-term stable and efficient operation of PVC production plants. The DeltaV system's simple, intuitive interface allows process personnel who are not automation specialists to build and alter process flows when necessary. Quality control improvements resulting from automation system implementation are directly responsible for Yihua Group's 10% increase in plant efficiency.

Implementing AMS Device Manager asset management software coupled with Rosemount 848T temperature transmitters was a key step in managing equipment maintenance, leading to increased plant operation stability. AMS Device Manager provides operators and maintenance personnel with real-time operation condition information on all control circuits and equipment. These changes have not only significantly improved startup commissioning times, but also reduced maintenance costs by more than 15%.

While temperature monitoring had always been in place at Hubei Yihua, implementation of the Rosemount 848T transmitters allowed reaction vessel and tank temperature monitoring at the source, resulting in a 65% reduction of overall temperature measurement installation cost.

The PVC processing market has high requirements for automation and control due to the complexity of its processes. Implementing Emerson's batch control, asset management, and temperature measurement technology provided the roadmap that Yihua needed to improve efficiency and ensure error-free production.

“Sometimes, PVC production requires rapid and frequent product change. The DeltaV Batch control helps us to quickly and easily implement these changes without impacting product quality.”

Lv Xiangyang
Process Engineer

“We have tested the DeltaV Batch control in multiple PVC projects with varying conditions, and it has proven that batch monitoring can make PVC polymerization more stable, while still allowing formulas to be more flexible.”

Huang Chuanyu
Vice Chief Engineer

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