

BASF in Ohio, USA, chooses ABB Batch Process Fingerprint Batch optimization improves output and quality



With the information obtained from an ABB Batch Process Fingerprint, BASF Corporation was able to reduce batch cycle times and increase production without losing quality.

BASF Corporation's site in Greenville, Ohio, USA, located near the Indiana border, manufactures a wide range of high-quality resin products for the automotive industry. These include acrylics, polyurethanes, polyesters and epoxies. The Greenville BASF location produces electrocoat, the first layer of coating that protects cars from corrosion; and clearcoat, the final coating that gives cars a clear and durable finish.

Managers at the Greenville site wanted to reduce the production time for an in-demand polyester produced at their plant using a batch reactor process. The plant contracted with ABB to execute a Batch Process Fingerprint service to analyze data collected from a reactor in order to identify potential issues and provide recommendations that would help BASF increase output while maintaining high product quality.

Customer challenge

- Optimize batch process performance and efficiency
- Improve product quality
- Increase production rate
- Reduce batch cycle times

ABB solution

To optimize the batch process and increase throughput, BASF employed ABB to execute a Batch Process Fingerprint service. The ABB Batch Process Fingerprint is a cost-effective service that provides diagnostics, key findings and recommendations to improve batch process performance.

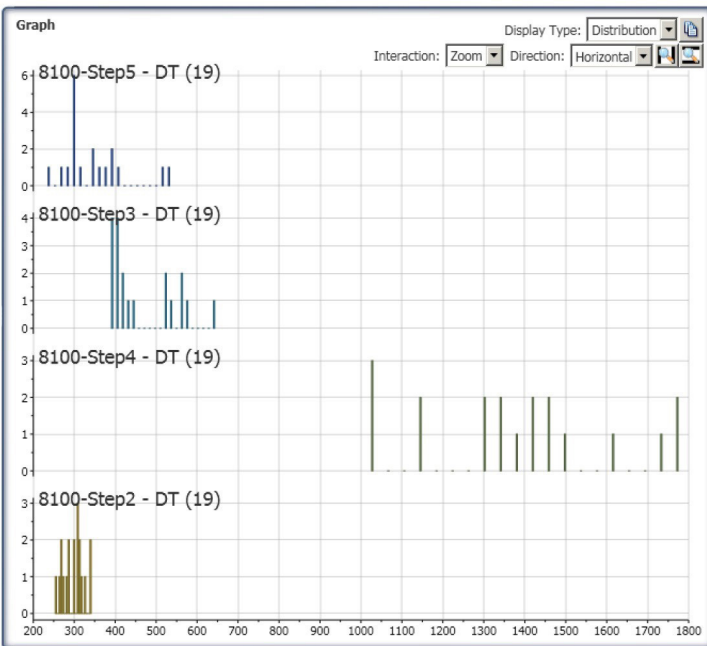
ABB Fingerprints are part of ABB's portfolio of Advanced Services, which are engineered approaches in which ABB diagnoses equipment and process issues, identifies improvement opportunities, and implements solutions through customized improvement plans.

Solution and customer benefits

At the BASF Greenville site, one of the polyesters the plant produced was manufactured using a batch reactor process so lengthy that it became difficult to keep the product in stock.

BASF managers knew that if they could reduce batch cycle times, they would be able to increase production rates.

ABB engineers executed the Batch Process Fingerprint service to analyze efficiency in the polyester manufacturing process and recommend ways to reduce batch cycle times while maintaining quality. ABB engineers gathered data from the plant's ABB Distributed Control System, organized it by discrete event, and compared it to Key Performance Indicators representative of world-class batch production.



BASF in Greenville, Ohio, needed to reduce production time for one of the plant's popular polyester products, which is manufactured using a batch reactor process. Using an ABB Batch Process Fingerprint service, the plant gathered data from their Distributed Control System to analyze efficiency in the polyester manufacturing process, and ABB recommended ways to reduce batch cycle times. The graph shown above indicates the distribution of elapsed time for several key production steps. Step 4 represents the step that took the greatest amount of time and that, if accelerated, could make the most difference in reducing batch cycles. With this step identified, BASF knew where to focus efforts to increase efficiency.

ABB worked closely with BASF to gather and analyze data over a three-month period. Both ABB and BASF focused on the components that are key to polyester production in the reactor system.

After analyzing information from the batch reactor process and assessing control loop performance, the ABB and BASF teams both reached the same conclusions. This agreement underscored the accuracy of the evaluation.

ABB identified a key step in the polyester production process that needed to be more efficient, and made several strategic recommendations to reduce variance in the production steps. Importantly, ABB recommendations included tuning the loop oscillation and evaluating the driving force on the temperature loop. ABB also recommended that temperature control needed a feed-forward, and identified a temperature loop failure and a saturated transmitter.

Results

With issues identified, BASF personnel could focus on the specific process areas that needed improvement. As a result, the plant has achieved ongoing improvements that have brought about faster batch cycle times. BASF has been able to successfully increase production rates without sacrificing product quality, and has become more competitive in the marketplace.

Customer benefits

- Confidence in the plant's ability to achieve optimum output
- Increased production without quality loss
- Reduced off-specification losses
- Faster batch cycle times

For more information, please contact:

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