

# Synthomer Increases Output and Reduces Commissioning Time with PlantWeb® Architecture



## RESULTS

- Reactor output increased to over 30% of design capacity
- Batch-to-batch repeatability improved by 30%
- Commissioning time reduced from 30 days to 8 days
- Number of aborted batches reduced by 50%
- Number of non-conforming batches reduced by 40%



## APPLICATION

Synthomer Sdn Bhd (Malaysia) produces synthetic emulsion polymer, a substitute for natural latex and other coatings used for dipping and as additives in cement, carpets, or fabric. It is a batch process using petroleum derivatives like butadiene and acrylonitrile as raw material. The plant uses a highly-automated, multiple-continuous feed process.

## CUSTOMER

Synthomer Sdn Bhd is part of the Synthomer group of companies, which are part of Yule Catto & Co plc. Synthomer is a world-class supplier of synthetic polymers to industries ranging from paints and adhesives to textiles, specialty papers, and plastics.

## CHALLENGE

Synthomer operates in a high-growth market that is driven by competition and necessitates rapid product development. Therefore, it needs for process optimization initiatives to meet market demand. The Kluang plant requires sophisticated batch and recipe control. Due to the petroleum derivatives used, the plant is also a Zone 1 hazardous area.

Because Synthomer is in continuous production, maintaining consistency between batches is essential and batch information must be retained for traceability. Many of Synthomer's customers produce medical equipment and are FDA-regulated. These customers audit their suppliers with similar requirements. Accurate data collection and easy access to analysis is required.

***“The commissioning was extremely successful. By using AMS Device Manager, we were able to cut 22 days off of our commissioning time. And the first batch was within specification.”***

**Adrian Moody**  
Process Technology Manager



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The Synthomer project team was required to implement a completely automated solution, with minimal human interference. The process involves a complex reaction with multiple components. Exact component quantities are critical. If the components are even a few percent points off, the product is non-conforming.

## SOLUTION

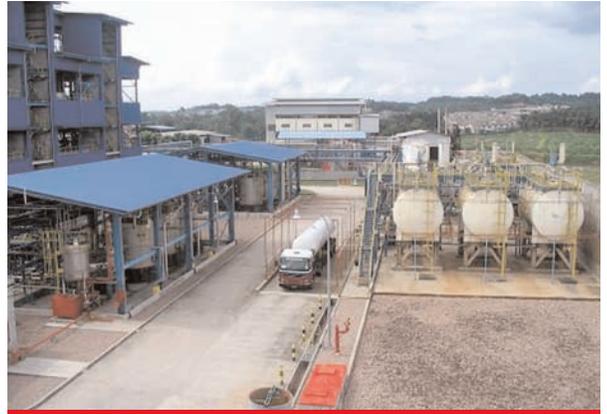
Synthomer reviewed several control systems, but ultimately chose the DeltaV™ digital automation system with FOUNDATION™ fieldbus because it was flexible and easy to expand for future growth. The FOUNDATION fieldbus protocol was used to integrate Emerson devices as well as transmitters and converters from third parties.

DeltaV embedded and integrated the batch scheduling better than other systems did. Operators load the recipe, press start, and the process is automated until the batch is finished.

The system also includes AMS™ Suite: Intelligent Device Manager, a predictive maintenance application. All Synthomer's field devices are connected to the AMS Device Manager database where PlantWeb alerts notify maintenance and operations of device problems or failures. AMS Device Manager simplifies the commissioning and maintenance of the large number of FOUNDATION fieldbus devices onsite. It took only 8 days to commission, loop test, and water test the new field devices instead of the planned 30 days.

These capabilities have reduced dead-time between recharging the reactor and allowed for faster recipe-switching between products. Product quality has also improved through better batch-to-batch repeatability and reactor-to-reactor reproducibility. Non-conforming batches were reduced by 40% and the number of aborted batches was cut in half.

The original design capacity for the plant was 40,000 tons/annum, but the output has increased to 54,000 tons/annum. The flexibility and ease-of-use has enabled Synthomer to cut their recipe development time by 15%, allowing for faster turnarounds to meet customer demands, to take advantage of raw material availability and prices, and to capitalize on new opportunities.



***“We recognized DeltaV as a control system designed to do batch processing. It's not a control system designed for continuous control with batch bolted on as an afterthought.”***

**Richard Bingham**  
Project Manager

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