

SUCCESS STORY



CENTUM CS 3000 Production Control System Contributes to Smooth HDPE Production

Location: Rayong, Thailand
Order Date: October 2007
Completion: October 2008
Industry: Petrochemical



Executive Summary

SCG Chemicals is a subsidiary of the Siam Cement Group (SCG), Established in 1913, SCG Chemicals is one of the Group's five core businesses, the others being paper, cement, building materials, and distribution. SCG entered the chemicals business in 1989 and, at present, SCG Chemicals manufactures and supplies a full range of petrochemical products, including upstream petrochemicals such as olefins; intermediate petrochemicals such as styrene monomer, PTA, and MMA; and downstream petrochemicals such as polyethylene, polypropylene, polyvinyl chloride, and polystyrene resin. SCG Chemicals is now one of the largest integrated petrochemical companies in Thailand and is a key industry leader in the Asia-Pacific region.

SCG Chemicals has a high density polyethylene (HDPE) plant in Rayong that produces 200,000 t/y of this petrochemical, which is supplied only to the domestic market, centering on the automobile industry. As this HDPE plant uses a legacy Foxboro I/A Series control system that is no longer supported by Foxboro, SCG Chemicals decided to replace this with a Yokogawa CENTUM CS 3000 Integrated Production Control System. Engineers from Yokogawa Thailand worked closely with their SCG Chemicals counterparts to complete this replacement project.



Human machine interface SAT in main control room



Field control station SAT in rack room

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The Challenges and the Solutions

The challenge for this replacement project was in completing the work and starting up the new CS 3000 system as soon as possible, keeping downtime to a minimum. Working together, the SCG Chemicals and Yokogawa Thailand project teams completed the wiring for approximately 2,000 I/O points, reconnected them to new field control station cabinets, and carried out two site acceptance tests (SAT) in just a nine-day period. The start-up progressed smoothly and the work was flawless. A Modbus communications link was established between the CS 3000 and an existing TRICONEX safety system, making it possible for operators to monitor data from the safety system at the CENTUM system's terminals.

1. SCG can now easily insert guidance messages that appear in the graphic displays, making it clear for operators what they must do in each operation phase. This helps them clearly confirm each important step of an operation.
2. The system's CALCU block automatically performs complex tank volume calculations and outputs reports, saving operators considerable time and effort.
3. Parameters for each PID control loop can be easily set by engineers, speeding up the control loop tuning process.
4. Data can be automatically output each day in Excel spreadsheets, saving operators considerable time.
5. Exaplog alarm collection and analysis eliminates spurious alarms and helps operators work more efficiently.

Customer Satisfaction

Pornwit Rattanawijit, the Control Pool Service Section Manager for SCG, said, "We are very happy with Yokogawa's DCS and service support. The most important thing is that the system has a high reliability. We appreciate that its availability exceeds seven 9s. We can operate this plant smoothly without any major system failures. Now we are considering the use of Exapilot to automate the plant startup, shutdown, and other processes to improve quality and efficiency. We are happy to be working together with Yokogawa Thailand."



Project team members at Yokogawa's Rayong office