

Uniroyal Chemical Ltd. Improves Rubber Tire Additive Process with DeltaV™ System Installation

RESULTS

- 30% reduced engineering and installation cost
- Increased process information
- Remote process information and control
- Reduced training costs
- Improved operations



APPLICATION

The process is a semi-automatic batch sequence. Toluene and water are mixed together and react to produce Delac MOR, an additive for the rubber industry primarily used in tire treads, carcass, mechanicals, and wire jackets. Controlling the temperature and pressure is critical in this highly exothermic reaction.

By-products from this reaction are further processed to reclaim the Toluene and water.

CUSTOMER

Uniroyal Chemical Ltd., Elmira, Ontario, Canada

CHALLENGE

Uniroyal Chemical required a system that could easily grow. The project team needed to manage the implementation of the automation project in logical pieces working within the available project budgets.

It was important for the Uniroyal operators to become immediately familiar with the new system without a great deal of costly training.

Given the physical separation between the processing facility and the operator room, it was important to Uniroyal Chemical to have local operator panels inside the processing facilities. This took on even greater importance during the cold Canadian winters.

Uniroyal Chemical needed a control system that provided consistent, accurate control over its process.

“The DeltaV system and the Internet/intranet will assist us in our quest for information, and will allow us to make the data readily available to anyone in our company—wherever they may be. We especially see the ability to use intranets as an important technology that will offer easy, low-cost information access.”

Mark Garnett

Instrumentation and Control Superintendent,
Uniroyal Chemical



For more information:
www.EmersonProcess.com/DeltaV



SOLUTION

Uniroyal Chemical selected the DeltaV™ system from Emerson. The system controls the sequence of the flow of water and Toluene coming into the reactor, as well as regulating the reactor temperature by controlling the flow of cooling water to the reactor's jacket.

The DeltaV automation system allowed Uniroyal Chemical's engineering team to grow its system without shutting down, while expanding the plant in manageable chunks. The DeltaV hardware can be added while the system is running, and components like the I/O cards are automatically recognized and configured into the system.

The DeltaV system's library, pre-engineered alarm management, and operating faceplates not only made the up-front system engineering easier, they also gave operators an intuitive user interface they could quickly learn and comfortably operate.

Mark Garnett, an instrumentation and control superintendent for Uniroyal Chemical, decided to use the DeltaV system's MODBUS connectivity capability to locate a local operator panel next to the processing equipment.

The goal of the local panel was to replace the functionality of local setpoint adjustment previously provided by the pneumatic controller. Also, the local panel needed to display temperature trends to replace a circular chart temperature recorder.

Mark selected a Total Control Products QuickPanel 9" Monochrome EL with a MODBUS slave driver, which was suitably rated for the Class I Div. 2 area.

Using the ease and simplicity of the DeltaV system and his creativity, Mark set up the local operator panel to perform four key functions: adjusting the setpoints of two critical temperature loops, providing trending information on several pressure and temperature loops, displaying any active process alarm in the DeltaV system locally, and silencing the alarm horn locally.

Overall, Mark is pleased with the performance of the DeltaV system and is planning the next phases of expansion, which will include the transfer step once the reaction cycle has completed.

Reduced engineering and installation cost

Uniroyal Chemical estimates overall implementation saved up to 30 percent over comparable system implementations.

Local operations

By using commercially available technology, Uniroyal Chemical easily integrated local operator panels in the rubber additive processing area. "We see our future success to be largely dependant on the management and interpretation of data," said Mark Garnett, "With



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Reduced training cost

Uniroyal Chemical experienced a 60% reduction in operation training time, with eight operators trained on the new system in just eight hours.

Improved operations

By implementing the DeltaV system, Uniroyal Chemical enabled faster response to product demand, improved process quality controls, and improved analysis of the product in real-time.

Using the DeltaV digital automation system, Uniroyal Chemical and Emerson Process Management won the prestigious Technical Innovations in Manufacturing award presented by Microsoft to companies and Microsoft Solution Providers that demonstrate progressive solutions using Microsoft technology.

Uniroyal Chemical continues to innovate and find creative, cost-saving solutions with the DeltaV system.



Pictured above: Mark Garnett, center-right, of Uniroyal Chemical and Herb Lade, center-left, of Emerson, and the Uniroyal Chemical project team accepting the Leonardo medal for the Technical Innovations in Manufacturing award.

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Emerson Process Management
12301 Research Blvd.
Research Park Plaza, Building III
Austin, TX 78759

www.EmersonProcess.com/DeltaV

