

A photograph of an industrial facility, likely a refinery or chemical plant, with various towers, pipes, and scaffolding. The image is slightly blurred and has a blue tint, serving as a background for the title.

Foxboro Integrated Solution Plastic Resin Production

Foxboro® provides single source solution for expanding international supplier of plastic resins

Wellman, Inc.
Pearl River, Mississippi

www.fielddevices.foxboro.com

Life Is  On

Foxboro®
by **Schneider** Electric



Benefits

- Single source for best-in-industry control and instrumentation system
- Optimum production efficiency within precise quality control tolerances
- Reduced downtime, equipment, and maintenance costs
- Lower inventory and supply costs
- Ease of operation with minimal technician training

Background

Pearl River, Mississippi

Wellman, Inc., an international Fortune 1000 corporation, sets the standard as a manufacturer of fibers, plastic packaging, and engineering resins made from both virgin and recycled raw materials. With production facilities in the US, Ireland, the Netherlands, and France, Wellman is one of the world's largest PET plastic producers and recyclers. The Pearl River, Mississippi facility has an annual PET resin production capacity of 500 million pounds.



Customer Challenge

More and more packaging manufacturers are turning to polyethylene terephthalate (PET) resin as an inexpensive, flexible plastic for high-quality packaging. With exceptional strength and clarity qualities, PET is fast becoming the preferred packaging material for soft drinks, juices, alcoholic drinks, water, edible oils, household cleaners, and many other food and nonfood products.

Packaging producers who blow-mold the resin into bottles and other types of containers rely on PET producers to meet the ever-growing demand for the resin in the form of small cylinders or pellets. Consistent resin quality is critical, since the final PET package is only as good as its raw materials.

Wellman, Inc., one of the world's leading resin producers, creates these PET pellets through controlled interaction of two main chemicals: purified terephthalate acid (PTA), and monoethylene glycol (MEG). The recipe is injected into reactors, through an intricate system of valves and tubing to assure consistent product quality.

"Controlling the injection of PTA and MEG, from a small trickle to an almost gushing chemical flow, is very difficult, and very, very critical," says Robert Goetzman, Pearl River senior controls engineer. "The process must be precise and repeatable to maintain the quality of our plastics, whether for clarity or strength." Vital to controlling that injection process are positioners that regulate the valves, which feed the reactors.

Foxboro Solution

After evaluating various positioners, Wellman selected Foxboro's Intelligent Positioner SRD991, which was configured for control from Wellman's Foxboro I/A Series automation system. The SRD991 Positioner operates pneumatic valve actuators from control systems and electronic controllers, over the Foxboro FoxCom field device protocol.

"Given the importance of the positioner, we had specific selection criteria. These include robustness, self-calibration, and ease of installation, startup, and replacement. Our process has to be precise, and positioner performance is paramount," says Goetzman.

If a positioner fails, it sets off an alarm, which is read in the I/A Series control room. The PET resin production line is either temporarily shutdown at the failed control valve or the flow is made to bypass the failed valve. The next step is replacement, an easy job with the SRD991. The positioner is unbolted and removed, a new positioner is pulled from supply and, using the same bolts, the new positioner is installed.

To assure optimum positioner performance, automatic self-calibration takes over at this point. "The automatic self-calibration enhances quality control by eliminating or reducing mistakes that might result from a technician incorrectly calibrating the positioner. This is critical when you consider that a mis-calibrated positioner will fail to open or close the valve properly, allowing the wrong amounts of PAT or MEG to be injected into the process. This could result in the entire batch being ruined, one of our worst nightmares," says Goetzman.



"Foxboro is the perfect partner for our control and instrumentation needs. Based on product performance, technical support, and ease of doing business, Foxboro is our single source solution.

- Pete Woody
Plant Manager,
Wellman Pearl River Facility

The positioner, utilizing its FoxCom information and communication instrumentation, automatically performs all the necessary checks and diagnostics in two to three minutes, sending the results directly to the Pearl River control room.

“From my office, I can check the status of all valve positioners and transmitters. I don’t have to go out and actually look at the diagnostics, which allows me to perform more value-added activities. The Foxboro I/A system enables us to monitor and maintain precise process control by conducting self-calibration from our desks,” says Goetzman.

Results

The benefits of Foxboro standardization at Pearl River are numerous, says Goetzman, citing the positioners’ ease of installation, ease of replacement, and the equipment’s robustness and accuracy. “You are only as good as your instrumentation and the information you receive from the field,” says Goetzman.

“We now use a 991 Foxboro Positioner for every process where we are continuously controlling the opening and closing of a valve. We use Foxboro in utilities. We use the positioners in our melt polymerization process, our solid-state polymerization unit, and in chip handling. We put the 991s through the test, and they came through with flying colors. Based on proven performance, we have standardized on Foxboro smart instrumentation,” says Goetzman.

In 2006, Wellman will expand capacity of the third Pearl River PET resin line by 50 percent and has already selected Foxboro controls and instrumentation. “Foxboro is the perfect partner for our control and instrumentation needs,” says Pete Woody, plant manager of the Pearl River facility. “Based on product performance, technical support, and ease of doing business, Foxboro is our single source solution. For existing operations and future expansions, when we need a pressure transmitter, valve positioner, or vortex meter we will be buying a Foxboro product,” says Woody.

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