

"Wonderware has really helped us in our quality control. It helps us make batches more consistently and it helps us to monitor the critical characteristics that are really essential for quality assurance."

**Subburaman
Ananthanarayanan,
Quality Manager
PVC Compounders**

Wonderware Adds Improved Consistency, Increased Productivity and Higher Quality to the Mix for PVC Compound Fabricator

El Paso, TX — Most of us don't give a lot of thought to poly vinyl chloride (PVC), but it's an important product in our lives. Besides the rigid PVC pipes that we associate with plumbing and lawn sprinkler systems, flexible PVC is used for many everyday items such as extension cords, shower curtains, garden hoses, electrical tape and more.

PVC Compounders LLC, a manufacturer of PVC compounds in pellet form, is headquartered in Kendallville, Indiana and operates a satellite plant in El Paso, Texas. PVC Compounders produces the pellets used by manufacturers of wire and cable, injection molding and extrusion applications, resulting in the end products that we buy. As a matter of fact, nearly every car sold in the United States contains flexible PVC made from the pellets produced by PVC Compounders.



High Expectations and the Custom Compounding Process

It all starts with PVC resin, the main ingredient of the pellets. Then other elements such as plasticizers, stabilizers, fillers and lubricants are added to the resin. The recipe for each compound determines the qualities of the final product. For instance, pellets containing high amounts of plasticizers will produce a more flexible PVC product.

Each PVC Compounders customer requires exacting, custom formulations for their pellets. And they expect the quality of the product to be consistent for each order - batch-to-batch and week-to-week.

This means that accuracy in the plant mixing process is critical. PVC Compounders realized that they needed a solution that could help them maintain the highest levels of product quality while increasing plant productivity. Plus, the company wanted the ability add to their product offerings. They turned to Wonderware to help achieve these goals.

Facing Multiple Challenges in Plant Management

At the El Paso plant, everything PVC Compounders makes is built to order, so minimal inventory is stocked at the plant. Large bags containing fillers and other raw materials are delivered daily. Once these materials are in the plant, operators must orchestrate the mixing process to ensure that the right ingredients are

brought from the silos and into the mixing line. After mixing, operators manage the cooling process and monitor the finished powder as it moves to the extruder. Each batch is finally formed into pellets, which are shipped out of the plant.



Quality Assurance Lab

The plant control room is where all operations are supervised. Batches are scheduled and formulas are confirmed. Plus, the inventory control system and the scheduling system are connected with the parent facility in Indiana for reporting on the operations in Texas.

One of PVC Compounders' highest priorities is ensuring that the recipe for each compound is accurate and consistent, and that plant operators have immediate access to these formulations.

Additionally, the plant must carefully control the manufacturing environment. Temperatures in El Paso can range from 40 degrees in winter to 120 degrees in summer. Adjustments must be made to ensure that these extreme temperature fluctuations don't affect the final product.

As in all businesses, communication between workers is also important. Many of PVC Compounders' operators are non-native English speakers, so facilitating clear interactions is also a priority.

Wonderware Provides the Solution through Automation

After meeting with plant management to understand PVC Compounders' needs, Wonderware Central, a Wonderware authorized distributor, recommended a custom software solution based on the ArcestrA service oriented architecture from Wonderware.

The strength of the ArcestrA technology is that it can be rapidly deployed and integrated with existing systems, regardless of the size of the operation. For PVC Compounders, this means that the Wonderware software solution provides the capabilities needed today, with scalability for the future.

Wonderware software gives operators end-to-end control of the mixing line. It assists with day-to-day operations with a complete inventory control system, and a scheduling system that facilitates more efficient batch processing. Plus accurate formulations are easily accessed in the database.

The solution uses the Wonderware Industrial Application Server to link the El Paso plant with the main plant in Indiana. The Industrial Application Server is built on the ArcestrA platform and provides a unified environment for visualization of the plant floor, plant history, device communications and automation application integration. In conjunction with PLCs in the plant, the Wonderware Industrial Application Server forms a "smart system" for continuous improvement.

The Wonderware award-winning Human Machine Interface (HMI) InTouch software is also central to this solution. With InTouch HMI, managing plant processes is intuitive with its easy-to-understand graphical interface that makes running the plant as easy as point and click. Icons represent the various parts of the process, including silos, storage bins and different ways of incorporating plasticizers, fillers and other ingredients into the resin.

Another component of PVC Compounders' solution is the Wonderware Historian. This module collects and stores complete real-time and historical plant data. For PVC Compounders, the Wonderware Historian gives operators the accurate real-time data they need to make adjustments to temperatures in the mixing process, the amperage of the mixing equipment and other parameters, ensuring that the finished product is consistent, regardless of El Paso's wide-ranging climate conditions.

Outstanding Outcomes with Wonderware

PVC Compounders is enjoying great results from their Wonderware deployment. Quality Manager Subburaman Ananthanarayanan says, "Wonderware has really helped us because it allows us to automate our process and reduces human interference. And that actually reduces our margin of error, making our process and product more consistent."

By automating the batch management process, product consistency has improved and the goal of reduced scrap has been achieved. Also, the plant reports a lower incidence of human error. Before Wonderware software was installed, operators had to consult multiple stations for scheduling, retrieving formulas and determining how many batches were required to complete an order. Now, all equipment operations can be viewed in a central location with an easy-to-interpret graphical representation of the line. Regardless of their native language, operators get the real-time information they need to run scheduled batches with correct formulations.

"With Wonderware in place, our internal failures have really reduced. Our goal for internal failures is less than 1%, and we've been meeting these goals," says Subburaman Ananthanarayanan, Quality Manager for PVC Compounders.



Littleford cooler

Plant management has also reaped the benefits of Wonderware software. Inventory is better managed, and up-to-date statistics needed to make improvements to order efficiency and quality control are readily available. Communications between the El Paso plant and the Indiana headquarters are more complete and timely.

PVC Compounders is considering future plans for the El Paso facility to include extending the Wonderware software solution to the extrusion line to enable automated data collection from the entire plant.

Jason Gitt, General Manager, sums it up this way, "I've found the Wonderware software to be light years ahead of other software. It was very simple to pick up on the programming. I would say that the Wonderware software has given us a 15-20% reduction in our downtime. We used to publish that we have an industry lead time of two weeks. But we're turning product around in our plant in less than one week on every order. I attribute that to the Wonderware software."