

## Entivity Manufacturing Success Story #118



### Customer Profile

ISA Corporation is a premier provider of latex products — from medical examination gloves to specialty latex products for the nuclear industry.

#### Application

- Manufacturing

#### Industry

- Latex molding/dipping

#### Location and Web Site

- Salem, OR
- [www.isacorporation.net](http://www.isacorporation.net)

#### Key Benefits

- Ease of programming
- Integrated SQL interface
- Simple linking to other systems
- Powerful, easy-to-use, and great-looking, HMI screens

#### Mission Critical Capability

- Quality HMI screens and connectivity to other systems — especially SQL server



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# ISA Corporation Solves SQL Connectivity with Entivity Studio

ISA Corporation is a leading manufacturer and supplier of molded latex products including latex medical examination gloves. In addition, they are the sole source for molded latex products used by the defense department for naval nuclear power systems.

### Starting Fresh

Traditionally, ISA used PLCs and ladder logic to control their systems. This project was their first time to make a latex shoe cover. According to plant manager Jason Feusner, “We needed something easy to change that could tie into our SQL database and servers. In the past, we would use PLCs with ladder logic and C++ to get SQL connectivity, but that required a DDE server and complicated programming. With Entivity™ Studio™, SQL capabilities are built-in.” They also found that Studio provided the flexibility to use any I/O products on the market. That was a definite plus.

This particular application controls a filling machine that fills molds with one of four different colors. The latex is hot gelled using a hot water tank that lifts up to soak the molds. Once the latex gels, the machine pours off excess material. The entire system has 98 inputs and 76 outputs.

### Rapid Development and Easy Modification

Feusner is very pleased with the Studio solution. “Our electrical engineer, Dan Joynt, and I went for training last July, and were able to come back and program the entire



Latex filling station fills five molds with one of four colors.

system in four days. Because this was a new product with new process and chemistry involved, we needed a flexible programming environment. The project would have been done even quicker if we hadn't had to change the machine around. I did the flowchart programming, while Dan worked on the SQL database and web-based interface.” Feusner believes that Studio's flowchart programming cut development time in half.

### SQL Access

Previous solutions required custom C++ programming to access the corporate SQL server for recipe information. The added complexity of custom programming plus the need to install and work with a separate DDE server meant more development and debug time compared to Studio. Feusner liked the simple SQL programming in Studio with radio buttons to choose the SQL request type (select, insert, update, delete), and the type of

## Customer Satisfaction

**“Entity Studio was faster to program and provided more connectivity than our previous PLC solutions. We realized that we could buy virtually any I/O, and Studio provided complete compatibility.”**

*Jason Feusner  
Plant Manager  
ISA Corporation*

record selection (get single record, get multiple records, get first record, etc.). Other tabs in the SQL expression block dialog let him map tags to SQL database fields, specify filters, sorting, and grouping. A final tab in the dialog showed him the constructed SQL statement for final verification. “SQL programming has never been easier,” added Feusner.

### Complex Machine Control

The molding process begins when an operator loads a tray of five molds onto the machine. The operator then presses a foot pedal to begin the automated process. The first step moves the tray into the fill position. At the fill position, sensors detect the product identity from indicators on the mold tray. Studio uses the product identity to access the SQL database and determines which color to use.

The filling mechanism moves the tray to the correct filling chute and the chute extends to the molds. Once filling begins, laser level sensors determine when to stop filling based on a setpoint retrieved from the database.

After turning off the latex flow, the Studio program retracts the filling tubes and moves the tray to the next station, where a water tank lifts up and heats the outside of the molds. While one tray is heating, another is filling. After the gel time completes, the tray moves to the next station. This station lifts the tray and pours excess latex into a color-specific hopper for recycling. All recovered latex moves overhead to a refrigerated room and circulating tanks. Automatic sensors keep the tanks full with new or recycled material.

After trays come off the dumping station, an operator manually places them on a cart. The cart goes to an oven for curing. A Studio PID loop modulates gas valves to adjust oven temperature. Curing time is about three hours. After curing, products are manually removed from their molds.

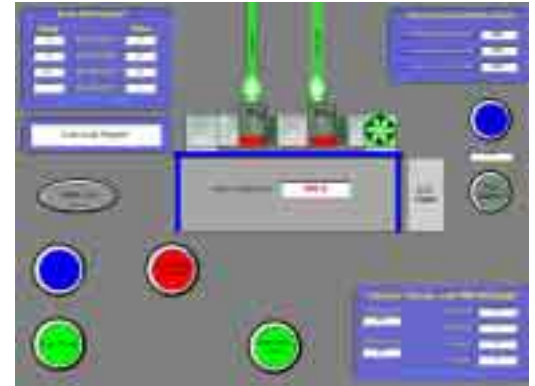
Altogether, Feusner developed 26 flowcharts and 42 subcharts. According to Feusner, flowchart programming greatly simplified his task. Even though he isn't a programmer, flowcharts made it possible for him to get the job done in a timely manner.

### Powerful HMI a Plus

Another benefit of using Studio, according to Feusner, was the quality of HMI screens that he could create with little effort. The clean graphical displays provide all the information operators need to control the machine and verify that it is operating properly. When problems occur, they can quickly diagnose the fault and get the machine up and running again. Reduced downtime is an added benefit that he never expected.



After hot gell soak, the machine pours out excess latex.



Studio's HMI screen was easy to create and provides clear information to the operator.

### Moving Forward with Entity Studio

Feusner is so impressed that he has already started two more Studio projects using a Windows CE-based target. He has plans to do five more systems this year, and will retrofit their general-purpose product from PLCs using ladder logic to PCs with Studio. These general-purpose systems really end up being unique because of the customizing that each requires. Using Studio will greatly simplify the customizing process.

For more information on how Entity can help solve your application, visit our website at [www.entity.com](http://www.entity.com), or call (800) 722-6875.