



Data analysis

Processing Plastics with Structure

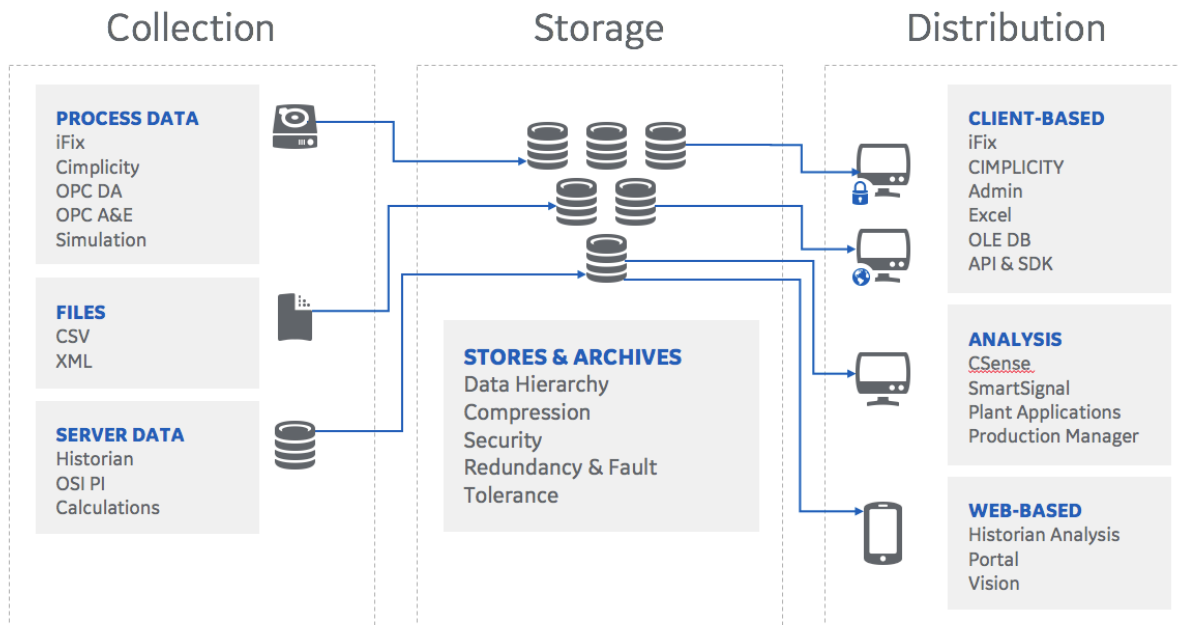


Seamless consultation of process data: This is how Lenzing Plastics wants to keep track of production. With the implementation of the data acquisition system GE Historian, T&G Automation has placed great emphasis on high availability.

For over 40 years, Lenzing Plastics has been producing high-strength films, ribbons and yarns, fabrics, and laminates – mostly made of polyolefin and fluoropolymers. In addition to a large number of standard products, the company also develops and manufactures specialized products. The production plant of Lenzing Plastics must therefore be able to operate flexibly, due to a varied range of niche products. The constantly changing product portfolio and the individual, correspondingly small batch sizes demand production through ever-changing machine settings and production sequences. In addition, ‘just-in-time’ deliveries are made to customers all over the world. A smooth, efficient, and adaptive production process requires the ability to record and analyze all process data seamlessly.

“At Lenzing Plastics we’ve been working towards the goal of a seamless consultation of our process data for around ten years. Since we operate very versatile production in a four-layer operation, the machine settings for the different products are constantly changing. This is why it was of utmost interest to us to be able to access reliable, seamless process data in order to determine, for example, how we had made the machine settings for a specific production process, or to be able to quickly identify possible errors in the event of a complaint. In addition, we wanted to be able to document product development tests in the most efficient and error-free manner in order to find the optimal machine settings more quickly,” explains Alexander Grafinger, Process Engineer at Lenzing Plastics. “The condition for all these requirements was essential to being able to generate our material numbers, which specify our products as well as the production piece and order numbers from SAP, and then link these to our process data.”

Reinhard Schafleitner, Head of IT at Lenzing Plastics adds, “Several years ago, we started to build our own database for the collection of our process data – but this was not optimal in terms of stability or data recording. In addition, we were unable to properly evaluate data –as the database always crashed during all attempts. The resulting data gaps were then lost forever and greatly hindered our machine settings in production planning. On the basis of an application report in a trade journal, we then became aware of the GE Historian data acquisition system.”



The benefits of using a system like GE Historian include recording large amounts of process data from a wide range of data sources, compressing data, and at the same time providing fast writing and reading speeds up to real-time acquisition in the microsecond range. In addition, the software's special compression algorithms enable secure data storage for years—without the need for active maintenance or back-up routines.

The connection

Consequently, the decision was made for implementation. With the help of T&G Automation, Lenzing Plastics installed the data collection system and ingested all historical data that was already available in-house.

S7A drivers / OPC servers were used for the communication-related connection of the controllers and the different control systems, since these are one of the most powerful I/O drivers and OPC servers used for the Siemens S7 product family and the Profibus DP/FMS protocol. The I/O drivers receive the data from the machine controls and the control systems and pass them onto the GE Historian process data archive. The data is then evaluated using the GE Historian analysis tool for a wide variety of scenarios and made available to the authorized persons via a web browser.

Redundancy creates availability

The aim of the project was to be able to meet future availability requirements. In this respect, GE Historian covers three important areas: First, as a relational database in the data memory, clustering can be performed. Secondly, there is a further redundancy level in the collector function—if business-critical data acquisition points are present, the collectors can be configured redundantly.

Additionally, network and server interruptions are protected whereby a special function for storing and forwarding is used to buffer data in the event of interruption to the collector. When the server is back online, a new connection is established automatically and the buffers are uploaded. This eliminates the loss of data.

With GE Historian, higher standards of data security can be implemented. Security parameters can be implemented at a function group or tag level and almost all changes, including user access, configuration, security violations, and system alarms, can be automatically tracked. A copy of the original tag values is also stored if changes are made.

The benefits of drag and drop functionality

“Our great hope of being able to consult machine parameters or measurement frequency variables for currently modified production processes using older process data has already been met after six months,” says Grafinger. The various data from a machine can be collected together and displayed as a group. The operator immediately receives all relevant measured values from the GE web server. Using the drag and drop functionality, individual data or data packets can then be dragged into trend areas or stored on a trend diagram. Large-scale design options allow the individual set-up of visualizations, allowing a supervisor, for example, to see whether all machines are being driven continuously at full speed during his/her four shifts, or to what extent a failure or delay is justified. All authorized personnel can access these analysis reports via a web browser and generate text/numerical values or even informative diagrams according to specific intentions. If hard copy reports from individual machines are required for a meeting, reports can be exported to a Word or Excel file.

If an employee is not at the factory and working remotely, the individual can use VPN to connect to all data records via home PC, tablet, or smartphone, to determine the cause of a disturbance and to propose a corrective scenario. As a result, the maintenance service will benefit from the GE data archive.

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Customer Quotes

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Reinhard Schafleitner
Head of IT, Lenzing Plastics

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Alexander Grafinger
Process Engineer, Lenzing Plastics



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