Pellets in, pellets out

With optimal quality assurance and traceability

When opening a new factory, one of our chemical clients was looking to integrate full factory automation. Challenging, even unique at the time, and today still a solid reference for other locations worldwide.

High-quality polypropylene intermediate products, based on hundreds of recipes, are made in a state-of-the-art production facility, mainly for the automotive industry. CGI supplied the required Manufacturing Execution System (MES) for the complete control and handling of all processes.

Operational excellence thru integration

The integration of process control, MES and Enterprise Resource Planning (ERP) was the most important requirement. The factory achieves the highest level of operational excellence, by managing all processes from order processing to shipping from MES,.

Leveraging the domain knowledge and experience of CGI, also from prior large-scale projects, this client has a system now that allows employees - both in the staff departments and on the shop floor - to monitor and control all processes more efficiently and more easily.

From silo to silo

At the heart of each of the production lines is the extruder, a complicated installation in which a mix of raw materials is processed under high temperature into a kind of spaghetti. An endless variety of ingredients are added to the main constituent polypropylene for each type of end product.

The ingredients are added in granular form from various inbound silos and from various types of packaged material. When the mixed mass comes out of the extruder, it is cut into small pellets and stored in one of the outbound silos. To put it very simply, pellets go in, and new pellets come out.

All processes under control

We implemented an Aspentech MES, including workflow product and a Data Historian. The system regulates and controls all processes: from the creation of a production order to loading and unloading at the correct silos, and from mixing ratios to the completion of the order in SAP. Based on RFID technology, the MES ensures that trucks are only loaded or unloaded at the right silos and with exactly the right

KEY CHARACTERISTICS

- Complex planning for optimal use of storage silos
- Just in time (JIT) supply of raw materials
- Impact of process disruptions on high production demand
- Demanding batch tracking for customers
- Risk of material contamination due to complex material flows
- High quality standards

volumes. The system intervenes immediately when something potentially goes wrong. The Data Historian collects data from twelve thousand measuring points. This allows for continuous monitoring and optimization of the complete workflow for incoming trucks, production lines, material sampling and quality registration. Preventing unnecessary costs, material contamination, waste and / or loss of time.

Example of factory automation

Full integration of factory automation was unique at the time, but even today the site is still an example for the other branches worldwide. Because MES plays a role in all processes, it is necessary to speak the language of all employees involved, operating in completely different worlds. Where staff departments work in time units of days and hours, production workers are used to calculating in minutes and seconds.

Main results and benefits

- Every step in the production process is executed correctly
- Correct processing of material is reported in ERP
- Produced batches of the end product are correctly classified
- Optimal conditions to analyze and explain deviations in production and thereby further optimize production
- Maximum traceability of batches and raw materials
- Greatly reduced contamination risk
- Paperless production, minimal manual actions
- Real-time visibility of production progress
- Full system integration in work processes

Thanks to CGI's years of experience in the process industry, we understand both sides of the spectrum. This results in highly efficient and future-proof solutions for our clients. A next step, based on Aspentech's Data Historian, is data analytics, for example, for the purpose of predictive maintenance.

The continuity of the systems is guaranteed by CGI. Clients can access the CGI expertise 24/7. At CGI, support and maintenance for a number of industrial clients have been brought together in its Smart Services Center in Maastricht. Core activities such as Manufacturing IT, MES consultancy and the development of MES products and services for the chemical industry are also concentrated here.

"The integrated automation of all business processes is unique. Back office and production act as one. The result is optimal quality assurance and traceability. "

Operations Manager,
Large Global Chemical

About CGI

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-based to help accelerate returns on your investments. Across 21 industry sectors in 400 locations worldwide, our 76,000 professionals provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

For more information

Visit cginederland.nl
Email us at info.nl@cgi.com