A DANGER FORESEEN IS A DANGER AVOIDED

The BASF team from Illertissen, Germany, not only has a live view of the process visualisation in the control room, the recorded online data can also be retrieved at any time.

INFO

Publisher: P&A, publish-industry Verlag GmbH
Date: 13.09.2013
Issue: 09/2013
Author: Marius Schaub

If a process is not running to plan, an event history analysis can be the key to correcting errors. However, interpretation of the events often throws up questions and challenges, and it is not always possible to prove the cause conclusively based on the measured values saved. A tool for the control system provides help: the recording of all online process visualisation data ensures error analysis is simple and transparent.

If the process is not running to plan, the operator becomes a detective. He painstakingly, either alone or in a team, collects every scrap of evidence that could help determine the cause: measured values, valve settings, pressure levels, temperature curves and many other variables must be collected and interpreted. Depending on the type and size of the plant, there could easily be thousands of variables each day. It might take quite a while to narrow down the possible sources of error – more time than most plant operators are willing to wait. However, this not only ties up manpower, as critical errors may result in the entire production process grinding to a halt – and each hour of downtime is very expensive. This situation is further exacerbated by uncertainty – since drawing conclusions does not provide a basis for reliable determination of whether an operating error caused the process fault, or whether the raw material quality was not up to the required standard or the pressure level was simply too low.

Dr. Gisbert Schaefer knows this problem only too well. He is in charge of one of the three production areas at BASF in Illertissen. This location is part of the BASF Personal Care and Nutrition sector, which assumed production at the site in southern Germany after acquiring it from Cognis in 2010. Schaefer and his colleagues generally produce food additives, such as vegetable fat and oil-based emulsifiers. And if anything does not go to plan, Schaefer is delighted that he no longer has to rely on clues to carry out subsequent investigations. “We focus not only on the symptoms but also on the causes,” explains Schaefer.

The control system logs every mouse click

This is enabled by an inconspicuous add-on of the process control system, which is now used in almost every production area in Illertissen. Plant iT from ProLeiT offers the optional add-on Plant Direct iT Visu-Recorder. As the name suggests, it allows the simple recording of all online process visualisation data – at any time and discreetly in the background. The data can then be simply retrieved and displayed via the standard user interface of the control system whenever it is required. It is therefore possible to discover what happened, when and where and who was involved – right down to each individual mouse click. This ensures that plant owners, shift supervisors and operators know what happened directly before a problem occurred instead of having to disentangle the possible causes from the consequences.

“There are some technical faults which we have been able to understand much better,” claims Andreas Hoepfl, head of Engineering & Maintenance. His colleagues in the control room agree: they

have got to know the software as a helpful tool when commissioning plant components. “We were able to narrow down initial problems there and then,” says Franz Reichle, a maintenance electrician. During maintenance work, he also gained valuable experience with the option that allows you to trace, beyond all reasonable doubt, both positive and negative process effects back to user actions.

“Needless to say, everyone involved benefits, as the tool also indicates potential deficiencies in the work instructions,” says Hoepfl. Something that well established employees take for granted could be completely new territory for recently recruited ones. “And this is when something can happen quite unexpectedly,” explains the head of Engineering & Maintenance. Thanks to the recording function, it is possible to detect and avoid the consequences of confusing instructions more easily. The software contributes effectively to the best practice methods and helps to optimise processes.

Food additives for pastries and confectionery are generally processed into powder inside the spray towers in Illertissen.

This means the Visu-Recorder is not always required during production. “This is a great sign,” says Schaefer – as it means everything is running smoothly and production standards are being met. “But actually it’s a similar situation to the plant fire brigade,” he explains: “you hope you’ll never need them, but when you do you’re glad that swift help is at hand.”

Adrian Veit from ProLeiT believes the Visu-Recorder opens up even more possibilities. “The screen images can be converted quickly into a video using simple external software tools,” he explains. This means it is also possible to integrate events on the control room screens into training sessions. Complete process sequences can be made available to all the relevant staff members at any time as a live tutorial and explained using the user interface from the control room.

For now, staff members in Illertissen are fully satisfied with the error analysis options. “After a weekend fraught with process faults, it is great to be able to comprehend everything and to find out where the error was in less than no time,” says Andreas Hoepfl. “We are all interested in finding out: what actually happened?”

The process control system usually takes care of archiving historical data. The Plant Direct iT Visu-Recorder of the ProLeiT system complements this data with the separate recording of process events. It therefore enables the subsequent output of complete process sequences via the standard user interface (process visualisation) according to the VCR principle. Process images, time windows and output speed are freely selectable. This add-on is designed to facilitate continuous improvements, e.g. staff training, internal audits and qualification measures. It therefore enhances simple and efficient error diagnosis, and provides answers to various questions, such as “who selected what and when?” and “how was the process actually completed?”.