



eschbach

Case Study
Roche in Penzberg, Germany

Efficient monitoring of shift operation

Pharma & Diagnostics: With the interactive shift log from eschbach, Roche Penzberg succeeds in providing complete documentation of shift operations

At no other Roche site do the Pharmaceuticals and Diagnostics Divisions work as closely together as in Penzberg. More than 5,000 employees cover the entire value chain – from research and development to the production of therapeutic proteins. The employees receive digital support from Shiftconnector. eschbach's interactive shift log ensures transparent and flexible monitoring of three-shift operations. Not only the enzyme production benefits from this, but also the energy supply.



SHIFTCONNECTOR® io



Roche Penzberg is known for its great expertise in the field of protein production. The fermentation, purification and quality control of the sensitive protein active ingredients are extremely complex and specialized steps – a purity level of 99 percent

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Marvin Weber, Shift Manager at Roche Diagnostics GmbH

may be required for the market approval of a therapeutic agent. “We manufacture diagnostic ingredients,” says Dr. Holger Wünsche, head of enzyme production at Roche in Penzberg. These are primarily reagents, such as those used as the basic substance

on test strips for blood diagnosis. Shift supervisor Marvin Weber adds: “We extract active protein molecules from animal or vegetable raw materials such as zucchini. These enzymes are extremely sensitive and must be immediately transformed into a stable form. That’s why we work around the clock in 3 shifts from Monday to Friday.”

A number of steps are necessary to isolate a protein from the biological raw material for therapeutic applications. The starting material is supplied by fermentation in the form of cells, inclusion bodies or cell-free culture supernatants. Therapeutic proteins are isolated from this biological raw material by the combination of different chromatographic separation techniques and filtration in highest purity. Different

processes run in parallel and at different speeds. “We serve an extremely broad spectrum. In our main department we manufacture approximately 400-500 different products from a wide variety of raw material sources,” explains Dr. Holger Wünsche. For microbial raw materials, for example, Roche has its own fermentation facility with various starter cultures. “We have fermenters of 10 liters, but also up to 30,000 liters, which vary according to the individual batches and batch sizes,” explains Marvin Weber. At the end of an elaborate process, 1.5 kilograms of pure product can be obtained from 8 tons of zucchini. “In enzyme production we have about 80 different raw materials. This enables us to produce between 300-400 batches per year. There are batches that we produce weekly, and then there are batches that occur only once every 3-4 years.”

Achieving transparency in processes

In order to produce efficiently with this workload, all information on operational incidents or malfunctions must be recorded and passed on uniformly and seamlessly. At Roche, shifts are always handed over in such a way that the shift supervisor writes a report for the subsequent shift. All events are then dealt with individually at handover. The shift leader of the next shift then assigns his colleagues to the products to be manufactured. With the help of the report, he can see exactly which employee has worked on which system and who should continue working where. Finally, it goes down to the processing plants, where a final handover takes place and all newly acquired information is checked for correctness one last time.

Dr. Holger Wünsche remembers: “Before we introduced a digital shift book solution with Shiftconnector, we only used a checkered booklet in which we recorded everything by hand. If you were lucky, you could read the handwriting of your predecessor. To prevent the whole thing from getting out of hand, we tried to limit the event message to one page per shift. This was of course relatively tight and had the disadvantage that important events were often not recorded afterwards or were lost over a longer period of time. That’s why we said at some point: “The way things are now, they can’t go on.”

Digital documentation of events

In 2015, the team around Dr. Holger Wünsche therefore introduced the interactive shift book of the company eschbach. “We were hesitant about starting a pilot phase. However, the intuitive system interface of the shift book and



the quick adaptation of our wishes by eschbach convinced us all within a very short time to go directly from the pilot to the go-live."

Marvin Weber also emphasizes: "The experts from eschbach gave us an excellent understanding of their solution and also dealt with every detail that was important to us. On the other hand, they also thought about things that we didn't have on the screen right away. It is easy to see that there is a high level of professionalism and that they know the requirements of our industry very well".

Smooth handover thanks to seamless recording

As a rule, 10-12 products are processed in parallel in Roche enzyme production. It is very important that the final status is properly documented, especially during the release times. On average, the employees work 8.5 hours at the plants, then the transfer is made and the actual status is recorded in the shift book. Almost everything is recorded: which system components, for which product are currently in motion, what progress has been made with the agreement, what repairs are due, which systems are currently out of operation, etc. The system is then handed over to the employees and the actual status is recorded in the shift log. The interactive shift book from eschbach is a great support. "We now have a whole series of intelligent functions in Shiftconnector that support us effectively during shift handover," praises Marvin Weber. "The solution displays all processes clearly and recurring events no longer have to be recorded again, but are automatically transferred to the new report. This relieves us of the burden of recording work and no important information is lost anymore."

Past events can now also be conveniently researched with just a few mouse clicks. "Thanks to Shiftconnector, we have gained transparency and it is guaranteed that the transfer functions smoothly," Dr. Holger Wünsche also notes. "In the event of a shift change, each person in charge now receives a personal report from Shiftconnector, which informs them precisely of the current status of their products and systems."

Detailed reporting directly from Shiftconnector

At Roche, the reporting itself runs according to a sophisticated system: each shift report contains the collected current production status of the enzyme production area. This includes all products, the production facilities and the employees involved. All current malfunctions and additional instructions are also listed further down

the report. "These reports are always up to date and are distributed to the relevant employees," explains Dr. Holger Wünsche. Any malfunctions are also forwarded directly to the internal service department so that they can short-circuit with the shift supervisor and, if necessary, initiate a maintenance or repair process. If minor repairs are carried out by the shift workers themselves, they are also documented in the shift log.

Several shift logs in use

In Shiftconnector itself, any number of shift books can be created that contain different information. Roche has exploited this advantage several times. For example, together with the experts from eschbach, a technology shift log was generated. All faults that occur now automatically receive an entry in the technical shift log, so that each employee who coordinates the production processes during the day also receives a collective overview of all faults.

A separate delivery book was also generated in a similarly simple manner, in which all finished products and their due dates are now recorded. "Otherwise, our general ledger would become very long, so we said that we wanted to collect this information in an external log," explains Marvin Weber.

Each product manager also has his own shift log in which only his products and the current status are listed.

Roche uses Shiftconnector as a pure information tool, i.e. it functions independently of the ERP system and is does not have to be validated for each workstation – as is usual in the pharmaceutical industry. As a result, the implementation effort was considerably reduced.

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Dr. Holger Wünsche, Director Enzyme Production Large Scale at Roche Diagnostics GmbH

Roll-out to other departments

The positive feedback from Dr. Wünsche and his colleagues also drew the attention of other divisions to the solution. There are now two other departments on the Roche site that use Shiftconnector for their own purposes. "We were



Roche control centre in Penzberg

immediately convinced by the intuitive customizing and the ability to generate several shift logs with different contents in one solution," says Christian Allinger, shift foreman in the energy supply department at Roche. Shiftconnector now also monitors the entire energy supply, recovery and disposal of the pharmaceutical manufacturer. Any malfunctions in the process are recorded uniformly and seamlessly. Faults in the boiler plant or the tank farm can be passed on directly to the service engineers via separate task fields. In the past, all this information had to be stored in Microsoft Word lists, which were then printed out per shift for those responsible. "The old system was such a hassle. We can't imagine working without Shiftconnector."

Infoboard for all important information

Together with the company eschbach, a transparent infoboard was also developed for the break room. Shiftconnector itself is structured according to events, tasks and special requirements. The special requirements are generally important information valid for a certain period of time – e.g. when an audit or maintenance is due. This information is important for the employees and is therefore displayed daily on an info screen in the break room. "We use the infoboard like a bulletin board where the most important things are pinned so that everyone knows what's going on," explains shift supervisor Marvin Weber. Dr. Holger Wünsche adds: "We don't want to overburden the shift handover, so we display daily updated tasks on our info board for everyone to see – basically this is just a separate shift log."

The cooperation with eschbach was worthwhile, emphasizes shift supervisor Marvin Weber once again: "The version of the interactive shift book that we generated is perfect for us, both in terms of maintenance effort, manageability and the cost-benefit ratio."

About eschbach and Shiftconnector®

With a team of experts in communication and documentation solutions, eschbach develops software and provides consulting, implementation and support services for interactive operations in tomorrow's digital factories.

Shiftconnector® is an easy to use web-based application that increases efficiencies, safety, performance at the manufacturing execution and shift operations level. The software is successfully used worldwide by Fortune 500 manufacturing companies and other global players in the chemical, pharmaceutical, food, automotive and energy industry.

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