

ABB's Industrial^{IT} sets the pace for formic acid production in Kemira

Client: Kemira Chemicals

Location: Oulu, Finland

Scope of Work: Industrial IT solution: Operate IT workstations, Control IT process stations, redundant system bus, S800 Exi I/O units and Profibus DP network for distributed I/O units and drives control.

"With regard to the system delivered by ABB, the most important benefit is in safeguarding continuity. The supplier's credibility is a very important factor for us. The ABB personnel at Oulu convinced us with their expertise as well as their commitment to our goals."

Jari Lithovius
Automation Engineer
Kemira Chemicals, Finland



Kemira has started up a new production line at its Oulu facility in Finland for the manufacture of formic acid based products. The goal of this investment is to meet the growing demand for formic acid based products by increasing factory productivity. One of the most important elements in this investment was the ABB Industrial^{IT} technology solution.

The growing market for formic acid together with the advanced age of the methyl formiate section of Kemira's oldest formic acid line made the EUR 17 million investment a necessity.

In order to increase capacity a completely new acid production line, or hydro-lization section, was built. The old formiate line was rebuilt and extended at the same time. The investment also improved the productivity of Kemira Oulu Works as a whole, as the increase in capacity also enabled the carbon monoxide generated by the Oulu factory complex to be fully utilized - carbon monoxide is one of the raw materials for formic acid.

Industrial IT integrates the old and the new

For Kemira it was important to have the best possible process automation for the chemical processes. Another very essential consideration was the ability of ABB to combine the process control of the old production lines with the architecture of the new technology.

“ABB was our choice. IndustrialIT continued the tried and proven ABB delivery,” says Ilkka Palsola, who is in charge of factory services at Kemira’s Oulu site. “In this case the possibility for integration was a very important factor for us. Apart from the integration factor, the decision also obviously took into account the amount of capital that would be tied up in an investment of this nature, as well as the costeffectiveness of the system to be installed,” states Palsola.

The ABB delivery included Operate IT workstations, Control IT process stations, redundant system bus, S800 Exi I/O units and Profibus DP network for distributed I/O-units and drives control.

The system included more than 700 I/Os, a fiber optic plant network and a similar control network connected on two parallel Aspect and Connectivity servers to provide redundancy as a backup.

ABB’s Aspect Object technology associates elements of production with the plant of the business in which they operate. It makes information gathering simpler than ever before. When clicking on the relevant object, different aspects enable every user to zoom in at the same time on the exact information they want.

Record results through good planning

Ilkka Palsola points out that formic acid is manufactured in a very sensitive process, which requires accurate control. This facilitates process control in spite of the requirement for high availability. It is only shutdown every second year for thorough service.

Benefits

- Increased factory productivity
- 15% increase in the non-stop manufacture of formiates with different specifications
- Open architecture
- More auxiliary tools

One of the most important factors in the new formiate line was the good process technology planning that was carried out. The operating team achieved production records practically right from the start. In one week they were able to achieve a 15% increase in the nonstop manufacture of formiates with different specifications.

Application control with the support of a good partner

“With regard to the system delivered by ABB, the most important benefit is in safeguarding continuity. The supplier’s credibility is a very important factor for us. The ABB personnel at Oulu convinced us with their expertise as well as their commitment to our goals,” reports Jari Lithovius, Automation Engineer at Kemira.

“Software expertise has become increasingly important when aiming for high availability. Open architecture supports us, even though the software programs are sizeable. The systems manager will soon meet a challenge in this, which will require sound support from the supplier, the presence of the partner and flexibility,” continued Lithovius.



Fast pace of construction

The dismantling of the old formiate line began during the annual shutdown. The dismantling work took two weeks, in preparation for the installation of the new equipment. The new formiate process already started within three months of the commencement of the dismantling work.

“The fast schedule was necessary due to the prevailing market conditions. Because of the high demand for formic acid based products we didn’t want to restrict our capacity any longer,” reports Lauri Määttä, Production Manager.

Work done by skilled teams

“With regard to our future human resource needs it is extremely important that even though we have shifted to a quite different automation platform in comparison with the old one, the automation control itself is very much the same kind. The process control framework has not changed, although we now have a lot more auxiliary tools of various kinds,” says Lauri Määttä.

Kemira Chemicals:

The international chemical industry group, Kemira, has production facilities in more than 30 countries and a global clientele. In 2002 Kemira’s turnover was EUR 2612 million.

Kemira commenced formic acid production at Oulu in 1981. A second factory started up in 1987 and a third in 1995. As a result of the new formic acid production line, which started up in 2002, the annual production capacity of the plant increased from 60,000 tons to 80,000 tons. With the new capacity, Kemira will clearly be the second largest formic acid producer in the world.

The environmentally friendly formic acid is the simplest organic acid present in nature and in addition to ants, it can also be found in various other plant and animal species. Formic acid is mostly used as an industrial raw material, in pH-control, in agricultural and industrial preservation processes and in cleaning applications.



ABB Oy
Paper, Printing, Metals & Minerals
P.O. Box 94
FIN-00381 Helsinki, Finland
Phone: +358 10 22 11
Fax: +358 10 22 24503

ABB Inc.
29801 Euclid Avenue
Wickliffe, Ohio 44092
Telephone: 440 585 8500
Fax: 440 585 6766
email: chemical.info@us.abb.com

**For more information visit us at:
www.abb.com/chemical**