

# Case Study – R-Kessel Ciba Specialty Chemicals Basel, Switzerland



When it mattered most, Ciba Specialty Chemicals in Basel, Switzerland put their trust in Alba. The control systems on a crucial plant making their top Cibacron® dye were unreliable, outdated and inflexible. A solution was required and time-scales were tight!



## Background

The R-Kessel production area forms a key part of the massive flagship K90 facility. The process performs a critical reaction to the product which is formulated in a highly contained environment due the hazardous nature of the ingredients.

Through time, the old systems had become inflexible as complexity and product needs increased. In the words of our customer

*"it suffers repeated production interruptions as a consequence of unexpected events and of changes of software wished by the personnel"*

## Objectives

The goal was to design a practical system that was adaptive to product change, process development and could handle failures associated with older plant equipment handling 'difficult materials'.

It was also important the solution could be used and developed without the need to involve engineering or software specialists.

## Changeover Challenge

A fully tested system was required in a very short time scale. Production had to continue during the

changeover and at this time old and new had to function side by side.

If this process stopped all upstream plant ceased - nothing could be left to chance.

## Solution

Our proven track record as Batch approved Solution



Provider fitted the mould perfectly. Intellution (now GeFanuc Proficy) iBatch was ideal for the recipe designers and iFix would be used as the Scada/HMI. The PLC control handled by Siemens **SIEMENS** Simatic S7-400.

Driving down project risk and provisioning DCS levels of functionality can be conflicting challenges. However, our feature rich battle hardened libraries of S88 Control Modules, PLI, phases were significant factors in delivering a robust highly flexibility solution.

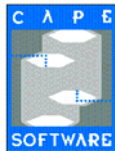
We designed and programmed over fifty phases, promoting modular multiple use wherever possible. Many phases being customised to provide the level of flexibility needed to dovetail into a highly integrated plant.

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A high quality simulation model provided our engineers and customer with the confidence and assurance to complete formal testing and prepare for site changeover, all within the deadline.

In fact Alba OPC skills made it possible to use VPLink by Cape Software with Siemens Simatic S7 controllers, a world first.



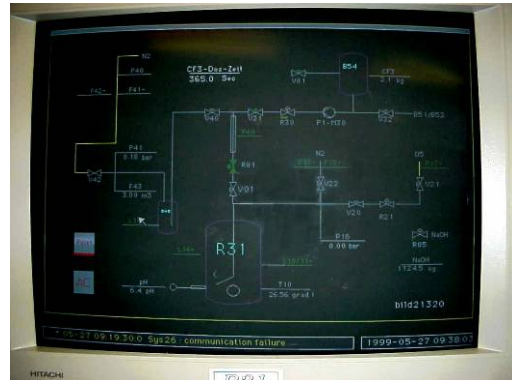
However, the pressure did not stop there. On site, Ciba had an old special purpose pH system with self-cleaning and self-calibrating functions and its own alarm system. The problem was that it used an RS232 serial protocol for communication. We had developed an interface especially for S7 but it had not been tested live and this was a crucial piece of kit. To add to this, we varieties of BCD interfaces to external systems and for these it was difficult to get a detailed description of how they actually worked.

The concern was unwarranted, good design, efficient programming techniques and a wealth of experience, combined with sound batch and S88 implementation had the first line commissioned a few days ahead of schedule.

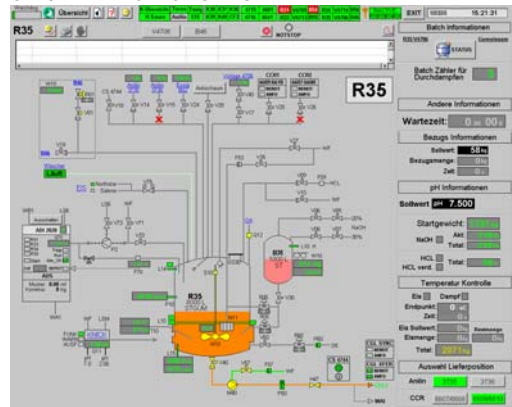
The entire plant was up and running a whole week early.

### Out with the Old...

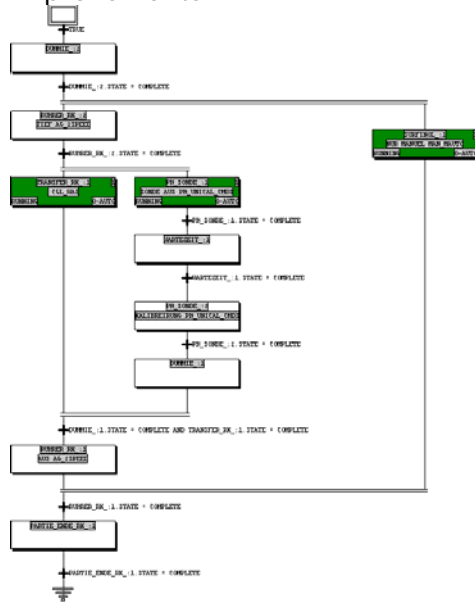
So it was out with the old...



and in with the new.



The chemists and production people had their building blocks and parameters and could not resist making immediate time and process improvements.



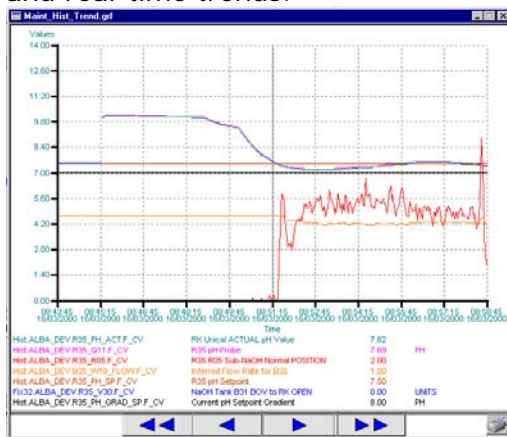
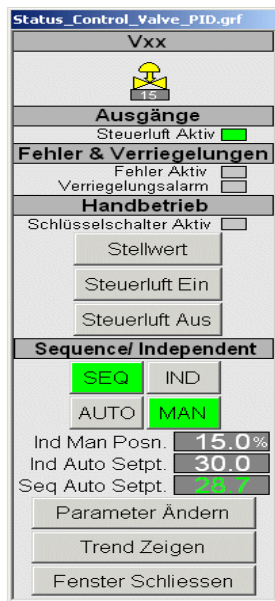
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The operators had an intuitive system that summarised any plant problems with excellent navigation and more detail could be accessed when needed.

K.Übersicht	Türen	Essig	K30	K37	K38	4715	4601	R31	V4705	B54	R34	V4714	B56
H.Saure	Anilin	EIS	K39	K40	CF3	4716	4641	R33	V4713	B55	R35	V4706	B46

If plant devices require manual control or overrides or just to access detail diagnostics, the technical and maintenance staff had individual pop-up screens for *every* device to assist with diagnosis and repair...

and everyone benefited from the analysis provided by historical and real-time trends.



The complete graphics interface was designed to support 'active language' selection, where any screen could easily toggle between English and German. A tailor-made job designed with the users in mind.

Safe handling of hazardous chemicals components was managed by isolating the process in containment areas, necessitating complex handling with rigorous self-checks, cross-checks all required to meet operational safety targets.

### A Job Well Done

We think so and our customer agrees.

During commissioning our engineers identified, diagnosed many faulty and under-performing plant devices. We formed a partnership with the operators, chemists, maintenance people, a key part in our success.

Within a few days..... the twenty-six floppy disks that had been "so important" for the pH control were in the bin. Instead of blindly copying the old software our experience delivered simple design, and enhanced performance. An effective solution that really makes things go better.

Within a few weeks..... the plant had broken all its previous production records and our customer couldn't understand why their quality was so consistently good for such a difficult process.

We're still keeping that a secret!

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