RSBatch S88 batch control system in beneficial operation

As part of a project to supply a new plastic additives plant, ABB Eutech specified, designed and installed a batch control system following the ISA S88.01 standard. This was the first UK implementation of Rockwell Automation's RSBatch software product.

The project was executed using "fast track " project management techniques.

Use of the S88 approach gave enhanced control system flexibility combined with reliable operation. Also, ABB Eutech were able to find an implementation approach which gave the customer additional functionality over and above that originally requested …

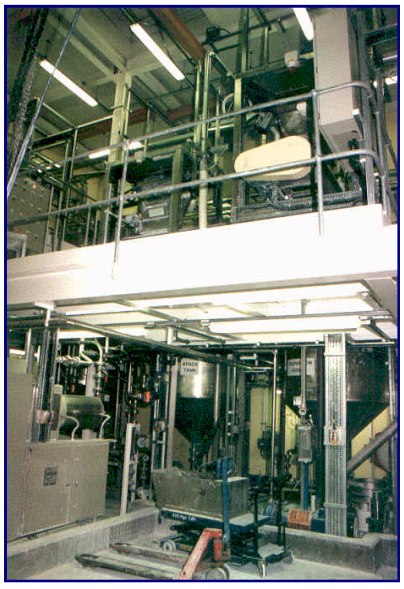
Project Requirements

The new plant was required to produce additive slurries for a new Melinex polyester films plant.

ABB Eutech was responsible for the total task of supplying a fully working plant, including specification, design, procurement and installation of the batch control system.

The provision of the new plant was managed as a fast track project, requiring rapid, co-ordinated design and construction of all plant equipment.

The plant's control system was required to have maximum flexibility to accommodate process developments during or after the project.



The Batch Control System

The new plant was the first in the UK to use Rockwell Automation's RSBatch software product.

The operator interface is via Rockwell's RSView 32 supervisory control and data acquisition (SCADA) platform.

An Allen-Bradley PLC controls plant equipment such as valves, motors, etc.

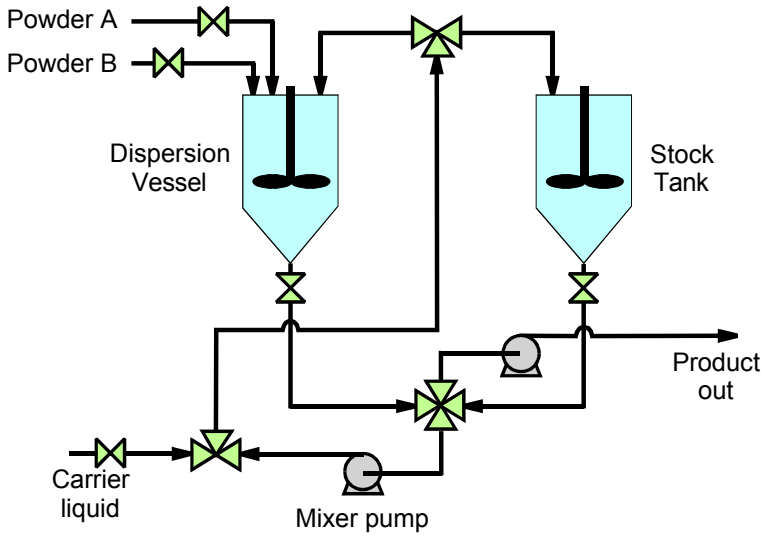
ISA S88 - What Is It?

The Instrument Society of America (ISA) standard S88.01 provides a framework and a common terminology for designing batch control systems.

One benefit of this standard is that it facilitates the design of a highly flexible automation system. This ensures that the plant's capabilities can be fully utilised to meet market demands for either new products or variations of existing products.

A key concept of S88 is the separation of the product recipes from the equipment control sequences.

Specifically, the product recipes are aware of the general capabilities of the equipment which they will use, but are unaware of the details of that equipment or the specific way in which it will be controlled to achieve the desired effect.



Simplified diagram of part of the process

Although S88 analysis separates the modelling of the plant equipment from the definition of recipes, the standard does not define how this analysis should be applied. In particular, there are generally many possible ways to partition the plant into modules for the purposes of the analysis. The standard offers no guidance on how to select the most appropriate partitioning strategy, although in practice the flexibility and functionality of the final system depend very much on how this is done.

ABB Eutech's Contribution

Drawing on experience gained from over fifty batch control system projects, ABB Eutech engineers developed a systematic methodology for application of the S88 principles and defined coding standards to ensure successful implementation and long term maintainability of the control system.

A good understanding of the plant's operating requirements enabled a ABB Eutech consultant to devise a partitioning strategy which, at no extra cost, provided the customer with flexibility and functionality beyond that which had been requested. This additional flexibility subsequently proved very valuable during commissioning and plant operation.

Careful project management within ABB Eutech ensured that the work on the control system was properly co-ordinated with the process design, procurement and construction activities being carried out by other ABB Eutech staff.

The Outcome

The project was delivered on time and within budget.

Beneficial operation was achieved with minimum effort.

The project and the resulting production asset complied with all relevant regulations.

The control system's flexibility has been demonstrated by the fact that new product recipes have been developed entirely by the process engineer without the need to involve specialist automation experts.

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