

## Leading textile company finds perfectly tailored solution in Factelligence MES & Preactor APS



Aquacolor is a leading Portuguese textile service company specialising in an innovative range of finishing tasks including dyeing, washing, laser, spray, brushing, sand projection and cutting. The company is also heavily involved in the development of applied nanotechnology for textiles finishing and works with leading fashion brands including Levi Strauss, Burberry, Hugo Boss and Trussardi. While fashion and tastes in clothing are continually changing, the ability to respond to this and consistently deliver high levels of customer service depends on a solid yet flexible manufacturing approach.

When Aquacolor wanted the very best in manufacturing IT to facilitate this it found the ideal partnership with Preactor APS and Factelligence MES implemented by Sysmaker.

Given the ever-changing fashion world and the service oriented nature of its business, Aquacolor essentially operates on a Make to Order (MTO) basis. Almost every new works order results in a modified series of processes although one based on standard operations: The typical starting place is the production of a sample within Aquacolor's laboratories which not only lets the customer check the colour and final effect but also serves as a development model on which any new or amended processes can be tested before confirming the final sequence of operations and parameters for the actual job.

This is essential because consistency of finish is only possible by very closely controlling not only each process step but also the timing and sequence of each step. For example, different orders may require different levels of dyeing, washing and finishing yet even here challenges exist for some orders may require repeat operations – typically washing - with some processes – typically dyeing – involving correction and adjustments during the actual process.

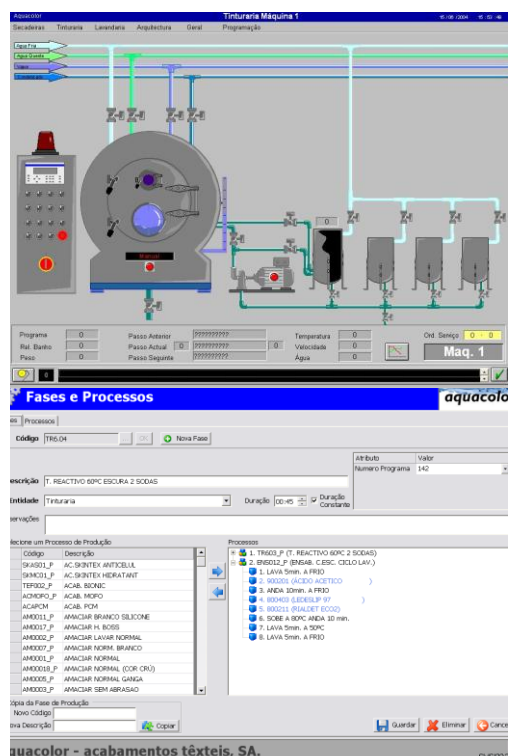


This inevitably affects the time taken to complete a specific process making it difficult to estimate which in turn causes further problems as a number of the finishing machines require orders to be batched to maintain resource and capacity optimisation. Add to these varying levels of sequence dependency, for example different sequences of colours require different cleaning times, and the difficulties of generating an

accurate master schedule become even more apparent. Even when an order is complete, the final quality inspection may necessitate further work which then has to be somehow scheduled into the overall working plan.

It is not surprising that Aquacolor continually had to contend with major planning and scheduling issues primarily resulting from a lack of accurate work flow information, a lack of overall visibility about what was happening and where and a lack of ability to respond in an agile manner to any production changes. Specifically, work order costs including labour, materials and equipment were little more than educated guesses as was any work order status at any time. In terms of scheduling, this meant there were no real process models that could be used which in turn exacerbated the difficulty of rescheduling due to changing priorities as it was simply impossible to see in advance the impact of any change to the schedule.

Given the company's commitment to working with the latest technology, Aquacolor had long recognised the value of manufacturing IT and invested in a vertical software solution to enable its business processes. This system however relied heavily on manual data inputs and focused primarily on the recipe management aspect of production. It was also a standalone system that couldn't be integrated with the company's main Enterprise Resource Planning (ERP) System or with its extensive shop floor automation capabilities.



It became increasingly clear that in order to minimize its production problems and to ensure future agility in a very competitive industry the company required a highly configurable and flexible solution and one that could integrate with the rest of Aquacolor's IT systems. The adoption of a modular approach was identified as bringing significant advantage since it would allow a gradual investment without the need to upgrade the main systems while also facilitating a gradual phased implementation approach which would help ease any potential resistance to change. Aquacolor already had a valued and trusted relationship with IT partner Sysmaker at a SCADA and automation level because of Sysmaker's role in designing and implementing the company's flexible production system involving dynamic PLC programs.

When Sysmaker therefore recommended a modular approach comprising a leading MES solution called Factelligence from Wonderware and a leading APS solution called Preactor APS from Preactor International, Aquacolor had no hesitation in agreeing.

Even at the implementation stage it was clear that this was the best route to take. The combination of Sysmaker's knowledge of the textile finishing industry and Aquacolor's business processes combined with the powerful flexibility of Preactor and Factelligence ensured that the solution from the outset was highly customised to meet Aquacolor's exact requirements. Paulo Nobre of Sysmaker is quick to acknowledge the role that Aquacolor itself played. "There was a real sense of teamwork with key users of both systems which helped identify and then facilitate the integration of Aquacolor's unique business rules. This was essential as much of the final success would rest on developing an intimate and seamless connection between Factelligence and Preactor. For example, all information regarding new works orders as well as the current status of any existing works orders needs to be updated when Preactor is open. In the same way, Factelligence needs to be automatically updated whenever a new schedule is released." In order to ensure that the Preactor/Factelligence solution works with the most up to date data, Sysmaker integrated both with the real-time Shop Floor Data Capture (SFDC) system already in place.

Recognising that the new system represented a considerable culture change, Aquacolor chose to implement and go live on a gradual, phased basis. Phase 1 saw the replacement of the legacy system that controlled recipe and works order management with Factelligence. This added the capability to automate the sending of works order information as well as the collection of production, consumption and utilization data.

The next phase was to extend Factelligence to cover manual operations within the production process and was achieved by customized user interfaces to manage the execution of works orders in addition to collecting production and inspection data.

Already the system was providing full shop-floor visibility, allowing a deep analysis of production data and delivering plant Key Performance Indicators (KPIs) including OEE.

The final phase was to integrate Preactor with Factelligence which added comprehensive 'what if' capabilities to the system. Production management could now simulate scenarios according to shop-floor current status, choose the best among them, and analyse the impact of potential new work orders. To achieve this, a specific customized rule was developed incorporating a preferred sequence regarding the colours, capacity constraints and business priorities. This rule in itself allowed sizeable efficiency gains through its quick execution time and its ability to be fine-tuned with manual adjustments by the planner.

The Preactor/Factelligence solution has also brought a wide range of additional benefits to Aquacolor. Most notably relating to its improved MES capabilities, the company now has genuine flexibility in terms of its manufacturing and production



control – much of which is highly automated. The combination of real time data and control has brought powerful analysis capabilities which can then be fed back into the system in terms of ongoing refinements. This in turn provides Preactor with the information required in order to deliver vastly improved production schedules that make best use of the company's resource and capacity while also enabling it to remain agile and respond to last minute customer changes. Being able to see the impact of any particular change on the entire schedule also brings added degrees of control and efficiency.

Aquacolor is understandably very pleased which is why Cristina Assis, Aquacolor's CEO concludes: "It's a very interesting system - modular and flexible and easily adaptable to industry specific needs. It is both practical and effective, allowing us to see in real time our company performance from quality data in order to identify any potential problems and find improvement opportunities, all without extra labour costs."

Cristina described some of the benefits achieved. "The software implementation brought operational improvement at recipe management, operations information and traceability levels, with a direct impact on costs. Building a work order, defining all the operations to perform, became a quick and easy task, once we could obtain all the operation information. We have estimated a 50% reduction in the time spent to build a new work order. Regarding scheduling, the biggest advantage is the ability to be able to forecast the load on each machine, and therefore to predict production lead times and have reliable delivery dates. Now it's easy to answer our customers when deliveries will be made. It saves 70% of the time previously required to do this. This is important because, before Preactor, we spent 35% of our time searching for answers."

## Contacts



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