

Explosive results from Britanite's mix with Preactor



Britanite is a company located in Quatro Barras, in the state of Paraná, Brazil. Here, over a site of around 2.35m sq.m, it manufactures nitrogen based chemical products such as civil explosives, detonators and other defence materials. Since its foundation in 1961 Britanite has built a strong relationship with its markets with a solid reputation and strongly committed to the success and satisfaction of its customers and partners.

Besides its wide range of worldwide recognised products, the company also offers services for rock blasting and open pit/subsoil mining, in which the company is recognized for specialized teams that use the most modern equipment. It is committed to products and services that meet international standards for quality and safety, and they constantly invest in new methods and new technologies to maintain the company at the forefront of the markets it serves.



Its brand continues to grow and today the company exports its products and services throughout Latin America, North America, Asia, Africa and Europe.



Britanite has huge network of distributors and resellers strategically located in Brazil while product is also exported, so their production is a mix of make to order and make to stock that must follow rigid governmental regulation. All their products are manufactured within 13 different production units at Quatro Barras.

Those units are responsible to produce 600 intermediate products and 750 final products. Some units supply the materials for other units so synchronisation of production between units is important. The range and nature of its products and raw material and the 41 production resources split between the production units are just a small part of the planning and scheduling challenge as Sueli Gonçalves, Britanite's Planning Manager, explains.

“Every month we handle about 600 customer orders which are converted into approximately 2,000 production orders and our main problem was how to respond to the demand as our MRP did not consider our production capacity when generating a production order. The production sequence, resource allocation and delivery dates were handled manually with spreadsheets and the expertise of our schedulers were very important. However they were always under pressure which resulted in planning mistakes and some late deliveries. It had to change otherwise our company growth would be affected.”



Scheduling within Britanite is quite complex. Some units have multiple constraints including machines, operators and tooling.

Antonio Divonsir, the most experienced scheduler at Britanite, commented on the size of the problem. “The worst thing that happened very often was when we were in deep scheduling analysis, almost finishing the job, when some of our sales managers called us saying that some product priority had changed. So, I had to start all over again and all potential scenarios needed to be reworked. And more, the impact of one priority change could never be analyzed completely because time was against us. Of course, we never could remember the details of each plan because most of the work was done mentally, based on our experience”.

TECMARAN, the Preactor Network Partner for South America and MOCARTINS who sell Preactor in South Brazil conducted a deep analysis of Britanite’s needs. Marco Baptista is a Director of TECMARAN. “Although the Britanite scheduling problem was complex, we realized that Preactor 300 FCS linked to Microsiga’s ERP, one of the most well know suppliers for small and medium business in Brazil, would be enough for their requirements. Microsiga ERP has a very interesting way to generate work orders. Besides the conventional MRP calculation, consolidating requirements for same product or material for the same due date, it can explode net requirements for each final product

and its multiple levels without consolidation. So, when orders are created we can identify for whom each order it was generated for. This enabled us to offer Preactor 300 FCS”.

However, to make the project a success, Britanite recognized that their Bill of Process database would need to be reviewed and updated to meet scheduling challenge as it had never been used for scheduling proposes before.

Sueli Gonçalves again. “When the solution was presented we got very excited because we did not believe there would be software that could handle our needs considering the complexity of our business. The changes we had to do, including review of all our processes and database, would be costly and time consuming but were justified by the benefits Preactor would bring us. Besides, we had an extra work that was change the culture of people who worked in the production because Preactor gave us the possibility to control and manage effectively the production and people. With the passing time, production people realized that Preactor was given very good results and today they deny to produce what is out of their work-to-list.

José Maria, a TECMARAN consultant who worked on the project explained some of the technical issues. “First we checked that stocks, forecast, customer orders and BoM were properly entered into Microsiga. Then we analysed the options of order generation Microsiga had. We found the system could do it in two ways. Firstly the conventional one, like any other MRP system, i.e., aggregation of demand of a particularly product for the same due date and then explosion of the requirements for the next level of the BoM aggregating the net requirement in the same production order for the same product for the same due date. If we used this, then we would need to use Preactor 400 APS with its pegging features to link dependent orders during schedule generation. However there was a second way. It can create a parent work order for the final product and for each part of its BoM it creates the net work order keeping the same prefix order number as the parent order. So, despite Microsiga generating a specific work order for each level of the BoM, when we import it into Preactor they are all operations for the same parent order. We then use the Made From feature in Preactor 300 FCS to link all dependent operations in Preactor. “

The multiple constraints in Preactor 300 were used to model and control machine, operator and tool usage. “Without doubt the updating of the Bill of Process of products and its parts, and adding the correct constraints for each one, has consumed most of our time dedicated to the project. The other challenge was to educate production people to use the work-to-lists generated by Preactor and provide production feedback in real time. Without this Preactor would not help us to do re-scheduling to keep the production synchronisation required between all production units” explains Sueli.

The project was executed in 2006 and took 7 months to complete but weeks before the official go-live some benefits were already obtained. During the testing and validation phase of the project for example, Britanite could try several different production scenarios to obtain the best balance between production mix and resource utilisation which was impossible to do without Preactor. Some of the strategies tested were put into practice before the go-live with great results. After go-live, the amount of overtime has

been gradually reduced. “Now overtime is planned several days ahead and decisions are made with much more visibility of the impact. We have saved a lot of money and time because of this” says Sueli.

For Antonio Divonsir the more important gains were obtained with customer service levels. “Now, new demands, change of priorities, breakdowns, etc. can be quickly analysed and decisions are based on accurate information. The sales department now have better delivery dates and the relationship with the final customer has substantially improved. We can reduce stock levels for some products without worry because if we see that demand getting higher than expected then we create a new plan in just a few minutes. Another important benefit obtained was the graphical visualisation of Preactor which improved confidence and management.”