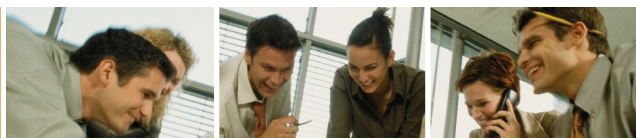


Improving chemical production planning, operations, savings virtually

Siemens PLM Software

www.siemens.com/plm

► Issue:

Process excellence

► Approach:

Use Tecnomatix Plant Design and Optimization to optimize existing and planned plants

Determine impact of user-specific orders on total production operation

► Results:

Individual depiction of all controls and plant apparatus

Determination of optimum buffer storage and arrangement of plant facilities and containers

Lower operating costs plus lower capital costs for new plants

Offering the Tecnomatix solution to BASF customers has become an important marketing tool

BASF

- Using Siemens Tecnomatix® Plant Design and Optimization solution to simulate existing and planned plants, BASF AG designers can identify and eliminate bottlenecks well in advance.

In order to counteract the pressure of increasing costs and to be able to react promptly to customer demands, companies in the chemical industry are searching for new optimization approaches more than ever before. Considerable cost-cutting potential exists, especially in production planning and logistics, and in plant dimensioning. Thus, dynamic simulation of manufacturing and logistics processes has become significantly more common in recent years. In an attempt to keep up with these changes, BASF AG established the “Centre of Excellence for Material Flow Analysis.” The key tasks of the six-man team include the selection and development of suitable simulation tools and onsite user support.

BASF AG uses the Siemens Tecnomatix Plant Design and Optimization solution, also known as eM-Plant. This tool simulates and optimizes existing plants, as well as plants that are still in the planning stage. In this context, entirely different target parameters can be evaluated quantitatively, depending on the intent. The simulation can be used, for instance, to evaluate interactions between manufacturing costs and the length of a campaign, or the minimum resource requirement (energy, human resources, etc.) for a specific order sequence and production strategy. The simulation enables the designer to recognize bottlenecks well in advance and eliminate them through suitable planning or plant-specific measures.

When dealing with a user-specific simulation model, planners are often limited to using common indicators, particularly complex manufacturing processes and systems. Fast answers to questions regarding buffer dimensioning, the availability of resources and operating media, and the most cost-effective production sequences are in high demand. Additionally, plants have been unable to use available resources. With the help of a dynamic material flow model based on Tecnomatix Plant Design and Optimization, the understanding of complex systems and processes can be significantly improved, and a greater standard of planning reliability can be reached. Unlike other digital manufacturing solutions on the market, Tecnomatix enables the individual depiction of all controls and plant apparatus – the software itself has its own programming language.

Solutions/Services

Tecnomatix Plant Design
and Optimization

Client's primary business

Automotive and electrical
www.basf-coatings.de
www.corporate.basf.com

Client location

Münster
Germany

The fields of application for the simulation are numerous and varied. The following is just one example of how Tecnomatix Plant Design and Optimization can be utilized.

The demand for a specific printing ink, for example yellow, temporarily increases when an order is placed for a nation-wide advertising campaign launch in all interregional newspapers in Germany. In this case, BASF Printing Systems must react quickly. An additional batch of yellow printing ink must be inserted into the production plan in order to allow prompt delivery of the ink to the printers.

An appraisal of this situation yields the following questions:

- What measures can be taken to boost the capacity of an existing plant by, for example, 20 percent?
- Which of these measures is the most cost-effective?
- How time-consuming will the cleaning of containers be if the urgent order is inserted into the current production plan?
- Are additional personnel required?
- How much production time will the urgent order require?
- Can the delivery dates of orders already scheduled still be maintained?

These questions can be answered quickly and easily with an operating model based on Tecnomatix Plant Design and Optimization. The solution is being used at BASF Printing Systems as an important tool in dimensioning and drawing production plans for mixing facilities.

Tecnomatix has recently been used to model, calculate and optimize two new mixing facilities at BASF. In this case, not only was the material flow considered but also classic aspects of plant layout and design. The space requirement for buffer storage and the optimum arrangement of the facilities and containers were also determined with the help of the model.

Since BASF was highly satisfied with the Siemens Tecnomatix solution, the company is offering its customers the simulation as a service. BASF plans the facility and provides the suitable simulation model for large printing companies, which frequently receive all their mixing tools from BASF. These companies can then use the model for additional production planning in day-to-day operations and provide BASF with daily reports indicating the amount of required raw materials that are to be ordered. Thus, Tecnomatix also becomes an important marketing instrument for BASF.

"The customer model is prepared in just a few hours," says Mr. Ensen, Head of Logistics at BASF Printing Systems. "The animation is generated automatically, at a touch of a button. BASF performs an initial analysis and collects data along with its customer. The customer can continue to use the simulation model daily as a reliable instrument for production planning."

Using Tecnomatix Plant Design and Optimization significantly promotes system-specific understanding of complex processes in plants, provides a major boost in capacity and makes it possible to cut significant cost.

The indisputable benefits of the solution have already resulted in considerable savings and have shown potential for additional savings in plant technology and logistics processes. Cost cuts were realized when investment projects for new plants were identified by means of dynamic simulation using Tecnomatix, even before the start of construction.

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