

More projects per employee

Plant design with the aid of 3D-models

A plant is more than just a combination of its parts: only when considering the system as a whole can the highest effectiveness be achieved from the start. Westfalia Separator engineers develop separator and decanter package units and process lines that provide users added value through the use of intelligent engineering and integrated solutions. They use Cadison as their planning tool.

HANS-JÜRGEN BITTERMANN

Cadison as their intelligent 3D modelling engineering solution. "Before that, we only had pure CAD systems such as Medusa and AutoCAD enabling "drawings" on the screen—but without any additional intelligence. Cadison offered us the opportunity to work with an intelligent model supported by data and information", explains Achim Scholz, Director CAD/CAE Management & IT Services. Approx. 180 work stations are currently equipped with Cadison at Westfalia Separator.

Scholz summarizes his team tasks: "We need to provide our colleagues from engineering departments with effective IT and engineering solutions that can optimize their workflows.

After all we are paid with money obtained by our colleagues". Apparently this kind of task division works out very well confirms Alfred Lassau, a Westfalia Separator engineer who works intensively with Cadison: after a certain start-up and customization period ("We deliver really complex plants for oil, pharmaceutical and food industries with enormously differing requirements, e.g. documentation requirements") all engineers are very satisfied with the Cadison solution. "Our goal was to handle approx. 50 per cent of all projects via Cadison—especially the larger projects where several

planners are simultaneously involved in plant design. This goal has been achieved," says Scholz.

Large project: bio diesel plant in Spain

One of the largest projects currently being carried out by Westfalia engineers with Cadison is the construction of a 110,000 t/a bio-diesel system in Extremadura, Spain for a leading and prominent Spanish engineering company client.

The company is designing several plants to boost the production of alternative fuels: bio ethanol and especially bio diesel are to be used in the admixture. The production can be very profitable thanks to the international environmental policy that is aimed to promote production of fuels from renewable

raw materials. Moreover, increasing prices for petroleum and higher taxation of conventional fuels increase consumption of alternative fuels.

Bio diesel is very desirable due to its cleaner burning features as compared to conventional diesel. At the same time, national quality standards need to be followed. In order to benefit from those features, crude oil needs to run through a special treatment which removes all concomitant substances useless for bio diesel and by-product glycerine before it is processed into bio diesel.

Extremadura project: The plant will soon start producing 110.000 t/a of bio diesel.

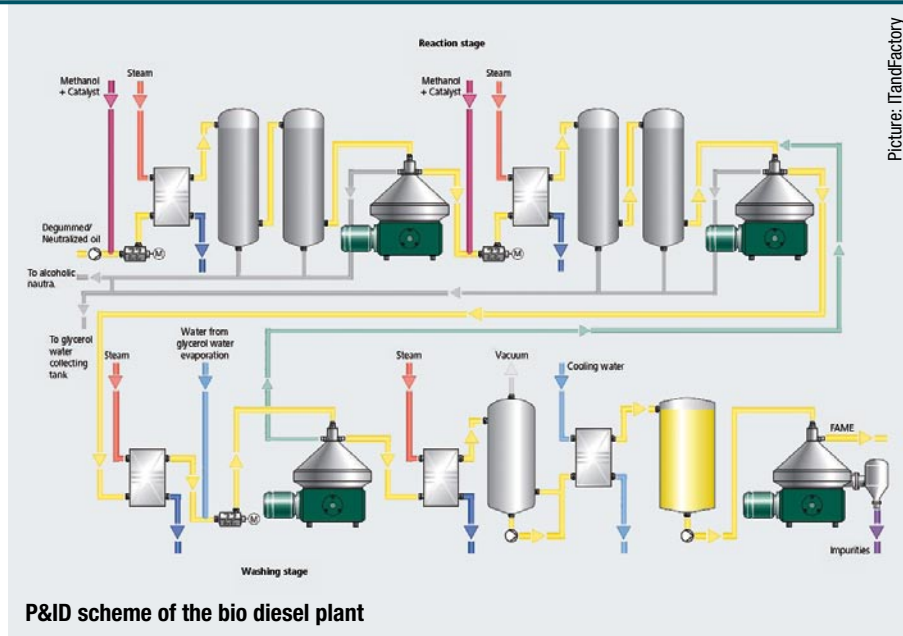
Westfalia Separator is well-known all over the world for powerful separators, decanters and ceramic membrane filters. Its main activities are filtering of suspensions, separating both liquid mixtures and solid materials as well as extracting ingredients, concentrating and draining solid matters. The company has established a very appealing corporate slogan "Take the Best – Separate the Rest".

In many cases, it is no longer enough just to offer apparatus technology. Operators in the process industry expect system solutions and full plants. This required change at Westfalia-Engineering; after all, in order to process increasingly complex projects without increasing personnel at the same time, the processes and in particular the work flow need to be automated. Another thing was also clear: entire processes—all tanks, pipelines, valves, ET I&C technology, separator and decanter—can only be mastered with the aid of professional plant design software.

From pure CAD-System to the intelligent modelling solution

Six years ago, after an intensive market research, the engineers at Westfalia Separator selected and successfully implemented

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P&ID scheme of the bio diesel plant



"In Extremadura's project we save up to 50 per cent of the whole engineering process time."

Alfred Lassau, Westfalia Separator

Based on all its core competencies Westfalia Separator is planning to use practically all centrifuge and separating methods:

- transesterification to separate ester-glycerin;
- washing to separate ester water;
- glycerin overhaul to separate fat acid glycerin.

"The ideal solution was a complete line in the fully continuous plant that secures defined quality. We got this solution that maximizes our production, is simple in use and has very low production costs", says engineer Lassau. Westfalia Separator is a technology leader providing complete process layouts and controls for its bio diesel projects. Engineering covers building design, main equipment based on PI&Ds and common databases, pipe modelling and automated production of isometrics from the 3D model. The Extremadura project covers approx. 150 tanks, pumps, heat exchangers, centrifuges and mixers, as well as approx. 1000 valves, 500 measuring points and 600 pipes. Engineering time is about two man years: four engineers work simultaneously on the project, share certain crafts and sections and exchange their results at least once a week.

Cadison supports networked engineering groups

Check-in/Check-out technology has been widely proven to be very effective when

working simultaneously in the plant design process. This kind of networked working method is supported perfectly by Cadison. Each user is able to check out certain plant components based on user-defined criteria (incl. logical plant components) and to work on them locally connected the network or offline on a single notebook. This work method refers to the extensive features of Cadison which has been developed not just as a CAD-tool but as an engineering solution supported by an object-oriented database. The integrated database approach allows for complete, immediate and automatic sharing of all project data in various application areas, such as P&ID, 3D modelling and the generation of isometrics and reports, etc. The use of object-oriented data models for various applications (plant design, ET I&C technology) allows for the integration of the whole planning process; thus saving valuable time and money. A Cadison advantage is that all data is collected and made directly available throughout the complete engineering process to all project participants, independent of which data is generated first: graphical or technological engineering data. Each change is automatically displayed and updated in all desired projects "Views". There is absolutely no need for costly data management and redundancy, resulting in a significant reduction of errors.

"Each component is filed in the database and can be retrieved later-on at every planning stage by each user: from order request to documentation. The components are ex-

actly specified in the engineering process, assigned media information, etc.—all this is processed in the database where all data is available in the same format for every user", explains Sebastian Lux, CAE Consultant.

The Cadison solution includes further modules for Documentation, Object Management, Visualisation and Interfaces to Calculation, I&C, manufacturer catalogues, Isometrics and Steel completes the suite.

Cadison 3D-solution has the following salient advantages:

- considerably faster and more transparent plant design process;
- faster realisation of change management;
- allows for proper data management including the effective use of larger data volumes;
- significant reduction of time when designing new plants.

"In Extremadura's project we succeeded to save up to 50 per cent of the whole engineering process time," happily shares engineer Alfred Lassau as proof of the last point.

Conclusion: The corporate slogan 'Take the Best—Separate the Rest' was also considered when choosing their plant design software. "Cadison is used at Westfalia Separator at an intensity and complexity which is practically impossible to match," says Sebastian Lux. "All solutions and interfaces are optimally set and networked, including their SAP environment. Cadison is not just an isolated application but is a completely integrated solution within the whole IT environment." ■

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Achim Scholz, Westfalia Separator