

# GEMCOM CUSTOMER CASE STUDY



## Rheinkalk GmbH drives productivity in its lime operations by adopting Gemcom Surpac



Software automates more than 200 functions for large quarry operator

### Countries:

Belgium, Brazil, China, Czech Republic, France, Germany, Poland and Russia

### Objective:

Select a comprehensive system for geological and geochemical block modelling and automating routine mine planning tasks.

### Approach:

Acquire the Gemcom Surpac software to automate workflows across the company's global operations.

### IT Improvements:

- Enhanced data accuracy, consistency and protection.
- Access to geological and deposit data in standard file formats.
- Presentation of short-term data in a standardised manner.
- Software in German and local technical support.

### Business Benefits:

- Automation of more than 200 routine and special tasks for greater productivity.
- 50% reduction in number of surveys.
- Efficient sharing of data, skills and project knowledge.
- Faster, more precise estimation of block models.

*"Gemcom is a strong software partner. Gemcom Surpac provides a wide range of content, flexibility and functionality, allowing us to increase the quality of our work."*

*— Rainer Westermann, Manager of the Geology Mining Team, Rheinkalk GmbH*



Aerial view of the Asbeck quarry at the Menden-Hönnetal property.

## Technology applied to improve workflows

*The German market requires around 7 million tonnes of lime annually, and Rheinkalk GmbH meets the major share of the demand. Headquartered in Wülfrath, Germany, Rheinkalk ([www.rheinkalk.de](http://www.rheinkalk.de)) is a subsidiary of Lhoist Group, which owns 90 plants and leads the market in providing products derived from limestone calcinations.*

With more than 105 years of experience in lime production, Rheinkalk itself has 10 sites that supply the chemical, steel, environmental protection and building material industries with lime and dolomite domestically and internationally. Its product sales amount to approximately 2.9 million tonnes annually. The manufacturer's two largest production sites are its Wülfrath-Flandersbach and Menden-Hönnetal properties.

Over the last 10 years, Germany's leading lime producer has applied technology to improve workflows. The staff counts the Surpac software as an integral part of their day-to-day operations. Parent company Lhoist also has a number of Surpac licenses that approximately 40 company geologists, engineers and surveyors use at the head office in Belgium and at operating properties in France, Poland, China, Brazil, Russia and Czech Republic. In Surpac, they create block models and open pit mine designs. They also perform short-, mid- and long-term planning.

"We use Surpac all over the world," says Rainer Westermann, Manager of the Geology Mining Team at Rheinkalk. "It provides important capabilities for organising and maintaining our data sets so that our teams can easily access and utilise them."

### Superior tool improves work quality

For corporate teams working across Lhoist business units, Surpac is their main productivity tool. Whether they model geology at headquarters or create a monthly mine plan onsite, collaboration is smoother and easier for all groups involved. They all have access to the same, up-to-the-minute data; consequently, the opportunities for synergy are considerable.

Productivity has increased since Rheinkalk's global adoption of Surpac. That is because Surpac enhances data accuracy, consistency and protection by storing geology, planning and drilling data in one system for use across business units. Westermann recalls how Rheinkalk handled block modelling before acquiring the Gemcom software. The company outsourced those activities to an outside company; however, management sought to bring that responsibility back under the company's supervision because some data was lost or compromised as it moved between the contractor and company personnel.

"We selected Surpac because we needed to improve the quality of the work," explains Westermann. "We also wanted to implement a digital mine planning system and provide common tools to communicate about geological block models within our department and across business units."

### Gemcom excels over industry counterparts

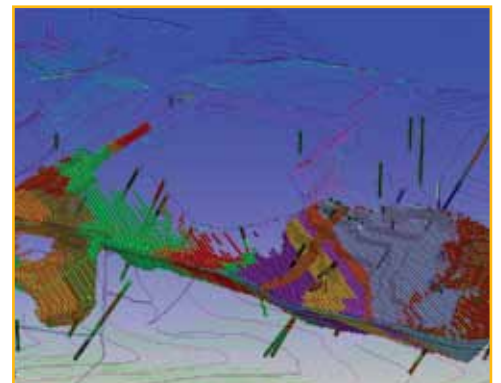
Westermann and his team also evaluated Datamine in their quest for a superior mine planning system, but Gemcom's software contained more flexibility and functionality. In addition, Gemcom had dependable, knowledgeable resources in Germany. Therefore, Rheinkalk found it advantageous to hire a Gemcom distributor to spearhead the software implementation and provide



Geologist Markus Oehmen views a fault at the Salzhemmendorf property.



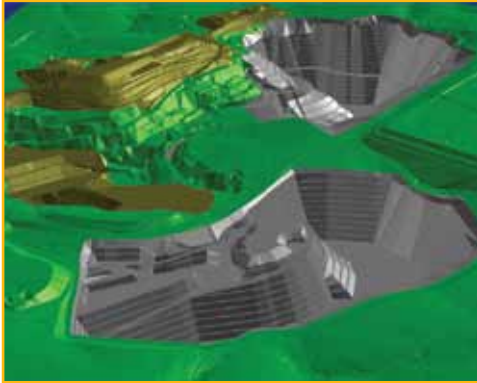
Surpac's Graphical Log feature summarising down-hole drill data.



Quarry block model developed with Surpac.

“Surpac’s automation capabilities save tremendous time and effort and give our users and departments access to geological and deposit data in standard file formats.”

— Markus Oehmen, Geologist, Rheinkalk GmbH



Quarry design constructed with Surpac.



Conveyor belt between the Rohdenhaus crusher and washing plant.



Pre-screening at the Wülfrath-Flandersbach plant.

training and technical assistance in the German language. Gemcom also commits to ongoing research and development with regular product updates and enhancements. These were important considerations in Rheinkalk’s purchasing decision.

Since the implementation, Rheinkalk personnel have participated in Gemcom training classes to upgrade their skills. Rheinkalk Geologist Markus Oehmen attended a Gemcom-sponsored seminar recently. “I learned to master the latest geostatistical tools in Surpac,” he says. “This training will help me estimate block models faster and more precisely.”

### One tool, multiples uses

Rheinkalk staff has marked success using Surpac at the Wülfrath-Flandersbach plant, which has a quarry production of 10 million tonnes of limestone annually, in addition to approximately 3 million tonnes of overburden per year.

Plant personnel manufacture various types of lime in different furnaces or kilns according to customer specifications. Westermann notes that limestone rock from the quarry is a chemically composed product derived from calcinations. From exploration work and core drilling, the staff creates Surpac geological and geochemical models that genuinely exemplify the chemical composition and main structural elements of the limestone deposits. Quarry employees enter the drillhole and borehole data from the quarry operation and update it in Surpac. They distribute that data to the geologists, who conduct their grade control work. From there, the data goes to the purchasing engineers for equipment budgeting, procurement and materials management.

### Surpac automates nearly 200 tasks

The automation of various routine and special tasks enables staff to work faster and more proficiently. Oehmen has spearheaded the creation of nearly 200 customised Surpac macros to automate input functions, plan updates, interrogate maps by date, count volumes, and design forms. In addition, there are macros to calculate cut-off curves and cycle times for mobile equipment on block models.

Oehmen explains, “We developed our own macro-based user interface under Surpac and embedded Surpac functions within those macros. We standardised file naming and colourations for different chemical content, block models, line sequences and maps for our 10 deposits in Germany. The result is that various users and departments have access to geological and deposit data in standard file formats.”

Another reason for establishing macros was to present short-term data in a standardised manner. This is a useful capability at the Wülfrath-Flandersbach plant, where daily blasts change the pit shape from week to week. The location of the blastholes are used to update the pit topography weekly, and then, the most recent topography is needed for reserve calculations.

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“We developed a system whereby we can fill in short-term data based on the coordinates of the blastholes. In addition to that, analysis of these blastholes allow us to fill in a short-term block model and organise weekly or monthly plans,” Oehmen says.

Operating the macro-based system reduces the number of surveys. In the past, the company surveyed its open pit mines twice yearly, but by applying information generated automatically, they need only survey once a year.

## Working faster and more efficiently

In addition to financial savings regarding surveying, the Surpac macro language saves time. Oehmen cites the integration of a standardised plotting feature to produce quarry maps with German cliff symbols and standard legends and colours for block models. “I can produce a plot of regions, topography, a drillhole map and block model slides by simply clicking a button. The macro produces my selection, sends it to the plotter, and I get it in a defined scale – without added work,” Oehmen says.

Some of the Surpac macros work optimally with the Gemcom MineSched software, which Rheinkalk uses to produce mining schedules and sequences. Applying the Surpac cycles macro in MineSched, the staff calculates the total distances hauled by truck and visualises the behaviour of the transport vehicles during stages. All schedule details are viewed in 3-D, providing visual corroboration and easy communication of activity sequences. In fact, MineSched’s scheduling functionality, along with its simulation capabilities, helped Rheinkalk open a new extension a few years ago.

“We needed to investigate whether the timing and dynamics were right, so we simulated a lot of processes with diverse constraints in MineSched and came up with a proposal for opening the new quarry. Over the years, Surpac and MineSched both have played a major role in our operations. Without Surpac, we would have more repetitive work to do, possibly make more procedural errors and need to add more personnel, which would impede our main objectives to operate efficiently and economically. Instead, Surpac enables our teams to execute their work skillfully and in significantly shorter time, so we’re driving productivity and cost efficiencies in our operations. We are delighted to have these Gemcom tools to aid our progress,” Westermann concludes.

## Rheinkalk GmbH Solutions at a Glance

### Primary Applications:

- Gemcom Surpac
- Gemcom MineSched

### Gemcom Services:

- Software implementation
- Training
- Technical support

For more information email  
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[www.gemcomsoftware.com](http://www.gemcomsoftware.com).

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