Completely Integrated Solutions for the Mining Industry:

**SIMINE<sup>CIS</sup> PROLOG**

For modular, flexible and standardized execution and monitoring of mining processes

**SIEMENS**

Industrial Solutions and Services
The challenge:

Creating a consistent production management landscape

Today many mining enterprises have access to a multitude of tools for production planning, controlling and monitoring. This has resulted in a complex IT landscape – associated with obvious problems.

Looking to the area of production management tools, companies still suffer from
- missing alignment of production planning systems with strategic business objectives
- diversity of different tools being used without any uniformity regarding interfaces and data formats
- inflexibility in case of adaptation to different conditions and customization to plant specific needs

Under the ongoing stress of competition companies are forced to exploit any potential which can improve the effectiveness of operations.

The introduction of a Manufacturing Execution System will help to enhance:
- efficiency and quality of production
- transparency of data
- flexibility of production planning
SIMINEPROLOG approach

In order to achieve a highly flexible, standard-based and scalable MES solution, SIMINEPROLOG explicitly represents the customer’s production process as graphical workflows and effectively synchronizes, coordinates, analyzes and optimizes the entire production.

SIMINEPROLOG is comprised of:

- **SIMATIC IT Framework**, a graphic modelling environment where mining industry process unit libraries and SIMINEPROLOG Components are coordinated and synchronized by graphical rules. This representation of the customer’s plant provides a transparent and dynamic view of the plant’s operation. The unit libraries can be adapted to integrate your specific know-how.

- **SIMINEPROLOG Components** which provide dedicated functionalities to manage specific production tasks. The components, as well as third party packages, are “plugged” directly into the SIMATIC IT Framework, where they are managed in one consistent way.

SIMATIC IT and SIMATIC IT components are based on the world-wide ISA 95 standard. This standard defines the terminology and models used in production automation and the integration of ERP and automation systems.
SIMINE<sup>CS</sup> PROLOG Components

- **Production Order Management** integrates the Planning and Scheduling functions. Both optimize interactively the excavation and transport of raw materials to maximize the effectiveness of operations. All relevant ERP data are further distributed to the operating units.

- **Product Tracking and Tracing** follows up orders during excavation and transport, traces the origin of raw materials, and concentrates up to the finished product like pellets.

- **Quality Management** monitors on-line product quality, links it to the operating conditions, defines blending mechanisms in order to optimize the production process. The solution can be extended by a lab information system such as SIMATIC IT Unilab.

- **Secondary Processes** optimized within SIMATIC IT Framework. **Logistic and warehouse requirements** are addressed along the production chain as well as planning with respect to requirements like dewatering, water treatment and other secondary processes.

- **Maintenance Management** ensures that appropriate scheduled tasks and preventive maintenance are carried out in a timely and cost effective manner.

- **Online Key Performance Indicators** (KPI) are consolidated and monitored against targets. The location and cause for deviation is tracked in real-time.

- **Energy Optimization** EOS is used for displaying, analyzing and optimizing energy consumption. It further forecasts energy requirements and benchmarks energy consumption.

- **Content & Document Management** SIMINE eWD stores and structures plant wide technical documentation for easy access, rapid search, efficient update and open usage of formats.

- **Process Information Management System** PIMS consolidates all process and production data on a real-time basis, over periods of years. All information can be easily accessed and processed according to the needs of different user groups.

SIMINE<sup>CS</sup> – Completely Integrated Solutions for the Mining Industry

SIMINE<sup>CS</sup> PROLOG is part of the SIMINE product family, which integrates all the products and services you need for sustained maximization of your plant’s performance.

For each particular task, a solution has been defined that

- horizontally improves all production processes – from mining yard to product shipping

- vertically integrates the company’s information flow end-to-end, helping corporate management to make better-founded decisions

- time-wise enables your SIMINE<sup>CS</sup> application to align with your strategic objectives and adapt to market needs

Due to this unique combination of horizontal, vertical and life cycle dimensions, our SIMINE<sup>CS</sup> solutions all embody in their core the genes of sustained plant productivity.
SIMINE CIS PROLOG is the SIMATIC IT based solution for efficient production management in the mining industry.

As an industry-specific Manufacturing Execution System (MES) it helps to enhance efficiency and quality of production as well as transparency of data and flexibility of production planning.

SIMINE CIS PROLOG is characterized by
- **Modularity** – build the solution exactly matching your needs and expand according to your needs
- **Flexibility** – integrate your in-house modules, combine these with best-in-class Siemens components and develop your own specific models
- **Integration** – deploy your MES corporate-wide on a standard execution platform, integrating seamlessly with automation and ERP Level.

SIMINE CIS PROLOG proves once more that Siemens has the experience, technology and understanding to overcome acute problems and to discover further potentials in the mining industry.

**Good reasons for SIMINE CIS PROLOG:**
- Less operational changes (better scheduling of equipment)
- Better quality planning (blending)
- Lower frequency and duration of operating problems (uptime management)
- Lower performance variability (automated production execution)
- Faster decision making (integrated KPI monitoring)

**This in turn will enable you to achieve the following benefits:**
- Higher Overall Equipment Efficiency (OEE), resulting from lower downtime (uptime management and problem solving, scheduling, standard operating procedures), from higher operating speed (assets utilization in production and logistics) and from higher quality (out of specs products)
- Higher productivity, expressed in tons of product per unit, resulting from better work procedures, access to information and know-how as well as better performance monitoring and analysis
- Higher yield, resulting from better energy and utilities utilization, lower variety of outgoing materials
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