

EAF PROCESS MODEL

Electrics and Automation



EAF PROCESS MODEL

Reducing costs, reproducing quality



YOUR REQUIREMENTS

The requirements for a long-term profitable EAF operation are rather complex. Reproducible process sequences, optimal use of energy and materials, flexible mix comprising hot metal, scrap, DRI and HBI.

OUR SOLUTION

The SMS Siemag-developed EAF process model takes into account all factors and interactions that have an influence on the melting process. At the core of the EAF process model are mass and energy balances, as well as the planning of the necessary treatment steps. Taking into account the available materials and plant restrictions, all materials added such as scrap., DRI (hot/cold), HBI, slag formers and materials added on tapping are determined at the lowest costs for the whole melt. Furthermore, the EAF process model defines the treatment strategy, the electrical power input and the primary energy carriers for the burners and injectors.



During the process treatment, the model cyclically calculates the weight and the analyses of the steel and slag while the requirements for process control are updated. Upon reaching the liquid phase, the steel bath temperature is calculated. During the flat-bath phase the addition of DRI can be controlled such that the bath temperature is kept constant within the optimal operating range while a maximum amount of energy is supplied.



TECHNOLOGICAL HIGHLIGHTS

The EAF process model takes into account all conditions of the melting process such as the supply of energy, treatment times and the addition of materials. The model presets the values by which on the one hand the production targets are exactly achieved, while on the other hand the energy input, the addition of alloying elements and the treatment times are significantly minimised.

If the analyses require changes to the process control, this can be done simply without any program changes. An offline model allows all process sections to be simulated.

All process data are documented for quality control and research. The records can be retrieved by a web-based management system for performance analysis. Moreover, the recorded data are used for process analysis within the framework of a conclusive reporting system.

YOUR BENEFITS AT A GLANCE

- Comprehensive solution for the EAF process
- Process sequence charts for every material mix
- Minimised energy input and short treatment time
- Reliable process control under consideration of all factors of influence
- Cost-minimised calculation for all materials added with extensive configuration options



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MEETING your **EXPECTATIONS**