



SINTER OPTIMIZATION

PROCESS OPTIMIZATION SYSTEM FOR SINTER PLANTS

FUNCTION

Sinter Optimization provides a complete history of process parameters including recipe, chemical and physical raw material properties, and process measurements for a comprehensive analysis of both positive and negative conditions of the sinter process.

The overall function of the sinter expert system is to enable an optimized sinter machine operation with minimum operator interaction. This solution counteracts process fluctuations caused, for example, by changes in the raw material composition and quality, human factors and process conditions.

The sooner the system responds to abnormal or changing process conditions, the smoother overall sintering operation will be.

The accurate timing of control activities and anticipation of disturbances are of utmost importance to avoid critical process conditions and to maintain a high production rate at low production costs.

The system guarantees shift-independent plant handling. The result is smooth sintering operation around the clock, an increased equipment lifetime and reduced production costs.

PRODUCT STRUCTURE

- Process information system
- Process models
- Expert system

SERVICES

- Integration engineering
- Erection supervision
- Commissioning supervision
- Metallurgical and process know-how
- Operation fine tuning
- Training on site for operation and maintenance
- Remote support
- Integration of online measurement device for chemical composition of raw mix



PROCESS MODELS

- Raw mix calculation sinter plant
- Raw mix calculation blending ore bed
- Recipe history model
- Recipe tracking model
- Stacking plan model for blending ore beds
- Blending ore bed distribution model
- Permeability calculation model
- Harmonic diameter calculation model
- Burn-through / burn-rising point calculation model
- Burn-through time prediction model
- SWGR (Selective Waste Gas Recirculation) Optimization Model

EXPERT SYSTEM RULES

- Basicity Rule based on laboratory analysis
- Basicity rule based on online measurement device
- New material analysis rule
- Sinter plant return fines rule
- Coke addition rule
- Raw material moisture rule

MAIN BENEFITS

- Sinter Optimization is the most advanced process optimization system available for sinter plants, enabling major cost savings and process improvements without compromising raw material selection, sinter quality, energy efficiency and productivity.
- The optimized raw mix calculation with precise chemical targets and additional control loops allows the production of sinter material of the highest quality, while at the same time effectively reducing coke consumption.
- The optimal position and control of the burn-through point, together with the homogeneous flame front, result in maximum productivity.

EXPERT SYSTEM CONTROLS

- Water addition control
- Burn-rising / burn-through point control
- Transversal burn-through point control
- Surge hopper level control