



RAW MIX ANALYZER

FULLY AUTOMATIC, PERIODICAL ANALYSIS OF SINTER FEED

FULLY AUTOMATIC AND STANDARDIZED SAMPLE-TAKING AND ANALYSES

The new Raw Mix Analyzer is designed for the fully automatic sampling and analysis of granulated sinter feed. It eliminates the need for manual sample-taking, preparation and analysis.

INSTALLATION OF A ROBOTIC SYSTEM

The sample-taking robot and a configuration of analyzing systems are installed in an enclosed space located directly at the raw mix conveyor belt, where the material is charged on the sinter machine. The robotic system automatically takes samples from exactly the same place in the material stream, which guarantees fully standardized and consistent sample preparation and analysis.

The main properties of the sinter raw mix are efficiently analyzed in individual analysis stations, while additional sinter samples are available for further testing purposes.

The analysis of other material properties is also possible, depending on customer requirements.

THE GOAL: AUTOMATION AND DIGITALIZATION

The key words in industry right now are automation and digitalization, which is why Primetals Technologies has developed a brand new generation of the sinter Raw Mix Analyzer. The ambitious goal was to fully automate and digitalize the sampling process and feed the resulting data into Level 2 automation systems, combining the data with process models and expert systems to maximize productivity and efficiency.

AVAILABLE ANALYSES

- Moisture content
- Permeability
- Bulk density
- Other material properties (e.g. chemical, physical) also possible

DATA PROCESSING

Samples are taken automatically at ten-minute intervals. The results of the analyses of all measured data are entered into a Level 2 expert system to optimize process parameters. This expert system allows for immediate and continuous corrective adjustments of various process parameters, such as water addition to the sinter raw mix. As a result, operation of the sinter plant is always optimized.





Passing samples to the analysis station



Sinter raw mix sampling during conveyor discharge

VARIABILITY AND FLEXIBILITY

Continuous adjustments and design modifications ensure a stable and robust measuring system, including peripheral devices and a sophisticated control unit.

Modular installation means that the system can be adjusted according to customer requirements for sampling, layout, and desired analyses.

ROUND-THE-CLOCK OPERATION

The Raw Mix Analyzer is extremely robust and is designed to cope with the harsh working conditions of a sinter plant. It represents a further step forward in terms of improving sinter process control for the production of high-quality sinter.

PLANT DATA

Sample intervals	approx. 10 min
Space requirements for full analysis	8 x 6 m
Number of analysis results per day	1400
Number of samples taken per day	700
Robot actions for one sample	approx. 10
Moisture standard deviation	0.019%
Availability	>90%

MAIN BENEFITS

- Standardized and automatic sample-taking
- High and consistent sinter quality
- Fast and automatic response to changing process parameters
- Increased plant productivity
- Optimized control of sintering process
- Improved operator safety
- Flexibility in selection of raw materials

Resulting in use of fine and ultra-fine iron ores.

GENERAL BENEFITS OF ROBOTIC SYSTEMS

- Several different activities can be processed in a short space of time
- Personnel can be kept safe from hazardous working areas
- Reliable production
- Quality improvement thanks to reproducible procedures
- Customizable robot tasks for greater flexibility
- Highly scalable (i.e. from basic systems to highly sophisticated installations)

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