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Primetals Technologies Enhances Digitalization at Kardemir's Sinter Plants in Karabük

- **Advanced process optimization systems with closed-loop operation to optimize production**
- **Real-time data collection and analysis improve operational efficiency and reduce errors**
- **Integration with SAP accelerates decision-making and reduces costs**

Primetals Technologies has received an order from Karabük Demir Celik Sanayi ve Ticaret A.S. (Kardemir) to upgrade and implement process optimization systems at its sinter plants in Karabük, Türkiye. The project covers an upgrade of the existing Level 2 systems at sinter plants No. 1 and 2 and the installation of a new Sinter Optimizer system at sinter plant No. 3.

This advanced solution will digitalize Kardemir's sinter production through real-time data collection, automated production data analysis, and AI-driven automated process control.

Enhancing Operational Efficiency

The new process automation systems will enable closed-loop operation of all three sinter plants using a digital knowledge base built on operational best practices. This will stabilize production, improve efficiency, reduce error rates, and give operators greater transparency.

"We are excited to upgrade our existing sinter Level 2 expert system and introduce a next-generation solution in partnership with Primetals Technologies. This project represents a key milestone in Kardemir's digital master plan and reinforces our commitment to smart manufacturing and operational excellence," said Sefa Çetinkaya, Operational Technologies at Kardemir. "The new Level 2 system, with its robust and secure architecture, will help us achieve seamless data integration and intelligent decision-making. By harnessing advanced technologies like data analytics, the Industrial Internet of Things (IIoT), and artificial intelligence, we will continue to drive innovation and enhance our production capabilities."

Seamless SAP Integration

A key feature of this project is the integration of the Level 2 systems with Kardemir's SAP infrastructure. This ensures a smooth flow of data between the Sinter Optimizer and SAP, providing critical production insights for faster, more informed decisions.

The integration will optimize steel plant automation, speed up decision-making based on real-time data, and help reduce operational costs.

Continuous Sinter Process Optimization

The Sinter Optimizer features an expert system connected to a digital knowledge base, enabling fast, fact-based decisions and standardized corrective actions. It performs small, frequent control actions based on a standardized control philosophy, ensuring 24/7, shift-independent operation. The system calculates raw material setpoints, crucial for achieving the desired chemical composition of the sinter product, and evaluates the impact of moisture on specific raw material mixes.

State-of-the-art process models predict product quality hours before lab data is available, while multiple Level 2 control loops ensure consistent product quality.

Kardemir is one of Türkiye's leading steel producers, known for its wide range of high-quality steel products. Located in the historic city of Karabük, the company's integrated steel plant is strategically positioned in a narrow valley near Safranbolu. The company plays a vital role in the regional economy and provides innovative steel solutions to meet the diverse needs of its global customer base.



Primetals Technologies' sinter process optimization systems digitalize production processes at Kardemir's three sinter plants in Karabük.

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