Primetals Technologies Partners in EU-Funded Research to Decarbonize Blast Furnaces

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€1.8 Million Grant Awarded for Sequence Impulse Hydrogen Project

Primetals Technologies, a leading provider of metallurgical plant technology, is participating in a research project that has been awarded a €1.8 million grant from the European Union (EU) via the Research Fund for Coal and Steel (RFCS). The project aims to develop a new technology for decarbonizing blast furnaces, a crucial step in reducing the steel industry's environmental footprint.

The project, titled "Sequence Impulse Hydrogen" (SIP), focuses on injecting hydrogen directly into the blast furnace shaft using the innovative Sequence Impulse Process (SIP) technology. This method has the potential to significantly reduce CO2 emissions from blast furnaces, a major source of greenhouse gases in the steel production process.

Driving Green Steel Production

The iron and steel sector is responsible for a significant portion of global CO2 emissions. With growing pressure to achieve carbon neutrality, the industry is actively seeking solutions to lower its environmental impact. While low-CO2 production routes are under development, blast furnaces are expected to remain the dominant steel production method for years to come. Therefore, decarbonization technologies for existing blast furnaces are critical.

Hydrogen injection is a promising approach for reducing blast furnace emissions. This project aims to demonstrate that hydrogen can be effectively injected into the furnace shaft using the established SIP

technology. This method offers several advantages over traditional tuyere injection, potentially leading to a 20% reduction in CO_2 emissions.

Industry Collaboration for Breakthrough Technology

The SIP project is a collaborative effort involving key players in the European steelmaking sector. The consortium brings together expertise from various organizations:

- **thyssenkrupp Steel Europe:** Providing industrial-scale laboratory facilities and capabilities for material burdening.
- **voestalpine:** Hosting the trial process with helium injection to validate gas distribution simulations on a working blast furnace.
- **thyssenkrupp AT.PRO tec GmbH:** Designing and supplying the core SIP technology.
- **Primetals Technologies Ltd:** Contributing to furnace integration design and full-scale economic evaluation.
- **VDEh-Betriebsforschungsinstitut (project coordinator):** Leading research activities and analysis.
- **K1-MET GmbH:** Providing additional research and modeling expertise.

This collaborative approach leverages the strengths of each partner to accelerate the development and implementation of this breakthrough technology. The project is expected to conclude in 2028, paving the way for wider adoption of hydrogen-based decarbonization in the steel industry.

Primetals Technologies: A Leader in Green Steel Solutions

Primetals Technologies is committed to environmental innovation in the metals industry. The company’s participation in the SIP project reflects its ongoing efforts to develop sustainable solutions for steel production. This project is one of several initiatives for which Primetals Technologies has recently received funding, demonstrating their leadership in advancing environmentally friendly steelmaking technologies.

The successful development of the SIP process has the potential to revolutionize blast furnace operations, significantly reducing the industry’s environmental impact and contributing to a more sustainable future.