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Highly efficient technologies for increased yields in steelmaking processes and reduced environmental impact - HIYIELD

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HIYIELD project addresses the need for sustainable and competitive steel production, essential to achieving a climate-neutral, circular, and digitized industrial framework. While steelmaking enables green technologies for providing relevant material for climate neutrality, the industry however contributes to 7% of global CO₂ emissions [1]. HIYIELD targets this challenge by promoting circular economy practices through increased scrap utilization, thereby reducing reliance on coal-fired blast furnaces and associated emissions from pig iron production. The project aims to enhance the efficient use of scrap material in steel production and targets to improve steel quality and performance through smart data generation, digitalization, and advanced control systems that increase scrap uptake across various processes. The project applies advanced technologies such as deep learning-based computer vision for scrap identification, digital scrap information cards for scrap tracking, and high-speed liquid steel analysis for efficient on-site characterization of liquid steel. The project focuses to promote circular economy by increasing scrap uptake within the European steel production processes, by improving the scrap quality and classification techniques, HIYIELD supports the European steel industry's competitiveness while promoting a circular economy.

[1] J. Kim, "Decarbonizing the iron and steel industry: A systematic review of sociotechnical systems, technological innovations, and policy options," Energy Research & Social Science, Volume 89, 2022.

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