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Evaluation of Hot Briquetted Iron (HBI) in Blast Furnace 2 at ArcelorMittal Tubarão: Impact on Productivity, Fuel Rates, and Decarbonization

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The use of Hot Briquetted Iron (HBI) in blast furnaces has been explored as a method to improve productivity and reduce environmental impact. This study presents the results of the first trial with HBI in Blast Furnace 2 at ArcelorMittal Tubarão. The results demonstrated that the planned fuel targets were achieved, with potential productivity gains and a positive impact on decarbonization. The HBI rate was increased up to 237 kg/t on average (16%) and the coke rate (CR) reached a minimum of 240 kg/t (daily average) with a trial average of 275 kg/t. The fuel rate (FR) showed significant improvement, reaching 368 kg/t (daily average) and 434 kg/t (test average), surpassing expectations. As a result, productivity increased, with potential gains exceeding 2% per day, despite prioritizing fuel rate reduction. Equipment performance was satisfactory, with ceramic materials replaced by metallic components without significant wear. Adjustments in the central and peripheral zone distribution were consistent with simulations, confirming the success of the trial. Furthermore, the decarbonization potential accounted for 2,581 tons, leading to a 6% reduction in CO₂ emissions (Scopes 1, 2, and 3). These results suggest that HBI integration can optimize blast furnace operations and contribute to the sustainability of steel production.

Primary authors: Mr ANDRADE CAVALCANTE, Joelson (ArcelorMittal Tubarão); Mr JOSÉ DOS SANTOS CARVALHO, João (ArcelorMittal Tubarão); Mr AUGUSTO WASEM, Luiz (ArcelorMittal Tubarão)

Co-authors: Mr CÉSAR DA COSTA, Cláudio (Arcelormittal Tubarão); Mr SATHLER, Filipe (Arcelormittal Tubarão); Ms LIMA, Jéssica (Arcelormittal Tubarão); Mr PLAZZI, Leonardo (Arcelormittal Tubarão)

Presenter: Mr JOSÉ DOS SANTOS CARVALHO, João (ArcelorMittal Tubarão)

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