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Reducing CO₂ Emissions and Increasing Scrap Recycling in the Integrated Blast Furnace - Basic Oxygen Steelmaking

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The iron and steel industry is accountable for 7.2% of the total GHG emissions with a dominant BF-BOF route still covering today 70% of the total pig iron world production. Therefore, any quick solution to reduce the carbon footprint of this steelmaking route avoiding high investment costs is welcome.

The increase of the scrap ratio fed into the BOF vessel is one of such solution because the hot metal ratio decreases and thus the CO₂ emissions (scope 1 & 2) per ton of crude steel are reduced as well. Before charging into the BOF converter, the hot metal temperature coming from the BF at around 1480°C can be heated up to 1550°C with a combined process of electrical heating and desulfurization. The combination of these 2 processes implies additional benefits like higher desulphurization yield, minimal disruption of steel ladles logistic and optimized space requirements due to commonly used auxiliary equipment's like dedusting system, steering lances and overhead cranes.

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