



Contribution ID: 426

Type: Oral Presentation

New techniques for improvement of the monitoring and conditioning of slag in EAF steelmaking for the optimization of steel treatment and slag recovery

Wednesday 8 October 2025 14:40 (20 minutes)

In the modern steel production it is important to have an integrated view of the production processes and plants including performances optimization, maintenance conditions, and reduction of environmental impacts through reduction of residual wastes and CO₂ emissions from the production.

In particular to consider the slags coming from the production processed of EAF and LF is a relevant point including both evaluations regarding the process treatments optimization and the conditions of residual slags from production as necessary to increase capability of slags recovery.

In fact the proper slags conditions both in EAF and in LF are crucial to increase the efficiency of the metallurgical processes as dephosphorization, De-sulphurisation, Decarburization, deoxidation, slag foaming and refractories erosion.

For this reason to know the present status of the slags during the process and to define the proper target as slag conditions to be adopted during the treatments is a relevant point to manage and to improve the production processes and make more efficient the metallurgical processes.

In parallel to know the necessary target of the slags to be adopted for subsequent landfill or better for the slags reuse and recovery is also fundamental.

For this reason the slag conditioning and the process management to obtain the proper slag conditions is a point affecting both the circularity of the sector but also to improve the processes performances.

Acciaierie di Calvisano for this reason has developed the project islag, co funded by Research Fund For Coal And Steel) with the scope both to improve capability of process monitoring but also to develop the necessary Decision Support System to manage the slags In proper way as based on the previous concept of process management in particular including new sensors and also process modelling.

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Session Classification: Slag Optimization & Process Control

Track Classification: Steelmaking - Electric steelmaking