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# Continuous improvement on process modelling in EAF steelmaking as support to process prediction and management

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The technologies related to EAF steelmaking have continuous developments aiming the improvement of the process performances and of the environmental impact mainly through the reduction of energy consumption, the increase of productivity, the increase of metallic yield and promoting the reduction of CO2 emissions.
This necessary development is also confirmed by the further aimed application of EAF technology in new production routes for high quality steels productions presently covered by BF/BOF route having justified this conversion by lower CO2 emissions and increased flexibility of application of EAF technology coupled with DRI charging.
In Feralpi group the steel production is realized with high expertizes in EAF technologies including scrap melting, steel treatments and subsequent solidification in continuous castings for billets in 3 production sites distributed in Italy and Germany. For this reason the necessity to have modern supports to the management of steel production processes is one of the main items.
In last years also thanks to the R&D projects activities Feralpi has realized several steps in the different sites related to the applications of mathematical modelling for EAF processes prediction, process modelling of steel treatment in LF enabling also steel temperature management and prediction of additions in LF.
Further steps of this development included the real time prediction model in EAF the application of alert functions for abnormal energies distribution or chemical injections and related to correctness of steel temperatures in the ladle as support to production management.
The applications realized in different R&D projects are reported including the coupling with plants and sensors development necessary to support the process control.

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