

Dynamic On-Line Monitoring and End-Point Control of Dephosphorisation in the BOF Converter Process

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Abstract

Oxygen converting of hot metal in a Basic Oxygen Furnace (BOF) is a highly exothermic, complex, oxidising-refining process for removal of hot metal impurities from iron and achievement of an optimal end temperature for further treatment of the raw steel.

End-point control of the BOF process is currently based on static charge calculations and observation of decarburisation via off-gas analysis. On-line information on dephosphorisation behaviour is not available.

The objective of the research project *BOFdePhos* is the development of a comprehensive dynamic model for on-line monitoring and control of the BOF process behaviour with focus on dephosphorisation, depending on actual slag conditions and melt temperature, in combination with a novel in-line measurement of the slag oxygen activity.

It shall be used to adjust the target values regarding phosphorus content and melt temperature with high accuracy. This will reduce the reblow rate, tap-to-tap times and metallic losses.

The introductory presentation of the *BOFdePhos* project also comprises the structure and functions of the currently available dynamic BOF process model of BFI