

Author's Accepted Manuscript

Slag foaming practice in the steelmaking process

A.P. Luz, A.G. Tomba Martinez, F. López, P. Bonadia, V.C. Pandolfelli



www.elsevier.com/locate/ceri

PII: S0272-8842(18)30500-5
DOI: <https://doi.org/10.1016/j.ceramint.2018.02.186>
Reference: CER117588

To appear in: *Ceramics International*

Received date: 2 February 2018

Accepted date: 23 February 2018

Cite this article as: A.P. Luz, A.G. Tomba Martinez, F. López, P. Bonadia and V.C. Pandolfelli, Slag foaming practice in the steelmaking process, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.02.186>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Slag foaming practice in the steelmaking process

A.P. Luz¹, A.G. Tomba Martinez², F. López³, P. Bonadia³, V.C. Pandolfelli^{1*}

¹Federal University of São Carlos - Materials Engineering Department, Rod. Washington Luiz, km 235, São Carlos, SP, 13565-905, Brazil

²Materials Science and Technology Research Institute (INTEMA), Ceramics Division, Av. Juan B. Justo 4302, 7600 Mar del Plara, Argentina

³RHI-Magnesita, Research and Development Center Praça Louis Ensich, 240, Contagem, MG, 32210-900, Brazil

*Corresponding author. Tel.: +55-16-33518252; fax: +55-16-33615404. vicpando@ufscar.br

Abstract

Slag engineering (i.e. conditioning and foaming practices) is becoming an essential issue in many companies due to the increasing need felt by the end-users to cut costs and produce high quality steel. Slag foaming has been mainly used in electric arc furnaces (EAF) in order to protect the refractory materials from the high energy intensity (radiation) generated by electrodes, decrease the noise level, improve productivity and the energy efficiency of this equipment. Nevertheless, the correct control and optimization of the foam generation are still limited and some of the main factors (basicity, viscosity, surface tension, presence of suspended solid particles, FeO content and injection rate of carbon particles and oxygen, and others) that affect this complex phenomenon are discussed in this review. Considering the data presented in the literature, there are various conditions and opportunities to be exploited, and a standard procedure for the experimental evaluation of the foam formation is still required. Thermodynamic calculations can be an alternative tool to help understand the phase transformations related to slag foaming at high temperatures.

Keywords: slag, foam, energy, steelmaking.

1. Introduction

Download English Version:

<https://daneshyari.com/en/article/7887285>

Download Persian Version:

<https://daneshyari.com/article/7887285>

[Daneshyari.com](https://daneshyari.com)