



Investigating the Effects of Recycling Slag on Performance of Electrical Arc Furnace

Z.Babasafari¹, M.Rezaei²

z.babasafari@gmail.com

Rezaeim86@gmail.com

Process Department, Sepahan Beyond Research Company (SBR), No.118, Apadana 2 St, 8166796341,
Isfahan, Iran

Web Site: <http://www.sbr-co.com>

E-Mail: info@sbr-co.com

Abstract

The iron and steel industry is the largest industrial energy consumer. 32% of total world steel production is based on melting of ferrous material and additives in Electrical Arc Furnace. Steel slag amounts to approximately 10% of liquid steel output in a typical steel producing plant. The main functions of furnace slag is removal of phosphorous, coating of the furnace to protect refractory and shell, shield the arc and increase electrical efficiency. Slag can be recycled during the steelmaking process or sold for use by other industries. The recycling of slag as by-products permits to minimizing the exploitation of natural resources and reducing the amount of waste material. This study was carried out to evaluate the performance recycled slag into electrical arc furnace as slag former. The application of this recycling process provides major advantages, such as the lower amount of lime required for the formation of the EAF slag. The foaming properties of the slag are thus increased, and so the electrical energy efficiency is increased, as the arc can be better covered during flat bath operation.

Keywords: EAF, Slag, Reusing, Recycling, Electrical Energy Efficiency.

¹M.S of Chemical Engineering, Iran University of Science and Technology, Process Expert in SBR Company.

²M.S of Civil-Environment, Shiraz University, Process Expert in SBR Company.