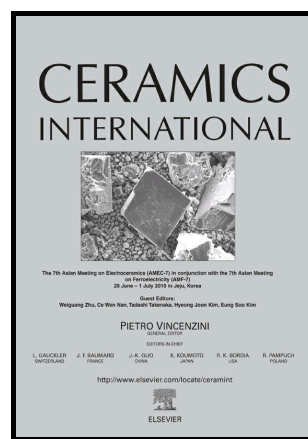


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PII: S0272-8842(17)31729-7
DOI: <http://dx.doi.org/10.1016/j.ceramint.2017.08.034>
Reference: CERI15988

To appear in: *Ceramics International*

Received date: 31 March 2017

Revised date: 31 July 2017

Accepted date: 4 August 2017

Cite this article as: Junmo Jeon, Youngjo Kang, Joo Hyun Park and Yongsug Chung, Corrosion-Erosion Behavior of MgAl_2O_4 Spinel Refractory in Contact with High MnO Slag, *Ceramics International*, <http://dx.doi.org/10.1016/j.ceramint.2017.08.034>

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Corrosion-Erosion Behavior of MgAl_2O_4 Spinel Refractory in Contact with High MnO Slag

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Abstract

The corrosion and erosion behavior of spinel refractory of different compressive strength has been investigated for refractories in contact with a high MnO slag for producing manganese ferroalloys. The finger rotating test (FRT) was adopted to evaluate the degradation behavior at 1550°C under a rotating condition of 150 rpm. The sample with higher compressive strength (Sample C1) showed higher corrosion resistance than Sample C2. In Sample C1, the refractory progressively corroded from the surface to the inner region by chemical corrosion, while mechanical erosion of the refractory suddenly occurred in Sample C2 as a result of the penetration of the slag within the refractory and the rotating energy.

Keywords: Spinel (MgAl_2O_4), Refractory, Porosity, Corrosion, Erosion

1. Introduction

Ladle refractory materials used in the steel industry often undergo corrosion when they come in contact to

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