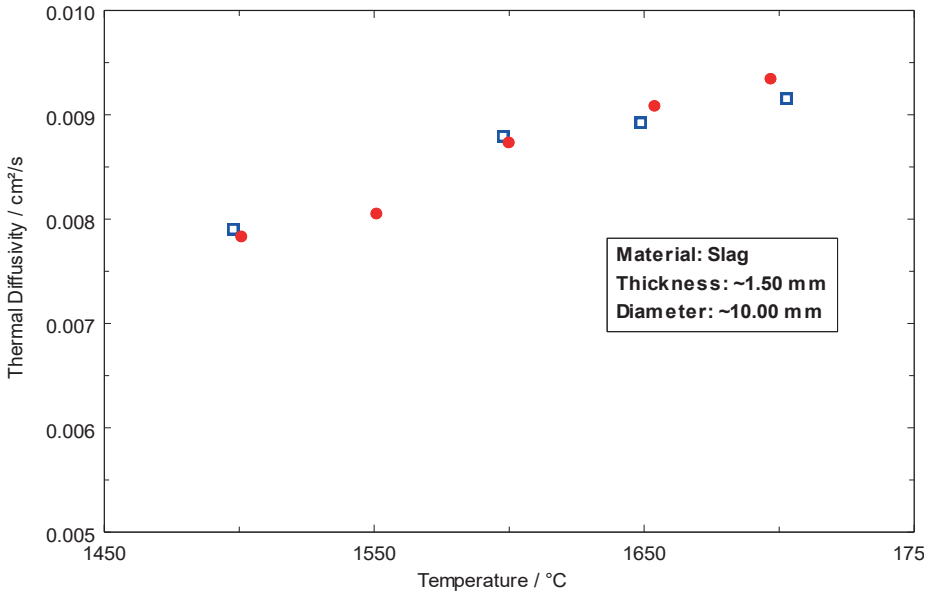
APPLICATION**SHEET**

Inorganics · Metals/Allos
LFA 427

Oxide Melts – Slags

Introduction

Slags are the by-product of ore smelting to purify metals. They can be considered to be a mixture of metal oxides, however, they can contain metal sulphides and metal atoms in the elemental form. Slags are generally used as a waste removal mechanism in metal smelting, however, they can also serve other purposes such as assisting in smelt temperature control and to minimize re-oxidation of the final bullion product before casting. In nature, the ores of metals such as iron, copper, lead, aluminum, and other metals are found in impure states, often oxidized and mixed with silicates of other metals. During smelting, when the ore is exposed to high temperatures, these impurities are separated from the molten metal and can be removed. The collection of compounds that is removed is the slag.



Test Conditions

Temperature range:	1500°C ... 1700°C
Atmosphere:	Ar at 60 ml/min
Crucible:	Slag sample holder
Sensor:	DSC type S

Test Results

The measurement was performed with a platinum-rhodium slag sample holder. Slag powder was heated to 1500°C (into the molten region of the slag). It can clearly be seen that the thermal diffusivity of the slag increases nearly linearly versus temperature. No significant difference can be seen between the heating and cooling runs. It must be pointed out that such a measurement and the corresponding analysis of the measured data requires a three-layer analysis routine. Such a routine (including finite pulse and heat loss effects) is a standard feature of the NETZSCH LFA *Proteus*® Software.

NGB · Application Sheet 127 · E · 0821 · Technical specifications are subject to change.

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