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# How to determine the cooling rate of a blast furnace slag?

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## Abstract

Granulated blast furnace slag (GBS) is calcium aluminosilicate glass and a by-product of pig iron production in the blast furnace process. In this process, iron ore is reduced to iron at operating temperatures of about 1500 °C generating a residual silicate material which floats on top of the liquid iron. GBS is obtained by tapping off the molten slag and quenching it through a water jet. The GBS process depends on production factors that vary strongly from region to region. In a first step the hyperquenching-annealing-calorimetric scanning (HAC) approach is utilized to determine thermal history-dependent changes in relevant glass properties. HAC results in fictive temperature and cooling rate data of GBS, but also information about the structural heterogeneity of the corresponding liquid at the fictive temperature is obtained.

**Keywords:** Granulated blast furnace slag, fictive temperature, hyperquenching annealing calorimetric scanning

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