

Characterization of diatomite from Sig region (West Algeria) for industrial application

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Abstract: Diatomite also known Kieselguhr, is a non-metallic mineral composed of the skeletal remains of microscopic single-celled aquatic algae called diatoms. The purpose of this paper is to test and to evaluate the diatomite of Sig region (West Algeria) to substitute the main mould powder used in continuous casting of steel for thermal insulation and lubrication. Design/methodology/approach – To assess the behavior of diatomite at different temperatures, a combination of simultaneous scanning calorimetric and thermogravimetric testing was used and to evaluate the structure of diatomite, the scanning microscopy method was applied. Findings – The results showed different endothermic and exothermic peaks, mainly at 84.7°C and 783.5°C for endothermic peaks and 894.9°C for exothermic peak. The scanning microscopy method was used and a large porosity was observed. The trial industrial in continuous casting of steel showed a weak loss temperature of steel. Originality/value – This product may be used for thermal insulation in continuous casting of steel. Also the characterization showed the hot behavior of this product with the various transformations and could give the possibility to other use.

Keywords : diatomite, fluorine, lubrication, Mould fluxes, thermal insulation