

STUDY OF THE THERMAL AND MORPHOLOGICAL PROPERTIES OF SOLID STEEL WASTE

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Abstract : Slags, by-products of the manufacture of pig iron in blast furnaces of the iron and steel industries. In recent years, the steel industry has put in place several ways of upgrading these materials, but these methods concern recent and homogeneous slags, which are still difficult to apply to ancient slags. These accumulations of non-reusable heterogeneous materials are left behind, and we must understand what impact they can have on their environment in the medium and long term. The main objective of this work is to carry out a study on the use of co-products from the El-Hadjar Annaba Algerian steel plant (blast furnace slags). This involves physico-chemical characterisation of appropriate methods, including optical microscopy, X-ray diffraction, infrared beam transformed spectrometry and thermal analysis. The diffractograms obtained on the slag samples characterise the vitreous phase and some light lines representing the crystallised compounds. Powder analysis by IR infrared spectrometry, Spectrum shows identified bands, such as Al-O, Ca-O, and Si-O bonds These results were justified by X-ray diffraction (XRD) and thermal analysis (ATG and DSC).

Keywords : Slags, characterization, Steel waste, physicochemical properties