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Mineralogy and SEM study of Reducing conditions in the Khoy cement factory clinkers, NW Iran.

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Abstract

In this research to study the mineralogical aspect of reducing conditions in the Khoy cement factory clinkers, West Azarbaijan, NW Iran, five polished sections were prepared and were studied in economic geology laboratory in the university of Tabriz, also SEM pictures from the brown core coarse clinkers were prepared in the research center of basic science in the university of Tabriz with Electron Microscope type MIRA3 FEG-SEM. The results show that large size clinkers have a brown core due to reduce oxygen and creation reducing conditions in the kiln. In This clinkers Alite phases are unstable and alteration to another phases but small size clinkers do not show any brown core also SEM pictures conform the reducing conditions in the coarse clinkers.

Key words: Mineralogy, SEM, Clinker, Khoy, Cement factory.

1. Introduction

Clinker microscopically examinations are the Practical and Fast methods for Cement Quality Control and kiln conditions that can be used in cement factory Laboratories [1]. The fundamental use of the microscope in Portland cement clinker analysis is to bring to the observer visual appreciation of phase identities, size, conditions and mutual relationships. With only a basic assemblage of equipment, microscopically analysis can be easily performed, in many cases within a few minutes [1]. The rapidity with which potentially energy saving information can be acquired clearly renders the analysis economically justifiable, especially in routine quality-control and trouble-shooting situations. In addition, the microscope has obvious value in scientific research in the manufacturing process. Study of polished sections or thin sections quickly reveals several details of crystal size, morphology, abundance and distribution leading almost intuitively to interpretations relating these data to certain features of the raw material and burning conditions [1]. The microscopical method of analysis, using polished sections or thin sections of clinker is uniquely advantageous because