

Libya
Ministry Of Education
AL-Asmarya Islamic University
Faculty of Engineering



REDUCE FUEL CONSUMPTION IN ALBURGE CEMENT PLANT

**A graduation project is submitted to the Chemical Engineering Department
in partial fulfillment of the requirements for the degree of Bachelor of
Science in**

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ABSTRACT

Cement production has been one of the most energy intensive industries in Libya. In order to produce clinker, rotary kilns are widely used in cement plants. This research deals with the energy audit analysis of a dry type rotary kiln system working in Alburge Cement Plant (ACP) in Arab Union Cement Company (AUCC). The kiln has a capacity of 4272 ton-clinker per day.

In this research the main aim of energy audits is to provide an accurate account of energy consumption and energy use analysis of different components and to reveal the detailed information needed for determining the possible opportunities for energy conservation. Waste heat recovery from hot gases and hot kiln surfaces in a kiln system are known as potential ways to improve overall kiln efficiency. However, it is still fairly difficult to find a detailed thermal analysis of rotary kiln systems in the open literature.

It was found that the simulation done on the process (software program MATLAB) showed that, the optimum fuel consumption (14917-15000 Kg/hr.) with maximum product (178 t/hr) and the minimum carbon dioxide emissions (787.2431-792.0879 KgCO₂/tclinker)

These results lead to reduce fuel consumption and protection of kiln bricks from damage. Also

It was found that about (27.52 %) of the total input energy is being lost through hot flue gas (21.13 %), Cooler stack (5.16 %) and kiln shell (1.23 %) convection plus radiation.