

A THERMODYNAMICS STUDY ON THE UTILIZATION OF JORDANIAN OIL SHALE IN THE CEMENT INDUSTRY

A. Y. AL-OTOOM*

Department of Chemical Engineering, Mutah University
P.O. Box 78, Karak 61710, Jordan

Oil shale can be utilized in manufacturing Portland cement. In addition to the utilization of the spent oil shale after combustion, it can also reduce the required temperature for clinkering reactions. A study of Jordanian oil shale was performed to maximize the use of oil shale in the cement industry. As much as 15% of Jordanian oil shale can be used with the typical cement-making raw materials without significantly altering the properties of the cement. The corresponding temperature for this ratio was found to be around 1300 °C. An optimized blending ratio of 22% oil shale, 25% kaolinite, and 53% calcite was also determined. The optimum operating temperatures for this ratio were found to be between 1300 and 1350 °C.

* Correspondent author: e-mail alotoom@mutah.edu.jo, tel. +962-3-2372380, fax +962-6-5155058