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.