

# Jordan University of Science and Technology

## The Leachability Propensity of El-Lajjun Jordanian Oil Shale Ash

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**Abstract:** This work reports the leachability of heavy metals and major anions from Jordanian spent oil shale after combustion. Oil shale samples were combusted at temperatures of 550°C, 650°C, 750°C and 850°C. Characterization of the produced solid ash was performed based on XRD analyses. Leaching tests on the ash samples were conducted for different periods of time. Experimental results indicate that the level of heavy metals such as Cd, Pb, Zn, Cu, Cr in the leachate is below the maximum levels set by the Environmental Protection Authority (EPA). For instance, the maximum level of Cd measured in the leachate solution was 0.14 ppm, which is below the EPA limit. Results also indicate that even though the level of heavy metals in all samples was below the EPA limits, yet the level of heavy metals increases as the temperature of the ashing process increases. The effect of ashing temperature on ash cation exchange capacity (CEC) and the pH of ash solution were studied and found to increase with increasing ashing temperature.