

## **CHARACTERIZATION OF OIL SHALE SEMI-COKE UTILIZING LEACHING TESTS**

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### **ABSTRACT**

During recent years several leaching tests have been developed and standardized to evaluate the leaching behaviour of wastes. The release characteristics of contaminants from the wastes are important for environmental risk assessment. In current study different leaching tests were carried out in order to characterize leachate of oil shale semi-coke. The semi-coke is formed during thermal processing of oil shale and belongs to the class of hazardous waste. The leaching behaviour of the semi-coke was studied by different leaching tests, both percolation tests as well as batch-leaching tests according to European standard methods (CEN/TS 14405, EN 12457-1, EN 12457-2, EN 12457-3 and EN 12457-4). The effect of variation in parameters, such as water to semi-coke weight ratio, contact time, number of extraction steps, etc. was investigated. The eluates were analyzed for pH, EC, chemical oxygen demand, total organic carbon,  $\text{Ca}^{2+}$ ,  $\text{SO}_4^{2-}$  and  $\text{S}^{2-}$ . Data from standardized leaching tests and experiments simulating field conditions are compared. The applicability and suitability of different leaching procedures for characterization of oil shale semi-coke are discussed. The environmental hazardousness of the semi-coke leachate is evaluated on the basis of the conducted leaching tests.