

Thermal Conductivity of Oil Shale Particles in a Packed Bed

Abstract:

A steady-state one-dimensional heat transfer method was used to measure the effective thermal conductivity of Sultani and El-Lajjun oil shale particles. The particles were packed in a cylindrical bed and heated uniformly over a temperature range of 25 to 250°C. The effect of particle sizes of < 250, 500-710, and 1000-1400 μ m on thermal conductivity was also investigated. The effective thermal conductivity of the samples was observed to decrease with increasing temperature. Moreover, the values of thermal conductivity were found to increase with increasing oil content of the shale samples. Over the tested range, particle size showed little effect on thermal conductivity.