THE CHARACTERISTICS OF OCCURRENCE AND MIGRATION OF TRACE ELEMENTS IN THE UTILIZATION OF OIL SHALES

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In this paper, modes of occurrence and migration characteristics of some heavy metals and rare earth elements during oil shale retorting were studied. The oxidation rate constants of Hg and Pb during the combustion process were obtained directly by quantitative software Khimera, which was not published in the previous work.

The content of elements with higher abundance in the crust is higher in oil shale as well. The occurrence of trace elements varies and they express organic affinity in oil shale. Rare earth elements in oil shale are present mainly in minerals. There are different removal characteristics of trace elements during oil shale retorting. Weibull function exhibits good performance in removal behavior of trace elements during oil shale retorting. The new thermal stable state of trace elements was formed at the same time as unstable state decreased during oil shale retorting. Occurrence of the rare earth elements in semicoke is the same as that in oil shale sample.