# LOW-RANK COALS FOR DISPOSAL THE SOME RADIOACTIVE ELEMENTS WASTE

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Disposal of low concentrate waste solutions of Pb210, Th230, U234, U235 , U228 in order to reach the natural equilibrium conditions is one of the important problem. Utilization of coals for ion- capturing of some radioactive waste is a well-known process. The purpose of this study is to investigate the ion-capturing characteristics of various coal samples collected from several regions in Turkey. Polished thin sections of fifty low-rank coal samples, ranging from peat to lignite were examined by polarizing microscope. In particular, four type low-rank coals were picked-up and experimented in laboratory for determine to the ion-capturing properties.

It was observed that samples containing humin, humic acid and resinite were found to be suitable for this purpose and the coals with aromatic texture yielded low ion-capture ability. Ion capture phenomenon for low-rank coals develops mainly by two ways: adsorption by ion-exchange process and formation of organometalic complex particularly with aliphatic compounds. In later, the ion capturing is thought to be realized especially by resinite and with a lesser amount by vitrinite, exinite and other related compounds.

The table below summarizes some of the important experimental results. Results indicate that the ion-capturing (meq/gr) of low-rank coals depend on their chemical compositions. Coal Brown Brown Types Peat Coal Peat LigniteArea Cayirhan Sile Alpagut DodurgaPb(meq/gr) 4.08 0.81 1.945.09Th(meq/gr) 0.69 0.86 0.89 0.88U (meq/gr)11.30 0.08 1.14 6.35