

CLAY MINERALIZATION IN HYDROTHERMALLY ALTERED TEKKE VOLCANICS (ÇUBUK, ANKARA NE)

Asuman BESBELLI*** and Baki VAROL****

ABSTRACT.- The Neogene volcanics represented by andesites, andestitic tuffs and trachy-andesites in the north-east of Ankara contain hydrothermally altered clay mineralization in places. In the alteration zones developed in the areas where the hydrothermal fluids leaking along faults and joints alter volcanic rocks, silicifications and iron oxides and sulfides are observed next to the clays minerals. As a result of alteration starting from the unaltered rocks, different zones poor in clay and silicified have been developed. In this aspect various petrographic types have been distinguished in the form of unaltered volcanic rocks, volcanic rocks poor in alteration, highly altered volcanic rock and silicified rocks. In addition, gold has been found in the samples around Gıcık. The clay minerals formed as a result of hydrothermal alteration of the Neogene volcanics have been determined as kaolinite, montmorillonite and illite, the silicate minerals as quartz and cristobalite, and ferrous compounds as pyrite, very little calcopyrite, hematite, lepidoclorite and goethite. Kaolinization has generally been observed around the Gıcık village and Ilgaz hill, smecticization around the Kurtsivrisi village, and illitization in both regions. Their zonation has been developed in the form of kaolinite, montmorillonite and illite from the inner zone which is nearest the fault, montmorillonite and illite have been formed in the more outer zone. In the fluid inclusion studies carried out, the homogenization heat of quartz has been found to be between 170 °C and 140 °C. This datum shows that the clay mineralization due to alteration within the volcanic rocks has been realized under epithermal conditions. However, the presence of gold in the environment makes us think that the hydrothermal solutions coming from the magma have also been effective in the alteration in addition to the main factor, the meteoric waters.