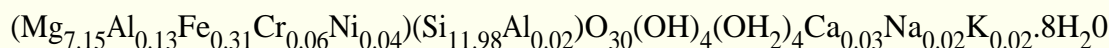

Sepiolite-Palygorskite from the Hekimhan Region (Turkey)

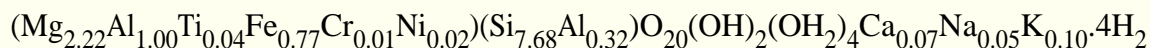
Hüseyin Yalçın and Ömer Bozkaya

Department of Geological Engineering, Cumhuriyet University, 58140 Sivas, Turkey

Abstract: Upper Cretaceous-Tertiary marine clayey-calcareous rocks of the Hekimhan basin contain fibrous clay minerals in significant amounts. Ophiolitic rocks in the provenance area have contributed the elements to form the clay minerals. XRD, SEM, major, trace and REE analyses were applied to samples taken from several stratigraphic sections. Diagenetic minerals such as smectite, dolomite, calcite, gypsum, celestite and quartz/chalcedony are associated with sepiolite-palygorskite group days. Trace and rare earth elements (REE) are more abundant in palygorskite than sepiolite. REE abundances in the sepiolite-palygorskite are characterized by negative Eu and positive Nd anomalies when normalized with respect to chondrite and shale. Sepiolites with sharp XRD peaks are formed by diagenetic replacement of dolomite and diagenetic transformation of palygorskite, or by direct crystallization from solution. The average structural formula of the sepiolite is:



Palygorskite appears to be authigenic by direct precipitation from solution. It exists in both monoclinic and orthorhombic forms with the mean structural formula given below:



Key Words: Geochemistry • Hekimhan • Mineralogy • Palygorskite • Rare Earth Elements • SEM • Sepiolite • Smectite • XRD

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