

Low-temperature smectite illitization as a biomineral process

Krinari G., Khramchenkov M.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

This paper studies the low-temperature illitization of smectite in arid basins, where fresh sediments underwent drastic changes in redox potential. We examined Upper Permian sediments from Tatarstan and the Komi Republic, as well as Lower Triassic and Upper Jurassic sediments from the Moscow syncline (the upper Volga region). The data obtained indicate that smectite illitization can involve at least two different mechanisms, one of which is related to biota activity and does not require temperature increase. The later dissolution-reprecipitation involves both smectite and secondary mica sheets, which affect both the kinetics of the reaction and the structure of its products. Copyright © 2005 by Pleiades Publishing, Inc.
