

Russian with English abstract | (The mechanism of the phlogopite - hydrophlogopite - vermiculite transformation on the basis of optical and Mossbauer spectroscopy.)

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Abstract

The determination of the structural distribution and energy state of Fe 2+ and Fe 3+ ions in phlogopites, and the products of their phase transformation in the oxidation zone of the weathering crust, has been undertaken on micas of three genetic groups. These groups are those developed in: 1) massifs of alkaline ultramafic-carbonatites (Kovdor deposit), 2) massifs associated with poly-associational complexes of ultramafic-alkaline gabbroids (Inagli deposit), and 3) massifs confined to Precambrian magnesian skarns (Emel'dzhak, Kuronakh, and other deposits of the Aldan Shield). This study has enabled the authors to recognize certain forms of these ions in the newly-formed structures and to identify crystallochemical criteria for classifying the minerals of the phlogopite - hydrophlogopite - vermiculite series. The specific features of these structures are: 1) the appearance of a form of Fe 3+ ions with parameters that suggest their ordered distribution in the form of clusters, and 2) a reduction in the crystalline field force on the preserved Fe 2+ ions. -D.A.B.
