

EVOLUTION OF METAMORPHIC-METASOMATIC FORMATIONS NEAR ORE-BEARING COMPLEXES

PETROV V. P., VOLOSHINA Z. M., KARZHAVIN V. K. Geological Institute Kola Science Centre Russian Academy of Science, Apatity, Russia.

In order to study the evolution of metamorphic processes and evaluate their thermodynamic parameters, late magmatic and superimposed metasomatic mineral assemblages were investigated near the contacts of ore-bearing metamorphic garnet-biotite-amphibole rocks of the Fedorovo-Panskiy massif. The massif is located in the central part of the Kola peninsula and contains two stratified platinum-bearing layers horizon. On the basis of a detailed research of structures of coexisting minerals parageneses, three consequent stages of crystallization and mineral formation have been distinguished. The observed natural process of transformation of rocks in time from the initial crystallization of magmatic substance up the formation of mineral assemblages is justified by the carried out theoretical research, and the thermodynamic conditions are described by appropriate chemical reactions. On the basis of comparisons of phase interrelations and the obtained calculated material, some feature of the evolution of P - T parameters are established metamorphism for the regressive. The conditions for the evaluation of the thermodynamic parameters obtained by using mineralogical geothermobarometers and by the data from the calculations serve as a basis for revealing of mineral facies of metamorphic and metasomatic processes of rocks of the investigated massif. The established orientation of metasomatism in near ore-bearing garnet-biotite rocks, reflected in P - T - t trends, a mineralogical of data modeling, testifies to local warming under corresponding rise of pressure in the natural system and a consequent drop of these parameters.