The Complex Method of Study the Typormorphism of the Chromespinellids from Kimberlites

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The aim was to discover the spinellids chemistry from different types of deep rocks (including the diamond-bearing ones). In this connection a data-base of the chromespinellids contents was designed and chemical-genetic classification of spinellids from this rocks was formulated, also from the diamond inclusions and joints within mineral fabric (about 500 analysis from the Yakutian kimberlite province, South Africa and America). On the whole, the spinellids contents are characterised by two types of isomorphic substitution:1)chrome-aluminium, 2)chrome-ferrous and titanium. Clearly segregated the spinellids from the ultramafic paragenesis of the diamond facies of depth of upper mantle,which combined the mineral analysis mostly from the inclusions in diamond, and also from mineral assemblies that includes diamonds, and from diamond-bearing peridotites. The high chromium spinellids from dunites and inclusions in olivine, garnet, and some analysis of spinellids from the deep rocks of lherzolite of paragenesis belonged here. Spinellids from lherzolites and harzburgites formed the fields of contents with high-, middle- and low chromian differences,i.e. there is a general changing of spinellids contents from ultramafic rocks in kimberlites: decreasing the chrome contents and incresing aluminium,i.e. this is the realization of the first type of iosomorphic substitution. This spinellids content alteration and pyroxenites, and the greatest variation in aluminium content is associated with spinellids from alkremites.

The second isomorphic substitution trend is pecular to the spinellids from inclusions in zircon, garnet-clinopyroxene-chromespinellids joints, cataclasite lherzolites and from the inclusions in zonal garnets. For the last was observed the mixed isomorphic substitution. Therefore two heteral trends, which have been identified in isomorphic substitution in spinellids from kimberlites, are the consequence of process of crystallization and fluid-magmatic differentation of the first mantle magmas, the products are represented by the different petrochemical series of the deep rocks.Shortly described above the chemical-genetic classification of spinellids from kimberlites is the base for the classification of this mineral from Arhangel kimberlite province.

Analyses os spinellids from Arhangel kimberlite province bodies have been divided into claster groups according the designed methodology.On basis of analytical data combined groups was examined according different types of paragenesis of spinellids from deep rocks in diathremes of the northern European Part of the X-USSR,which is represented the chemical-genetic classification of spinellids from the Arhangel kimberlite province according to which the analytical distribution are carried out,which is used by the Geological Enterprises during the loaming techniques to recover mineral samples for exploring purposes, particularly for diamond.