

SULFATE MINERALIZATION IN WEST TRANSBAIKALIA CARBONATITES

Kobylkina O. V. Geological Institute SD RAS, Ulan-Ude, Russia
Doroshkevich A. G. Geological Institute SD RAS, Ulan-Ude, Russia

Rare-earth and barium-strontium carbonatites in West Transbaikalia form subvolcanic veins, dykes (Shalutay, Oshurcovo) and effusive sheets (Khaluta, Arshan, Juzhny). Typomorphic feature of their composition is a presence of barium and strontium sulfates. Analysis of several tens of samples with using electrone microprobes (Cameca MS-46, MAP-3) have shown that besides barite and celestine in carbonatites there wide is barite0celestine both in veins and effusive bodies. It is present as phenocrysts and lens-banding separations, locating parallel to the contacts of bodies with the host rocks. Size of its monograins is up to 1-5 cm. Barite-celestine does not contain inclusions of other minerals and has distinct borders with the carbonate matrix. Only rare flakes of phlogopite are in the margins. Barite-celestine has cavities, structures of these suggests the original existance of syplectitic intergrowths of sulfate minerals with an unknown phase, which was probably leached during an autometasomatic reaction. Celestine of alkali-basic rocks comagmatic to carbonatites contains up to 5-6 % BaO and makes subgraphic intergrowths with pyroxene. Sulfur isotopic composition of this celestine is similar to one in carbonatites. Barites and celestines of the studied carbonatites contain admixtures of isostructure minals (4 % BaO and 13 % SrO). Barite-celestine has reasonable fixed composition with approximately equal amounts of celestine and barite minals. Attempt to find the intermediate compositions between the extreme members and barite-celestine and a miscibility line were not successful. We think that high concentration of barium and strontium sulfates led to liquid immiscibility into sulfate and carbonate phases. The studies have been carried out under support of RFFR (grants 98-05-65651, 99-05-64435).