Specific conditions of granites and pegmatites crystallization of Indertiskiy granitoid massif according to biotite chemical compound (Mongolian Altay)

A. A. BAEVA AND O. V. BUKHAROVA

National Research Tomsk State University, Russia (annab@ggf.tsu.ru)

The granitoids of Indertinskiy massif contains rare metal Ti-Nb-U and Be mineralization. The ore mineralization is connected with pegmatite veins. Specific elements amounts ratio in biotite indicates the change of pH conditions of mineral formation, and allows to assess the temperature of mineral crystallization. Biotite relates to annite-phlogopite rank. Distinct inverse relation of phlogopite and annite minals ammount in biotite is distinguished. An amount of Mg molecule in biotite increases at its later generations. Granites crystallization occurs along with decrease of fusion alkalinity from the first stage (biotite porphyric granites) to the second one (fine grained leucocratic two-mica granites). It is reflected on changes of Si/Al – (Mg+Fe)/Al in biotite due to SiO_2+(Fe, Mg)O – Al_2O_3 isomorphism. According to decrease of alkalies activity in mineral formation conditions the pegmatites biotites are being enriched with aluminium (Al minal 8-15 % up to 18 %). There is a tendency of biotite ferousity increase in granitoids from early to later generations. It points out the crystallization temperature decrease of later granitoids stages. The increase of phlogopite molecule amount in biotite indicates considerable growth of residual fluid-liquid alkalinity. TiO_2 value in biotites ranges widely (1,66-2,64 % in granites) and (1,79-2,72 % in pegmatites). Titanium and ferousity of biotite of granitoids and pegmatites are characterized by direct positive relation that points out inconsiderable change of the first and second stages fusion crystallization temperature along with general tendency of slight temperature decrease. Mica has relatively equal titanium values. This fact argues about partial pressure consistency in granite phases fusions and equivalence of oxygen activity indices. According to amount of Ti and Fe in biotites the depth of granitoids formation corresponds to meso-abyssal depths. Geochemical evolution of fusion is observed due to increase of Mn, Rb и F amount in granitoids of the first and second stages.

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