

HIGH-TITANIUM BIOTITE FROM GRANULITIC ROCKS – WHAT IS IT?

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High-titanium biotite is undoubtedly a typomorphic mineral of granulitic rocks (Ramberg, 1952; Snelling, 1957; Engel & Engel, 1957; Miyashiro 1958; Drugova, 1960; Wilkoslawinsky, 1960; 1965; Korikowsky, 1960; 1967; Phinney, 1960; Marakushev, 1961; Oki, 1963; Nikitina & Khiltova, 1964; Nikitina, 1965; Drugova & Glebovizky, 1965; Siroshstan, 1965; Sherbakov, 1965; Kizul, 1966; Zakrutkin, 1966; Ushakova, 1971; Duk & Baikova, 1975; Lennykh, Pankov & Petrov, 1978; Korovko, 1985). The general opinion on this question has not been shared only by scientists who supposed that Ti-content in biotite does not depend on temperature and, consequently on stage of metamorphism (Saxena, 1966). It was also mentioned that the lowest Al-content is associated with high-titanium content in biotites (Korikowsky, 1967).

Analysis of original samples and literature analytic data on trioctahedral micas has proved that high-titanium biotite is a common mineral of phenites (Bussen, 1972; Krivdik & Tkachuk, 1990), sienites (Perchuk & Pavlenko, 1967), miaskites and miaskitic pegmatites (Ronenson & Levin, 1974; Kaumov, 1971), carbonatites (Eskova, 1964; Belkovsky & Loktina, 1998), ditroites (Tichonenkova, Nechaeva & Osokin, 1971), shoshonites of island arcs (Zvetkov, 1982). These data indicate that high-titanium biotite is not a unique feature of granulitic rocks. High-titanium biotite is a common mineral of phenitised gabbroides and granites (Zimin & Starkov, 1971; Panov, 1979; Belkovsky & Loktina, 1997; Borodina, 1987) as well as alkaline metasomatites formed on ultramafic rocks (Polkanov, Eliseev & Eliseev, 1967; Avakyn, 1992).

Refernces:

- Korikowsky, S.(1967). Metamorphism, granitisation and postmagmatic processes in Precambrian of the Udocan-Stanovoy zone. Moscow.
Miyashiro, A (1958). J.Fac. Sci. Univ. Tokyo, 11, 2.
Ramberg, H (1952). J. Geol, 60, 4.
Saxena, S.K. (1966). Neues Jahrb. Min. Abhandl. 105,1.