

Structure and Composition Properties of Mica from Ilmen Reserve Granite Pegmatites

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Micas, picked up A) along the edges and B) from the center of five granite pegmatites were studied from Ilmen reserve (Ural, Russia), using the optical, X-ray, microprobe (SEM and TEM) and electron diffraction methods.

The 2V measurements showed two different types of mica: A) with homogeny 2V distribution on all area of one crystal B) heterogeneous 2V distribution, witch is also showed by X-ray and microprobing analyses. Somme fluctuations in Ng' and Nm' significance are caused by heightened content of F, Fe and Li. слюды 2M₁, 1M, 3T and M_d polytypes were detected by X-ray powder diffraction. For all that optical homogeneity of micas were 2M₁ polytype, while the heterogeneous micas with intermediate *a* and *b* sense between di- and trioctahedral structures are presented in 1M and 3T polytypes. Fe-micas were an Md modification. Diagnostic and division of 1M and 3T modification in powder samples were made on intensity and position of 111 and 021 peaks.

Crystal formula was calculated on bulk chemical composition, SEM and TEM analyses, taking into account X-ray and optical data. Blocks with different composition possess so hard as smooth edges in one crystal, were detected for heterogeneous samples using the TEM and electron diffraction data. Interesting is, that two neighbor area have different ultimate mineral members. This complex of analyses allows the dioctahedral mica with heightened Fe content carry on muscovite and celadonite, trioctahedral mica – on flogopyte and annite and the Li-Fe mica on trilitonite.

As a result the homogenous 2M₁ mica with utmost di- or trioktahedral composition on board and heterogeneous 1M and 3T polytypes with heightened content Li, F and Fe on center of pegmatites were exposed.

Prescribed especialites of homogeny and heterogeneous structure and composition in mica can be used as typomorphic indicators of granite pegmatites crystallization conditions.

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