

Behavior alterations of structure admixtures in quartzes of different genesis

RAKOV L. T., VIMS, Moscow, Russia.

Composition and concentrations of structure defects in quartzes are significantly determined by conditions of mineral formation. These conditions are registered by ESR method. The results of high admixture (sum of elements of an impurity > 70 ppm) quartzes research are as follows:

1. The correlation of concentration of Ti centers with H^+ and Li^+ ion-compensators depends on the content of protons in the fluid. The most high concentrations of them are in quartzes formed in closed systems and big depth conditions. The opened systems quickly lose H^+ , therefore quartz formed there has low concentrations of Ti – H centers.

2. T-centers are localized exclusively in micro-areas of quartz β -phase. The study of their concentration distribution allows to determine the most high temperature formations between quartzes.

3. The general imperfection of quartz structure is defined by the concentration of paramagnet Ge(III)-centers activated by annealing and connected with "isomorphic Ge ion – oxygen vacancy" complexes. Their quantity relations allow to compare quartzes depending on their imperfection and to specify the formational accessories of mineral genesis.

The concentration distribution of paramagnetic centers in low admixture quartzes are submitted to other regularities. They change significantly by secondary processes collisions (chemical aeolation, mechanical destruction). It was found out that natural diffusion of isomorphic admixtures (especially Al and Ti) with sharp proton content change can occur in this case.