Surface properties of titanium minerals

A. PONARYADOV[1]* AND O. KOTOVA[1]

[1]Institute of Geology Komi SC UB RAS, Syktyvkar
(*correspondence: alex401@rambler.ru)

Mineral and technological features of titanium minerals from placers (Russia, the Komi Republic, Pizhemskoe deposit) show prospects of physical methods of enrichment, including, magnetic separation.

The magnetic susceptibility of minerals was studied. It is shown that magnetic properties depend on structure of surface hydroxyl cover of titanium minerals. Bulk magnetic properties of fine oxide mineral systems differ from surface and have complex correlation of interrelation. Thus, with increase in number of the adsorbed molecules of a gas phase (donor and the acceptor molecules) the value of a magnetic susceptibility tends to decrease.

New experimental data of a magnetic susceptibility of titanium minerals and methods of their modification are obtained. It is shown that dehydroxylation of minerals influence on adsorbophysical characteristics. Thus there is a redistribution of quarts, leucoxene and rutile in magnetic and not magnetic fractions.

The work was done under financial support of UB RAS (projects № 12-T-5-1022 and 14-5-IP-52).