# FRACTIONATION OF POTASSIUM, CHLORINE , RUBIDIUM AND CESIUM BETVEEN PHASES OF FLUID-MAGMATIC SYSTEM

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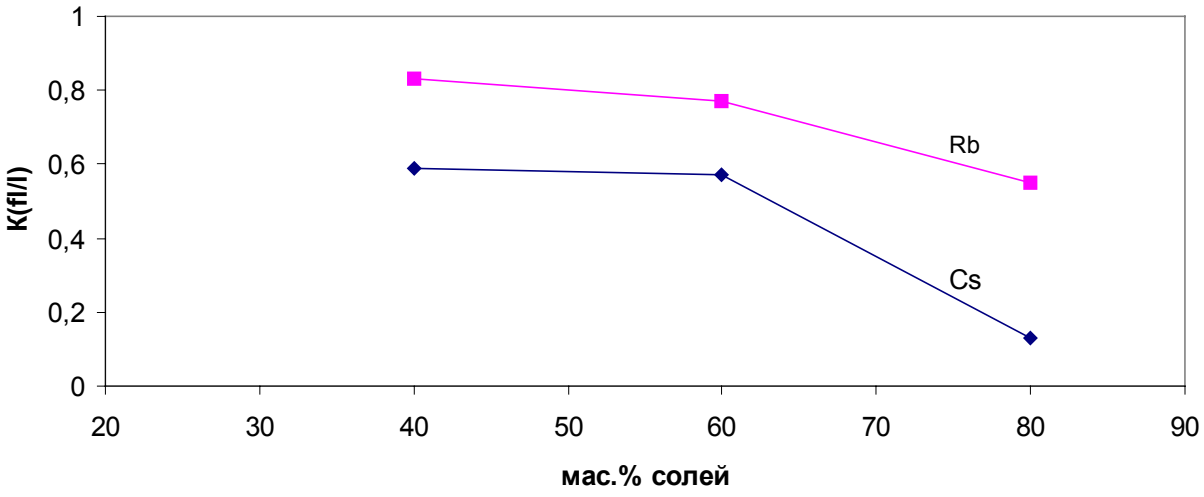
The behavior of traces of elements that reflect processes of forming and development of granite magma can be quantity) analyzed if their distribution between different coexisting phases (crystalline silicates, silicate melts and hydrothermal liquids) is known. One of the approaches uses bulk partition coefficients, obtained from analysis of natural rock samples. Another approach is based on investigation of simplified model systems. Elements selected by us, are typical objects of granites investigations. Complex analysis of Cl, K, Rb, Cs fractionation between aqua-salt fluid and haplogranite alumosilicate melt is based on experimental data obtained at parameters of acid magmatism. For understanding of fractionation rules for Rb and Cs between alumosilicate melts and aqueous NaCl, KCl solutions we made special runs at constant Na/K ratio but different bulk content of this components in the system. Homogeneous synthetic gels and solutions RbCl or CsCl concentration 4 – 7 mass. % were used. So, K, Cl, Rb and Cs partitioning is obtained for wide composition intervals at 800°C and 2 kbar. Chemical analysis of glasses was made by a help of CAMEBAX MICROBEAM with four crystall-diffraction spectrometers. Firstly Cl, Na, K, Si and Al content was determined by K-lines at 10 kV and 30 nA. For Si, Al and Na albite standard was used for Cl – chlorapatite, for K – ortoklase(?). Secondly, Rb (K-line) and Cs (L-line) at 30 kV were determined with synthetic $RbPr(PO_3)_4$ and pollucite as a standards correspondingly. Composition of solutions was analyzed by ICP.All the data are summarized in the Table.

**Table**

| Cl bulk.% | Melt composition | | | Solution composition | | | | $K_K^{fl/l}$ | $K_{Rb}$ | $K_{Cs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | $X_K^{fl}$ | $X_{Rb}^{fl}$ | $X_{Cs}^{fl}$ | $X_K^{l}$ | $X_{Rb}^{l}$ | $X_{Cl}^{s}$ | Cl, .% | | | |
| 80 | 0.41 | - | - | 0.66 | - | - | 0.40 | 0.62 | - | - |
| 60 | 0 .45 | 0,010 | - | 0,65 | 0.013 | - | 0.18 | 0.69 | 0.8 | - |
| 40 | 0.41 | 0,00.8 | - | 0,61 | 0.090 | - | 0.24 | 0.68 | 0.85 | - |
| 80 | 0.39 | 0.011 | - | 0.68 | 0,020 | - | 0.30 | 0.59 | 0.69 | - |
| 80 | 0.14 | - | - | 0.30 | - | - | 0.32 | 0.30 | - | - |
| 80 | 0.40 | - | 0.03 | 0,77 | - | 0,23 | 0.76 | 0.52 | - | - |
| 60 | 0.37 | - | 0.10 | 0,58 | - | 0,17 | 0.31 | 0.64 | - | 0.58 |
| 40 | 40 | - | 0.16 | 0,59 | - | 0.28 | 0.26 | 0.56 | - | 0.57 |

Rb and Cs show mainly "magmafilic" behaviour, but partition coefficients values (Rb= 0,7-0,8; Cs =0,4-0,6) reflect remarkable content of them in fluid. Fig. shows that partition coefficients for Rb and Cs do not depend so much from bulk salinity of fluid up to 60 mass. %, at more high salt

concentrations Cs concentrates in a melt more actively than Rb. Necessary to take into account that this conclusions can be applied directly to investigated systems only.

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