THE B – C DIAGRAM OF TERNARY (NA,K,RB)- FELDSPAR SOLID SOLUTIONS

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10 samples of order and disorder (K,Rb)- feldspar solid solutions were synthesized by the methods of hydrothermal recrystallization of gel mixtures at T=650–700°C and P=1–5.3 kbar and cation-exchange of natural feldspars with molten salts (KCl, RbCl) in the quartz containers (T=850°C). The unit cell parameters were refined for members of both triclinic (Rb-microcline) and monoclinic (Rb-sanidine) series. The concentration correlations of the unit cell parameters for disorder series of feldspars are close to linear. The dependences of compositions of disorder (K,Rb)- feldspars on the unit cell parameters are also determined.

Smith [1] proposed the diagram in coordinates of the unit cell parameters *b* and *c* for determination of degree of ordering of binary (Na,K)- feldspar solid solutions. In the present work the similar diagram sets up for ternary (Na,K,Rb)- feldspar solid solutions (fig. 1).

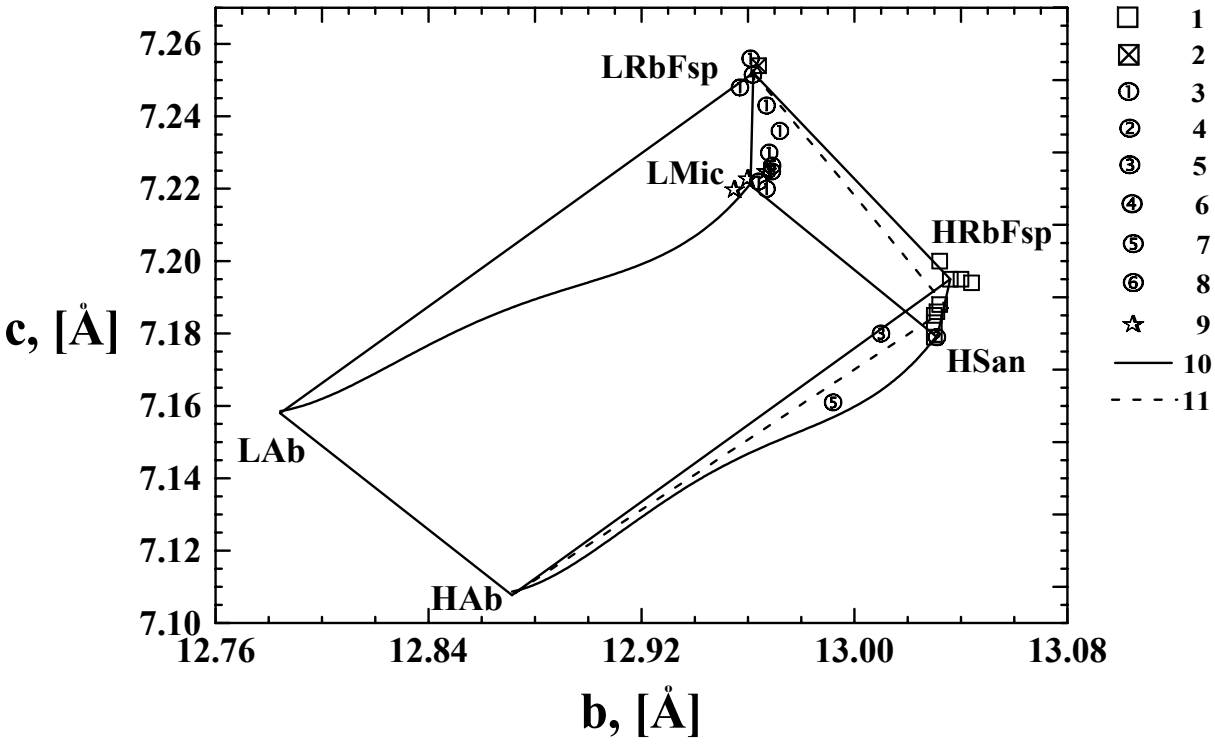

Fig. 1. The unit cell parameters *b* - *c* diagram of the of ternary (Na,K,Rb)- feldspar solid solutions. The diagram represents data of: 1, 2- present work on synthetic feldspars (1- Rb- containing sanidine, 2- Rb-containing microcline); 3- McMillan et al. [2]; 4- Kroll et al. [3]; 5- Teertstra et al. [4]; 6- Pentinghaus & Henderson [5]; 7- Gasperin [6]; 8- Černy et al. [7]; 9- Kotelnikova et. al. [8].
The limits of diagram in the field of the Rb- sanidine are plotted up on the data of: 10- the present work; 11- Voncken et al. [9].

The diagram is based on data of the unit cell parameters of synthetic order and disorder pure sodium and potassium feldspars [3], synthetic Rb-microcline [5], Rb-sanidine, synthesized by the method of hydrothermal recrystallization of gel mixture in the present research. The compositional dependences of the unit cell parameters *b* and *c* of the order and disorder sodium and potassium feldspars [3] describes by the third degree polinoms. The concentration correlations of the unit cell parameters *b* and *c* for order [2] and disorder (K,Rb)- feldspar solid solutions (results of the present work) are linear. The compositional dependences of *b* - *c* parameters for the other solid solutions in absence of the corresponding data were accepted linear. The unit cell parameters data of synthetic and

natural Rb- containing alkaline feldspars on data of the different authors are plotted on the diagram. The data on Rb- containing analogue of a microcline received in the present research are close to results of [2]. The unit cell parameters of sanidine, synthesized in the present research are well coincide with data of [3]. The parameters of synthetic Rb- sanidine, resulted in work [6] are represented not rather correct. It can be bound up with the fact, that the author synthesized samples by the method of hydrothermal recrystallization and, probably has received the mixtures of feldspar and leucite in products of experiments. The data of [7] on the parameters of natural Rb- containing microclines from Red Cross Lake pegmatite (Manitoba, Canada) are coordinated with the results of [2] for synthetic samples and with data of the present work on natural Rb- containing microclines from massif Orlovskiy (Zabaykalye, Russia) [8]. The natural Rb- containing microcline (rubicline) from San Piero in Campo (Elba, Italy) [4] by the unit cell parameters gets in area of disorder (Na,K,Rb)-feldspars.

The special computer program was created for determination of an ordering degree of synthetic and natural Rb- containing alkaline feldspars on data of their composition and the unit cell parameters.

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