*European Current Research on Fluid Inclusions (ECROFI-XXI)*
*Montanuniversität Leoben, Austria, 9–11 August, 2011. Abstracts, p.* 120

# Phase state of NaF-containing fluid from synthetic fluid inclusions at 700ºC and 100–300 MPa

Kotelnikov, Alexey* and Kotelnikova, Zoya**

*Institute of Geology of ore deposits, Mineralogy, Petrology and Geochemistry of RAS. Staromonetny, 35.Moscow. Russia.
**Institute of Experimental Mineralogy of RAS. Chernogolovka, Institute av., 4. Russia

Fluid inclusions in quartz were synthesized by the method of crack healing at temperature 700ºC and pressures 100, 200 and 300 MPa from 0.5M solutions, containing sodium fluoride. Fluid inclusions study result in fluid was heterogeneous at run conditions.

*Experiments at a pressure of 100 MPa*
Two- and three-phases inclusions runs.Two forms of under heating of multiphase inclusions observed: 1 no changes take place in inclusions under cooling to −90ºC and heating up to 450ºC inclusions were frozen at −90ºC. The precise measur of temperatur and melting failed over similarity of the coefficients of the rejection. At 170–180ºC the of crystals precipitated from solution, but subsequent heating up to 210–220ºC result in its partial re-solution. Precipitated crystals disappeared at 350ºC. t 170–350ºC the salt solubility is lower tha at room temperature. At temperature 250ºC the liquid separation on two phases in the presence of vapor and solid occurred in the inclusions. ew liquid appeared around vapor bubble and was absorbed at 387–389ºC.L+V inclusions show two different way of phase transformation under heating liquid separationtemperatures were −0.2 −2.1ºC; homogenization in L and V at 386−394ºC.
*Experiments at a pressure of 200 MPa.*L+V inclusions er run. Temperatures of the homogenization with critical phenomena were 354–361ºC, −1.9 o −2.3ºC. un conditions correspond to vicinity of critical point

*Experiments at a pressure of 300 MPa.*V+L and V+Gl (glasslike phase) re observed after run. V+L inclusions homogenize at 348–372ºC. V+Gl inclusions show two different style of phase transformation: 1 At 350ºC the liquid separation on two phases in the presence of vapor occur in the inclusions. New liquid appeared around vapor bubble, partial homogenization in L take place at 365–373 C 2 in under heating (Fig. 1). Bubbles coalesc and at approximately at 350ºC the liquid immiscibility . Vapor dissolved at 385–389ºC and then inclusions .

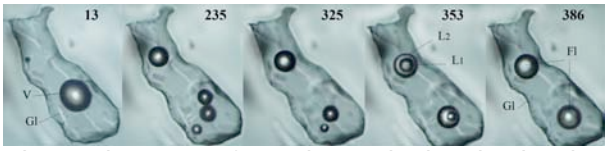

*Fig. 1. Phase transformation under heating in Gl+V inclusion, synthesized at 700ºC and 300MPa.*

bservations Such compositions are known. For example,

The significant peculiarity of studied system is re-immiscibility of the liquid, entrapped in higher heterogeneous area. Then heterogenization may take place in two (or more for multicomponent systems) stages at large scale of *TP*-parameters. The immiscibility is mode of matter re-distribution between immiscible phases. multistage of is important the enrich or deplet the fluid phase

The separation of the liquid in the presence of vapor and solid are described for natural inclusions too [1, 2].

*This study was financially supported by the RFBR*

**REFERENCES**

Kaluzsnyi V.A. (1956) Mineralog. Sbornik LvovUniversity (in Russian). N10: 77–80.
Ahmad S.N., Rose A.W. (1980). 75:229-250