

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

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Fluid inclusions in quartz were synthesized by the method of crack healing at temperature 700°C 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 -90°C and heating up to 450°C inclusions were frozen at -90°C. The precise measur of temperatur and melting failed over similarity of the coefficients of the rejection. At 170–180°C the of crystals precipitated from solution, but subsequent heating up to 210–220°C result in its partial re-resolution. Precipitated crystals disappeared at 350°C. t 170–350°C the salt solubility is lower tha at room temperature. At temperature 250°C 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 387–389°C. L+V inclusions show two different way of phase transformation under heating liquid separation temperatures were -0.2 -2.1°C; homogenization in L and V at 386–394°C.

Experiments at a pressure of 200 MPa. L+V inclusions er run. Temperatures of the homogenization with critical phenomena were 354–361°C, -1.9 o -2.3°C. un conditions correspond to vicinity of critical point

Experiments at a pressure of 300 MPa. V+L and V+GI (glasslike phase) re observed after run. V+L inclusions homogenize at 348–372°C. V+GI inclusions show two different style of phase transformation: 1 At 350°C 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 350°C the liquid immiscibility . Vapor dissolved at 385–389°C and then inclusions .

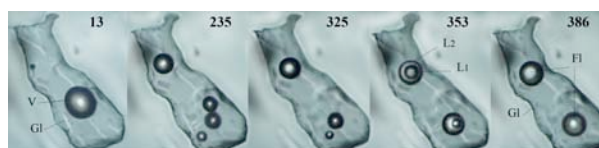


Fig. 1. Phase transformation under heating in GI+V inclusion, synthesized at 700°C and 300MPa.

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].

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