

## **Fluids injection: the mechanism of plagioporphry's origin in Wuan, China**

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Rheological experiments show that crystal riched magma will remain stable when the amount of crystals is up to 50 vol. % in the magma. However, crystal riched igneous rocks can be founded in the world. Why can these crystals riched magma move? There are two models : (1) thermal remobilizing mechanism ; and (2) fluids injection remobilizing mechanism. Plagioporphry, which was founded recently in Tanling, presents a new laboratory for the study on remobilizing mechanism of frozen chambers.

Plagioporphry is located in the Tanling village, 15 km northwest of Wuan city. Plagioporphry occur as veins. The amount of plagioclase phenocrysts is up to 70 vol. % in the Plagioporphry. The size of phenocryst is 3.1 in length, and 1.7mm in width. The plagioclase phenocryst occur zonal textures. The content of plagioclase phenocryst is  $An_{27}Ab_{71}Or_2$  in central part,  $An_{13}Ab_{83}Or_4$  in the middle, and  $Ab_{53-99}Or_{1-47}$ ,  $Ab_{3-48}Or_{52-97}$  in the rim as a perthite. There are no absorbed phenomena in the plagioclase phenocryst. There are 5 vol. % vesicles in plagioclase phenocryst.

The minerals in matrix consist of winchite, potassium feldspar, albite, magnetite, hematite, ilmenite, apatite, sphene, and zircon. The LA-ICP-MS trace element analysis reveals that the perthite rim of plagioclase phenocryst has weak positive Eu anomaly, much riched in K, Rb, Ba, Sr and poored in Th, Nb and Zr. Matrix minerals reveals that most of them are riched in LILE, and depleted in HFSE.

By calculating we infer that the depth of matrix amphibole formation is 1.29km-0.93km, and the temperature is 660.4 °C - 598.5 °C. However, the depth of plagioclase phenocryst formation is 6.0-6.7km, and the temperature is 817.7-819.8 °C. The processes of poly-phenocryst plagioporphry's origin may be described as follows: (a) plagioclase accumulation formed in the deep magma chamber with the depth of 6 km-7 km; (b) a melt-fluid flow riched in Fe, K, P, Si, Na, etc entered into the deep frozen magma chamber and remobilized it; (c) due to the overpressure of fluids, the melt-fluid carrying a large number of plagioclase phenocrysts intruded in shallow part of the crust (0.9 km-1.2 km) as small stocks and dykes. The plagioporphry may provide a useful clue for deep iron prospecting.