

P-T constraints on high-pressure granulites from southern Brazilian Belt: Ti-quartz and Zr-in-Rutile thermometry

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HP and UHP rocks are important tools to understand Earth Dynamics. However, assessing peak metamorphism and *P-T* history of such rocks is not an easy task. Pelitic HP-granulites have the assemblage Grt+Ky+KFs±Rt and the lack of Opx/Cpx has led to misclassification of some of these rocks as amphibolite facies. One major problem in determining peak *P-T* conditions is the diffusion, during cooling, of elements that are important for exchange thermometers. Although net transfer barometers are less affected by cooling, pelitic granulites have low concentration of Na and Ca and important minerals for barometric calculations are not formed (Plag, Cpx, Opx). It is the case of the studied rocks, a set of Pelitic HP-granulites that derive from a Neoproterozoic nappe system (Passos Nappe) related to the formation of Gondwana (Brasilia Orogen). Ti-in-quartz and Zr-in-Rutile thermometry was used to determine peak *P-T* conditions, since they are less prone to resetting. Analyses were carried out by EPMA at the São Paulo State University using a JEOL8230. Ti content in Qtz show a smaller spread when compared to Zr in rutile. Rt grains that have small Zrn inclusions and record lower Zr contents are responsible for the dispersion of the data. Highest Zr contents are interpreted to represent peak conditions. The interception of both thermometers on a *P-T* space indicates conditions of 850 to 870 °C and 1.4 to 1.8 GPa for the studied rocks.