

## **Fluid and melt inclusions study from Jacupiranga carbonatite**

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This research includes the opportunity to study fluid and melt inclusions in Jacupiranga carbonatite rocks (Brazil) to better understand carbonatite formation. Fourteen carbonatite rock samples have been collected from Jacupiranga. Examining the hand specimens under binocular microscope and describing the thin sections under polarization microscope gave preliminary results. The studied carbonatite rocks are consisting of carbonates, magnetite, apatite, clinopyroxene, perovskite, phlogopite, melilite, olivine and sulfates. The petrography of the rocks confirmed the presence of fluid and melt inclusions hosted in apatite, magnetite, phlogopite and clinopyroxene. The melt and fluid inclusions are neighbouring, randomly distributed within the crystals from core to rim, sometimes concentrated along zoning patterns of the host. Therefore, we identified them to be primary. The size of fluid inclusions ranges between 1 and 25  $\mu\text{m}$ , while the melt inclusions have sizes between 10 and 100  $\mu\text{m}$ . Based on microscopy, melt inclusions contain several solid phases and a fluid phase. Most solid phases are likely daughter minerals however, accidentally entrapped minerals also occur in the melt inclusions. Fluid inclusions also contain daughter minerals together with liquid and vapor phases at room temperature. Rock-forming phases occur as mineral inclusions in numerous rock-forming mineral grains. The poikilitic texture of carbonates in magnetite, phlogopite and apatite and, vice versa suggest the magmatic origin of all the minerals in the general assemblage of rocks studied. This is an ongoing research to study fluid and melt inclusions in the carbonatite rocks of Jacupiranga, which preliminarily shows promising opportunities for understanding the petrogenesis of these rocks.