# PETROGRAPHIC STUDY ON MAGNETITE CARBONATITE FROM JACUPIRANGA, BRASIL

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Carbonatite and associated silicate rocks occur in more than 520 localities in the Earth (WOOLEY & KJARSGAARD, 2008). One of significance of these igneous rocks is that they usually associated with mineral resources of rare earth + Y (REY) and some high field strength elements (e.g. Nb, Ta, Zr) (MORBIDELLI *et al*., 1995). Our main aim is to give a detailed petrographic observation on the magnetite carbonatite, collected in Jacupiranga (Brazil), in order to have solid base for further petrogenetic study.

Optical microscopy, scanning electron microscopy and Raman microanalyses were carried out on the studied samples. The rock shows cumulate texture and consists mainly of calcite, dolomite and Ba-zoned phlogopite with abundant inclusions. Accessories are strontianite, celestine, apatite, forsterite, barite, chlorite, baddeleyite, geikielite, pyrophanite, uranpyrochlore, carbocernaite, vigezzite, ancylite, Mg-Al-hydrocarbonate, sphalerite and galena. It is characteristic for the sample that inclusions are containing fluid bubble and solid phases like carbocernaite, Na-Ca-carbonate and REE carbonate.

The rock-forming carbonates occur as complex intergrowth of calcite-dolomite, strontianite-calcite and strontianite-dolomite. The latter one is rather characteristic in the magnetite-hosted dolomite inclusions. Two textural variations of calcite-dolomite intergrowth can be distinguished. One is seen as large (10–50 μm) exsolution lamellae of dolomite occurring according to crystal direction of calcite or vice verse (Fig. 1). The other can be observed small (1–5 μm) and randomly distributed dolomite patches appearing in calcite and vice versa. Strontianite crystals are randomly associated to these lamellae.

On the basis of known phase diagrams, the intergrowth texture of the different carbonates (calcite, dolomite and strontianite) may be resulted in a high-T (T > 700°C) subsolidus exsolution happened in an originally Sr- and Mg-bearing calcite. In a comparison with other studies, the rock seems to be crystallized from a carbonate melt that is richer in MgO than carbonate magma from other localities.

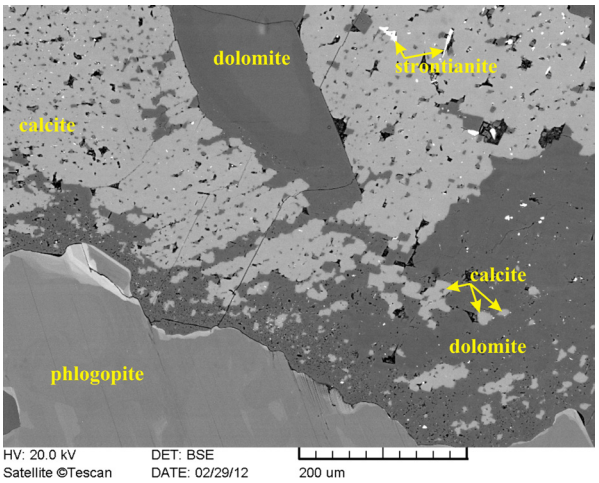


***Fig. 1.*** *The picture shows exsolution lamellae of dolomite occurring according to crystal direction of calcite and vice versa.*

## References

MORBIDELLI, L., GOMES, C.B., BECCALUVA, L., BROTZU, P., CONTE, A.M., RUBERTI, E. & TRAVERSA, G. (1995): Earth Science Reviews, 39: 135–168.

WOOLEY, A.R. & KJARSGAARD, B.A. (2008): Open file 5796, 1 CD-ROM, 1 map.