

## **HYDROTHERMAL HORIZONTAL LAYERED ROCKS WITH MONAZITE AND APATITE MINERALIZATIONS IN CATALÃO I COMPLEX, BRAZIL.**

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The Catalão I Complex is composed of phlogopitites, carbonatites, pyroxenites, and phoscorites. K/Ar studies indicate an intrusive age of 82,9 m.y. The Complex hosts important apatite and niobium economic deposits associated with large monazite and anatase mineralizations. A monazite mineralization associated with hydrothermal horizontal layered rocks occurs at the central part of intrusion within the open pit of the apatite mine. This monazite mineralization comprises an area of ca. 1Km<sup>2</sup> and 30 meters of thickness. The lower and upper contacts show a karstic like pattern. Commonly, gradual contacts show dissolution features of the host carbonatite forming framework textures. The hydrothermal layered rocks comprise: apatite and secondary ilmenite as main constituents of the lower layers; monazite, ilmenite, quartz, and apatite in the middle layers and ilmenite, quartz, and clay in the upper layers. The monazite layers can reach up to 30 cm thick. A swarm of vertical late veining, composed of monazite, crosscut the layered rocks and the host carbonatitic wall rocks. Another late penetrating fluid percolated the layered rocks and caused brecciation of earlier layered deposits. During the process of ascent the hydrothermal fluids formed semi-circular conduits, about 1 meter in diameter, filled by breccia composed of fragments from the wall rocks. The layer of apatite, monazite, and ilmenite precipitated from the REE-rich hydrothermal fluid contaminated by the host carbonatitic wall rocks.