

MINERAL CHEMISTRY OF MAGMATIC AND HYDROTHERMAL CASSITERITES FROM PITINGA, AMAZONIAN CRATON, BRAZIL

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Mineral chemistry of magmatic and hydrothermal cassiterites from Pitinga, Amazonian craton, Brazil BORGES, R.M.K., COSTI, H.T., DALL'AGNOL, R. Centro de Geociências, Universidade Federal do Pará, Belém, Brazil Primary cassiterite deposits occur associated to Paleo-Proterozoic anorogenic rapakivi granites in the Pitinga mine as disseminated mineralization in albite granite and greisens, as well as cavities infilling in episyenites. The albite granite of the Madeira pluton consists of a magmatic peralkaline core facies and a metasomatic peraluminous border facies. In the core facies the cassiterite occurs as reddish-brown to colorless zoned euhedral crystals, while in the border facies it is anhedral and displays dark brown colour. Topaz-siderophyllite greisen, chlorite-phengite greisen, sodic and potassic episyenites associated with the Água Boa pluton show reddish to colorless irregularly zoned subeuhedral to anhedral crystals of cassiterite. The cassiterites of the core and border facies have similar chemical compositions and differ of those of greisen and epysienites. The latter shows lower Nb₂O₅, Ta₂O₅, FeO and Y₂O₃, and higher TiO₂ contents than the magmatic ones. The lighter rim of the core facies cassiterites are Nb and Fe poorer than its center, probably because the simultaneous crystallization of pyrochlore-group minerals reduced the Nb availability in the liquid. The higher Nb contents recorded in some border facies cassiterites may result from the breakdown of pyrochlore-group minerals during the metasomatic stage. In hydrothermal cassiterites, the reddish zones are Ti and Fe richer than the colorless ones. The compositional zoning is probably related to the Nb-anatase precipitation, which lowered Ti concentration in the fluids.