Pyrochlore Varieties from the Catalão-I Carbonatite Complex, Brazil

[1]FAVA, N. and [1]GASPAR, J.C. [1]Instituto de Geociências, Universidade de Brasília, 70910-900, Brasília, DF, Brazil.

There are three main pyrochlore varieties in the Catalão-I Complex. The fresh pyrochlore, kopite (60,2 wt. % Nb_2O_5; 15,2 wt. % CaO; 5,8 wt. % Na_2O; 4,85 wt. % TiO_2; 3,47 wt. %ThO_2; 3.05 wt. % Ce_2O_3), is a enriched phase, found mostly in fresh rocks The niobium mine owned by Mineração Catalão de Goiás Ltda., an Anglo American Group Company, is composed of weathered carbonatitic rocks. Besides pyrochlore other minerals observed are: apatite, monazite, baddeleyite, barite, magnetite (with and without intergrown ilmenite), secondary phosphate phases, Fe and Nb oxi-hidroxide, and paracrystaline material. The main Nb phase in the weathered mantle is pandaite (48.2 wt. % Nb_2O_5; 9.53 wt. % CaO; 6.65 wt. % BaO; 4,62 wt. % TiO_2; 2.06 wt. % Na_2O; 1.88 wt. %ThO_2; 3.0 wt. % Ce_2O_3). Subordinated to this phase is the Pb-pyrochlore (56.76 wt. % Nb_2O_5; 10.87 wt. % CaO; 5.7 wt. % TiO_2; 5.2 wt. % PbO; 5.2 wt. % Ce_2O_3, 3.0 wt. % BaO; 2.37 wt. % Na_2O; 2.46 wt. % ThO_2;.) which grains are smalest than the pandaite ones All pyrochlore minerals are zoned. Data obtained untill now suggest that kopite is magmatic, while pandaite and Pb-pyrochlores are hydrothermal phases.