

Petrology of the Alto Maranhão tonalite-granodiorite-trondhjemitic Batholith and the intruded meta-komatiites, south of Quadrilátero Ferrífero Greenstone Belt, Minas Gerais, Brazil.

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The northern margin of the Paleoproterozoic Alto Maranhão Batholith is a complex composite granitoid association. It includes a series of highly mingled basic to intermediate mafic microgranular enclaves and synplutonic dykes scattered in the predominantly tonalitic-granodioritic host, both submitted to a magmatic to high temperature solid state deformations. The granitoid paragenesis is : Mg-hornblende, biotite, oligoclase and quartz and minor alkali feldspar, ilmenite, titanite, epidote, allanite, zircon and apatite. The mingled injected material has the same paragenesis but in different proportions. Trondhjemitic dykes and plutons are related to the final differentiation mechanisms of the batholith. The Congonhas pluton, one of these, is distinctly more leucocratic and devoid of amphibole.

The Archean meta-komatiitic country rocks exposed around the Congonhas pluton and more to the southeast at Alto da Varginha testifies two distinct processes of hydrothermal alteration. At Congonhas serpentinites (meta-accumulate) and talc-carbonate rocks (meta-flow and breccia) shows a chromite+Fe-Ni-Co sulphide+dolomite assemblage typical of submarine volcanogenic environment. At Alto da Varginha, Cr-bearing chlorite and magnetite+calcite+rare earth-(Nd) phases co-existing in meta-cumulate and pseudo-spinifex textured rocks suggest to a supragenetic environment.