

Geology of the Alemão Copper-Gold Deposit

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The Alemão Copper-Gold Deposit, located at Carajás Mineral Province, was found in 1996 by DOCEGEO using geophysical and geological modeling based on Olympic Dam type mineralization.

The Alemão orebody is related to the Grota do Vizinho Formation (Igarapé Bahia Group) divided in two lithological and stratigraphic domains: a lower metavolcanic unit composed of tuffs and volcanoclastics of acid to intermediate composition and an upper metasedimentary unit characterized by clastic-chemical sediments and some pyroclastic rocks.

The Alemão ore body is covered by 250 m thick siliciclastic unit referred as Águas Claras Formation. The orebody, 500 m in length and 50 to 200 m wide, strikes to NE-SW dipping vertically to NW, being located along the contact between the two stratigraphic domains.

In the ore zone the hydrothermal paragenesis is formed by ferric minerals (magnetite-hematite), sulfides (chalcopyrite, pyrite), chlorite, carbonate (siderite calcite, ankerite), biotite with minor quartz, tourmaline, fluorite, apatite, uraninite, gold and silver. Sericite and albite are rare.

The mineralization is represented by hydrothermal breccias and "hydrothermalites" classified into two types: the BMS type is composed by massive bands of magnetite and chalcopyrite and by polymitic breccias with a matrix composed of magnetite, chalcopyrite, siderite, chlorite, biotite and amphiboles; the BCLS type breccia is composed by brecciated hydrothermalized volcanic rocks with chalcopyrite, bornite, pyrite, chlorite, siderite, ankerite, tourmaline and molibdenite in the matrix as well as disseminated in the rock.