

GEOCHEMISTRY AND MINERALOGY OF THE PGE-BEARING VANADIFEROUS MAGNETIC IRON ORES OF THE RIO JACARE SILL BAHIA - BRAZIL

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Magnetite pod-like bodies occur in the Layered zone of the Rio Jacare Sill. The Gulcari pod of the lower transition zone is a 300m long, 150m thick sequence of magnetite and pyroxenite and gabbro layers with 2 million tons of vanadiferous iron ore with mean grade of 2% V₂O₅, that exhibit PGE values up to 4 ppm Pt, 1ppm Pd and average grade of 400ppb total PGE. The Upper transition zone pod-like magnetite bodies are grouping of magnetite seams and pyroxenites that form 150m long, 20m thick masses of 150,000 tons of vanadiferous iron ore with mean grade of 0,5% V₂O₅ and maximum total PGEs content of 1.3ppm and mean grade of 0.38ppm. Magnetites of the lower transition zone are sulfur-depleted, arsenic-rich with minor bismuth association. Upper transition zone magnetites are sulfur-enriched and Se-Te-Bi associated. Magnetites have steeping highly fractionated chondrite-normalized PGE patterns with lower magnetites showing a paladium anomaly, whereas the upper ones exhibit a gold anomaly, reflecting stronger fractionation. Complex PGM association were identified such as sperrylite, geversite, cabriite, and Pt-Pd-bearing arsenostibinides, associated with Co-Ni-Cu arsenides. Pt-Pd-bearing alloys occurs as possible hydrothermal late PGM species related to Cu-Ni sulfides