

# The lode-gold mineralizations of the paleoproterozoic Rio Itapicuru greenstone belt, NE Bahia State, Brazil: Isotopic constraints on the fluid reservoirs

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The Rio Itapicuru greenstone belt (RIGB) contains a series of small to medium size lode-gold deposits located in its southern (Fazenda Brasileiro - FB and Fazenda Canto) and northern (Fazenda Maria Preta - FMP, Mari and Ambrósio) sectors, where they occur controlled by regional-scale brittle-ductile shear zones and related district-scale structures. Fluid inclusion data defined two types of ore-related fluids: a CO<sub>2</sub>-rich and a low salinity H<sub>2</sub>O-CO<sub>2</sub>. Sm-Nd, Sr-Sr and sulfur isotope investigations were conducted on gold-related minerals at the FB and FMP deposits. The initial Nd and Sr ratios obtained for scheelite of the FB deposit are interpreted as typical of deep crustal source. The  $\epsilon_{\text{Nd}(2100)}$  data range from + 4.09 to -0.05 and the  $^{87}\text{Sr}/^{86}\text{Sr}_{(2100)}$  values concentrate between 0.702 and 0.703. Initial Sr ratios were also obtained for calcite and the results fall in the same value range of the scheelite. The  $\delta^{34}\text{S}$  (CDT) values obtained for pyrrhotite and pyrite of the FB deposit show a tight clustering within the interval of -1.11‰ and +1.23‰, suggesting an homogeneous and magmatic-derived source for the sulfur. For the FMP deposit the broader range of  $\delta^{34}\text{S}$  values between -0.60‰ and +11.93‰ are interpreted as an interaction of ore fluids with a more oxidized environment, with a probable influence of the wall rocks during sulfide deposition.