

THE DISSEMINATED GOLD-ONLY DEPOSIT RELATED TO THE PALEOPROTEROZOIC MATUPÁ MONZOGRAHITE (MT, BRAZIL)

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The Serrinha gold Deposit is part of the Juruena-Teles Pires gold Province and is spatially and genetically related to the equigranular to porphyritic Matupá biotite monzogranite (1872 ± 12 Ma; Pb-Pb age). Hornblende is rare and magnetite, titanite, zircon, fluorapatite, allanite, monazite and ilmenite are accessory minerals. The granite is calc-alkaline, similar to I-type granites from orogenic terrains, specially volcanic arc and post-collisional settings. It was submitted to pervasive hydrothermal alteration, mainly K-silicate, sodic, chloritic, sericitic and pyritic. Gold mineralization is disseminated and restricted to the alteration zones. Gold is related to pyrite. Early gold (Au-I) has high Au/Ag and occurs as inclusion in early pyrite (Py-I). Au-II is richer in Ag and fills fractures of Py-I or is included in Py-II. Py-III is not related to gold. Te, Bi, Ag and Pb minerals (tetradimite, hessite, tsumoite, altaite and aikinite) are associated with Au-II. Serrinha ore has low Ag, Cu, Pt, Pd, Te, Se, Mo, Bi and Sn grades, being characterized as a gold-only deposit. The presence of hydrothermal pyrrhotite and magnetite suggests development under oxygen fugacity conditions over or above the pyrrhotite + pyrite + magnetite buffer, a characteristic of fluids produced from oxidized I-type magmas. Pyrite sulfur isotope and fluid inclusion data are consistent with a mineralizing fluid exsolved from the crystallizing magma, initially transported as chlorine complexes in a hot, highly saline, oxidized fluid, with high KCl/NaCl. The overall characteristics suggest that Serrinha is similar to disseminated deposits related to felsic magmatism classified as porphyry-style gold deposits.