

Morphology, composition and structural state of adularia from the Tapajós Gold Province, Amazonian region, Brazil.

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The potassium feldspar variety known as adularia occurs in fractures and late cavities in gold-bearing quartz veins from two prospects of the Tapajós Province. Both gold-quartz veins are hosted in Proterozoic, hydrothermally altered mafic dykes.

Adularia crystals are red or pink, 1- 4 mm in size, displaying typical rhombic forms. Under the microscope they show complex twinning and extinction patterns and are partially overgrown by chlorite, calcite and hematite.

Microprobe analyses reveal compositions quite close to the ideal potassium feldspar end-member, with molecular Or 93-99, a characteristic feature of the most common adularia.

X-ray diffraction data show well-defined $(1\ 3\ 1)$ and $(1\ \bar{3}\ 1)$ peaks pointing to a triclinic lattice symmetry. Refined cell parameters and the Al-Si distribution within T sites are those of highly ordered maximum microcline structures with t_o values between 0.94 - 0.99.

Although known for the strong variability of its structural state, extreme microcline-like adularia is considered relatively rare in hydrothermal vein deposits. The highly ordered state achieved by the Tapajós specimens is attributed to interaction with post-crystallization fluids, which were also responsible for the growth of the above-mentioned late mineral assemblage.

The identification of adularia is important for the typology of primary gold mineralization in the Tapajós Province as this mineral is a very typical gangue phase of the so-called adularia-sericite category of epithermal deposits.