



Evolution of mineralizing fluids of cassiterite-wolframite and fluorite deposits from Mueilha tin mine area, Eastern Desert of Egypt, evidence from fluid inclusion

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Abstract:

Sn-W deposit of the Mueilha mine is one of many other Sn-W deposits in the Eastern desert of Egypt that associated with albite granite. Two forms of Sn-W mineralizations are known at the Mueilha Sn-mine area, namely fissure filling quartz veins and greisen. Cassiterite and/or wolframite, sheelite, and beryl are the main ore minerals in the greisen and quartz veins. Subordinate chalcopyrite and supergene malachite and limonite are also observed in the mineralized veins. To constrain the P-T conditions of the Sn-W mineralizations, fluid inclusions trapped in quartz and cassiterite, have been investigated. The following primary fluid inclusion types are observed: CO₂-rich, two-phase (L+V) aqueous, and immiscible three-phase (H₂O-CO₂) inclusions. Low temperature and low salinity secondary inclusions were also detected in the studied samples. Microthermometric results revealed that Sn-W deposition seem to have taken place due to immiscibility at temperature between 260°C and 340°C, and estimated pressure between 1.2 to 2.2 kb. Microthermometric results of fluid inclusions in fluorite from fluorite veins illustrated that fluorite seems to be deposited due to mixing of two fluids at minimum temperature 140°C and 180°C, and estimated minimum pressure at 800 bars.

Keywords:

Fluid inclusion . Mueilha mine . Quartz veins

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