

**Ore deposits and epithermal  
evidences associated  
with intramagmatic faults at Aïn El  
Araâr-Oued Belif ring structure  
(NW of Tunisia)**

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**Abstract**

Hydrothermal ore deposits at Aïn El Araâr-Oued Belif location are classified as epithermal deposits type. Polymetallic sulfide orebodies are mainly concentrated within intra-magmatic faults. Petrographic, XRD, and TEM–STEM investigations revealed that ore minerals are essentially, arsenopyrite, pyrite, chalcopyrite, pyrrhotite, hematite, goethite and magnetite with Au, Ag and Pt trace metals. Gangue minerals are mainly adularia, quartz, sericite, alunite, tridymite, chlorite, phlogopite and smectite. Epithermal alteration is well zoned with four successive characteristic zones: (1) zone of quartz–adularia–sericite and rare alunite; (2) zone of kaolinite and plagioclase albitization; (3) intermediate zone of illite–sericite; (4) sapropelic alteration type zone of chlorite–smectite and rare illite. This is interpreted as a telescoping of two different acidity epithermal phases; low sulfidation and high sulfidation, separated in time or due to a gradual increase of fluids acidity and oxicity within the same mineralization phase. Brecciated macroscopic facies with fragments hosting quartz–adularia–sericite minerals (low-sulfidation phase) without alunite, support the last hypothesis. Geodynamic context and mineral alteration patterns are closely similar to those of Maria Josefa gold mine at SE of Spain which exhibit a volcanic-hosted epithermal ore deposit in a similar vein system, within rhyolitic ignimbrites, altered to an argillic assemblage (illite–sericite abundant and subordinate kaolinite) that grades outwards into propylitic alteration [1].

[1] Sanger-von Oepen P, Friedrich G, Kisters A (1990) Comparison between the fluid characteristics of the Rodalquilar and two neighbouring epithermal gold deposits in Spain. *Mineral Deposita* 25(suppl):S36–S41