Tectonic and geochemical control of Ag in Imiter II: Implications for the local exploration (Eastern Saghro, Anti-Atlas, Morocco)

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Imiter is a world-class silver deposit located on the northeastern side of the Saghro Massif. The mineralization is hosted mainly in the metalliferous shales in the summit position of the lower Cryogenian complex. They overflow slightly into conglomerates and Ediacaran tuffs when they are located in the mineralized zones. Structural events and especially faults have been of great interest in this study since they most often coincide with highly mineralized zones.

Background surveys and sample sounding of Imiter II sector (structures R3, R4 and R6) have shown the close relationship between EW faulting and argentiferous mineralization. Three fault families oriented EW, ENE-WSW and NE-SW contributed to the formation of extensive pull-apart basins with consequent argentiferous mineralization. Late NE-SW faults with no mineralization affect the mineralized levels by normal sinistral movement. A detailed structural kinematic study at the level of the structures of Imiter South, Igoudrane and wells 4 has shown the continuity of this model along the fault of Imiter. The host rock of silver mineralization in the R3, R4 and R6 structures is represented mainly by metalliferous shales. The silver paragenesis is represented by the amalgam Ag-Hg, sulfoantimonides and sulfoarsenides of silver. It is also associated with sulphides (galena, pyrite, mispickel, ...), oxides and carbonates. The geochemical data show a clear affinity between Ag and PbS in the structures R3, R4 and R6, unlike the structures B1 and SS1 where Ag is rather correlated with ZnS.

Key words: mineralization, Imiter II, faults, metalliferous shales, Ag, sulfosalts, PbS, ZnS