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Occurrence of Cobalt Mineralization in Tidar area - Eqlid

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Abstract: The Tidar cobalt deposit is located 18 km northwest of the town of Eqlid, in the Sanandaj - Sirjan zone. Cobalt mineralization occurs in a few horizons concordant with, and within the sedimentary detrital sequences of limestone, sandstone and marl of upper jurassic (Malm) age.

The main minerals are magnetite and changing gradually to hematite and then to limonite and goethite. Co, Ni, Mn, Ti, As, bearing minerals also occur. These minerals represents an oxidized environment, but whether cobalt bearing phases, are part of the oxidized zone or belong to an independent source underneath, is the subject of this study.

Association of cobalt with iron, manganese and clay minerals (scavenger components) strongly support the hypothesis of adsorbtion. The absence of ultramafic outcrops, the stratiform nature of mineralized horizons, the low Pb and Zn contents, the absence of indicator minerals of reduced facies, reject the known models of cobalt mineralization (skarn, lateritic, hydrothermal, magmatic and stratiform) for Tidar deposit.

The weathered mafic or ultramafic pluton is probably the primary source of cobalt; The free Cobalt released from this pluton is transported to the upper Jurassic sedimentary basin, or had been moved as a cobalt bearing phase to the deposition site, where it was weathered and Co was releases. And finally, the free Cobalt ions either were adsorbed on certain mineral grains, or were deposited as amorphous compounds filling the available open spaces.