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Geochemical evolution in Nodusahn Zn-Pb hydrothermal deposit with an emphasis on ore mineralography and sulfide analysis

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Abstract: Nodushan Zn-Pb deposit at the western margin of Urumieh-Dokhtar volcano-plutonic belt resulted from granitoid intrusion into Eocene dacitic to andesitic rocks. Pyrite, sphalerite, galena and chalcopyrite are the main sulfide minerals. The chemical composition of sphalerites and pyrites indicates two different type of sphalerite (high Fe types demonstrating chalcopyrite disease and low Fe type) and two different types of pyrite (high As and low As), but weaker chemical changes can be traced from margins to center of galena and chalcopyrite. These chemical changes demonstrated that the hydrothermal fluid was high in iron, manganese, zinc and cadmium content (with the development of pyrite and sphalerite), followed by arsenic and lead concentration (with the development of galena, chalcopyrite and high As pyrite), indicating higher chemical composition changes at the incipent stage of mineralization than later stages. Chemical composition of sphalerites and its comparison with sphalerites in hydrothermal and skarn deposits of Japan confirming (high sulfidation) hydrothermal vein type mineralization resulted from magnetitic-type granitoids.

Keywords: *micromineralography; sphalerite; hydrothermal Zn-Pb; Nodushan; Central Iran.*

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