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Modeling of magnetite- specularite mineralization in Dehzaman iron deposit, Khorasan Razavi province: mineralogy, texture and structure, and alteration

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Abstract: Dehzaman iron deposit is located southwest of Bardaskan, Khorasan Razavi province, and northeast of Kashmar-Kerman Tectonic Zone. Geology of the study area consists of late-Neoprotrozoic-lower Cambrian metamorphsed volcano-sedimentary units, including slate- phyllite, sericite schist, recrystallized carbonate rocks, metarhyolite-metarhyodacite and granitic intrusions. Mineralization is hosted by metarhyolite-metarhyodacite as vein-veinlet, massive, brecciate, and dessiminated forms. Magnetite, specularite (low Ti and V), apatite micrograins associated with chlorite, calcite, and quartz are the most important minerals at deposit. Minor chalcopyrite is present. Hematite and malachite are the main secondary minerals. The main alterations of the area are chloritic, carbonate, silicification, potassic and tourmalinization. Tectonic setting, host rock, mineralogy, alteration, and structure and texture of this part of Dehzaman deposit have the most similarity with the Kiruna type iron deposits.

Keywords: *Mineralogy; Alteration; Kiruna-type iron; Dehzaman; Kashmar-Kerman belt.*

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