

Geochemistry and Mineralogy of the Sangan Iron Ore Deposit

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Ferro-pargasitic Hornblende.*

Abstract: The Sangan iron ore deposit is located 298km south east of Mashhad. The magnetite ore body is 4.2km long and 30 to 300 meter wide. The mineralization is hosted by carbonate of upper Jurassic-lower Cretaceous. Magnetite and associated minerals are analyzed by electron microscope. The Ti, Mn, Ni, Cr, P and Mg content of magnetite are very low. The MgO content of magnetite in Dardway, Baghian and C-north is between 1 to 3.5 percent. Paragenesis of magnetite in A deposit are andradite, hedenbergite , calcite , and a rare amphibole such as ferro-paragasitic hornblende, in the A, B and C deposits are ferro-actinolite, calcite and Fe-rich chlorite such as ripidolite, in Dardway deposit are phlogopite, siderite and garnet and for Baghain deposit are dolomite, phlogopite and clinchlore. The temperature of formation of A deposit was higher than 400 based on the mineralogy and the intrusive rocks. The temperature of formation of B deposit were calculated 300 based on the composition of chlorite. The Fe-rich magmatic fluid associated with the quartz monzonite (outcrop at A') was reacted with the dolomitic limestone and formed the magnetite skarn. Chlorine rich amphibole may indicate that iron were carried as chlorine complexes in the fluid.