



Mineralogical and geochemical studies of North West of Yazd skarn

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The Cu-skarn is located in NW of Yazd province, within the Cenozoic magmatic belt of Central Iran. The widespread rocks in the region are Eocene age volcanic with granitoids intrusive. The Cretaceous limestones in western parts of NW of Yazd are hosted by skarn – marble mineralization. The skarns are distal type and are characterized by assemblage:

Clinopyroxene, garnet, ilvaite, vezovianite, termolite, epidote, chalcopyrite, magnetite, calcite and quartz. The paragenetic relationships of these minerals have revealed a polygenetic nature of skarn assemblage reveal a polygenetic nature. Black crystals and masses of ilvaite have a close association with hedenbergite clinopyroxene and andradite garnet zone, likely as replacement bodies. The formation of ilvaite is related to following reactions:
Andradite + Fe (OH)₂ + CO₂ = ilvaite + magnetite = quartz + calcite + H₂

Hedenbergite + magnetite + Fe (OH)₂ = ilvaite. The early skarn minerals are formed at 550 °c and the decomposition of early minerals to formation of final hydrous assemblages started below 470 °c in fO₂.