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Geochemical study of garnet-vesuvianite-wollastonite-pyroxene mineral assemblage in Hosh Skarns, west of Taft (Yazd)

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Abstract: The injection of I-type granitoid bodies (Hosh intrusion) with calc-alkaline affinity into Lower Cretaceous limestones (Taft Formation) has produced the various types of related skarns and marbles. Thereby, those skarns formed can be undoubtedly divided into four groups, clinopyroxene-plagioclase skarns, clinopyroxene skarns, clinopyroxene- vesuvianite skarns and moreover garnet skarns. Additionally, calc-silicate bearing marbles also show an especial mineral assemblage consisting of olivine, clinopyrocxene, garnet and vesuvianite. Based upon geochemical studies, two types of garnet can be distinguished in these skarns. The first, Type is the garnets with grossular composition in which they are found with calc-silicate assemblages in skarns and the second, Type is the garnets with andradite composition present in garnet skarns. Clinopyroxenes in those skarns feature a composition varying between Ca-rich diopsides, salite and fassaite. Based on the chemical composition of the intrusive body and the related skarns, one can conclude the close relationship of these skarns with Cu and Zn skarns.

Keywords: *Skarn, Marble, Granitoids, Mineral Geochemistry, Garnet, Clinopyroxene, Olivine, Vesuvianite*.