HIGH TEMPERATURE SKARNS IN MARONIA AREA (NE GREECE)

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The Maronia monzogabbro represents a shallow intrusion which formed at the contact zones with the calcareous phyllites and the marbles high temperature calc-silicate hornfelses and skarns. Skarns are formed at the western contact zone. They are rich in Ca and Al and poor in Fe.

Depending on the bulk rock composition of the parent rocks, the distance from the plutonic body, and the composition on the metasomatizing fluids the following skarn types are distinguished:

a. Clinopyroxene-wollastonite-grossular skarn with the mineral assemblage:

grossular-wollastonite-diopside-augite-calcite-orthoclase.

b. Diopside-wollastonite-vesuvianite-grossular skarn. In this rock type diopside occurs in unoriented thin prismatic aggregates in association with calcite, replacing pseudomorphically akermanite (?). Vesuvianite is a hydretion product of an earlier melilite. Melilite and akermanite are formed within the stability field of grossular+calcite.

c. Augite-grossular skarn. Augite is exceptionally rich in Al_2O_3 (up to 10.87%) having a Ca-Tschermak's component ranging from 3.65-21% and a CaTi-ischermak's componant ranging from 1.61-7%.

d. Al-phlogopite-grossular skarn consisting predominantly of grossular and Al-phlogopite. Chlorite and calcite occur as additional phases.

e. Melilite skarns (melilitites) consisting predominalty of melilite. Wollastonite, larnite and calcite occur as inclusions in melilite. In melilite predominate the gehlenite and akermanite components ranging from 40-70% and 30-55% respectively. The Na-melilite componert ranges from 0-10%. Small vermicular grossular-andradite garnet is formed in the interstitial space of the melilite crystals, possible as a reaction product of the melilite rim with an oxydizing fluid. The melilite skarns are formed at the innermost contact zone by the raction of the marble with the melt at temparatures higher than 1000^0C. In the outer zones of the melilitic bodies and along fissures, during the cooling stage, and at temperatures lower than 850^0C, melilite decomposas into a fine grained aggregate consisting of gehlenite + monticellite + grossular; at still lower tamperatures (between 675-625^0C) it is replaced by vesuvianite+corundophyllite.

