

GEHLENITE IN HIGH TEMPERATURE SKARNS FROM THE ROMANIAN BANATITIC PROVINCE: A REVIEW

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Gehlenite is a common mineral in the high temperature calcic skarns from the Romanian Banatitic Province. The mineral was recognized in three such occurrences: at Magureaua Văței (MV) and Cornet Hill (CH) in the Apuseni Mountains and at Oravița (Or) in Banat. The host skarns are typically zoned and are fairly similar in their internal structure. In all the three occurrences, a gehlenite zone occurs at the very contact between a monzodioritic body and carbonaceous sequences of Mesozoic age. The mineral was found in the following contexts and parageneses: (1) blocky gehlenite associated with wollastonite, perovskite and grandites (MV, CH), with monticellite, grandites and ellestadite (Or) or with wollastonite, perovskite and ellestadite (CH) in the inner skarn zone; (2) veins or clusters of gehlenite surrounded by spurrite and associated with perovskite and garnet in a median skarn zone (CH).

Late stage metasomatic replacement of gehlenite by vesuvianite is common, as well as its replacement by hibschite, gismondine, 11 Å tobermorite and allophane as a result of late hydrothermal and weathering processes.

The solid solutions toward åkermanite vary from Ak 22.90 to Ak 36.28 (mean Ak 29.80) at CH, from Ak 33.64 to Ak 38.13 (mean Ak 36.22) at MV and from Ak 34.68 to Ak 50.25 (mean Ak 45.28) at Or respectively.

Both chemical and crystallographic parameters are influenced by the chemical variability. The physical parameters, as measured on representative samples approaching the mean composition, are as follows:

Occurrence	Magureaua Văței	Cornet Hill	Oravița
ω	1.658(1)	1.660(2)	1.666(1)
ε	1.656(1)	1.655(1)	1.662(1)
D_m (g/cm ³)	3.064(2)	3.065(2)	3.095(5)
$n_{\text{Gladstone-Dale}}$	1.637	1.638	1.643
D_x (g/cm ³)*	3.062	3.069	3.081

* as calculated for the mean composition and cell volume, for $Z = 2$ unit cells per formula.

Cell parameters are highly variable: a ranges from 7.679(3) to 7.734(3) Å at Or, from 7.684(3) to 7.733(1) Å at CH and from 7.687(3) to 7.718(3) Å at MV, whereas c varies from 5.043(3) to 5.065(3) Å at Or, from 5.044(1) to 5.067(4) Å at CH and from 5.049(2) to 5.063(3) Å at MV.

The record in the infrared absorption spectra of a couple of bands located at ca. 855 cm⁻¹ and ca. 670 cm⁻¹ respectively, that may be tentatively assigned to Al-O-Al (antisymmetric and symmetric respectively) stretchings, is indicative for the presence of gehlenitic terms of the melilite group in all the three occurrences.