

CONTRASTING TYPES OF BORON-BEARING DEPOSITS IN MAGNESIAN SKARNS FROM ROMANIA

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Skarn-related boron deposits are ubiquitous in Romania, where they are associated to postmagmatic processes that occur in the contact areas of intermediary calc-alkaline intrusive bodies of Late Cretaceous - Paleogene age. Deposits of this type have been reported from magnesian skarns from Ocna de Fier (OF), Pietroasa (P), Baita Bihor (BB), Masca-Baisoara (MB) and Cacova Ierii (CI). In all cases, boron metasomatism affected a dolomite palaeosome. The boron-bearing parageneses comprise ludwigite, kotoite, suanite, szaibelyite and fluoborite. Two kind of geochemical associations were found: an iron-rich one at OF, CI and MB and an iron-poor one at BB and P. In the first case, abundant ludwigite is associated with magnetite in forsterite-bearing skarns. In the second, ludwigite is scarce and kotoite, suanite and fluoborite are associated with spinel and more abundant humites (clinohumite, chondrodite).

The compositional variations can be used to distinguish between Mg-borates in the two types of deposits. Ludwigite from CI, MB and OF contains higher vonsenite and lower $\text{Mg}_2\text{Al}(\text{BO}_3)\text{O}_2$ in solid solution than ludwigite from P and BB: up to 26 mol.% and up to 11 mol.% respectively, as compared to up to 15 mol.% and up to 30 mol.%. It is the same for kotoite from CI, which is richer in $\text{Fe}_{2+3}(\text{BO}_3)_2$ component than kotoite from P or BB: 1.5-2.2 mol.% as compared to 0.1-0.6 mol.%. The composition of szaibelyite from CI, MB and OF, that contains up to 3 mol.% $\text{Fe}_2(\text{B}_2\text{O}_4\text{OH})(\text{OH})$, is also distinct from that of szaibelyite from BB and P, which is practically Fe-depleted.