

RARE MINERALS IN THE CARPATHIAN METAMORPHOSED Mn-Fe DEPOSITS FROM ROMANIA

HÎRTOPANU, P. (Geological Institute of Romania, Bucharest, Romania)
E-mail: hartopan@ns.igr.ro

The main metamorphosed Mn-Fe deposits from the Romanian Carpathians and their mineralogical composition are: (1) Răzoare Mn-Fe deposit, silicate-carbonate-oxide-sulphide (Preluca Mts.); (2) Bistrița Mn deposit, carbonate-silicate-oxide-sulphide (Bistrița Mts.); (3) Sebeș Mn deposit, silicate-carbonate (=queluzite) and gondite; Rascoala Fe-Mn deposit, silicate-carbonate-oxide (Sebeș Mts.) and (4) Delinești Mn-Fe deposit, silicate-carbonate and gondite (Semenic Mts.).

The rare minerals from the primary Carpathian metamorphosed ores belong to the following groups: (a) native elements: Au, Bi; (b) Mn-humites: sonolite, leucophoenicite, ribbeite, manganhumite, alleghanyte, jerrygibbsite; (c) pyroxenes: Mn-ferrosilite, donpeacorite (?); (d) garnets: noncubic spessartine garnets, spessartine-calderite; (e) pyroxenoids: pyroxferroite (?), nambulite, natronambulite, mangan-babingtonite (?); (f) amphiboles: winchite, kozulite, Li-amphibole of eckermannite type, Li-amphibole of ferroglaucophane type, Ti-richterite, Ni-ferroglaucophane; (g) epidote group: Mn-allanite, piemontite, REE-piemontite; (h) micas: kinoshitalite, norrishite (?); (i) stilpnomelane: bannisterite, ganophyllite, parsettensite; (j) pyrosmalite: manganpyrosmalite, friedelite, mcgillite, schallerite, nelenite, caryopilite; (k) talc: minnesotaite; (l) chlorites: penantite, brindleyite, nimate, kellyite, grovesite; (m) oxides: pyrophanite, iwakiite, galaxite, senaite, manganosite, Co-manganese spinel (?), ferrocolumbite, ulvospinel, neltnerite, ashanite, ixiolite, franklinite, gahnite, thorianite; (n) sulphides: alabandine, hauerite (?), cattierite; (o) phosphates: switzerite, gorceixite, xenotime; (p) wolframates: huebnerite, ferberite; (r) arsenates: sarkinite, johnbaumite, magnussonite, manganarsite, hedyphane; (s) borates: homilite, tusionite (?); (t) other silicates: helvite, genthelvite, thorite, bafertisite, hisingerite, fraipontite, anandite; (u) carbonate: holdawayite, smithsonite, takovite.

In the oxidised zone, where the main minerals are nsutite, pyrolusite, cryptomelane, manganite, etc., the following rare minerals were determined: khademite, groutite, lithiophorite, manjiroite, lennilenapeite, coalingite, groutellite, pyrochroite, ajoite, jusite.

The source of Li, Na, K, Be, B, F, REE etc., in the Bistrița manganese deposits was probably the alkaline Ditrău massive, while the source of Cl, S, As, OH etc., was probably the Neogene East Carpathian volcanic arc. The Ni, Co and Ti proceed from the submarine hydrothermal system that was associated with the deposition of the sediments in a rifting environment such as a back-arc basin or possibly a mid-ocean ridge. In the Delinesti Fe-Mn deposit many rare minerals with Ba, W, F, REE, Cl, Pb etc. were formed by metasomatism or hydrothermal phenomena, produced as a result of the vicinity of some granite.