

NATIVE GOLD OF THE UKRAINIAN CARPATHIANS

KVASNYTSYA, V.

Institute of Geochemistry, Mineralogy and Ore Formation of NAS Ukraine, Palladin av. 34, 03680 Kyiv-142, Ukraine

E-mail: vmkvas@i.com.ua

Native gold is a widespread mineral on the territory of the Ukrainian Carpathians. Many gold localities are known in various structural-facial zones of the Carpathian Folds and Transcarpathian inner and the Precarpathian outer depressions (Table 1). In the Transcarpathians gold is related to Neogene volcanites while in the Carpathians to Proterozoic–Paleozoic metamorphosed rocks. Placer gold has been also found in Quaternary sediments (in alluvium of Bily Chermosh, Chorny Chermosh, Turya Remeta and Lyuchka rivers) of the following areas: Chyvchyny, Verkhovyna, Perechyn and Yabluniv.

In Ukrainian Carpathians, like in the other regions of the world, with the transition of late deep-seated and medium-deep-seated mineralizations to younger shallower ones, gold's fineness became lower, its heterogeneity higher; the composition and concentration of its admixtures changes; the proportion of idiomorphic crystals increases and their morphology becomes more complex; equidimensional crystals are replaced by modified ones; the role of dendrites and complex twin crystals increase. Minerals of gold also vary between electrum, Au-rich silver ("küstelite"), Hg- and Cu-rich gold.

Table 1: The characteristic features of native gold of the Ukrainian Carpathians

Area	Deposit, occurrence, structural-geological setting	Mineral association	Size of grains, mm	Morphology	Limits of fineness (frequent values)	Minor impurities, 0.0n–0.n %
Beregove	<i>Muzhieve deposit:</i> Quartz-sulphide veins and stockworks in Neogene acidic volcano-sedimentary rocks	Quartz, galena, sphalerite, pyrite, alunite, barite, adularia, chalcopyrite, arsenopyrite, tetrahedrite, hematite	0.1–1.0, rarely up to 10	Dendrites, polyhedrons, xenomorphic and hypidiomorphic grains	500–880 (600, 650, 720, 760)	Fe, Cu, Zn, Pb, As, Sb, Te, Hg
Rakhiv	<i>Saulyak deposit:</i> Quartz and quartz-carbonate veins and veined-patched bodies in metamorphosed quartz-carbonate and quartz-mica-chlorite rocks	Quartz, pyrite, pyrrhotite, chalcopyrite, galena, sphalerite, hessite, altaite, carbonates	0.1–0.5, rarely up to 3	Xenomorphic and hypidiomorphic grains, rarely polyhedrons	750–930 (830, 860, 910)	Fe, Pb, As, Hg
	<i>Bily Potik occurrence:</i> Quartz veins and veined-patched bodies in slaty quartzites	Quartz, pyrite, arsenopyrite, hematite, goethite, lepidocrocite	0.1–0.5, up to 3	Xenomorphic and hypidiomorphic grains, rarely polyhedrons	780–950 (880, 890, 900, 910)	Fe, Cu, Pb, As, Sb, Hg
Chyvchyny	<i>Marmarosh zone:</i> Cretaceous conglomerates	Quartz, pyrite	0.1–0.8, up to 3	Xenomorphic and hypidiomorphic grains, slightly rounded	840–995 (930, 950)	Pb, Sb, Hg
Nyzhni Vorota	Paleogene flysch	Quartz, pyrite	0.1–0.5, up to 1	Xenomorphic and hypidiomorphic grains, slightly rounded	790–960 (910)	Cu, Pb, As
Yabluniv	Miocene conglomerates	Quartz	0.1–0.5, up to 2.5	Xenomorphic and hypidiomorphic grains, slightly rounded	920–980	Cu, Pb