



## **GEOCHEMISTRY AND MINERALOGY OF THE GOLD-MERCURY ORE FORMATION OF UKRAINE**

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The original own data on a geological-tectonic position of the gold-mercury mineralization, located in the Upper-Paleozoic terrigenous-carbonaceous complexes in the southeastern Ukraine are considered. Geochemistry of orogenesis is discussed as well as endogenous geochemical halations of dispersion, hydrothermal-metasomatal changes of bearing strata, mineral structure of ores and also typomorphism of the native gold of a gold-mercury formation (Carlin type).

Last decades in the frame of geological-genetic types of the gold-fields of the leading gold-mining countries (USA, China, Canada etc.) a share of the gold, extracted from specific deposits of thin- disseminated gold-mercury mineralization in the terrigenous-carbonaceous provinces (Carlin type) is constantly increased. The new objects of this type are discovered during last years in the East and Central Europe (Ukraine, Russia, Slovakia, Macedonia) as well as in the Turkey, Kazakhstan and China.

From the geological-structural point of view, investigated gold-bearing region of Ukraine is located in a zone of contact of the sedimentary Paleozoic plicated complexes of Donbass with Precambrian rocks of the Ukrainian crystalline shield. Ore-bearing rock it is tourne-vize stratified chalk-stones, dolomitic limestones, dolomites with hardpans of sandstones and clay shales. In some horizons of sedimentary rocks the heightened contents of carbon material were detected. The magmatic formations are spread restrictedly and represented by stock-like and dike-like solids of andezite-basalts, andezites and tracyeo-andesites (Ð2 - Ò1).

The hydrothermal activity was as the cause of wide development of epigenic changes

of carbonate strata. It was detailed: dolomitization, silication with formation of djasperoides, calcitization, pyritization and argillization. Carbonate and terrigenous strata, affected by the hydrothermal process, show up the endogenous geochemical halations with the heightened contents of ore-forming elements: Au, Ag, Hg, Tl, Mo, As, Sb. The enrichment of rocks by the ore-elements-indicators increase during the strengthening of rocks silication level and djasperoides formation.

Among the ore-minerals are detected a native gold, pyrite, galenite, arsenopyrite, loellingite, chalcopyrite, tennantite, zinnober, antimony, realgar, molybdenite. Vein minerals: quartz, calcite, dolomite, hydromica, aluminite, gypsum, siderite, rhodochrosite, chlorite, kaolinite.

The native gold is shown mainly by film-like and lamellate-type disseminations, less often - by ballstone, elongated and dendrite granules. In size-range the gold particles can be of pulverous (10-50 microns), very small-sized (50-100 microns) and less often - a small-sized (0,1-0,5 microns) classes. On a chemical compound are differing the mercurous gold and cupriferous gold. The high fineness of gold is characteristic.

The hydrothermal-karst model of formation of the thin-disseminated gold-mercury low-temperature mineralization in the terrigenous-carbonaceous strata is presupposed (analogous deposits: Carlin, Getchel, Cortes - USA).