

## **Geochemical evolution of the gold deposits within gneiss complexes of the Ukrainian shield.**

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In Ingule-Inguletz region of the Ukrainian shield within biotite trondhjemite and tonalite gneiss are located some gold deposits and occurrences (Klintsy, Yuriivske and others). Ore mineralisation is connected with quartz veins and salite-plagioclase skarnoids, which sometimes form endomorphitic rims of these veins. The ore complex is crossed by dykes of younger pegmatoidal granites, after their formation plastic deformations and regional amphibolite facies metamorphism are fixed. Zircon from trondhjemite gneiss has isotope age not less than 3,0-3,2 Ga, age of mineralized rocks on amphibole and titanite – 2,0-2,5 Ga, and age of zircon from pegmatoidal granites – 1,9 Ga.

Two large stages of metasomatism are fixed on these deposits. Pre-granitic ore-bearing calcic metasomatism accompanies the quartz filling veins formation. Quartz veins formation is connected with addition enriched  $\text{SiO}_2$  alkaline fluids, which relaxed at the drop of PT-conditions and the reaction with acid fluids in fractured zones. Enriched by  $\text{Ca}^{2+}$  fluids drop out at decrease of PT-conditions in veins or replace the biotite from gneiss, forming metasomatic skarnoids with bytownite, salite and titanite. Post-mineralised and post-granitic acid metasomatism manifest in formation of the oligoclase-andesine, amphibole, biotite in skarnoids, quartz veins, and also garnet, cordierite, sillimanite, muscovite, apatite and tourmaline in gneiss and granite. The final process of the ore complex alteration is the post-metamorphic regressive local low-temperature metasomatism, accompanying by small redistribution of the ore components.