



CRM of Ukraine Database Supplements

Mineral target:	Derenyukhske deposit
Commodity:	Nickel and cobalt ores

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Location: Mykolayiv region, Pervomayskii district, Synyukhinobridska rural territorial community, 5 km southwest of the Kapitanivka village, 27 km northwest of Pervomaysk.

Exploration: The Derenyukhske deposit was discovered in 1950 and explored in detail in 1951-1955 by the Pobuzka geological exploration expedition of the Ukrgeological Administration. The deposit consists of two sections - Central and South. The reserves were approved by the State Committee of the USSR (protocol dated February 14, 1959 No. 2594), the Central section was put into operation in 1972, the Southern section in 1975. The reserves of the Central section have been fully exhausted. The field has not been developed since 1996.

Geological characteristics. The geological structure of the deposit includes Proterozoic formations overlain by a sedimentary layer of sand-clay sediments of the Baltska Suite of Neogene age (0.5 - 20.5 m) and loams and clays of the Quaternary system (1.5 - 27.0 m). Silicate cobalt-nickel ores are confined to the weathering crust of serpentinites, as well as amphibolites and gabbro-amphibolites. Petrographically, they are represented by nontronites, ironized nontronites, nontronite-chlorite rocks, less often ochres, brown ironstones, and nontronitized serpentinites. Chlorite and vermiculite are widespread in the weathering crust.

Industrial nickel ores are mainly concentrated in nontronites, especially enriched in chlorite. The thickness of the weathering crust within the deposits varies from 1 to 35 m. Five ore bodies with an average thickness of 8.23 m and a size of 400-1400 × 40-500 m, stretched in the meridional direction, are distinguished within the deposit. The nickel content ranges from 0.39 (off-balance reserves) to 0.98%. Cobalt content - from 0.023% (off-balance reserves) to 0.049%. According to the conditions of occurrence of ore deposits, they belong to sheet-like bodies. The average depth of ore deposits is 14.2 m, the overburden coefficient is 1.7. According to the results of technological studies, it was established that it is advisable to process the ore by electrosmelting with obtaining 90-95% of nickel and 80-90%.

In terms of hydrogeology, the deposits of Pobuzhzhia are in very favorable conditions.

According to the complexity of the geological structure, the deposit belongs to the second group.

Degree of development: is not being developed.

Estimate of resources/reserves: as of January 1, 2023, reserves of cobalt-nickel-silicate ores are: category A - 459.0 thousand tons, incl. nickel - 3.3 thousand tons; cobalt – 143.0 t; off-balance reserves – 1,600.0 thousand tons, incl. nickel - 6.2 thousand tons; cobalt – 282.0 tons.