



CRM of Ukraine Database Supplements

Mineral target:	Grushkivske deposit
Commodity:	Nickel and cobalt ores

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Location: the deposit is located 1.0 km northeast of the Grushky village of Blagovichchenska Territorial Community of Golovaniv District, Kirovograd Region.

Exploration: the deposit was discovered in 1956 and explored in detail in 1957-1958 by the Pobuzka geological exploration expedition of the Ukrgeological Administration. The reserves were approved by the State Committee of the USSR (Protocol No. 2594 of February 14, 1959). Stock growth is limited.

Square: 63 thousand m²

Geological characteristics: Grushkivskiy massif is located 2 km northeast of the Grushky village. The massif is composed of serpentinites and amphibolites. Serpentinites form two separate bodies and are elongated in the northeast direction for 500 m with a width of 120-180 m. The geological structure of the deposit includes Proterozoic formations covered by a layer of sandy-clay sediments of the Baltska Suite of Neogene age (1.0-15.0 m) and loams and clays of the Quaternary system (1.5-27.0 m). The structure of the weathering crust is characterized by vertical zonation: nontronite zone; zone of nontronitized serpentinites; zone of carbonatized serpentinites.

Silicate cobalt-nickel ores are associated with the weathering crust of serpentinites, as well as amphibolites. Petrographically, they are represented by nontronites, ironized nontronites, nontronite-chlorite rocks, less often ochres, brown ironstones, and nontronitized serpentinites. Two ore bodies are distinguished within the deposit. The first ore body is 360 m long and 150 m wide in the central part. To the south, at a distance of 150 m, there is a second ore body with a length of 270 m and a width of 130 m. The thickness of the first ore body is not constant and ranges from 1.10 to 17.4 m. The nickel content ranges from 0.55 to 1.42%, with an average of 0.96%. The second ore body has a thickness of 5.0 to 11.3 m, with an average of 7.74 m. The nickel content ranges from 0.61 to 1.44%, with an average 0.86%. In general, the average thickness of industrial ores in the deposit is 7.15 m, the average nickel content is 0.93%, cobalt 0.036%. Off-balance ores have a thickness of 3.9 m and a nickel content of 0.38%; cobalt - 0.024%.

According to the conditions of occurrence of ore deposits, they belong to sheet-like bodies. The average depth of ore deposits is 28.2 m, the opening coefficient is 4.0.

According to the results of technological studies, it was established that it is expedient to process the ore by electrosmelting with obtaining 90-95% nickel and 80-90%.

Hydrogeological and mining-geological conditions are favorable for its development by an open cast method.

Estimation of resources/inventories. As of January 1, 2023, ore reserves are: category C1 – 852.0 thousand tons (including nickel – 6 thousand tons; cobalt – 234.0 tons), off-balance reserves – 152.0 thousand tons (including nickel - 0.4 thousand tons; cobalt - 27.0 tons).