



CRM of Ukraine Database Supplements

Mineral target:	Petrivske deposit
Commodity:	Graphite

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Location: Oleksandriysky District, Kirovograd Oblast, 25 km southwest of the Zhovti Vody station, on the southern outskirts of the Petrovo village, on the slope of the right bank of the Ingulets River.

Research: The deposit has been known since 1872 and consists of two areas - Vlasivska and Bili Gorby. Until 1917, the highest-grade ores were mined at the deposit. For the first time, geological exploration works were carried out in 1925-1939 on the Bili Gorby site, and in 1956-1958 on the Vlasivska site. Reserves were approved on the Vlasivska section by GKZ of the USSR (protocol dated 02.15.1958 #2156), on the Bili Gorby section - GKZ (protocol dated 06.08.1939 #1343).

Geological characteristics. The deposit is located in the central part of the Ukrainian Shield, within the Western-Ingulets suture zone. A graphite-bearing body with a width of 200-250 m and a length of 1.2-1.5 km (within the 400-m length of the Bili Gorby section), is confined to the contact of crystalline limestones and gneisses of the Rodionivska Suite, cut by veins of granites of the Ingulets Complex.

Graphite-bearing rocks are biotite graphitized gneisses and schists with a graphite content of up to 5-13%. Graphite is fine-flaky. To a depth of 20-40 m from the surface, the schist has been transformed by weathering into loose kaolinite-graphite rocks, the so-called "blues". In the west, graphite schists are in contact with granites, in the east - graphitized gneisses pass into biotite non-graphitized gneisses. Graphitized rocks are elongated in a northeast trending band; general dip to the southeast (at an angle of 20-50°). Four bands of metamorphosed rocks - graphitized feldspar and amphibole-biotite gneisses - are distinguished within the territory of Bili Horby, which make up a series of steeply dipping lenses and layers. The second or main strip, which was developed by a small quarry, has the greatest thickness and high carbon content. The thickness of the main strip is 25 m, the south-east dip is 50°. Exploratory workings traced it for 350 m in length and 28 m in depth. External inclusions include kaolin veins, quartzite fragments, hornblende depths, quartz veins and pelicanite nests. The thickness of overburden does not exceed 2 m, in most cases - less than 2 m.

According to the degree of crystallization, graphite ores are divided into two groups: thin-flaky and fine-flaky ores. There are no hidden crystalline or amorphous varieties of graphite in the deposit.

According to the structure and mineralogical composition, graphite ores are represented by schist, mostly weathered. The most valuable is a type of rich ore called "blue".

The following varieties are distinguished among graphite ores:

- rich thin-flaky graphite ore "blue" or quartz -graphite schist;
- poor thin-scale graphite ore "blue";
- fine flaky ore;
- calcitized graphite ore;
- ferruginous graphite rock;
- kaolin -graphite rock.

The main mass of ores is made up of the first three varieties.

The fourth has a very minor role in the field. Calcified ores are found in the quarry and in the extreme eastern strip. The fifth variety is found in the form of small areas among the fine-scaled varieties. The sixth - graphite-kaolin rock is very common, but due to the small amount of carbon, it was not included in the calculation of ore reserves in the deposit.

All types of ores contain thin- and fine-scale graphite, while the rich "blue" (fine-scale ore) makes up an insignificant part of the total mass of graphite deposits.

The thickness of overburden rocks is from 3.5 m to 20 m.

The deposit is not promising for development due to the small reserves.

Tests on enrichment of graphite ores in the last century by the Dnipropetrovsk Mining Institute. For enrichment, the ore in the sample was represented by ash -gray graphite shale with a carbon content of 11.60%. As a result of enrichment, a graphite concentrate with a carbon content of 83% was obtained.

The southeastern limb of the deposit is promising for the discovery of new deposits of graphite ores.

As of January 1, 2023, the deposit is not being developed.

Estimate of resources/reserves: the balance of reserves as of 01.01.2023 is by category:

- Vlasivska site, graphite ore / graphite, thousand tons : C1 – 7,165.0 / 515.0; C2 – 1,696.0 / 115.0;
- Bili Horby area, graphite ore/graphite, thousand tons : C1 – 358.0 / 25.0.