



CRM of Ukraine Database Supplements

Mineral target:	Myliatynske deposit
Commodity:	Phosphate rock

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Location: located in the Ostrozkiy district of the Rivne region, 16 km from the city of Ostrog.

Area: 2.53 km².

Degree of study: The Myliatynske deposit of granular phosphorites was discovered along with five other promising areas by the Rivne Geological Exploration Expedition during prospecting in 1991. Exploration and evaluation work within the Myliatynske deposit was started in 1994-96 at the expense of the State Budget, and later, due to a lack of State funds, were continued on the order and at the expense of Zahidnoukrainskaya Mining Company CJSC. Prospecting and evaluation work was carried out at the deposit by drilling wells with distances between them of 350 to 1000 m and more. The density of the network of exploratory wells in the area of the calculation of reserves of granular phosphorites is 500-600 m. 14 wells were taken for the calculation of reserves. Reserves of granular phosphorites are approved by the protocol of the State Committee of Ukraine No. 561 of 29.08.2000, suitable for use as natural complex agro-ores.

Geological characteristics: in the geological structure of the deposit area, the Vendian sediments (argillites and siltstones with a thickness of 3 m), the rocks of Cretaceous (Cenomanian terrigenous-carbonate sequence represented by phosphate-glaucinite-quartz sands, sandstones and sandy limestones, above are Turonian marl and chalk with a thickness of up to 27 m) and Quaternary systems (limestones, sands and clays with a thickness of up to 28 m) are distinguished. The total thickness of the Cenomanian productive sequence is from 0.7 to 2.2 m with an average of 1.42 m, overburden rocks from 4.7 to 23.9 m, with an average of 11.6 m.

The rocks of the productive horizon consist of 60.9-81.05% of the granular part (fraction more than 0.05 mm) and dispersed part (fraction less than 0.05 mm). The dispersed part is represented by calcite, clay minerals, quartz, phosphates (up to 8%), glauconite. The larger fraction (mainly from 0.25 to 5 mm) accounts for 7.1-17.2%.

Quartz (40.7%), glauconite (35.2%), and phosphates (17.8%) predominate in the granular part. Up to 42-46% of P₂O₅ contained in the granular part is associated with glauconite. Phosphates of the deposit are represented by francolite and kurskite.

The content of P₂O₅ in the ore ranges from 3.11 to 9.67%, while the average for the deposit is 6.74%.

During technological tests of granular phosphorites, a magnetic fraction (glauconite product) with content of 11.4 P₂O₅ and up to 5% K₂O was isolated in the process of magnetic separation. The corresponding product can be considered a complex agrochemical fertilizer. By flotation, a rough concentrate containing 10-12% P₂O₅ with up to 80% extraction was obtained. As a result of cleaning, the content of P₂O₅ was increased to 15-19%. The total extraction of P₂O₅ in carbonate, glauconite and phosphorite products was 80-90%. The content of P₂O₅ in the phosphate product after purification was 20.11%.

According to the sanitary and hygienic assessment, phosphate sandstones belong to the IV safety class and are suitable for use without restrictions.

The hydrogeological conditions of the Myliatynske deposit are simple and favorable for the development of the deposit by the open-cast method. Within the deposit, hydraulically interconnected aquifers and complexes are developed in Quaternary sediments, sediments of the Neogene system, sediments of the Zdolbunivska Formation of the Upper Cretaceous, which are overburden rocks during mineral extraction, and inoceramic limestones, glauconite-quartz sands, and sandstones, which are agricultural ore. The groundwater level is set at a depth of 1.5 to 20.0 m (absolute marks 185-189 m). The aquifer complex is fed by precipitation, and the discharge is carried out into the hydrographic network. Waters of mainly hydrocarbonate-calcium composition have a mineralization of 0.2-0.9 g/dm³. Water flowing into the pit for the final stage of its development will be equal to 9300 m³/day.

Underlying the mineral commodity, mainly argillites of the Mogiliv-Podilska Series form a poorly permeable sequence about 50 m thick, which separates the mineral commodity from the underlying sandstones of the Mogiliv-Podilska Series, with which the main aquifer of the district, suitable for centralized water supply, is connected.

The thickness of overburden varies from 5 to 8 m in the west of the deposit and up to 20-24 m in the east. The linear coefficient of overburden ranges from 10 m/m to 15-20 m/m.

Mineral reserves: as of 01.01.2023, the balance reserves of granular phosphorites are classified as C2 : ore 3,533.45 thousand tons , including P₂O₅ – 243.55 thousand tons.

Degree of development: not being developed.