



CRM of Ukraine Database Supplements

Mineral target:	Kamysh-Burunske deposit
Commodity:	Phosphate rock

Version: 17 April 2024

Project	101075609 — GSEU — HORIZON-CL5-2021-D3-02
Supplement Data	
Supplement number:	MO.400014
Dissemination level:	Public
Supplement type:	Description
Work package:	WP2: Critical Raw Materials, the International Centre of Excellence and United Nations Framework Classification (CRM-ICE-UNFC)
Lead WP/ Supplement beneficiary:	[EGS]

Supplement status	
Endorsed (WP leader):	Guillaume Bertrand, BRGM
Supervised	Boris Malyuk, BRGM/GIU
Approved (Metadata Coordinator):	Oleksiy Likhosherstov, GIU
Author(s):	Affiliation:
Nataliya Kovalenko	GIU
Stella Shekhunova	IGS
Vitaliy Sukach	IGMOF
Maria Kurylo	UAG

Location: administratively, the territory of the deposit belongs to the Leninskiy District of the Autonomous Republic of Crimea.

Research: prospecting and reconnaissance work on the deposits was carried out in 1927-1959. Based on the results of these works, the reserves of the deposit were repeatedly approved by the VKZ and DKZ of the USSR. The last time the reserves of iron ores of the Kamysh-Burunske deposit were approved by the decision of the DKZ of the USSR (protocol No. 8175 of November 22, 1978).

The deposit was developed by the Kamysh-Burunskiy iron ore plant.

Geological characteristics: the Kamysh-Burunske deposit belongs to the Southern group of deposits of the Kerch iron ore basin, located in the southeastern part of the Kerch Peninsula. The main deposits of the group are Kamysh-Burunske, Eltigen-Ortelske, Kyz-Aulske.

The deposit is a trough - a synclinal fold stretched in the sublatitudinal direction for 7.5 km, about 3.7 km wide, with gentle limbs. Geologically, the dimple is composed of Pontic limestones, Middle Kimmerian (ore) iron ores, and Upper Kimmerian and Kuyalnitski sand-clay deposits.

The main useful mineral is oolitic iron ores of Middle Cimmerian age with interlayers and lenses of ferruginous clays and shells.

Upper Kimmerian bentonite clays with a thickness of up to 26 m lie in the top of the ore layer. On the Upper Kimmerian clays, in places where they are eroded, sandy clays with interlayers and lenses of sand of the Kuyalnyiyskiy layer, with a thickness of 0 to 37.5 m, lie directly on the ore deposits or Meotian limestones. The Pliocene sediments are covered everywhere by Quaternary loams with a thickness of 0 to 25 m. The thickness of overburden rocks increases from the periphery to the center of the basin.

The main natural types of ores of the deposit are non-oxidized (tobacco) and oxidized (brown and caviar) ores. Tobacco ores have the greatest distribution. The thickness of tobacco ores is up to 11.35 m, the average for the deposit is 4.91 m. Brown ores occur on tobacco, less often on caviar, and on the periphery directly on Pontic deposits. The thickness of brown ores ranges from 0 to 15.85 m. Caviar ores form a lenticular layer with a thickness of up to 9 m 7 cm. The thickness of the ore deposit ranges from 1 to 19.1 m. The ores have an oolitic or pisolitic-oolitic texture. Ore components are oolites and pseudo-oolites of hydrogethite composition, less often hydrogethite-chlorite and chlorite. In addition, the ores contain minerals of the group of manganese oxides and hydroxides - psilomelan, pyrolusite, phosphates - vivianite, kerchenites and others.

The technological study of ores was carried out by the Institutes of Mekhanobr, Mekhanobrkhormet, Dnipropetrovsk Mining Institute, Kryvyj Rig Mining Institute, and Ukrkhormetrudny enterprises. According to the conclusions of Mekhanobrkhormet, the most successful ore beneficiation technology is the washing-gravity beneficiation technology, which was used at the Kamysh-Burunske iron ore plant. According to the data of the Azovstal Plant, the extraction of phosphorus in slags, which are used as a fertilizer, was 35%.

The hydrogeological conditions of the Kamysh-Burunske deposit are characterized by the presence of five aquifers (3 in the supra-ore layer, 2 in the sub-ore layer). Quaternary, Kuyalnitski and Kimmerian sediments belong to ultra-hard waters. Water enrichment of supra-ore horizons is low, filtration coefficients range from 0.0 to 10.5 l/h. Water inflow into the quarry to the overburden ledges will be 443 m³/day, to the ore ledges – 14800 m³/day.

The calculation of ore reserves of the deposit is based on the conditions approved by the DKZ of the USSR on October 12, 1977 (protocol No. 1167-k). The calculation of reserves and the assessment of quality were carried out separately for brown and tobacco ores with an on-board iron content of 30 and 34%, respectively two types of ores with iron content higher than the on-board one, which are located in the pit contour and in guard targets. Off-balance reserves include brown and tobacco ore reserves with content above cutoff, but located along the contour of the pit and not subject to development due

to low technical and economic indicators, as well as reserves of tobacco ores with an iron content below the on-board level.

Reserves were calculated using the method of geological blocks.

The Kamysh-Burunske deposit is classified as Group I according to the Classification of reserves of solid mineral deposits.

Degree of development: is not being developed.

The deposit is located on the territory of Crimea annexed by Russia. Reserves according to the State Balance of Mineral Reserves of Ukraine as of January 1, 2014 were compiled by category, thousand tons: iron ores:

- brown ironstones, brown: A+C1 – 84530.0;
- brown iron ores, tobacco ores: A+C1 – 1484032.0, off-balance – 3877.0;
- in addition, in the protected pillar (brown irons, brown, tobacco): A+C1 – 59125.0, off-balance – 5560.0.

phosphorite:

- phosphorous iron ore: A+C1 – 176073.0, incl. P2O5 – 3915.0;
- in addition, in the protected pillar phosphorous iron ore: A+C1 – 44935.0, incl. P2O5 is 937.0.