



CRM of Ukraine Database Supplements

Mineral target:	Tarasivske deposit
Commodity:	Titanium, vanadium, scandium

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Location: the deposit is located between the villages of Shcherbaki, Fasivka, Tarasivka, and Mykhailivka in the Fastivskiy and Bilotserkivskiy districts of the Kyiv region.

Research: The deposit was discovered in 1960-1963 as a result of geological surveying and prospecting works on a scale of 1: 50,000, 1:200,000. In 2006-2007, a detailed exploration of the Tarasivske deposit was carried out by the State Enterprise "Northern Geology". Mineral reserves have been tested by the DKZ of Ukraine (protocol No. 1710 dated 27.02.2009). In 2019, a detailed geological and economic assessment was carried out, according to the results of which the reserves of zircon-rutile-ilmenite-bearing sands were approved by the decision of the DKZ of Ukraine (protocol dated 01.23-02.11.2020 No. 5044-DSK).

Geological characteristics. Ore-bearing rutile-zircon-ilmenite sands of the deposit are associated with the Neogene Poltavaska Series sediments. The Poltavaska Series includes three horizons of different composition and grain size of sands: the upper one - with a thickness of up to 17 m, the middle one - with a thickness of 0.5 m to 30 m, and the lower one, which is spread only in the east of the deposit - with a thickness of 0.5-10 m. The main one containing the ore body is the middle horizon, the depth of which varies from 0.0 to 40.8 m, and which is a coastal-shallow marine placer of a sub-latitudinal extent up to 25 km and up to 12 wide km. The ore body (layer) is an alternation of layers of sand enriched to varying degrees with heavy minerals. The largest thickness of the deposit is found in the southwestern and southern parts of the deposit, where the sands of the middle horizon are enriched with ore minerals almost throughout its thickness and form a single almost continuous ore body with a thickness of up to 20.7 m. In the northeastern direction, it splits into two layers - the lower and the upper, which are separated from each other by a layer of sands with a thickness of 2 to 11 m with non-industrial content of ore minerals. The upper ore layer is the main one, as it contains about 95% of the industrial reserves of sand and useful components of the deposit.

The main useful minerals are rutile, ilmenite, leucoxene and zircon, associated minerals are disthene, sillimanite, staurolite. Ilmenite is usually altered. Its content in the heavy fraction is on average 45-50%, the average content of rutile in the heavy fraction is 12-20%, the zircon content is from 4 to 28%, leucoxene is up to the first percent. The total content of disthene and sillimanite varies from 4-8 to 20-24%.

Ore-bearing sands are weakly clayey (clay fraction - up to 10-15%), kaolinic, easily crumble when drying. According to technological studies, industrial sands are easily washable. The content of the collective concentrate in them ranges from 0.8 to 4.5%.

According to the results of chemical analysis, the content of the main components in the ore sands of the deposit is (%): SiO₂ – 85.5-91.2; Al₂O₃ – 1.5-2.5; TiO₂ – 3.2-5.9; ZrO₂ is 0.69-1.79. The main components of the chemical composition of the collective concentrate (in weight %) are: SiO₂ – 32.69; Al₂O₃ – 6.47; Fe₂O₃ – 9.79; TiO₂ – 36.59; ZrO₂ is 11.0.

Overburden rocks are represented by sands of the upper horizon of the Novopetrivska Suite, variegated clays of the Neogene age and Quaternary loams, loess, quartz sands and soil-vegetation layer. The total thickness of overburden is from 16.1 to 79.0 m, the average is 36.0 m.

The following aquifers are distinguished within the Tarasivske deposit: local aquifers in Quaternary sediments, characterized by low flow rates and their fragmentary distribution, mainly in floodplains and stream bottoms; the aquifer in the sands of the Novopetrivska Suite of the Neogene, which is spread over the entire area at +175 - +185 m, is pressure-free; the aquifer in the fractured zones of Precambrian crystalline rocks is below the ore sands and has a regional distribution. The water is under pressure, lying at +170 - +175 m.

The hydrogeological scheme of the deposit is a two-layer system of aquifers, separated by water-resistant rocks of the weathered crust of Precambrian crystalline rocks. Aquifers are interconnected. The calculated total water inflow into the pit for the final period of its development will be 3,963 m³/day.

Information about mineral resources and reserves is confidential.