



CRM of Ukraine Database Supplements

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

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Location: Korostenskiy District, Zhytomyr Region, on the left bank of the Irsha River, between the Shershni and Meleni villages, at a distance 8 km from the Irshansk village.

Exploration: the deposit was discovered in 1969 by Zhytomyrska GRE VGO "Pivnichukrgeologiya", and preliminary exploration was carried out in 1972 and 1982. In 1990-1994, at the request and with the participation of Irshanskiy GZK, detailed exploration was carried out with the aim of replenishing the plant's raw material base reserves. Ilmenite reserves and titanium dioxide of the Zlobytske deposit were approved by the DKZ of Ukraine (protocol dated 28.04.1995) under categories B, C1, C2. In addition to titanium dioxide reserves in ilmenite, vanadium pentoxide reserves were calculated and approved as well as scandium oxide according to category C2 and zirconium reserves in ore are approved according to category C2. Quartz sands for construction and foundry purposes are also approved according to categories B+C1, as well as underground drainage water for technical water supply – 4,198 m³/day. In 2012, "Nadra Ukrainy" JSC carried out a geological and economic assessment of the ore sands and ilmenite reserves (protocol No. 2796-dsk of 11.12.2012)).

Geological characteristics: the geological structure of the deposit is represented by crystalline rocks of the Lower Proterozoic, weathering crust over them and Meso-Cenozoic sediments. Proterozoic formations are most widely represented in the field by rocks of the mafic composition, among which gabbro-anorthosites of the normal series predominate. Gabbro-norites occupy the second most common place, and gabbro-peridotites are of secondary importance. Granitoids (mainly biotite-hornblende) are developed in the southwest of the site. The weathering crust of the kaolin profile is developed on the parent rocks of the crystalline basement almost everywhere and covers more than 90% of the area.

Ore-bearing in the deposit are sands of different grain sizes of Paleogene-Neogene age and weathered crust of crystalline rocks, which is represented by primary kaolins and a zone of disintegration. The average thickness of the industrial layer is 7.9 m and it varies from 2 to 15 m. The main titanium-bearing mineral in ores is ilmenite, with which 75 to 88.9% of titanium dioxide is associated. The amount of leucoxenized ilmenite in alluvial sands is about 10%, in the weathered crust no more than 5%. The ores contain zircon (0.31 kg/m³ in the alluvium and 0.05 kg/m³ in the weathering crust and a small amount of other ore minerals. The average content of ilmenite in industrial reserves is 67.7 kg/m³ in the alluvium, in the weathering crust - 59.0 kg/m³. Overburden is composed of sand-clay sediments up to 9 m thick, with variations from 1 to 25 m.

The hydrogeological conditions of the deposit are uncomplicated. Aquifers of modern alluvial deposits, Quaternary, Lower Cretaceous-Upper Oligocene-Middle Miocene sediments and waters of the fractured zone of crystalline rocks participate in the irrigation of the deposit. Aquifers are hydraulically interconnected. Water inflow to the quarry at the end of its development will be 2.4 thousand m³/day.

In 1990, radiometric studies were carried out over the entire area of the deposit and the adjacent territory. As a result, it was established that the activity in the deposit varies from 5-8 to 15-20 μ r/h. The ores and rocks of the deposit are non-radioactive (5-25 μ r/h), sharply undersaturated with free silica and therefore are not silicon-hazardous. There are no toxic substances in the rocks.

Information about mineral resources and reserves is confidential.