

GENERAL INFORMATION ABOUT MINERALS

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ABSTRACT

About the discovery of various mineral resources in the territory of Uzbekistan and the areas where mineral resources were found. This provided an opportunity for rapid development of important sectors of the national economy, especially gas, gold mining, energy, chemistry, non-ferrous metallurgy, non-ore raw materials and construction materials industries. The sources of fossil resources that have been identified up to now not only provide production enterprises with gold, copper, natural gas, oil, lead, zinc, coal and other products for a long time, but also allow to greatly expand production. Our article provides general information about mineral resources.

Keywords: Oil and gas fields, gold, silver, reserves, mineral resources, ancient times, mining, chemical raw materials, common and potassium salts, aluminum plants, industrial raw materials.

Natural chemical compounds or pure elements formed as a result of various physico-chemical and thermodynamic processes inside the earth's crust and on its surface are called minerals. The upper solid crust of the earth is called lithosphere. It is composed of different rocks, less minerals. Rocks and minerals are composed of various minerals. This term comes from the ancient word "mineral", that is, an ore stone, a piece of ore. Minerals are natural combinations of various physical and chemical processes occurring in the Earth's crust. Minerals in nature are mostly found in solid form, but there are also liquid minerals such as mercury, water and oil. Examples of gaseous minerals include carbon dioxide, hydrogen sulfide, sulfide gas, and others. Currently, more than 4,000 minerals and their types have been identified. Only about 50 minerals take part in the formation of togjins. Such minerals are called rock-forming minerals. It is impossible to study rocks without knowing the formation conditions, composition and physical properties of rock-forming minerals. The results of chemical, thermal and other analyzes are used to determine the important physical properties of minerals. They include the following: 1. Morphological properties - crystalline forms, their natural outgrowths, structure of aggregates, concretions, geodes, oolites. 2. Optical properties - the color of the mineral piece, the color of the trace, clarity, gloss. 3.



Mechanical properties - mineral hardness (Moos scale), connection plane, fracture and brittleness. 4. Chemical properties - interaction with hydrochloric acid, solubility, taste and smell. 5. Other properties are specific gravity and magnetism. Importance of minerals in industry and national economy. It is known that the territory of Uzbekistan has a different geological structure and its own history. That is why this area is rich in various minerals. As a result of many years of geological research in the territory of Uzbekistan, it was found that there are various precious mineral resources, and several deposits of their quantitative aspect and industrial importance. This provided an opportunity for rapid development of important sectors of the national economy, especially gas, gold mining, energy, chemistry, non-ferrous metallurgy, non-ore raw materials and construction materials industries. The sources of fossil resources discovered to date not only provide production enterprises with gold, copper, natural gas, oil, lead, zinc, coal and other products for a long time, but also allow to expand production.

1. Fuel is energy wealth. This group of minerals includes oil, gas and coal. Oil and gas deposits were found in the Fergana Basin in Northern Sukh, Southern Alamushik, Polvontash, Chimyon, Shursu and other places. These are located between layers of sedimentary rocks laid down in the Jurassic, Burian, Paleogene and Neogene periods. The deposits of the Paleogene period are particularly rich in mineral resources. Oil can be obtained in the layers of Paleogene limestones in the Sherabad-Surkhondarya basin in Khovdag, Uchkizil, Kakayti and other places. Oil and gas fields were also opened in the anticlinal folds of Upper Jurassic carbonate rocks in the places named Odamtash, Gumbulok, Pachkamar, Kyzilbayroq, Oman, in the south-western branches of the Khysar ridge. In the plains of Kashkadarya and Bukhara regions, several oil and gas fields (Mubarak, Okjar, Saritosh, Jargoq, Karavulbazar, etc.) have been discovered, which are related to Jurassic and Burian sedimentary rocks. A very large gas reserve was discovered in the Gazli field in the Bukhara region in the 1950s. It is now running out as a result of its massive pipelines to central Russian cities and the Urals. In addition, gas fields were opened between the layers of Jurassic sedimentary rocks in the places called SHokpakhta and Kuanish on the Ustyurt plate. On the territory of Uzbekistan, four deposits of kumir are known (Okhangaron Shargun, Boysun, Kukhitang). Among them, the Okhangaron copper idol mine is located in the middle of the Okhangaron river valley in the Tashkent region, and is being mined in an open-pit way. The reserve of this coal mine is 96.5% of all coal reserves found in the republic. The second mine in Uzbekistan is the high-quality Shargun coal mine in the mountainous part of Surkhondarya region. The mine is located



between the Jurassic deposits at an altitude of 600-800 m above sea level. The average thickness of Kumur layers is 4.5 m, and the thickness of some reaches 12 m. Boisun and Kuhitang idol deposits were also discovered in this area, and they are also among the deposits of the Jurassic period.

2. Black metals (iron, titanium, manganese, chromium), rare metals (tungsten, molybdenum, tin, bismuth, mercury, antimony, etc.) have been found in Uzbekistan. Several mines of iron and titanium have been opened on the territory of the republic. Their formation is related to volcanic processes, deposition of sedimentary rocks and hydrothermal processes that occurred during the geological development of the region. One of the iron ores associated with volcanic processes is Tebinbuloq located in the Karakalpakstan region, Kazgantog in the Khysar ridges, Surenota, Shabrez, Mingbuloq, Ikhnach, Chingan located in the eastern part of Uzbekistan, and others. Black metals associated with sedimentary rocks have been found in Orololdi, Kyzylkum, Sultan Weiss and other places. Manganese deposits formed as a result of volcanic, sedimentary and hydrothermal processes were discovered in Zarafshan, Zirabulok, Koratepa and other mountains. However, their identified reserves are not large. Chromium deposits related to volcanic processes were found in Tamditog and Sultan Weiss ridges. Many mines of copper from non-ferrous metals have been opened in the territory of Uzbekistan. Ore is being mined from three mines (Kalmokgyr, Sarichekuv, Dalnee on the northern slopes of the Kurama mountains). The Almalyk Mountain Metallurgical Enterprise operates on the basis of the raw materials extracted from these mines. Copper in the deposits is found in shale of the Lower Paleozoic period, effusives of the Lower Devonian period, carbonate rocks of the Devonian-Coal period, and intrusive rocks that broke through them during the Middle Coal period. In addition, copper deposits have been found in other regions of Uzbekistan (Kyzilqum, Southern Uzbekistan). Lead and zinc are found in many regions of Uzbekistan. Such minerals are known in Khandiza in South Uzbekistan. Chotkol-Kurama mountains are very rich in minerals. In these lands. Kurgoashinkon, Miskon, Koshmansoy and other mines were opened. Lead and zinc mines were also opened in Uchkuloch in Jizzakh region, Konjaylau, Kulochalok in Tashkent region and other places. The most important of these is Uchkuloch mine. A number of deposits of rare metals have been found in the territory of Uzbekistan. Tungsten deposits were found in Langar, Kuytosh, Zirabulok-Ziyovitdin ridges in the Southern Nurota mountain range, Ingichka in the Chakilkalon ridge, YAkhton in the Chakilkalon ridge, Jom, Sarikul, Sazagan in the Karatepa ridge and other places. In general, there are 6 large tungsten mines in Uzbekistan. Around 140, more or less tungsten is found. Among



tungsten mines, Kuytosh and Ingichka mines have been mining this ore for many years. Molybdenum deposits have been opened in some regions of Uzbekistan: in the western part of the Khisar mountain ranges (Obizarang), in the Piskom mountains (Aygaining), in the Kurama mountains (Shaugaz) and in other places. Currently, molybdenum is mined in large quantities in Almalik along with other minerals. Because no pure molybdenum deposit has been found in Uzbekistan so far.

3. Among the chemical raw materials, there are salt and potassium salts in the territory of Uzbekistan. These were formed in marine and terrestrial conditions during the Upper Jurassic, Lower Burian, Neogene and Quaternary periods. Osh and potash salts formed in the conditions of the Upper Jurassic sea are especially common in the south-western part of the republic. In this area there are Boybichakon, Khujaikon, Tubegatang, Aqbosh, Laylimkon and others. Uzbekistan also has large reserves of potassium salts. They were formed in the Jurassic period and are often found together with table salt. They are large deposits named Tubegatang, Oktash, Adamtash, Okmachit located in Kashkadarya and Surkhandarya regions. Large phosphorite deposits of current industrial importance have not been identified in Uzbekistan. Mines with large reserves have been opened in Molguzor, Nurota mountains and Surkhandarya basin. In several tectonic structures in the Adir region of the Fergana basin (Kizilarcha, Andijan, Kurshob, etc.), the presence of sulfur was found in the Burian and Paleogene deposits, in the southwestern branches of the Khysor ridge, and in the Paleogene and Jurassic deposits of the Ustyurt plateau. Currently, the Mubarak Sulfur Gas Refining Plant in Uzbekistan is the main source of this raw material.

4. Raw materials for aluminum and mirrors include kaolin, alunite and bauxite. A large deposit of kaolin was discovered in the area where the iron idol mine is being mined. Alunite deposits are located on the slopes of Kurama, Chotkal, and Karjantog ridges. No high-quality bauxite deposits of industrial importance have been found in the territory of Uzbekistan. A number of small bauxite deposits of medium and low quality have been opened in the Nurota Mountains, Kyzylkum, and Hisar Mountains. There are more than 30 graphite mines in Uzbekistan. Its large deposit was opened and is being mined in Toshkazgan in the Kuljuktog range. The ore reserve in the mine is 7 mln. about a ton. Asbestos deposits have been found in the Sultan Weis Range, Southern Fergana and Hisar Ranges, but raw materials are not mined from them. Corundum mines were opened in Sharaksoy in the Molguzor range and in Aktash in the Karjantog range. Topaz was found among precious stones in Almabulok, Kenkol, Gava, CHarkasar in the Kurama range, Sargardon in the Chotkol range, Aktash in Central



Kyzylkum and other places. About 30 places in Uzbekistan have been identified. The main ones are Ungurlikon, Shaugaz, Urgaz, Kalmokkir, Akturpoq, Ibrokhimota, Samarkandik, Ayakoshi, Irlir, Ouminzatog, Muruntog, Toshkazgan, Aytim in Kizilkum and others. Amethyst was found in the upper reaches of the Piskom River in Miskon, Maidontol and other areas. There is also rock crystal in the Piskom ridge (Shamterak, Anaulgan). A large reserve of marble onyx was discovered in Gunjak in the Zirabulok-Ziyaviddin mountains, Ajinakamar in the Kuhitang ridge and other caves. In addition, it was found that there are jasper, nephrite, lapis lazuli and other precious and semi-precious stones in the territory of Uzbekistan. Uzbekistan has a large reserve of quartz sand. There are 13 mines in total, such as Maisky mine in Tashkent region, Azadboshi mine, Jeruy mine in Kyzilkum, Karmana mine. They were formed in the Eocene period. Industrial importance of minerals and mineralogical research. There is not a single field of industry in which some mineral is not used, either directly as a raw material or as a reprocessed product. It is known to everyone that various types of cast iron and steel produced by mining iron ore and metallurgically are of great importance to man. It is the main nerve of the iron industry. It is the basis for metallurgy, machine-building, shipbuilding, railways, bridges, reinforced concrete structures, mining equipment, consumer goods, etc. In turn, iron metallurgy alone requires about 40% of the solid mineral fuel produced - coke. Liquid mineral fuel-oil and its processed products also play an extremely large role in industrial development. The importance of combustible gases is also increasing day by day. In the development of non-ferrous metallurgy, electrical industry, shipbuilding, aircraft construction, machine building and other industries, metals extracted from ores of copper, zinc, lead, aluminum, nickel, cobalt, which are called non-ferrous metals, play an important role. Rare metals: tungsten, molybdenum, as well as titanium, cobalt, etc. are of great defense importance. The development of agriculture depends on the widespread use of mineral fertilizers, potassium minerals (potassium salts), phosphoric minerals (apite, phosphorite), nitrogenous minerals (saltpeter) and others. For example, sulfuric acid is obtained from sulfur-rich colche (pyrite); a lot of minerals pure innate sulfur, saltpeter, plalar minerals are used in the preparation of chemical preparations; sulfur, talc, barite in the rubber industry; asbestos, quartz, graphite, etc. in the production of fire-resistant products with acids; decorative stones also play a big role in human life. In addition to precious stones, which are often used in decorative and artistic works, there are also many colored stones that are used to decorate walls. The best structures in our country are decorated with pink rhodonite, colorful jasper, marble, and quartzite. Bearings for watches and



other precise mechanisms are made from quartz, ice spar, zircon and other minerals. Diamond (carbonado), corundum, garnet, quartz are used as abrasive materials for grinding and polishing booms. Soft and greasy minerals (talc, graphite) are used as fillers mixed with oils used to lubricate the melting parts of mechanisms. From the above brief information on the use of minerals and products obtained by processing them, it is clear how important mineral raw materials are in the national economy.

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