



2023 Minerals Yearbook

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THE MINERAL INDUSTRY OF KAZAKHSTAN

By Karine M. Renaud

In 2023, Kazakhstan produced a diverse range of mineral commodities and was the world's leading producer of uranium. In addition, Kazakhstan was the 2d-ranked producer of asbestos (accounting for 21% of world production) and magnesium metal (2.4%); the 3d-ranked producer of chromite (13%); the 4th-ranked producer of barite (8%) (not including United States production) and titanium sponge (4.4%) (not including United States production); the 5th-ranked producer of ferrosilicon (2.4%) (not including United States production), and refined bismuth (1.0%); the 6th-ranked producer of mined gold (4.1%), tied in ranking with Russia for refined cadmium (4.1%) and sulfur (5.9%); the 7th-ranked in production of molybdenum (1.5%) and rhenium (0.8%); the 8th-ranked producer of coal (1.1%) and zinc (2.8%); the 10th-ranked producer of bauxite (1.0%) (not including United States production) and mined copper (3.3%); the 11th-ranked producer of silicon metal (0.2%) (not including United States production); the 12th-ranked producer of alumina (0.9%) and refined copper (1.7%); 14th ranked in antimony (0.04%); the 15th-ranked producer of iron ore (Fe content) (0.6%); and the 19th-ranked in phosphate rock (0.6%) and crude petroleum (1.9%). The mineral industry accounted for a 4.9% share of the country's gross domestic product (GDP) and 66% of its export revenue. Crude petroleum and natural gas were Kazakhstan's leading mineral commodities in terms of production value. The Government promoted development and owned interests in a number of major mineral-commodity-producing companies (table 1; Agency of Statistics of the Republic of Kazakhstan, 2024, p. 49, 58; Energy Institute, 2024, p. 15, 39; Apodaca, 2025; Bray, 2025; Callaghan, 2025; Flanagan, 2025a, b; Jasinski, 2025; Kim, 2025; Klochko, 2025a, b; Merrill, 2025; Polyak, 2025a, b; Schnebele, 2025; Schulte, 2025; Sheaffer, 2025; Tolcin, 2025a, b; Tuck, 2025).

Minerals in the National Economy

In 2023, Kazakhstan's real GDP increased by 5.1% compared with that in 2022, and the nominal GDP was about \$263 billion. The share of industrial production in the GDP was 39.0% compared with 47.0% in 2022. Total nominal industrial production was valued at \$103.0 billion,¹ and industrial production decreased by 3.7% from that in 2022. Mineral extraction played a significant role in industrial production—\$48.1 billion, or 46.7% of the value of nominal industrial production, was from this sector. The output value of mineral extraction included \$34.7 billion from the extraction of crude petroleum; \$8.5 billion from the mining of nonferrous metal ores; \$1.1 billion each from the mining of iron ore and from the extraction of coal, including lignite; \$898 million from other minerals; and \$579 million from the extraction of

natural gas. In comparison with that in 2023, the output value of mining and quarrying increased by 4.9%. The value of the following commodities increased in 2023: crude petroleum, by 6.8%; natural gas, by 2.8%; metal ores, by 0.1%; and other minerals, by 1.8%. The value of coal, including lignite, and iron ore decreased by 6.8% and 6.5%, respectively. In 2023, metallurgy contributed \$20.3 billion to industrial output, of which nonferrous metallurgy and production of precious metals contributed \$12.1 billion; ferrous metals accounted for \$5.8 billion; and petroleum refining and coke production accounted for \$2.4 billion. Compared with that in 2022, the output of ferrous metals increased by 0.1%, whereas the output value of nonferrous and precious metals decreased by 3.0%; and that of petroleum refining and coke increased by 0.2% (Agency of Statistics of the Republic of Kazakhstan, 2024, p. 13–14, 107–108).

Government Policies and Programs

Kazakhstan was a member of the Commonwealth of Independent States (CIS) and a member of the Organization of Turkic States, which promotes cooperation in cultural, economic, environmental, humanitarian, political, and other fields among CIS countries and other areas among Turkic States. Kazakhstan was one of the founding members of the Eurasian Economic Union (EAEU), which was established in 2015. Joining the EAEU opened up free trade between Kazakhstan and other EAEU members (Armenia, Belarus, Kyrgyzstan, and Russia) and led to new investments in the development of domestic and foreign infrastructure projects, including those in the energy and transportation sectors (Eurasia Economic Union, 2014; Ministry of Foreign Affairs of the Republic of Kazakhstan, 2019; Organization of Turkic States, 2024a, b; Soyuz PravoInform LLC, 2024; Executive Committee of the Commonwealth of Independent States, undated, p. 1).

Qazgeology JSC (Qazgeology, also known as KazGeology), 100% owned by NMC Tau-Ken Samruk JSC (100% owned by National Wealth Fund Samruk-Kazyna JSC), was the sole company involved in exploration activities for solid minerals in Kazakhstan. Qazgeology provided support to investors by helping them to obtain subsoil use rights, select locations, and conduct geological exploration. In Qazgeology's Development Strategy for 2016–2025, the company defined its mission and laid out strategies for achieving its long-term goals and objectives. As a part of the Development Strategy, Qazgeology cooperated as a partner with foreign investors such as Rio Tinto plc of the United Kingdom, Ulmus Fund B.V. of Germany, and Yildirim Holding A.S. of Turkey in exploration activities. Qazgeology continued to conduct exploration activities with foreign and local investors in chromite, copper, gold, iron ore, nickel-cobalt, platinum, and polymetallic ore (Qazgeology JSC, 2016, p. 21–34; 2023a–c; undated).

¹Where necessary, values have been converted from Kazakhstan tenge (KZT) to U.S. dollars (US\$) at an average rate of KZT456.0=US\$1.00 for 2023, KZT460.48=US\$1.00 for 2022, and KZT426.03=US\$1.00 for 2021.

The Ministry of Industry and Construction regulates the chemical industry, Government geologic study of the subsoil, energy saving and efficiency improvements, industrial development, maintenance of mineral resources database, production of precious metals and stones, and the mining and metallurgical complexes. The Ministry is also responsible for creating economic zones. Agencies under the Ministry of Industry and Construction include the Construction Committee, the Geology Committee, the Industrial Development Committee, and the Department of Subsoil Use for Solid Minerals, among others, which are involved in establishing Federal policy for subsoil use. According to Presidential Decree of May 1992, the Committee of Atomic and Energy Supervision, which is under the Ministry of Energy, is responsible for the regulation of the nuclear industry. The Ministry of Energy also includes Departments such as the Department of Nuclear Energy and Industry, Department of Oil Development and Production, Department of Oil Transportation and Refining, Department of Subsoil Use, and others (Nuclear Threat Initiative, 2021; Ministry of Energy of the Republic of Kazakhstan, 2024; Ministry of Industry and Construction of the Republic of Kazakhstan, 2024).

The “Subsoil and Use of Subsoil Code” (Mining Code, or Code) of the Republic of Kazakhstan went into effect at the end of June 2018. The Code introduced several innovations in an effort to attract new investment and venture capital to the mining industry. It also significantly simplified the procedures required to obtain exploration and mining licenses and reduced the time requirements to obtain relevant permits. Since its adoption, the Code has been amended several times to improve it and better integrate it with other laws of Kazakhstan. One such amendment, which went into effect in 2018, allowed artisanal production of gold in Kazakhstan. The Code limited gold production to 50 kilograms per year (kg/yr) for an individual artisan. Individual artisans were not allowed to use heavy machinery in their production. The Code was expected to reduce illegal gold mining by allowing small entrepreneurs to mine gold legally. Three years later, by 2021, however, evidence showed that the Code was not working as expected. Data from several Provinces demonstrated that the interest in obtaining artisanal mining licenses was very low, and the Code did not reduce illegal mining. It appeared that individual miners still preferred informal, unrestricted mining to legal mining as individual artisans (Forbes.kz, 2018; Zhuravleva, 2020; Yuritsyn, 2021; Inform.kz, 2022).

The Kazakhstan Association of Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (KAZRC Association) was established to meet international standards for reporting mineral resources and reserves. With the Committee for Mineral Reserves International Reporting Standards (CRIRSCO)’s cooperation and its International Reporting Template (of 2019), the KAZRC Association developed the KAZRC code for reporting the mineral resources and reserves and exploration results conducted by mining and exploration companies in Kazakhstan (Kazakhstan Association of Public Reporting for Exploration Results, Mineral Resources and Mineral Reserves, 2021, p. 2, 4).

Production

In 2023, significant increases in mineral production in Kazakhstan included the production of mined manganese, crude ore (gross weight) and mined manganese, crude ore (Mn content), which increased by 167% each; molybdenum (Mo content), by 86%; mined lead (Pb content), by 53%; rhenium (Re content) and titanium sponge, by 50% each; sulfur (byproduct of natural gas and petroleum, S content), by 22%; phosphate rock (gross weight) and phosphate rock (P₂O₅ content), by 19% each; gravel, by 16%; stone of unspecified shape and size, by 15%; natural sulfur, by 14%; raw steel, by 13%; natural gas (non-associated), by 12%; and manganese concentrate and salt, by 11% each. Production of metallurgical beryllium products decreased by 35%; mined gypsum, by 30%; sulfur (byproduct of metallurgy, S content), by 27%; magnesium metal, by an estimated 19%; iron ore (gross weight), by 15%; silver (mined, Ag content) and refined silver, by 14% each; pig iron, by 12%; and sulfuric acid, by 11%. Data on mineral production are in table 1.

Structure of the Mineral Industry

As of January 1, 2023, Kazakhstan had 5,106 companies working in the mining and quarrying sector, of which 4,919 were small; 83, medium; and 104, large. Some of the companies were fully or partially owned by the Government. Eurasian Resources Group (ERG), NAC Kazatomprom JSC (Kazatomprom), and JSC NC KazMunaiGas were the leading companies partially owned by the Government. Other companies involved in the production of minerals were Kazakhmys Corp. LLP (Kazakhmys), KAZ Minerals Ltd. (KAZ Minerals), and Kazzinc Ltd. (Kazzinc). Of all the mining companies operating in Kazakhstan, 472 were owned by foreign entities or individuals; 311 were joint ventures with participation of foreign capital; 7 were joint ventures without participation of foreign capital; and the rest were owned by private entities and individuals in Kazakhstan. Of large companies, 28 were owned by foreign entities or individuals; 24 were joint ventures with participation of foreign capital; 1 was a joint venture without participation of foreign capital; and the rest were owned by private entities and individuals in Kazakhstan. Table 2 is a list of major mineral industry facilities (table 2; Agency of Statistics of the Republic of Kazakhstan, 2024, p. 183).

Mineral Trade

In 2023, the value of Kazakhstan’s exports amounted to \$79.1 billion, which was a 6.4% decrease compared with the value of exports in 2022. Crude petroleum, copper, ferroalloys, flat-rolled steel, and natural gas were the primary sources of export revenue. Overall, in 2023, 71.5% of Kazakhstan’s export revenue was from exports of mineral products. Revenue from exports of refined copper and copper alloys decreased to \$3.2 billion from \$3.7 billion in 2022; ferroalloys, to \$2.3 billion from \$3.2 billion; coal, to \$703 million from \$932 million; raw zinc, to \$604 million from \$834 million; and raw lead, to \$148 million from \$170 million. Revenue from exports of crude petroleum and natural gas concentrate increased to \$42.3 billion from \$46.9 million; natural gas, to \$1.7 billion

from \$1.4 billion; iron ores and concentrates, including iron ore pellets, to \$761 million from \$681 million; and flat-rolled steel products, including white tin, to \$1.3 billion from \$1.6 billion. Kazakhstan's leading export partner was Italy (which received 18.7%, by value, of the country's total exports), followed by China (18.5%), Russia (12.9%), the Netherlands (5.7%), Turkey (4.9%), the Republic of Korea (4.8%), Uzbekistan (3.9%), and France (3.7%) (Agency of Statistics of the Republic of Kazakhstan, 2024, p. 49, 51–52, 266–267).

In 2023, Kazakhstan's imports increased by 18.6% to \$60.4 billion compared with the value of imports in 2022. Overall, in 2023, mineral products comprised 4.5% of Kazakhstan's imports, in terms of value. Major contributors to the value of mineral product imports included steel pipe imports, which increased in value to \$1.2 billion from \$738 million; petroleum product imports, which increased to \$924 million from \$817 million; natural gas imports, which increased to \$335 million from \$232 million; and coal imports, which increased to \$97 million from \$81 million. Revenue from imports of coke and semi-coke from coal decreased to \$150 million from \$265 million. Kazakhstan's leading import partner was Russia (which shipped to 27.8% of Kazakhstan's total imports, by value), followed by China (25.4%), Germany (5.0%), the United States (4.2%), the Republic of Korea (3.6%), Turkey (3.3%), Japan (2.6%), France and Uzbekistan (2.1% each), and Italy (2.0%) (Agency of Statistics of the Republic of Kazakhstan, 2024, p. 49, 54–55, 267–268).

Commodity Review

Metals

Aluminum.— In 2023, Kazakhstan produced 261,000 metric tons (t) of aluminum, which was a 4.8% increase compared with 2022 owing to the restoration of electrolysis plant operations in 2022. Kazakhstan Aluminum Smelter JSC (KAS), which was a division of ERG, was the sole producer of primary aluminum in Kazakhstan. KAS completed the upgrade of the anode roasting furnace. The production of anode (used for producing aluminum) was expected to increase to 138,300 metric tons per year (t/yr). As a result of further modernization, the production of anodes was expected to increase to 153,000 t/yr (tables 1, 2; Eurasian Resources Group, 2023, p. 19, 22).

Barite.—In 2023, Kazakhstan produced 650,000 t (estimated) of barite ore and concentrates, which was the same amount estimated for 2022. GRK Metalinvest LLP was expected to start developing the Ansay barite deposit in Turkistan Province. The deposit was expected to be developed by using the open pit method. The company also was expected to construct a mineral-processing complex that could produce 250,000 t/yr of barium sulfate near Kentau City. The project was expected to start production in 2024 (tables 1, 2; PromoGroup Media KZ LLP, 2023a).

Beryllium.—In 2023, Kazakhstan produced 843 metric tons (t) of beryllium metallurgical products, which was a 35% decrease compared with 2022. Ulba Metallurgical Plant JSC (UMP JSC), which is a subsidiary of Kazatomprom, was the sole producer in the CIS of beryllium, niobium, and tantalum metal products. During Soviet times, Kazakhstan

imported and stockpiled beryllium concentrate from the Ermakovskoe, Malyshevskoe, and Zavitsinskogo deposits for the plant; however, in 1991 the imports stopped. In 2023, the company processed concentrate from remaining stockpiles and from the supply of beryllium concentrate imported from African countries, which are similar in content to Ermakovskoe concentrate. However, because the supply of beryllium concentrate imports was, in 2023, Kazatomprom, through JSC UMP, obtained exploration licenses for Verkhny Irgiz in Aqtobe Province and Karadzhal in Ulytau Province for exploration and further development and production of concentrates such as beryllium, niobium, and tantalum. The production of concentrates was expected to start in 2027. In addition, in 2023, Kazatomprom adopted the Program of Scientific and Technological Development of Rare Earths and Rare Earth Metals for 2022–2029 to develop new technology, scientific studies, and innovations for the extraction of new valuable metals (tables 1, 2; Chumina, 2023, 34–36; NAC Kazatomprom JSC, 2023a, p. 14; c).

Ressource PV LLP obtained a license for the development of the Nura-Taldy (Nurataldy) deposit. The deposit was expected to supply beryllium to JSC UMP and to reduce dependence on imported beryllium concentrates. The open pit mining method was expected to be used for approximately 10 years. The total “balanced” reserves, which are of high quality and not difficult to mine, was estimated to be 4.39 Mt. The total “off-balance” ores, which are difficult to mine and have a low quality, was estimated to be 432,900 t at an average grade of 0.19% beryllium. The project was expected to start in 2 years; however, the locals expressed concern over environmental impact in the area (PromoGroup Media KZ LLP, 2024).

Chromium and Ferroalloys.—In 2023, Kazakhstan produced 3.8 million metric tons (Mt) of chromium concentrate, which was a 1.7% decrease compared with 2022, and 2.0 Mt of total ferroalloys, which was a 4.7% decrease compared with 2022. In 2023, TNC JSC Kazchrome (Kazchrome), which was a division of ERG, was the leading producer of chromite and ferroalloys in Kazakhstan. Kazchrome had four major production units: the Aksu ferroalloy plant in Pavlodar Province, the Aqtobe ferroalloy plant in the city of Aqtobe, the Kazmarganets Mining Enterprise (the processing complex of the Tur manganese mine in Qaraghandy Province), and the Donskoy GOK (which stands for gorno-obogatitelnyi kombinat [mining and beneficiation complex]) in the city of Khromtau in Aqtobe Province, which was involved in chromite mining and processing. In 2023, Kazchrome's Donskoy GOK complex produced 5.2 Mt of chromite ore, which was an 8.3% increase compared with 2022 production. In 2023, Kazchrome produced 1.6 Mt of ferroalloys, which was 5.9% less than production in 2022. Also, in 2023, the company exported about 1.5 Mt of ferroalloys (tables 1, 2; Eurasian Resources Group, 2023, p. 21; TNC Kazchrome JSC, 2022, p. 13–14; 2023, p. 6, 15–16).

Kazchrome held approximately eight contracts and licenses for expansion and exploration for chromite, manganese, and polymetallic ore. In 2023, Donskoy GOK continued to work on the phase 2 development of the 10-years Independence of Kazakhstan. The production was expected to start after the completion of phase 2 in the fourth quarter of 2024, which

was expected to increase production at Donskoy GOK up to 7.5 million metric tons per year (Mt/yr) of ore. As a result, the production of ferroalloys was expected to increase as well. The company continued to conduct exploration for copper, gold, lead, silver, and zinc at Adylbai area; for chromite at the Bil'ge mineral occurrence, the Yuzhno-Kempirsayskoiy ore field, and Daul'sko-Kokpektinskaya area; and for polymetallic ore at the Karakuduk deposit. In 2023, the company started an open pit mine at the Yuznoye quarry of the 40 years of Kazakhskoy SSR Mine, and Geologicheskii-I underground mine. The company was expected to start production at the mines Geofezicheskoe VII and #39 using underground mining methods. The total balanced reserves (B, C1, and C2) at Donskoy GOK were estimated by Kazchrome to be 301.4 Mt grading at 51.5% Cr₂O₃ (Eurasian Resources Group, 2023, p. 21; TNC Kazchrome JSC, 2023, p. 26, 32, 34).

In 2023, EkibastuzFerroAlloys LLP continued to work on the construction of the fully automated plant located in the city of Ekibastuz, Pavlodar Province, in close proximity to the hydroelectric powerplant Ekibastuz GRES-1. In 2021, EkibastuzFerroAlloys LLP reported that the total cost of the construction project was \$216 million. To finance the project, the company borrowed \$169 million from JSC Development Bank of Kazakhstan. The remaining \$47 million was financed by private investors. The new plant would have an annual production capacity of 240,000 t/yr of high-grade ferrosilicon. The plant was expected to start operations in the fourth quarter of 2025 with an initial production capacity of 80,000 t/yr. By 2026, the production capacity of the plant was expected to increase to 160,000 t/yr. The plant was expected to create 1,500 jobs during construction and 800 permanent jobs when commissioned (Advis.ru, 2021; Rossaprimavera.ru, 2022; Serikpayev, 2024; EkibastuzFerroAlloys LLP, undated).

Copper.—In 2023, Kazakhstan produced 741,000 t (estimated) of total copper in concentrate and 311,820 t of smelted copper, which were a 2.8% increase and 9.5% decrease compared with 2022, respectively, and 458,000 t of total refined copper, a 7.1% decrease. The five leading copper concentrate producers in Kazakhstan were as follows: KAZ Minerals, which had operations in Abay, Pavlodar, and East Kazakhstan Provinces; Kazakhmys, which had operations in Abay, Qaraghandy, Ulytau, and Zhambyl Provinces; Aktyubinskaya Mednaya Kompaniya LLP (AMK) [a subsidiary of Russian Copper Co. (RMK) of Russia], which operated in Aqtobe Province; Kazzinc (Glencore International plc of Switzerland, 69.61%), which operated in East Kazakhstan Province; and Polymetal International plc (Polymetal), which operated in Qostanay Province. The production of refined copper was predominantly in East Kazakhstan Province, Qaraghandy Province, and Ulytau Province (tables 1, 2).

In January 2023, Zhanashyr Project LLP, a subsidiary of Kazakhmys, started mining copper ore at the Zhaisan Mine, located in Zhambyl Province, by using the underground method. The production capacity was estimated to be 300,000 t/yr of copper ore and was expected to increase to 600,000 t/yr in 2024. In November 2023, owing to the death of two workers at the Zhaisan Mine, all work was suspended at Kazakhmys's underground mines. The suspension of all mines was expected

to last until all violations were identified and resolved. The mine was expected to produce until 2041. The mined ore was processed at the Balkhash concentrator (table 2; JSC Kazakhmys Copper, 2022, p. 20–22, 30, 54; 2023, p. 52–53; Kazakhmys Corp. LLP, 2023; MINEX Forum, 2023b; Zharbulova, 2023).

The Copper Technology LLP, a subsidiary of Russian Copper Co. (RMK) of Russia, began construction of an underground mine at the 50 years of October Mine in Aqtobe Province; ore had been mined at the 50 years of October Mine from 2006 to 2009 from an open pit mine. The production was expected to start in 2024 with a production capacity of 500,000 t/yr of ore. The mine life was estimated to be approximately 23 years. The geological reserves for underground mining were estimated by RMK at 9.7 Mt of ore, including 169,500 t of copper grading at an average of 1.75% Cu (table 2; Vestnik Zolotopromyshlennika, 2021).

In addition, Copper Technology LLP was expected to start development of the Priorskoe deposit using an underground mining method in Aqtobe Province. The construction of the mine was expected to begin in 2025 and to be completed in 2029. Its production capacity was expected to be 500,000 t/yr of ore. The exploitation was expected to start in 2030 and have a mine life of 18 years (Department of Ecology for the Aqtobe Province of the Committee for Environmental Regulation and Control of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan, 2023, p. 1).

Irkaz Metal Corp. LLP, a subsidiary of Kavand Nahan Zamin Co. (KNZ) of Iran, was expected to start a third phase of a mining complex with additional production capacity of 5,000 t/yr of copper cathode. Construction of the third phase was expected to start in 2024 and be completed in 2025; the plant was expected to employ 140 workers. In 2022, Irkaz Metal Corp. LLP launched the mining complex at the Borly copper deposit in Qaraghandy Province with a production capacity of 5,000 t/yr of copper cathode by using the heap leaching process (table 2; Kazakhstan Forbes, 2022; NC Kazakh Invest JSC, 2022; Mamyshev, 2024a).

Gold and Silver.—In 2023, Kazakhstan produced 131,204 kilograms (kg) of mined gold, which was a 1.1% increase compared with 2022 production, and 70,990 kg of refined gold, a 2.8% decrease compared to 2022. The leading producer of mined gold in Kazakhstan was JSC Altyntau-Kokshetau (Kazzinc, 100%), which had operations in Aqmola Province, and Polymetal, which was one of the leading producers of precious metals in Russia and operated in East Kazakhstan and in Qostanay Provinces. JSC AK Altyntalmas (AK Altyntalmas) operated in Qaraghandy Province and Zhambyl Province (tables 1, 2; Sheaffer, 2025).

JSC Altyntalmas owned 100% of Eastern Gold LLP. Eastern Gold LLP was continuing its work on conducting exploration, mining, and processing of the Rodnikovoe and Belaya Gorka deposits in Abay Province. The construction of a gold dore facility was nearly completed. The exploration license was issued for 6 years. The ore from the Rodnikovoe deposit was expected to be processed by using heap leaching, and the production capacity was expected to be 200,000 t/yr of gold. Production from the Belaya Gorka deposit was 290,000 t/yr

of gold ore. The company was expected to begin operations and launch the plant in the fourth quarter of 2024 (Nurzhanuly, 2023, p. 4–5; SkyBridge Invest, 2023, p. 4–6; Kapital.kz, 2024).

JSC Altyntau-Kokshetau, 100% owned by Kazzinc, was expected to operate the Vasilkovsky Mine using an open pit mining method between 2023 and 2026. After 2026, the company was expected to process “off-balance” ores from the warehouse. As of 2023, the company estimated the total proved and probable reserves at the Vasilkovsky Mine to be 55 Mt of ore grading 1.8 grams per ton (g/t) gold (table 2; Inbusiness.kz, 2023; Glencore plc, 2023, p. 101).

JSC GMK Kazakhaltyn, which operated the Aksu and the Bestobe mines, was acquired by AK Altynalmas JSC (AK Altynmas) in 2021. In 2023, AK Altynalmas produced 14,606 kg of gold. AK Altynalmas operated 17 active mines and projects in Kazakhstan, 6 of which (Baktai, Kar’ernoye Pribalkhashkoe, Mizek, Kar’ernoye Akbakai, Sayak-4, and Kanzhem) were at the assessment and development stage. The remaining 11 mines were developed by either open pit or underground method, or both. The annual production at Aksu Mine is about 770 kg/yr of gold. The Bestobe Mine produces about 1,360 kg/yr of gold. The company stopped operations at the Bestobe Mine owing to restoration works, which included pumping out water from the mine (table 2; MarketScreener, 2021; AK Altynalmas JSC, 2023, p. 9, 13, 77; Verkhozin, 2024).

In 2023, Polymetal, as a result of sanctions from the United States, was going to sell its 100%-owned Russian assets to JSC Mangazeya Plus and keep developing assets in Kazakhstan. Polymetal, despite challenges imposed by the sanctions, continued to produce gold at two of its projects in Kazakhstan: the Varvara hub in Kostanay Province that included the Komar Mine and the Varvara Mine, and the Kyzyl project in East Kazakhstan Province that included the Bakyrchik Mine. In 2023, the Varvara hub produced a total of 5,256 kg of gold equivalent, which was a 20% decrease compared with production in 2022. At the same time, production at the Kyzyl project decreased by 4% to 9,829 kg of gold equivalent. The total of ore reserves (proved and probable) of Varvara hub and Kyzyl projects was estimated to be 111.3 Mt of ore grading 3.2 g/t (grade equivalent) of gold and contained 361,640 kg of gold and 41,000 t of copper (table 2; Kolyako, 2023; Polymetal International plc, 2023, p. 18, 21, 23, 170).

In 2023, Polymetal continued with exploration in the South Elevator area of the Komar, Baksy, and Shekara deposits, which are associated with the company’s Varvara hub. The company obtained a 7.5% stake in the copper-gold Baksy deposit in 2019 and in 2023 increased its stake to 75% after completing a 3-year exploration. The total mineral resource (measured, indicated, and inferred) of the Varvara hub and Kyzyl projects, including Komar, Elevator, and Baksy, was estimated to be 43.7 Mt of ore grading 2.9 g/t (grade equivalent) gold and contains 125,627 kg of gold and 18,000 t of copper (Polymetal International plc, 2023, p. 25, 61, 171–172).

In 2023, NMC Tau-Ken Samruk JSC produced 52,200 kg of refined gold and 5,200 kg of refined silver, which were decreases of 6% and 37% from 2022, respectively. The decrease of refined gold production was due to the sanctions on Polymetal. Because of sanctions on Polymetal, NMC Tau-Ken

Samruk JSC’s 100%-owned subsidiary Tau-Ken Altyn LLP no longer accepted raw material from Polymetal. The decrease of silver production was due to a decrease of silver content in gold-bearing ore supplied by Bakyrchikskoe Mining Enterprise LLP from the Kyzyl project. The company opened its gold refinery in October, where the company’s new workshop was processing waste from the mines. It was expected that 90% of the 15 t/yr of waste processed by the refinery was expected to be gold and silver (table 2; NMC Tau-Ken Samruk JSC, 2023, p. 20–21).

Iron and steel.—In 2023, Kazakhstan’s iron ore (Fe content) production decreased by 3% to 8.6 Mt compared with 8.9 Mt in 2022. Two companies, JSC Sokolov-Subai Mining Production Association, owned by ERG, and JSC ArcelorMittal Temirtau (ArcelorMittal Temirtau), owned by ArcelorMittal S.A. (ArcelorMittal) of Luxembourg, produced iron ore and steel in Kazakhstan. In 2023, ArcelorMittal completed the sale of ArcelorMittal Temirtau (steel and iron ore and coal mining operations in Kazakhstan) to Qazakhstan Investment Corporation (QIC). The company operated four iron ore mines, including three open pits—Atansor, Lisakovsk, and Kentobe, and the underground mine Atasu (tables 1, 2; ArcelorMittal S.A., 2024, p. 10–11, 46, 100, 114–115).

Manganese.—The Zhomart Mine, located in Ulytau Province, was mothballed in 2022. The mine was operated by JSC Marganets Zhairama. In 2024, the company planned to resume mining at the Zhomart Mine until 2033. The ore would be processed in the Zhairemskiy concentrator at Zhairemskiy GOK. The production capacity was expected to be 270,000 t/yr of finished products (containing 35% of manganese concentrates and 10.5% of iron) from 750,000 t/yr of ore (table 2; MINEX Forum, 2023a; PromoGroup Media KZ LLP, 2023b).

Molybdenum, Nickel, and Vanadium.—In 2023, Kaz Minerals produced 3,727 t of molybdenum at the Aqtogay Mine, which was an 86% increase compared with production in 2022. In January 2020, Ferro-Alloy Resources Ltd. (FAR), which was registered in Guernsey [United Kingdom], conducted an initial public offering at the Astana Stock Exchange. FAR owned a 100% share in Balausa Firm LLP, which had a production license for the Balausaqandiq vanadium deposit in Qyzylorda Province. In 2023, Balausa Firm produced 310.5 t of vanadium pentoxide which was an increase of 1.6% from 2022 (305.5 t); 34.3 t of molybdenum contained in ferro-molybdenum, which was an decrease of 4.7% in 2022 (36 t); and 60 t of nickel contained in nickel concentrate (for the quarters 1 and 2 of 2023) (tables 1, 2; Forbes.kz, 2019; Ferro-Alloy Resources Ltd., 2022, p. 3; 2023a, p. 3; 2023b, p. 2; Ferro-Alloy Resources Group, 2024).

Nickel and Cobalt.—In 2023, JSC Fincraft Resources (Fincraft Resources), through Kaznickel LLP, continued exploration of the Gornostayevskoye nickel-cobalt deposit, which is located in the Abay Province close to the Kazakhstan-China border. The company planned to construct production facilities at the beginning of 2024 and ramp up to full production by 2026. The plant was expected to refine 1.6 Mt/yr of ore and produce 13,500 t/yr of nickel and about 1 t/yr of cobalt contained in concentrate (JSC Fincraft Resources, 2020, p. 5–6, 22, 49; Ibraeva, 2023, p. 6; Department of Natural Resources and Regulation of Nature Management of the Abai Province, 2024, p. 1–2).

Industrial Minerals

Mineral Fuels and Related Materials

Coal.—In 2023, the total production of coal in Kazakhstan decreased by about 0.9% to 113 Mt of coal. For the domestic market, 65.9 Mt of coal was shipped to energy-producing companies, which was a 2.3% increase compared with 2022; residential customers received 9.0 Mt, which was a 18% decrease compared with 2022; and industrial coal consumers received 5.9 Mt, which was a 1.2% decrease compared with 2022 (table 1; PromoGroup Media KZ LLP, 2023c; Mamyshev, 2024b).

In 2023, the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan, the Ministry of National Economy of the Republic of Kazakhstan, the World Bank, and the Association ECOJER discussed a series of policies that would help the country transition to a low-carbon economy, including air quality and climate change management. According to the Ministry of Environment, Geology and Natural Resources, the Government plans to stop using coal by 2060 as a result of the Doctrine of Carbon Neutral Development until 2060 (national strategy for carbon neutrality), which was under development. To achieve this goal, the percentage of electricity generated by coal would need to be reduced to 40.1% by 2030 from 69% in 2022. According to preliminary calculations, by 2030 the percentage of electricity generated by natural gas would need to be increased to 25%, and the share of renewable sources of energy would need to be increased to 24% from 4.5% in 2022 (Official Information Resource of the Prime Minister of the Republic of Kazakhstan, 2021; Satubaldina, 2023; United Nations Development Programme, 2021; World Bank, The, 2023).

In 2023, ArcelorMittal completed the sale of ArcelorMittal Temirtau (steel and iron ore and coal mining operations in Kazakhstan) to QIC. ArcelorMittal operated eight coal mines in and around Karaganda Province (table 2; ArcelorMittal S.A., 2024, p. 100, 114).

Petroleum.—In 2023, Kazakhstan decreased crude petroleum production by 7.0% to 660 million barrels. Kazakhstan ranked 2d in crude petroleum production after Russia among CIS countries. In 2023, JSC NC KazMunaiGas commenced the shipments of crude petroleum through the Aktau-Baku-Tbilisi-Ceyhan (BTC) route. The company shipped 7.75 million barrels of crude petroleum from the Port of Aktau. The crude petroleum was shipped from the Port of Aktau in tankers. In addition, in 2023 the company shipped 7.3 million barrels of crude petroleum to Germany via the Atyrau-Samara pipeline and via the Druzhba pipeline (table 1; JSC NC KazMunaiGas, 2023, p. 4–5; Energy Institute, 2024, p. 21).

Uranium.—Kazakhstan has been the world leader in uranium production since 2009. Production in the country has increased 27-fold to 20,996 t in 2023 from 796 t in 1997. In 2023, uranium production decreased by 1.3% compared with that in 2022. Kazatomprom was the leading producer of uranium in Kazakhstan and in the world. The company produced uranium at 26 sites across 14 uranium assets and was responsible for more than 50% of the uranium production in Kazakhstan. Kazatomprom produces uranium using the in situ leaching method. According to the company, its average time from the beginning of mine construction to production was 18 months,

while the industry average was about 3 years. According to Kazatomprom's 2025 production strategy, the company expected to increase uranium production by 48% by 2025 from 2023 (tables 1, 2; Bayakenova, 2021; NAC Kazatomprom JSC, 2022; 2023a, p. 20; b).

Outlook

Kazakhstan's real gross domestic product (GDP) was projected to increase over the next several years (as much as 5.6% by 2025). Interest in Kazakhstan's mineral industry will likely continue to increase, as well as the number of mining projects in the country. This is especially true following the adoption of the amendments to the Mining Code, which are aimed at better protecting investors. Projects involving chromium, cobalt, copper, gold, ferroalloys, nickel, and vanadium could be of particular interest to investors. The number of exploration projects underway in Kazakhstan indicates the potential for future increases in the country's mineral production. The company's decision to increase uranium production was based on improved uranium market conditions and successful contracting activities. However, any future development will likely depend on a variety of factors, including mineral commodity prices and the development of Government policies and programs to encourage the growth of the industry (NAC Kazatomprom JSC, 2023b, undated; International Monetary Fund, undated).

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TABLE 1
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES ¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2019	2020	2021	2022	2023	
METALS						
Aluminum:						
Bauxite	4,118,400	4,057,800	4,370,100	4,400,000	4,559,900	
Alumina	1,393,411	1,393,000	1,315,000	1,338,000	1,410,000	
Metal, primary	277,718	281,600	278,967	249,000 ^f	261,000	
Antimony, mine, concentrate, Sb content ^e	500	770 ^f	710 ^f	730 ^f	700	
Beryllium, products, metallurgical	1,688	1,365	1,403	1,295	843	
Bismuth, refinery ^c	230	230	200	190	180	
Cadmium, refinery, primary	1,500 ^c	1,200	1,200	1,000 ^c	1,000 ^c	
Chromium, mine, chromite:						
Ore	7,018,900	6,326,400	6,192,000	5,716,900	6,108,000	
Concentrate	5,133,100	4,129,300	3,969,700	3,828,500	3,764,600	
Copper:						
Mine, Cu content:						
Concentrate	670,000	650,000	600,000	680,000	700,000 ^c	
Solvent extraction	39,500	38,200	41,300	41,400	40,500	
Total	710,000	688,000	641,000	721,000	741,000	
Smelter, primary						
371,359	378,618	296,683	344,410	311,820		
Refinery, primary:						
Leaching, electrowon	39,500	38,200	41,300	41,400	40,500	
Other	472,327	477,016	401,883	451,992 ^f	417,108	
Total	512,000	515,000	443,000	493,000 ^f	458,000	
Ferroalloys:						
Ferrosilicon	1,858,130	1,841,309	1,704,561	1,658,378	1,544,251	
Ferrosilicon	79,930	180,645	148,023	180,399	183,413	
Ferrosilicochromium	113,980	69,877	85,335	97,000 ^{f,c}	96,999	
Silicomanganese	123,464	122,743	132,119	191,945	205,218	
Other, unspecified	263	78	--	-- ^c	-- ^c	
Total	2,180,000	2,210,000	2,070,000	2,130,000	2,030,000	
Gold:						
Mine, Au content	kilograms	106,559	116,964	114,843	129,794	131,204
Refinery	do.	61,080	67,846	64,991	73,041	70,990
Iron ore, mine:						
Gross weight	21,991,600 ^f	39,016,900 ^f	39,030,000 ^f	33,847,300 ^f	28,862,700	
Fe content	11,642,900	12,673,200	13,120,600	8,889,800	8,648,600	
Iron and steel:						
Pig iron	3,208,700	3,212,400	3,623,800	3,249,600 ^f	2,864,600	
Steel:						
Raw steel	4,130,600	4,009,400	4,526,100 ^f	3,371,000 ^f	3,813,700	
Products, finished, rolled	2,036,700	2,564,100	3,056,800	2,582,900	2,453,600	
Lead:						
Mine, Pb content	55,700	30,200	29,900	30,000	45,900	
Refinery:						
Primary	115,000 ^c	112,000 ^c	105,000 ^c	106,000	101,497	
Secondary	18,000 ^c	16,000 ^c	14,000 ^c	16,000	16,000 ^c	
Magnesium, metal, primary ^{e,3}	25,000	16,000	17,000	27,000	22,000	
Manganese, mine:						
Crude ore:						
Gross weight	1,142,300	813,500	1,248,700	349,000	930,700	
Mn content	217,000 ^c	155,000 ^c	237,000 ^c	66,000 ^c	176,000	
Concentrate:						
Gross weight	460,000	276,300	370,700	389,900	431,300	
Mn content	152,000 ^c	91,300 ^c	122,000	138,000 ^{f,c}	153,000 ^c	
Molybdenum, mine, Mo content	209	384	777	2,005	3,727	
Nickel, nickel in concentrates ⁴	--	--	--	57	60	
Niobium, metal, niobium products	14	15	14	8	8	

See footnotes at end of table.

TABLE 1—Continued
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES ¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2019	2020	2021	2022	2023
METALS—Continued					
Rhenium, Re content kilograms	1,000 ^{r,e}	1,000 ^{r,e}	1,000 ^{r,e}	1,000 ^{r,e}	1,500
Selenium	3	4	7	5 ^r	5 ^e
Silicon, metal	13,000 ^e	5,000 ^e	6,000	7,200	7,000 ^e
Silver:					
Mine, Ag content kilograms	1,022,068	1,035,181	1,004,789	1,013,069 ^r	866,837
Refinery, primary do.	1,007,671	1,015,756	982,545	997,550	856,741
Tantalum, metal	121	150	163	165	154
Titanium:					
Ilmenite and leucoxene ^e	15,000	12,000	14,000	14,000	14,000
Sponge	23,000 ^e	15,000 ^e	14,000 ^e	15,300	22,900
Zinc:					
Mine, concentrate, Zn content	322,000	344,000	318,000	312,000	340,000
Smelter, primary and secondary	318,399	311,322	300,886	266,203 ^r	271,501
INDUSTRIAL MINERALS					
Asbestos, all grades	210,700	227,400	250,100	250,200	255,300
Barite, ore and concentrate	530,600	445,300	600,000 ^e	650,000 ^e	650,000 ^e
Cement, hydraulic thousand metric tons	10,268	10,962	12,313	12,099	12,242
Clay, unspecified do.	11,677 ⁵	10,350	6,613	4,695	4,516
Fluorspar	87,800	74,500	67,000	12,100	12,400 ^e
Gypsum, mine	78,200	94,500	184,700	233,400	163,800
Lime	874,500	830,900	933,600	946,300	941,300
Nitrogen, ammonia, N content	178,260	178,720	213,282 ^r	205,134 ^r	196,664
Phosphate rock:					
Gross weight	1,273,900	1,495,100	1,398,100	1,403,100	1,675,800
P ₂ O ₅ content	318,500	373,800	349,500	350,775	418,950
Salt	1,094,659	1,237,455	1,231,996	1,678,469	1,859,206
Stone sand, and gravel, construction:					
Sand and gravel:					
Sand ⁶ thousand metric tons	23,200	23,300	20,400	20,200	20,800
Gravel ⁷ do.	72,400	82,500	64,600	71,900	83,400
Stone, crushed:					
Limestone do.	15,668	16,678	17,166	18,011	18,855
Chalk and dolomite do.	1,892	1,895	1,927	1,990	1,879
Size and shape unspecified ⁸ do.	13,100	12,300	12,000	13,000	15,000
Sulfur:					
Byproduct, S content:					
Metallurgy	600,000 ^e	495,600 ^r	540,000 ^r	653,700 ^r	477,900
Natural gas and petroleum	4,036,000	3,876,400	3,993,100	3,687,600	4,481,100
Total	4,640,000	4,370,000 ^r	4,530,000 ^r	4,340,000 ^r	4,960,000
Compounds, sulfuric acid	2,290,800	2,140,400	2,208,400	2,254,500	2,008,832
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Bituminous	104,809,100	104,084,100	107,246,300	108,043,900	107,576,500
Lignite	5,928,900	5,422,100	4,828,700	5,663,600	5,245,100
Total	111,000,000	110,000,000	112,000,000	114,000,000	113,000,000
Coke, metallurgical	2,604,800	2,387,800	2,439,900	2,440,100	2,318,700
Natural gas:					
Associated thousand cubic meters	34,524,300	32,261,100	32,670,900	31,955,500	34,547,600
Non-associated do.	22,157,000	23,117,500	21,508,200	21,689,800	24,290,200
Total do.	56,700,000	55,400,000	54,200,000	53,600,000 ^r	58,800,000
Petroleum:					
Crude, including condensate ⁹ 42-gallon barrels	664,000,000 ^r	628,000,000 ^r	629,000,000 ^r	617,000,000 ^r	660,000,000
Refinery ¹⁰ do.	111,000,000	147,000,000	156,000,000	160,000,000	162,000,000
Uranium, mine, U content	22,761	19,587 ^r	21,834 ^r	21,279 ^r	20,996

See footnotes at end of table.

TABLE 1—Continued
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES ¹

(Metric tons, gross weight, unless otherwise specified)

⁴Estimated. ⁵Revised. do. Ditto. -- Zero.

¹Table includes data available through December 4, 2024. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed indium, osmium-187 isotope, scandium, and selenium may have been produced, but available information was inadequate to make reliable estimates of output.

³Includes magnesium used in production of titanium sponge.

⁴Recovered from spent catalysts.

⁵Includes kaolin.

⁶Converted from cubic meters assuming density of 1.5 metric tons per cubic meter.

⁷Converted from cubic meters assuming density of 1.68 metric tons per cubic meter.

⁸Converted from cubic meters assuming density of 1.6 metric tons per cubic meter.

⁹Figures were converted to barrels from metric tons, which were reported as follows: 2019—90,555,400; 2020—85,656,100; 2021—85,879,400; 2022—84,236,900; and 2023—89,976,700.

¹⁰Figures were converted to barrels from metric tons, which were reported as follows: 2019—14,037,600; 2020—18,318,800; and 2021—19,493,500.

TABLE 2
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^c
Aluminum:			
Bauxite	Aluminium of Kazakhstan JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Krasnooktyabrskoye bauxite mining unit, West Turgay region, Qostanay Province	3,700,000
Do.	do.	Krasnogorsky site, Qostanay Province	300,000
Do.	do.	Mine No. 9, Qostanay Province	1,000,000
Alumina	Aluminium of Kazakhstan JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Plant in the city of Pavlodar, Pavlodar Province	1,600,000
Aluminum, primary	Kazakhstan Aluminum Smelter JSC (KAS) [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Kazakhstan Electrolysis Plant (KEZ), Pavlodar Province	280,000
Antimony, mine, concentrate, Sb content	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Lead plant, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	700
Asbestos	JSC Kostanay Minerals	Mine in Zhitikara, Qostanay Province	250,000
Barite	Dostau-Litos LLP	Ushrobe Mine, Qaraghandy Province	NA
Do.	Global Chemicals Industries LLP	Bestobe (Baritovaya Gorka) Mine, Qaraghandy Province	200,000
Do.	Marganets Zhairama JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Ushkatyn III Mine, Ulytau Province	NA
Do.	do.	Zhumanay deposit, Ulytau Province	200,000
Do.	Zhairem GOK ² JSC {Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]}	Dal'nezapadnyy and Zapadnyy mines in Zhairem GOK, ² Ulytau Province	168,000
Do.	Mining Tehcnology KZ LLP	Kentobe Mine, Qaraghandy Province	NA
Do.	Orda Group LLP	do.	200,000
Do.	Stroyservice LLC	Severnoye Dolomitovoye Mine, Kentau District, Turkistan Province	37,000
Do.	Vostochnoye Rudoupravleniye LLP	Chiganak Mine, Zhambyl Province	300,000
Do.	do.	Ul'kensay (West and East areas), Zhambyl Province	40,000
Beryllium, products	Ulba Metallurgical Plant JSC (UMP JSC) (NAC Kazatomprom JSC, 100%)	Plant, Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	1,300
Bismuth, metal	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Lead plant, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	270
Cadmium, metal	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ust-Kamenogorsk metallurgical complex, Zinc refinery in Oskemen, Shyghys Qazaqstan Province	1,200
Cement	Alacem LLP (International Cement Group)	Alacem plant in Almaty Province	1,200,000
Do.	Bukhtarma Cement Co. (Heidelberg Materials)	Plant in Shyghys Qazaqstan Province	1,400,000
Do.	Gezhouba Shieli Cement Co. LLC (Gezhouba Group Corp. Ltd., 50%; Gezhouba Group Overseas Investment Co. Ltd., 20%; local company, 30%)	Plant in Qyzylorda Province	1,000,000
Do.	Jambyl Cement Production Co. LLP (Vicat Group, 90%, and World Bank IFC, 10%)	Plant in Zhambyl Province	1,500,000
Do.	Jambyl Nedr LLP	do.	300,000
Do.	JSC ACIG	do.	500,000
Do.	JSC Central Asia Cement (Steppe Cement Ltd., 100%)	Plant in Qaraghandy Province	800,000
Do.	JSC Karcement (Steppe Cement Ltd., 100%)	do.	1,200,000
Do.	JSC ShymkentCement (Heidelberg Materials)	Plant in Turkistan Province	1,300,000
Do.	KaspiyCement LLP (Heidelberg Materials)	Plant in Mangghystau Province	800,000
Do.	Kazakhcement LLP [Sharcem LLP (International Cement Group, 60%, and Kazakh Invest, 40%)	Plant in Shyghys Qazaqstan Province	1,200,000
Do.	Kokshe-Cement LLP	Plant in Aqmola Province	2,000,000

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ⁵
Cement:—Continued	PK Cement Plant Semey LLP (Saikan Co.)	Plant in Abay Province	1,200,000
Do.	Rudny Cement plant LLP	Plant in Qostanay Province	500,000
Do.	SAS-Tobe Technologies LLP (Sastobe Cement)	Plant in Turkistan Province	500,000
Do.	Standard Cement LLP	Plant in Turkistan Province	1,000,000
Do.	Zharma cement plant LLP [Sharcem LLP (International Cement Group, 60%, and Kazakh Invest, 40%)]	Plant in Abay Province	1,200,000
Chromite:			
Marketable ore	TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	10-years Independence of Kazakhstan, 40 years of Kazakhskoy SSR, Dubersay, Geologicheskoy, Geofizicheskoye IX, Geofizicheskoye-XI, Iyunkoye, and Molodyezhnaya Mines in Donskoy GOK, ² Khromtau, Aqtobe Province	5,200,000
Do.	Oriel Resources Ltd. (Yildirim Holding)	Voskhod Mine and plant in Voskhod GOK, ² Khromtau, Aqtobe Province	1,300,000
Concentrate	TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Plant in Donskoy GOK, ² Khromtau, Aqtobe Province	3,400,000
Coal	Bogatyr Coal LLP	Ekibastuz coal basin, Pavlodar Province	42,000
Do.	JSC EEC [Eurasian Resource Group (ERG), 100% (private, 60%, and Government, 40%)]	Vostochniy Mine, Qaraghandy Province	20,000
Do.	JSC Karazhyra	Karazhyra Mine, Abay Province	8,000
Do.	JSC Shubarkol Komir [Eurasian Resource Group (ERG), 100% (private, 60%, and Government, 40%)]	Mine in Qaraghandy Province	8,000
Do.	Qazakhstan Investment Corp., 100%	8 mines, in Qaraghandy Coal Basin, in and around Qaraghandy Province	7,000,000
Copper:			
Ore, recoverable, Cu content	Aktubinskaya Mednaya Kompaniya LLP (AMK) [Russian Copper Co. (RMK)]	Vesenne-Aralchinskoye Mine, Aqtobe Province	4,500
Do.	Balkhashtsvetmet PA (Kazakhmys Corp. LLP, 100%)	Kounrad Mine, Qaraghandy Province	5,000
Do.	do.	Sayak Mine, Qaraghandy Province	5,000
Do.	do.	Shartykul Mine, Zhambyl Province	21,000
Do.	Copper Technology LLP {Aktubinskaya Mednaya Kompaniya LLP (AMK) [Russian Copper Co. (RMK), 100%]}	50th Anniversary of October Mine, Koktau, Aqtobe Province ³	55,000
Do.	do.	Priorskoye Mine, Aqtobe Province	8,000
Do.	Karagandatsvetmet PA (Kazakhmys Corp. LLP)	Abyz Mine, Qaraghandy Province	9,000
Do.	do.	Kusmuryu-Aktabasu Mine, Abay Province	6,000
Do.	do.	Nurkazgan (Samarskoye) Mine, Qaraghandy Province	28,000
Do.	do.	Khadzhikongan Mine, Qaraghandy Province	3,000
Do.	KAZ Minerals Ltd. (Nova Resources BV, 100%)	Aktogay Mine, Abay Province	203,000
Do.	do.	Bozshakol Mine, Pavlodar Province	102,000
Do.	do.	East Region complex, Shyghys Qazaqstan Province: Artemyevskiy, Irtyshskiy, and Orlovskiy Mines	44,000
Do.	Kazgeorud LLP {Aktubinskaya Mednaya Kompaniya LLP (AMK) [Russian Copper Co. (RMK)]}	Kundyzdy Mine, Aqtobe Province	11,300
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ridder GOK, ² Shyghys Qazaqstan Province: Ridder-Sokolny Mine ⁴	NA
Do.	do.	Shubinsky Mine ⁵	2,800
Do.	do.	Tishinsky Mine	15,000
Do.	do.	Maleevsky Mine in Altay GOK, ² Shyghys Qazaqstan Province	40,000

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ⁶
Copper:—Continued			
Ore, recoverable, Cu content: —Continued	Polymetal International plc, 100%	Varvara and Kamar Mines in Varvara Hub, Qostanay Province	17,000
Do.	Zhanashyr Project LLP (Kazakhmys Corp. LLC, 100%)	Zhaisan Mine, Zhambyl Province	300,000 ⁶
Do.	Zhezkazgantsvetmet PA (Kazakhmys Corp. LLC, 100%)	North Zhezkazgan Mine, Ulytau Province	15,000
Do.	do.	South Zhezkazgan Mine, Ulytau Province	79,000
Do.	do.	Zhilandinsky Mine, Ulytau Province	26,000
Do.	do.	Zhomart Mine, ⁷ Ulytau Province	68,000
Do.	do.	Zhaisan Mine, Zhambyl Province	300,000
Concentrate, Cu content	Aktyubinskaya Mednaya Kompaniya LLP (AMK) [Russian Copper Co. (RMK)]	Two concentrators, Aqtobe Province	9,000
Do.	Balkhashtsvetmet PA (Kazakhmys Corp. LLC, 100%)	Balkhash concentrator, Qaraghandy Province	40,000
Do.	Maksut Minerals LLP (BAST JSC, 100%)	Maksut concentrator, Abay Province	NA
Do.	Karagandatsvetmet PA (Kazakhmys Corp. LLC, 100%)	Karagaily concentrator in Qaraghandy Region complex, Qaraghandy Province	10,000
Do.	do.	Nurzkazgan concentrating mill, Qaraghandy Province	33,000
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	East Region complex, Shyghys Qazaqstan Province: Nikolayevsky and Orlovsky concentrators	46,000
Do.	do.	Aktogay concentrators, Abay Province	213,000
Do.	do.	Bozshakol concentrator for kaolinized ore processing, Pavlodar Province	102,000
Do.	do.	Altay concentrator in Altay GOK, ² Shyghys Qazaqstan Province	10,000
Do.	do.	Ridder concentrator in Ridder GOK, ² Shyghys Qazaqstan Province	10,000
Do.	Polymetal International plc, 100%	Concentrator at Varvara Hub, Qostanay Province	NA
Do.	Zhezkazgantsvetmet PA (Kazakhmys Corp. LLC, 100%)	Zhezkazgan concentrator No. 1, No. 2, and No. 3, ⁸ Ulytau Province	21,200
Metal	Central Asia Metals plc	Smelter and refinery in Kounrad, Qaraghandy Province	14,000
Do.	Irgiz Metal Corp. LLP (Khavand Nahan Zamin Co., 100%)	Borly mining complex, Qaraghandy Province	5,000
Do.	Kazakhmys Smelting LLP	Balkhash copper smelting and refinery plant, Qaraghandy Province	220,000
Do.	do.	Zhezkazgan copper smelting and refinery plant, Ulytau Province	200,000
Do.	Ust-Kamenogorsk metallurgical complex {Kazzinc Ltd. [Glencore plc, 69.7%, and Tau-Ken Samruk NMC JSC, 29.82% (National Wealth fund Samruk-Kazyna JSC, 100%)]}	Smelter and refinery in Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	19,000
Ferrous alloys:			
Ferrochrome:			
High-, medium-, and low-carbon FeCr containing 69% Cr	TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Aqtobe plant in Aqtobe Province	480,000
High-carbon FeCr containing 69% Cr	do.	Aksu plant in Pavlodar Province	700,000
Unspecified	do.	Plant in Aqtobe Province	NA
Ferromanganese	Temirtau Electrometallurgical Complex JSC (TEMC JSC) (Saikan LLP, 85%, and private investor, 15%)	Plant in Qaraghandy Province	30,000
Ferrosilicon	do.	do.	NA

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^c
Ferroalloys:—Continued				
Ferrosilicon—Continued				
		YDD Corp. LLP	Plant in Qaraghandy Province	180,000
Do.		TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Aksu plant in Pavlodar Province	NA
Ferrosilicochromium		do.	do.	NA
Ferrosilicomanganese		JSC Temirtau Electrometallurgical Complex (JSC TEMC) (Saikan LLP, 85%, and private investor, 15%)	do.	449,000
Do.		TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	do.	NA
Silicomanganese		do.	Aqtobe plant in Aqtobe Province	NA
Do.		Qaz Carbon LLP	Sary-Arka ferroalloy plant, Qaraghandy Province	8,800
Gold:				
Mine production, Au content	kilograms	AK Altynalmas JSC (Gouden Reserves B.V., 60%, and other private owners, 40%)	Akbakay Mine, Zhambyl Province	1,800
Do.	do.	do.	Pustynnoye and Dolinnoye project, Qaraghandy Province	5,000
Do.	do.	do.	Aksu-2 project, Aqmola Province	7,000
Do.	do.	do.	Aksu-Quartsevye Gorki, Aqmola Province	1,000
Do.	do.	do.	Zholymbet project, Aqmola Province	1,900
Do.	do.	do.	Bestobe tailings, ⁹ Aqmola Province	400
Do.	do.	Bakyrchikskoe Mining Enterprise LLP (Polymetal International Plc, 100%)	Bakyrchik Mine in Kyzyl project, Shyghys Qazaqstan Province	10,300
Do.	do.	JSC Altyntau-Kokshetay {Kazzinc Ltd., 100% [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]}	Vasilkovsky Mine in Aqmola Province	15,000
Do.		JSC FIK Alel (Nord Gold N.V.)	Suzdal Mine, Abay Province	NA
Do.		JSC Maykainzoloto	Maykain B and Alpys mines, Pavlodar Province	NA
Do.		KAZ Minerals Ltd. (Nova Resources BV, 100%)	Aktogay Mine, Shyghys Qazaqstan Province	NA
Do.		do.	Bozshakol Mine, Pavlodar Province	NA
Do.		Kazakhmys Holding Group LLP (Kazakhmys Corp. LLP)	Mines in Abay, Qaraghandy, Ulytau, and Zhambyl Province	NA
Do.	kilograms	Polymetal International plc, 100%	Varvara and Kamar Mines in Varvara Hub, Qostanay Province	6,600
Do.	do.	RG Gold LLP	North and South Raygorodok mines, Aqmola Province	4,500
Do.		Yubileynoye LLP	Mine in Aqtobe Province	NA
Concentrate, Au content	kilograms	KAZ Minerals Ltd. (Nova Resources BV, 100%)	Bozshakol Mine, Pavlodar Province	3,700
Dore and gold containing products	do.	AK Altynalmas JSC (Gouden Reserves B.V., 59.97%, and other private owners, 40.03%)	Akbakay Mine, Zhambyl Province	1,900
Do.	do.	do.	Aksu-2 project, Aqmola Province	2,000
Do.	do.	do.	Aksu KG project, Aqmola Province	590
Do.	do.	do.	Bestobe project, ⁹ Aqmola Province	960
Do.	do.	do.	Maykain concentrator, Pavlodar Province	NA
Do.	kilograms	do.	Pustynnoye project, Qaraghandy Province	5,200
Do.	do.	do.	Zholymbet project, Aqmola Province	710
Refined	do.	Kazakhmys Smelting LLP	Refinery in Qaraghandy Province	11,000
Do.	do.	Tau-Ken Altyn LLP [NMC Tau-Ken Samruk JSC, (National Wealth Fund Samruk-Kazyna JSC, 100%), 100%]	Refinery, Special economic zone, Aqmola Province	52,000
Do.	do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Refinery, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	8,000

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e	
Gypsum	JSC Jambylgypsum (Sen-Goben Co.)	Mine in Zhambyl Province	270,000	
Indium	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Lead plant, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	1	
Iron and manganese from tailings	Global Mining Technology LLP	Tailings No. 1 and No. 2 from West Karazhal, Ulytau Province	53,000	
Iron ore, marketable, gross weight	JSC Sokolov-Sarbai Mining Production Association [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Sokolovsky, Sarbaisky, Kacharsky, and Korzhinkolsky pit mines and Sokolovsky underground mine in Qostanay Province	22,870,000	
do.	Qazaqstan Investment Corp., 100%	Lisavosk Mine in Qostanay Province, Kentobe and Atasu mines in Qaraghandy Province, and Atansor Mine in Aqmola Province	2,400,000	
Iron and steel:				
Pig iron	thousand metric tons	Qarmet JSC (Qazakhstan Investment Corp., 100%)	Temirtau, Qaraghandy Province	5,700
Steel:				
Raw	do.	do.	do.	3,400
Products, rolled	do.	do.	Termirtau and Aktau, Mangghystau Province	2,800
Lead:				
Mine production, recoverable Pb content of ore	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ridder GOK, ² Shyghys Qazaqstan Province: Dolinny Mine	NA	
Do.	do.	Tishinsky Mine	15,000	
Do.	do.	Shubinsky Mine ⁵	630	
Do.	do.	Zhairem Mine in Zhairem GOK, ² Ulytau Province	71,000	
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Maleevsky Mine in Altay GOK, ² Shyghys Qazaqstan Province	26,000	
Concentrate, Pb content	do.	Ridder GOK ² , Shyghys Qazaqstan Province: Ridder concentrator	NA	
Do.	do.	Altay concentrator in Altay GOK, ² Shyghys Qazaqstan Province	NA	
Do.	do.	Zhairem concentrator in Zhairem GOK, ² Ulytau Province	NA	
Lead dust	Kazakhmys Smelting LLP	Balkhash copper smelting and refinery plant, Qaraghandy Province	10,000	
Do.	do.	Jezkagan copper smelting and refinery plant, Ulytau Province	9,000	
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Lead plant, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	110,000	
Lime	Temirtau Electrometallurgical Complex JSC (TEMC JSC) (Saikan LLP, 85%, and private investor, 15%)	Plant in Qaraghandy Province	NA	
Do.	Kazchimtecsnab LLP	Chemical plant in Abay Province	NA	
Do.	Maykain Lime Plant LLP	Plant in Pavlodar Province	120,000	
Do.	Neohim LLP	Plant in Aqtobe Province	NA	
Do.	Premium Class-Story LLP	Plant in Qyzylorda Province	75,000	
Do.	SAS-Tobe Technologies LLP (Sastobe Cement)	Plant in Turkistan Province	NA	
Do.	SH WORK LLP	Plant in Almaty Province	NA	
Do.	Tulkubas Lime Plant LLP	Plant in Turkistan Province	NA	

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Limestone thousand metric tons	Aluminium of Kazakhstan JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Keregetas Mine, Pavlodar Province	2,000
Do.	JV Holding Kazakcement LLP	Ortabulakskoe deposit, Abay Kazakhstan	NA
Magnesium, metal	Ust-Kamenogorsk titanium-magnesium plant JSC (UKTMK JSC)	Workshop # 1 at Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	NA
Manganese:			
Crude ore, Mn content	Marganets Zhairema JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]	Perstnevka, Ushkatyn II and Ushkatyn III, Zhomart, Zapadny Zhomart mines, Ulytau Province	330,000
Do.	Kazmarganets Mining Enterprise {TNC Kazchrome JSC [Eurasian Resources Group (ERG), 100% (private, 60%, and Government, 40%)]}	Tur Mine, Qaraghandy Province	300,000
Do.	LLP ORKEN [JSC Zhaireskiy GOK ² , 100%, (Kazzinc Ltd.)]	Western Karazhal, Atasuiskiy ore region, Ulytau Province	790,000
Do.	Zhana Arka Manganese LLP	Eastern Kamys Mine, Zhana-Arkinskiy Region, Ulytau Province	320,000
Concentrate	Temirtau Electrometallurgical Complex JSC (TEMC JSC) (Saikan LLP, 85%, and private investors, 15%)	Bogach mine, Qaraghandy Province	NA
Molybdenum:			
Molybdenum (in ferromolybdenum)	Balasa Firm LLP (Ferro-Alloys Resources Ltd., 100%)	Balasauskandyk processing plant, Turkistan Province	36
Concentrate, Mo content	KAZ Minerals Ltd. (Nova Resources BV, 100%)	Aktogay Mine, Abay Province	3,700
Natural gas million cubic meters	Companies: Karachaganak Petroleum Operating B.V. (BG Group plc., 29.25%; ENI S.p.A., 29.25%; Chevron Corp., 18%; JSC Lukoil, 13.5%; JSC NC KazMunaiGas, 10%) Tengizchevroil LLP (Chevron Corp., 50%; ExxonMobil Kazakhstan Inc., 25%; JSC NC KazMunaiGas, 20%; LukArco B.V., 5%) JSC NC KazMunaiGas, 50%, and JV Kazgermunai LLP, 50% Additional production at smaller fields	Locations: Facilities in Karachaganak onshore field, Batys Qazaqstan Province Tengiz project (Tengiz and Korolev onshore fields), Atyrau Province South Aksay, Qyzylorda Province NA	158,000 ¹⁰
Nickel, concentrate	Balasa Firm LLP (Ferro-Alloys Resources Ltd., 100%)	Balasauskandyk processing plant, Turkistan Province	60
Niobium, metal, niobium products, Nb content	Ulba Metallurgical Plant JSC (NAC Kazatomprom JSC, 100%)	Ulba metallurgical plant, Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	30
Nitrogen, ammonia, N content	JSC KazAzot	Aktau, Mangghystau Province	300,000
Osmium, Isotope osmium-187	RSE Zhezkazganredmet (Government, 100%)	Workshop for processing and extraction of rare metals, on Zhezkazgan copper smelter territory, Ultay Province	NA

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Petroleum:			
Crude thousand 42-gallon barrels	CNPC-AktobeMunaiGas JSC (China National Petroleum Corp., 85.42%)	Kenkiyak (sub-salt), Kenkiyak (post-salt), and Zhanazhol onshore fields, Aqtobe Province	205,000
Do.	do. China Petroleum and Chemical Corp. (Sinopec), PetroChina Co. Ltd., and China National Petroleum Corp.	North Buzachi onshore oilfield, Atyrau Province	51,000
Do.	do. JSC Ozenmunaigas, JSC Karazhanbasmunai, JSC Mangistaumunaigaz, JSC Embamunaigas, JSC Kazakhtukmunay, JSC Kazakhoil Aktobe, JSC Kazgermunai, JSC Turgai Petroleum, JSC Petrokazakhstan Kumkol Resources (JSC NC KazMunaiGas, 100%)	Onshore oilfields in Mangystau Province, in Atyrau Province, in Aqtobe Province, and Qyzylorda Province	161,000
Do.	do. Karachaganak Petroleum Operating B.V. (BG Group plc., 29.25%; ENI S.p.A., 29.25%; Chevron Corp., 18%; JSC Lukoil, 13.5%; JSC NC KazMunaiGas, 10%)	Karachaganak onshore field, Batys Qazaqstan Province	82,000
Do.	do. North Caspian Operating Co. (NCOC) (ENI S.p.A., 16.88%; JSC NC KazMunaiGas, 16.81%; Royal Dutch Shell, 16.81%; Total S.A., 16.81%; ExxoMobil, 16.81%; China National Petroleum Corp., 8.33%; Inpex, 7.56%)	Kashagan, Kairan, and Aktoty offshore fields, Atyrau Province	130,000
Do.	do. PetroKazakhstan Inc. (China National Petroleum Corp., 67%, and JSC NC KazMunaiGas, 33%)	South Turgai basin onshore, Qostanay Province	42,000
Do.	do. Tengizchevroil LLP (Chevron Corp., 50%; ExxoMobil Kazakhstan Inc., 25%; JSC NC KazMunaiGas, 20%; PJSC Lukoil Oil Co., 5%)	Tengiz project (Tengiz and Korolev fields), Atyrau Province	214,000
Refined, crude petroleum throughput	do. Atyrtau Oil Refinery Plant LLP (JSC NC KazMunaiGas, 99.53%)	Atyrau refinery in Atyrau Province	33,000,000
Do.	do. Caspi Bitum SP LLP (JSC NC KazMunaiGas, 50%)	Refinery in Aktau, Magghystau Province	2,900,000
Do.	do. JSC Pavlodar Oil Chemistry Refinery (JSC NC KazMunaiGas, 58%)	Pavlodar refinery in Pavlodar Province	34,000,000
Do.	do. PetroKazakhstan Oil Products LLP (China National Petroleum Corp., 50%, and JSC NC KazMunaiGas, 50%)	Shymket refinery in Turkistan Province	20,000,000
Phosphate rock, beneficiated	Kazphosphate LLC	Sholaktau, Aksai, and Shiilibulak mines and plant, Chulaktau mining and processing complex, Zhambyl Province	NA
Do.	do.	Kok-su, Kok-john, and Zhanatas mines and plant, Kazphosphate mining and processing complex, Zhambyl Province	NA
Do.	do. Temir Service LLP (Sunkar Resources plc)	Chilisai deposit, Aqtobe Province	NA
Rare earth elements, recovered from uranium-ore residue	Summit Atom Rare Earth Co. LLP (SARECO LLP [ATEK LLC, 100% (Depannez Properties Ltd., 74.34%, and private investors, 25.66%)])	Plant in Stepnogorsk, Aqmola Province	1,500
Rhenium:			
Ammonium perrhenate (containing 69.2% Re)	RSE Zhezkazganredmet (Government, 100%)	Workshop for processing and extraction of rare metals, on Zhezkazgan copper smelter territory, Ultay Province	NA
In tailings from copper ore processing	Kazakhmys Smelting LLP	PO Balkhashsvetmet, Qaraghandy Province	NA
Salt	Inder Tuz Co. LLP	Inder Lake, Atyrau Province	50,000
Do.	JSC Araltuz	Zhaksykylysh Mine, Qyzylorda Province	600,000
Do.	do.	Mine in Zhambyl Province	50,000
Do.	Pavlodar LLP	Bol'shoi Kalkaman Lake, Bol'shoi Tavolzhan Lake, and Tyzdysor Lake in Pavlodar Province	100,000

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ⁵
Scandium		Taza Metal Technologies LLP (TMT LLP)	Plant in Stepnogorsk, Aqmola Province	NA
Selenium		Balkhashsvetmet PA (Kazakhmys Corp. LLP, 100%)	Kounrad Mine, Qaraghandy Province	60
Silicon, metal		Silicium Kazakhstan LLP [Tau-Ken Temir LLP (NMC Tau-Ken Samruk JSC, 100%)]	Plant in Qaraghandy Province	20,000
Silver:				
Mined, concentrate, Ag content	kilograms	Altay Polymetalls LLP	Koktaszhal Mine, Qaraghandy Province	35,000
Do.	do.	KAZ Minerals Ltd. (Nova Resources BV, 100%)	Aktogay Mine, Abay Province	32,000
Do.	do.	do.	Bozshakol Mine, Pavlodar Province	23,000
Do.		Kazakhmys Smeliting LLP	Balkhash copper smelting plant, Qaraghandy Province	NA
Do.	kilograms	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Zhaimem Mine in Zhaimem GOK, ² Ulytau Province	41,000
Do.	do.	do.	Maleevsky Mine, Altay complex, Shyghys Qazaqstan Province	32,000
Do.	do.	Zhezkazgantsvetmet PA (Kazakhmys Corp. LLC, 100%)	East Zhezkazgan, North Zhezkazgan, and South Zhezkazgan mines, Ulytau Province	290,000
Refined	do.	Tau-Ken Altyn LLP (NMC Tau-Ken Samruk JSC, 100%)	Refinery, Special economic zone, Aqmola Province	5
Do.		Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Refinery, Ust-Kamenogorsk metallurgical complex in Osmeken, Shyghys Qazaqstan Province	NA
Sulfur		Tengizchevroil LLP (Chevron Corp., 50%; ExxonMobil Kazakhstan Inc., 25%; JSC NC KazMunaiGas, 20%; LukArco B.V., 5%)	Tengiz project (Tengiz and Korolev fields), Atyrtau Province	1,100,000
Sulfuric acid		Kazakhmys Smeliting LLP	Balkhash copper smelting and refinery plant, Qaraghandya Province	1,100,000
Do.		do.	Zhezkazgan copper smelting and refinery plant, Ulytau Province	260,000
Do.		Kazphosphate LLC	Plant in Taraz, Zhambyl Province	NA
Do.		Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Shyghys Qazaqstan Province	NA
Do.		SKSK LLP (NAC Kazatomprom JSC)	Stepnogorsk, Aqmola Province	180,000
Do.		do.	Qyzylorda, Qyzylorda Province	NA
Tantalum, metal		Ulba Metallurgical Plant JSC (NAC Kazatomprom JSC, 100%)	Ulba Metallurgical plant, Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	NA
Titanium:				
Do.		Expoengineering LLP	Shokash GOK, ² Aqtobe Province	120,000 zirconium
Ore		Satpayevsky Mining and Processing Enterprise LLP (Ust-Kamenogorsk titanium-magnesium plant JSC, 49%)	Satpayevskoye (Bektemir) Mine, Shyghys Qazaqstan Province	210,000 ilmenite
Do.		Tioline LLP	Obuhovskoye GOK, ² just north of Kokshetau, Soltustik Qazaqstan Province	200,000 zirconium
Metal (sponge)		Ust-Kamenogorsk titanium-magnesium plant JSC (UKTMK JSC)	Plant at Oskemen (also known as Ust-Kamenogorsk), Shyghys Qazaqstan Province	15,000
Thallium		Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Lead plant, Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	6

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Uranium, U content	Companies:	Locations:	24,000 ¹⁰
	Akbastau JV (NAC Kazatomprom JSC, 50%, and Uranium One Inc., 50%)	Blocks 1, 3, and 4 of the Budenovskoe deposit, Sozak Region, Turkistan Province	
	APPAK LLP (NAC Kazatomprom JSC, 65%; Sumitomo Corp., 25%; Kansai Electric Power Co. Inc., 10%)	West site of Mynkuduk deposit, Sozak Region, Turkistan Province	
	Baikent-U LLP (NAC Kazatomprom JSC, 52.5%, and Energy Asia (BVI) Ltd., 47.5%)	Kharasan- 2 of and southern flank of North Kharassan deposit, Qyzylorda Province	
	JV Akbastau JSC (NAC Kazatomprom JSC, 50%, and One Group JSC, 50%)	Blocks 1, 3, and 4 of Budeonovskoe deposit, Turkistan Province	
	JV Budyonovskoye LLP (NAC Kazatomprom JSC, 51%, and Stepnogorsk Mining and Chemical Plant LLP, 49%)	Block No. 6 and 7 of the Budenovskoe deposit, Sozak Region, Turkistan Province	
	JV Inkai LLP (NAC Kazatomprom JSC, 60%, and Cameco Corp., 40%)	Blocks 1, 2, and 3 of the Inkai deposit, Sozak Region, Turkistan Province	
	JV Katco LLP (JSC ORANO Mining, 51%, and NAC Kazatomprom JSC, 49%)	Block No. 2 (Tortkuduk) of the Moinkum deposit and Block No. 1 (South) of the Moinkum deposit, Sozak Region, Turkistan Province	
	JV Khorasan-U LLP (NAC Kazatomprom JSC, 50%; Energy Asia Holding Ltd., 20%, and Uranium One Utercht B.V., 30%)	Khorasan-1 area of the Northern Khorasan deposit, Zhanakorgan Region, Qyzylorda Province	
	JV Southern Mining and Chemical Co. (SMCC LLP) (Uranium One Rotterdam B.V., 70%, and NAC Kazatomprom JSC, 30%)	Akdala Mine and Site No. 4 of the Inkai deposit, Sozak Region, Turkistan Province	
	Karatau LLP (NAC Kazatomprom JSC, 50%, and Uranium One Netherlands B.V. PLLC)	Block 2 of the Budenovskoe deposit, Turkistan Province	
	Kazatomprom-SaUran LLP (NAC Kazatomprom JSC, 100%)	Kanzhugan, Central Moyynkum (area 3), South Moyynkum Unavas, and Mynkuduk mines, Sozak Region, Turkistan Province	
	Kyzylkum LLP (NAC Kazatomprom JSC, 50%; Japanese consortium, 30%; UraniumOne Inc., 20%)	Khorasan-1 area of the Northern Khorasan deposit, Mine, Qyzylorda Province	
	PE Ortalyk LLP (NAC Kazatomprom JSC, 51%, and CGNM UK Ltd., 49%)	Central site of Mynkuduk deposit, Turkistan Province	
	RU-6 LLP (NAC Kazatomprom JSC, 100%)	North and South Karamurun deposit, Qyzylorda Province	
	Semizbai-U LLP (NAC Kazatomprom JSC, 51%, and Beijing Sino-Kazakh Uranium Resources Investment Co. Ltd., 49%)	Irkol Mine in Qyzylorda Province and Semizbai Mine on the border of North Kazakstan and Aqmola Province	
	JV Zarechnoe JSC (NAC Kazatomprom JSC, 49.98%; JV Zarechoe JSC, 49.98; and JSC Kara-Balta Mining Plant, 0.04%)	Zarechnoye and South Zarechnoye deposit, Orlarski Region, Turkistan Province	
Vanadium:			
Ore	Balaua Firm LLP (Ferro-Alloys Resources Ltd., 100%)	Balauskandyk processing plant, Turkistan Province	15,000
Pentoxide	do.	do.	306

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^c
Zinc:			
Ore, Zn content	Altyn LLP {Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]}	Shaimerden Mine, ⁷ Qostanay Province	NA
Do.	Copper Technology LLP (Russian Copper Co.)	Priorskoye Mine, Aqtobe Province	59,000
Do.	do.	50 let Oktyabrya Mine, Aqtobe Province	39,000
Do.	do.	Kundyzdy Mine, Aqtobe Province	24,000
Do.	Karagandatsvetmet PA (Kazakhmys Corp. LLC, 100%)	Abyz Mine, Qaraghandy Province	14,000
Do.	KAZ Minerals Ltd. (Nova Resources BV, 100%)	East Region complex, Shyghys Qazaqstan Province: Artemyevsky Mine	29,000
Do.	do.	Irtyshtsky Mine	7,000
Do.	do.	Orlovsky Mine	23,000
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ridder GOK, ² Shyghys Qazaqstan Province: Shubinsky Mine ⁵	NA 4,000
Do.	do.	Tishinsky Mine	65,000
Do.	do.	Maleevsky Mine in Altay GOK, ² Shyghys Qazaqstan Province	33,000
Do.	do.	Zhairem Mine in Zhairem GOK, ² Ulytau Province	71,000
Do.	Nova Zinc LLP (OJSC Chelyabinsk Zinc Plant)	Akzhal Mine, Qaraghandy Province	50,000
Do.	SN Mining LLP	Severo-Nikolaevsky Mine, Shyghys Qazaqstan Province	20,000
Concentrate, Zn content	Karagandatsvetmet PA (Kazakhmys Corp. LLC)	Karagaily concentrator in Qaraghandy Region complex, Qaraghandy Province	8,000
Do.	KAZ Minerals Ltd. (Nova Resources BV, 100%)	East Region complex, Shyghys Qazaqstan Province: Nikolaevsky concentrator	36,000
Do.	do.	Orlovsky concentrator	60,000
Do.	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ridder concentrator in Ridder GOK, ² Shyghys Qazaqstan Province	NA
Do.	do.	Zhairem concentrator in Zhairem GOK, ² Ulytau Province	NA
Do.	do.	Altay concentrator in Altay GOK, ² Shyghys Qazaqstan Province	NA
Do.	Nova Zinc LLP (JSC Chelyabinsk Zinc Plant)	Akzhal concentrator, Qaraghandy Province	35,000
Metal	Kazzinc Ltd. [Glencore plc, 69.7%, and NMC Tau-Ken Samruk JSC, 29.82% (National Wealth Fund Samruk-Kazyna JSC, 100%)]	Ridder zinc refinery in Ridder GOK, ² Shyghys Qazaqstan Province	120,000
Do.	do.	Ust-Kamenogorsk metallurgical complex in Oskemen, Shyghys Qazaqstan Province	140,000

^cEstimated; estimated data are rounded to no more than three significant digits. Do., do., Ditto. NA Not available.

¹Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.

²GOK is the abbreviation for gorno-obogatitelnyi kombinat, which translates as "mining and beneficiation complex."

³The open pit mine was terminated in 2019 and remained closed through 2023.

⁴The mine is under liquidation.

⁵The mine was liquidated in 2020.

⁶In November 2023, all underground mining activities were suspended at Zhaisan Mine.

⁷The mine was mothballed in 2022. It was expected to resume in 2024.

⁸The Zhezkazgan concentrating plant No. 3 has not operated since 2013 and remained closed through 2023.

⁹The company stopped operations at the Bestobe Mine owing to restoration works.

¹⁰Capacity estimates are totals for all enterprises that produce that commodity.