2017–2018 Minerals Yearbook

UKRAINE

U.S. Department of the Interior
U.S. Geological Survey

August 2023

The Mineral Industry of Ukraine

By Elena Safirova

Note: In this chapter, information for 2017 is followed by information for 2018.

In 2017, Ukraine was among the world's leading producers of several minerals. Ukraine was the 3d-ranked producer of gallium (1.3% of world output) and rutile (12.3% of world output); the 5th-ranked producer of titanium sponge (4.4% of world output), graphite (2.2% of world output), and bromine (1.3% of world output); the 7th-ranked producer of iron ore (2.5% of world output) and manganese ore (4.2% of world output); the 8th-ranked producer of kaolin (4.9% of world output) and magnesium metal (0.8% of world output); the 9th-ranked producer of ilmenite (4.2% of world output) and pig iron (1.7% of world output); and the 11th-ranked producer of bentonite (1.0% of world output), peat (2.1% of world output), and raw steel (1.2% of world output). The country had significant coal and uranium resources but depended on imported petroleum and natural gas (Bedinger, 2019a, b; Bray, 2019; Brioche, 2019; Corathers, 2019; Jaskula, 2019; Olson, 2019; Schnebele, 2019; Tuck, 2019a, b; West, 2019).

In 2017, Ukraine stabilized production throughout the economy following the political developments of 2014. In late February 2014, the President of Russia ordered the invasion of Ukraine's Crimea Peninsula, claiming that the action was needed to protect ethnic Russians living there. Two weeks later, in March, a referendum was held in Crimea regarding the integration of Crimea into the Russian Federation. The referendum was not recognized by the Governments of Ukraine, the United States, and the European Union, nor by the United Nations General Assembly. After the referendum, the Ukraine Government asserted that Crimea continued to be a part of Ukraine. In addition, parts of eastern Ukraine did not recognize the new Government of Ukraine and formed their own separatist republics with their own administration. This action resulted in armed conflicts with the Government of Ukraine that continued throughout 2017. In September 2014, the representatives of Ukraine, Russia, and the separatist republics signed a cease-fire agreement, but intermittent fighting continued in 2015 and 2016 (U.S. Central Intelligence Agency, 2021).

In January 2017, independent activists in Ukraine began a blockade of railroads leading to the Donbass region. Initially, the goal of the blockade was to pressure the separatist leaders to free captive Ukrainian military personnel. Later, the main goal became to block delivery of coal to the metallurgical plants located in Donbass. By the end of February, many plants stopped operations because of the lack of coal supplies. In response, the administrations of the unrecognized republics announced that the owners of the metallurgical plants located on their territories were required to register with the administrations or face management takeover by the administrations, if the blockade was not removed. The administrations subsequently declared that 14 metallurgical, chemical, and extractive plants, including the Alchevskiy metallurgical plant, Donetskiy metallurgical plant, and Yenakievskiy metallurgical plant, would face management takeover. The administrations stated that the plants would be effectively nationalized and restarted with imports of coal and the export of final products to Russia and other countries. As of yearend, the majority of the plants were under the administrations' management and employed about 40,000 workers (DW.com, 2017; Kommersant.ru, 2017; Rosinvest.com, 2017; Iz.ru, 2018).

Minerals in the National Economy

In 2017, Ukraine's real gross domestic product (GDP) increased by 2.5% compared with a 2.4% (revised) increase in 2016.[1] The nominal GDP in 2017 amounted to $112.5 billion.[2] Total industrial production in 2017 was 2.63 trillion hryvnias (about $99.0 billion). Mining and quarrying constituted 323.5 billion hryvnias (about $12.2 billion), or 13.0%. Within the mining and quarrying sector, mining of metal ores accounted for 40.7%; extraction of crude petroleum and natural gas, 34.3%; mining of hard coal and lignite, 17.2%; and quarrying of stone, sand, and clay, 5.7%. The State Statistics Committee of Ukraine reported that, in 2017, the share of manufacturing in industrial production was 62.0%, the share of metallurgical production in industrial production was 27.9%, the share of coke and refined petroleum in industrial production was 5.9%, and the share of chemical and chemical products in industrial production was 4.2%. Among metallurgical products, the manufacture of basic metals amounted to 354.6 billion hryvnias (about $13.4 billion) and the rest were fabricated metal products. Among coke and petroleum products, coke accounted for 54.2% of total value and petroleum products accounted for the rest. Production of cement, lime, and plaster accounted for 15.4 billion hryvnias ($580 million), or 1.1% of total manufacturing production (State Statistics Service of Ukraine, 2018a, c, 2019; U.S. Central Intelligence Agency, 2021).

Government Policies and Programs

In July 2017, the Parliament of Ukraine extended the 30-euro-per-metric-ton export tariff (about $32.50 per metric ton) on scrap metal for an additional year; that is, from September 15, 2017, to September 15, 2018. The export tariff had been in effect since September 15, 2016, and was expected to be extended through 2019. Levying the tariff for this length of time contradicted the conditions of Ukraine's association with the European Union,

[1]The data in this section exclude the territory of the Autonomous Republic of Crimea, the city of Sevastopol, and parts of the zone of anti-terrorist operation.

[2]Where necessary, values have been converted from Ukrainian hryvnia (UAH) to U.S. dollars (US$) at an annual average exchange rate of UAH27.171=US$1.00 for 2018; UAH26.526=US$1.00 for 2017, UAH25.630=US$1.00 for 2016 and UAH 21.797=US$1.00 for 2015.

however, and had to be abandoned. In June 2017, scrap metal exports amounted to 29,100 metric tons (t), of which about 80% was exported to Turkey, and the rest, to Moldova. Overall, the domestic scrap metal market in Ukraine amounted to about 3 million metric tons per year (Mt/yr), whereas the demand for scrap metal was estimated to be about 4 Mt/yr, and the tariff alone was not able to eliminate the shortage of scrap metal in Ukraine (Interfax.com.ua, 2017c; Uaprom.info, 2017; Ubr.ua, 2017).

Production

The production of most mineral commodities decreased in 2017 compared with that of 2016. The output of kaolinitic clay decreased by 87%; gallium, by an estimated 56%; bentonite, by 46%; other ferroalloys, by 43%; nitrogen content of ammonia, by 42%; peat for horticultural use, by 35%; metallurgical coke, by 21%; mined uranium, by 20%; anthracite coal, by 19%; lime, limestone, nickel content of ferronickel, and pig iron, by 15% each; bituminous coal and rolled steel, by 14% each; and raw steel, by 12%. On the other hand, production of graphite and primary magnesium increased by an estimated 33% each; steel pipe, by 23%; zirconium, by 19%; refined secondary lead, by 18%; gypsum, by 17%; secondary refined copper, by 15%; mined manganese, by 14%; sulfuric acid, by 13%; ilmenite and leucoxene (gross weight), by 12%; and alumina, by 11%. These and other production data are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

The total value of Ukraine's exports of goods and services increased to about $52.6 billion in 2017 from $45.1 billion in 2016; exports of goods increased to $43.3 billion in 2017 from $36.4 billion in 2016. The value of total exports was equal to about 47% of Ukraine's GDP in 2017. Ukraine's leading export category in terms of value was ferrous metals and, in 2017, exports of nonprecious metals, mostly consisting of ferrous metals, were valued at $8.7 billion and made up 20.0% of the total value of all exports of goods; exports of cinder, ores, and slag were valued at $2.7 billion and made up 6.2% of the total value of exports of goods. Exports of mineral fuels and petroleum products accounted for $790 million (1.8% of the total value of exports of goods). Exports of salt, soil, stones, and sulfur were worth $422 million (1.0 % of the total value of exports of goods). The value of exports of mineral products and metals made up about 32.5% of the total value of exports of goods. The main export partners of Ukraine were Russia (which received 9.1% of Ukraine's exported goods); Poland (6.3%); Turkey (5.8%); Italy (5.7%); India (5.1%); China (4.7%); and Egypt (4.2%) (State Statistics Service of Ukraine, 2018b).

The total value of Ukraine's imports of goods and services was about $55.1 billion in 2017 compared with $44.6 billion in 2016. The total value of Ukraine's imports of goods was $49.6 billion in 2017 compared with $39.2 billion in 2016. The leading imported commodities were mineral fuels and refined petroleum products, which made up about 23.6% of the total value of goods imported in 2017. The country's main import partners in 2017 were Russia (which supplied 14.5% of Ukraine's imports); China (11.4%); Germany (11.0%); Poland (7.0%); Belarus (6.5%); the United States (5.1%); and Switzerland (3.4%) (State Statistics Service of Ukraine, 2018b).

Commodity Review

Metals

Bauxite and Alumina and Aluminum.—In 2017, the Government of Ukraine and United Company RUSAL plc of Russia (RUSAL) continued an ongoing dispute over Zaporozhye Aluminum Complex (ZAlK), which was previously wholly owned and operated by RUSAL. As of 2017, the Government of Ukraine controlled a 68.01% interest in ZAlK, and the remainder of the interest was held by RUSAL. In March 2017, the Security Service of Ukraine announced that nine individuals affiliated with RUSAL were suspected of a criminal operation to deliberately destroy ZAlK's production processes, working in the interests of ZAlK's competitors. Specifically, those individuals were accused of destroying a complete production cycle at the plant and removing valuable equipment from the plant premises. In particular, the former director of ZAlK allegedly inflicted damage in the amount of $130 million to the plant in 2015. In December, the prosecutor's office announced formal criminal charges against the former director and other individuals. Reportedly, the Government intended to begin a new privatization of ZAlK in 2018 (Interfax.com.ua, 2017b; Metaltorg.ru, 2017; Minprom.ua, 2017).

In 2017, the Nikolayevskiy alumina refinery, which was the only producer of alumina in Ukraine, increased production by 11% to 1.68 million metric tons (Mt) from 1.51 Mt in 2016. In 2016, RUSAL invested $7 million in refinery modernization with the goal of reducing energy requirements to less than 30% of the total cost. In October 2017, however, the Antimonopoly Committee of Ukraine announced its approval of the sale of the Nikolayevskiy Alumina Refinery to Glencore plc of Switzerland. It was expected that the transition period in ownership would take about a year, and no drastic changes in the alumina plant's operations were expected. In addition to the alumina refinery, Glencore acquired three smaller holding companies that RUSAL owned in Ukraine. Glencore was one of the largest traders of raw materials in the world and a mining company that operated in more than 50 countries (Biz.censor.net.ua, 2017; Metalinfo.ru, 2017b).

Iron and Steel.—In July, PAO ArcelorMittal Kryviy Rih, which was located in Dnipropetrovs'ka Oblast', announced that it would invest a total of $267 million in modernization of production and that it planned to invest a total of about $1 billion in modernization during the period of 2017 to 2020. The modernization projects included a second machine for continuous casting with a capacity of 1.3 Mt/yr, two new coke-oven batteries, new equipment for the beneficiation complex, and several environmental projects. The plant produced 7.5 Mt of raw steel in 2016 (the latest year for which data were available) and was the leading producer of rolled steel in Ukraine (Interfax.com.ua, 2017a; Metalinfo.ru, 2017d).

Iron Ore.—In May 2017, EVRAZ plc of Russia announced the sale of its Sukha Balka mining and beneficiation complex (GOK) to Berklemont Investments Ltd., which was a subsidiary of DCH Group of Ukraine, for $110 million. Sukha Balka was an iron ore GOK that included two mines—the Yubileynaya and the Frunze—and had the capacity to produce 3.1 Mt/yr of iron ore agglomerate. In 2016 (the latest year for which data were available), Sukha Balka produced 2.5 Mt of iron ore agglomerate (Delo.ua, 2017).

In the first half of 2017, Ferrexpo plc of Switzerland increased its investment in the expansion of its three iron ore GOKs—the Belanovskiy, the Poltavskiy, and the Yeristovskiy—by 130% compared with its investment during the first half of 2016), to 1.15 billion hryvnias (about $43.4 million). Of this amount, 762.2 million hryvnias (about $28.7 million) was spent on the Poltavskiy GOK; 356.7 million hryvnias (about $13.4 million), on the Yeristovskiy GOK; and 26.4 million hryvnias (about $1 million), on the Belanovskiy GOK. Overall, Ferrexpo planned to invest about $100 million in development of its facilities in 2017. In July, Ferrexpo took out a $350 million syndicated loan to finance its export operations. In 2016 (the latest year for which data were available), the Poltavskiy GOK exported more than 11.4 Mt of pellets to countries in Asia, Europe, and the Middle East. All output of the Poltavskiy GOK was exported (Geonews.com.ua, 2017; Metalinfo.ru, 2017a).

In July 2017, Black Iron Inc. of Canada revived its plans to produce iron ore at the Shimanovskoye deposit located in Dnipropetrovs'ka Oblast'. Black Iron announced that it had commissioned a feasibility study to be completed by the end of 2017. In 2010, Black Iron acquired Geo-Alliance Ore East Ltd. of Cyprus that had a license for the Shimanovskoye deposit. The license was valid through November 2024. Black Iron planned to build a $1.1 billion processing plant with the capacity to produce 9.9 Mt/yr of iron ore concentrate. The company expected to produce high quality iron ore concentrate with 68% iron content that would command a premium price on the market. The Shimanovskoye deposit had resources of 646 Mt of mineralized material with iron content of between 30% and 32% (Metalinfo.ru, 2017c).

Titanium.—In 2017, Group DF continued production of ilmenite concentrate at two of its GOKs—the OOO Valki-Ilmenit and the OOO Mezhdurechenskiy. About 30% of the ilmenite concentrate was sold domestically to SumyChimprom, which was a producer of chemical products, and the remaining 70% was exported. The original design capacity of Valki-Ilmenit was 65,000 metric tons per year (t/yr) of ilmenite concentrate, and that of Mezhdurechenskiy, 180,000 t/yr of ilmenite concentrate. In the first three quarters of 2017, the two GOKs produced 54,000 t of ilmenite concentrate. In addition to these two operating GOKs, the company was in the process of building two new titanium GOKs—the Stremigorodskiy GOK in Zhitomirs'ka Oblast' and the Motronovskiy GOK in Dnipropetrovs'ka Oblast'. According to the preliminary estimates, when operational, the Stremigorodskiy GOK would have the capacity to produce 500,000 t/yr of ilmenite concentrate and 150,000 to 200,000 t/yr of apatite concentrate, and the Motronovskiy GOK, 120,000 t/yr of ilmenite concentrate, 14,000 t/yr of zircon concentrate, and 20,000 t/yr of rutile concentrate (Ukrrudprom.com, 2018).

Industrial Minerals

Cement.—In 2017, Ukraine's cement production remained practically unchanged compared with the cement production in 2016. Annual cement production per capita in Ukraine was about 211 kilograms (kg), which was lower than in Russia (366 kg). In 2017, the leading producers of cement included PAO Podolsk Cement (CRH plc), PAO Nikolayevtsement (CRH plc), OOO Cement (CRH plc), PAO Ivano-Frankovsktsement, PAO Dyckerhoff Cement Ukraine, PAO HeidelbergCement Ukraine, and PAO Eurocement Ukraine (table 1; Cementu, 2017; Beton.ru, 2019).

Mineral Fuels and Related Materials

Uranium.—In 2017, production of mined uranium in Ukraine decreased by 20% to 836 t. The only enterprise producing uranium in Ukraine in 2017 was the Vostochnyi GOK that mined uranium at four deposits—the Michurinskoye, the Novokonstantinovskoye, the Tsentral'noye, and the Vatutinskoye. Of the four deposits, the Novokonstantinovskoye was the largest, with a design capacity to produce 1,500 t/yr of uranium; however, in 2017, it produced only about 200 t. The powerplants in Ukraine required about 2,500 t/yr of uranium (table 1; Volkov, 2019).

In February 2017, the State Service for Geology and Subsoil issued exploration licenses to U-Tech Energy LLC that was registered in Delaware (United States). The license was issued for 5 years and covered four deposits located in Dnipropetrovs'ka and Nikolaevs'ka Oblast's. The company planned to invest about 1 billion hryvnias (about $38 million) in exploration during the next 3 years. The company intended to build small nuclear reactors to use as powerplants in Ukraine (Inshe.tv, 2019).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

Minerals in the National Economy

In 2018, Ukraine's real GDP increased by 3.4% compared with a 2.5% increase in 2017. The nominal GDP in 2018 amounted to 3.56 trillion hryvnias (about $131 billion). Total industrial production in 2018 was 3.04 trillion hryvnias (about $112 billion). Mining and quarrying constituted 391.4 billion hryvnias (about $14.4 billion), or 12.8%. In 2018, real industrial production increased by 3.0% compared with a 2.4% increase in 2017. Mining of metal ores increased by 4.4% compared with an 8.5% decrease in 2017; production of crude petroleum and natural gas increased by 2.5% compared with a 1.8% increase in 2017; mining of hard coal and lignite increased by 6.1% compared with a 16.8% decrease in 2017, and quarrying of stone, sand, and clay increase by 3.4% compared with a 3.5% decrease in 2017. The State Statistics Committee of Ukraine reported that, in 2018, the share of manufacturing in industrial production was 61.9%, the share of metallurgical production in industrial production was 26.9%, the share of chemical and chemical products in industrial production was 4.2%, and the share of coke and refined petroleum in industrial production was 6.1% (State Statistics Service of Ukraine, 2020, p.190, 246–252; U.S. Central Intelligence Agency, 2021).

In April 2018, the State Service for Geology began preparation for an auction of special licenses for subsoil use that was to take place in August 2018. A total of 13 lots were to be auctioned, and the applications were due in June. The lots offered for auction contained clay, granite, limestone, sandstone, and groundwater. All lots required additional exploration before production. The rules of the auction required at least two bidders for each specific lot for the licensing to take place, and each participant needed to pay a deposit equal to 20% of the starting bid for each lot prior to the auction (Neftegaz.ru, 2018).

The total value of Ukraine's exports of goods and services increased to about $57.3 billion in 2018 from $52.6 billion in 2017; exports of goods increased to $47.3 billion in 2018 from $43.3 billion in 2017. Ukraine's leading export category in terms of value was ferrous metals and, in 2017, exports of ferrous metals were valued at $8.7 billion and made up 17.5% of the total value of all exports of goods; exports of cinder, ores, and slag were valued at $3.6 billion and made up 7.2% of the total value of exports of goods. Exports of mineral fuels and petroleum products were valued at $863 million (1.7% of the total value of exports of goods). Exports of salt, soil, stones, and sulfur were worth $413 million (0.8 % of the total value of exports of goods). The main recipients of Ukraine's exports were China (which received 7.2% of Ukraine's exported goods); Poland (6.6%); Russia (6.5%); Turkey (5.2%); Germany and Italy (4.8% each); and Egypt (4.5%) (State Statistics Service of Ukraine, 2020, p. 361–370).

Production

In 2018, the output of kaolinitic clay increased by 108%; ilmenite and leucoxene, gross weight, by 90%; peat for horticultural use, by 66%; bentonite, by 57%; mined uranium, by 41%; titanium sponge, by 28%; lime and salt, by 21% each; and sulfuric acid, by 20%. On the other hand, production of nitrogen in ammonia decreased by 33%; ferromanganese, by 31%; zirconium by 18%; anthracite coal, by 15%; kaolin, refined secondary lead, and refined petroleum, by 12% each; and ferronickel, gross weight, by 10%. These and other production data are in table 1.

Commodity Review

Metals

Ferroalloys.—In December 2018, the U.S. Department of Commerce made a decision to extend import tariffs on silicomanganese produced in Ukraine for 5 more years. The tariff was set at the rate of 163%. This was the fourth extension of the tariff, which was originally introduced in 1994. The tariff was effectively directed at the production of the Nikopol'skiy, the Stakhanovskiy, and the Zaporozhskiy ferroalloy plants (Hromadske.ua, 2018b; Uaprom.info, 2018).

Iron and Steel.—In 2018, ArcelorMittal Kryvyi Rih began construction of two continuous casting machines, each with capacity to produce 1.4 Mt/yr of steel each (one of these machines was planned in 2017 to have a capacity of 1.3 Mt/yr). The total cost of the investment project was estimated to be $100 million. Testing of the new equipment was scheduled to begin in the third quarter of 2018, and both machines were planned to be commissioned in the first quarter of 2019 (Metalinfo.ru, 2018).

In March, EVRAZ announced the sale of its Dneprovskiy Metallurgical Plant (DMZ) located in Dnipropetrovs'ka Oblast' to DCH Group for $106 million. The parties announced that the transaction, including full payment, would be completed by the end of 2018. DMZ was an integrated metallurgical plant specializing in pig iron and rolled-steel production. In 2017 (the latest year for which data were available), DMZ produced 1.02 Mt of pig iron, 918,000 t of raw steel, and 785,000 t of rolled steel and received $586 million in revenue. DMZ was the last EVRAZ property in Ukraine. Earlier, in 2017, EVRAZ had sold the iron ore GOK Sukha Balka located in Dnipropetrovs'ka Oblast' (Hromadske.ua, 2018a; Rambler.ru, 2018).

Outlook

Ukraine's mining, metallurgy, and other mineral sectors had significant setbacks during the past few years: primary aluminum production stopped, and it was unclear whether another owner could make production profitable; ferroalloy plants required inexpensive electricity to run profitably; coal mines and petroleum refineries were outdated and required significant investments; and iron ore mines and steel plants were struggling to break even.

Ukraine is likely to remain one of the world's leading producers of manganese ore, titanium ore, and titanium sponge. Remaining competitive in metallurgy may prove difficult owing to high energy costs, the need for new investments, and the often-differing interests of plant owners and the Government. It remains to be seen whether the Government and the owners of privately owned industrial facilities will be able to reach mutually beneficial compromises and whether the country will be able to attract new investments to move the mineral and metallurgical industries forward.

References Cited

Bedinger, G.M., 2019a, Titanium and titanium dioxide: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 174–175.

Bedinger, G.M., 2019b, Titanium mineral concentrates: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 176–177.

Beton.ru, 2019, Itogi 2018 goda. Proizvodstvo tsementa v Ukraine [Results of 2018. Cement production in Ukraine]: Beton.ru, February 4. (Accessed December 4, 2019, at https://beton.ru/news/detail.php?ID=433328.) [In Russian.]

Biz.censor.net.ua, 2017, Rabochim Nikolayevskogo glinozemnogo zavoda Deripaski soobshili o smene vladel'tsa predpriyatiya [Workers at the Deripaska's alumina plant were informed about the change of plant owners]: Biz.censor.net.ua, October 24. (Accessed December 4, 2019, at https://biz.censor.net.ua/news/3034693/rabochim_nikolaevskogo_glinozemnogo_zavoda_deripaski_soobschili_o_smene_vladeltsa_predpriyatiya.) [In Russian.]

Bray, E.L., 2019, Magnesium metal: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 102–103.

Brioche, A.S., 2019, Peat: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 118–119.

Cementu.com, 2017, Tsementnyye zavody Ukrainy [Cement plants of Ukraine]: Cementu.com. (Accessed December 4, 2019, at https://cementu.com/zakaz-cementa/zavody-cementa.) [In Russian.]

Corathers, L.A., 2019, Manganese: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 104–105.

Delo.ua, 2017, EVRAZ prodayet GOK Sukha Balka investkompanii Aleksandra Yaroslavskogo [EVRAZ sells GOK Sukha Balka to the Alexandr Yaroslavskiy investment company]: Delo.ua, May 26. (Accessed December 4, 2019, at https://delo.ua/business/evraz-prodaet-gok-suha-balka-investkompanii-aleksandra-jaroslav-331312/.) [In Russian.]

DW.com, 2017, Blokada Donbassa: Ppytka ostanovit’ voynu ili politicheskiy piar [Blockade of Donbass—An attempt to stop the war or political PR]: DW.com, February 9. (Accessed December 4, 2019, at https://p.dw.com/p/2XDiQ.) [In Russian.]
Geonews.com.ua, 2017, Ferrexpo uvelichila investitsii v razvitiye GOKov [Ferrexpo increased investment in development of mining and processing complexes]: Geonews.com.ua, September 22. (Accessed December 4, 2019, at http://geonews.com.ua/news/detail/ferrexpo-uvelichila-investicii-v-razvitie-61614.) [In Russian.]
Hromadske.ua, 2018a, Evraz Abramovicha prodal svoi posledniy zavod na Ukraine [Abramovich’s EVRAZ sold its last plant in Ukraine]: Hromadske.ua, March 1. (Accessed December 4, 2019, at https://hromadske.ua/ru/posts/evraz-abramovycha-prodal-svoi-poslednyi-zavod-v-ukrayne.) [In Russian.]
Hromadske.ua, 2018b, SSha prodlili na 5 let poshliny na metallurgicheskuyu produktsiyu iz Ukrainy [USA extended tariffs for metallurgical products from Ukraine for 5 years]: Hromadske.ua, December 13. (Accessed December 4, 2019, at https://hromadske.ua/ru/posts/ssha-prodlyly-na-5-let-163-protsentnye-poshlyny-na-metallurhycheskuiu-produktsyiu-yz-ukrayny.) [In Russian.]
Inshe.tv, 2019, Vladelets VTB budet dobyvat’ uran v Nikolayevskoy oblasti [The owner of VTB will produce uranium in Nikolayevskaya Oblast’]: Inshe.tv, January 4. (Accessed December 4, 2019, at https://inshe.tv/nikolaev/2019-01-04/401312/.) [In Russian.]
Interfax.com.ua, 2017a, ArcelorMittal Krivoy Rog v 2017 g investiruyet v modernizatsiyu proizvodstva $267 mln [In 2017, ArcelorMittal Kryviy Rih will invest $267 million in production modernization]: Interfax.com.ua, July 25. (Accessed December 4, 2019, at https://interfax.com.ua/news/economic/438260.html.) [In Russian.]
Interfax.com.ua, 2017b, SBU soobshila o podozrenii predstavitelyam RUSAL za unichtozheniye ZAlKa v interesah RF [SBU informed representatives of RUSAL about suspicions regarding ZAlK destruction for the benefit of the Russian Federation]: Interfax.com.ua, August 29. (Accessed December 4, 2019, at https://interfax.com.ua/news/economic/445059.html.) [In Russian.]
Interfax.com.ua, 2017c, Ukraina v 2017 g snizit zagotovku loma na 11-16% i stanet netto-importerom—prognoz Interpaypa [In 2017, Ukraine will reduce scrap metal collection by 11%–16% and will become a net importer—Interpipe forecast]: Interfax.com.ua, February 15. (Accessed December 4, 2019, at https://interfax.com.ua/news/economic/403376.html.) [In Russian.]
Iz.ru, 2018, Vo glave uglya: kto pomogaet vosstanavlivat’ ekonomiku Donbassa [Presiding over the coal—Who helps restore Donbass economy]: Iz.ru, December 24. (Accessed December 4, 2019, at https://iz.ru/827269/elena-poltavskaia/vo-glave-uglia-kto-pomogaet-vosstanavlivat-ekonomiku-donbassa.) [In Russian.]
Jaskula, B.W., 2019, Gallium: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 62–63.
Kommersant.ru, 2017, Donbasskiye zavody vyrabatyvayut strategiyu [Donbass plants develop a strategy]: Kommersant.ru, February 19. (Accessed December 4, 2019, at https://www.kommersant.ru/doc/3236732.) [In Russian.]
Metalinfo.ru, 2017a, Ferrexpo privlekayet kredit na $350 mln [Ferrexpo attracts a $350 million loan]: Metalinfo.ru, July 26. (Accessed December 4, 2019, at https://www.metalinfo.ru/ru/news/95988.) [In Russian.]
Metalinfo.ru, 2017b, NGZ planiruyet rasshireniye proizvodstva glinozema [NGZ plans to expand alumina production]: Metalinfo.ru, February 20. (Accessed December 4, 2019, at https://www.metalinfo.ru/ru/news/92391.) [In Russian.]
Metalinfo.ru, 2017c, Proekt razrabotki ukrainskogo Shimanovskogo zhelezorudnogo mestorozhdeniya mozhet byt’ reanimirovan [The project for the development of Ukraine’s Shimanovskoye iron ore deposit could be revived]: Metalinfo.ru, July 21. (Accessed December 4, 2019, at https://www.metalinfo.ru/ru/news/95898.) [In Russian.]
Metalinfo.ru, 2017d, V 2017 g ArcelorMittal Krivoy Rog investiruyet v proizvodstvo $400 mln [In 2017, ArcelorMittal Kryviy Rih will invest $400 million in production]: Metalinfo.ru, February 21. (Accessed December 4, 2019, at https://www.metalinfo.ru/ru/news/92456.) [In Russian.]
Metalinfo.ru, 2018, ArcelorMittal Krivoy Rog postriot dve novyye MNLZ [ArcelorMittal Kryviy Rih will build two new continuous casting machines]: Metalinfo.ru, March 28. (Accessed December 4, 2019, at https://www.metalinfo.ru/ru/news/101121.) [In Russian.]
Metaltorg.ru, 2017, Direktoru ZAlKa nascitali $130 tysyach usherba za 2015 god [The ZAlK director is accused of inflicting $130,000 in damages for 2015]: Metaltorg.ru, March 14. (Accessed December 4, 2019, at https://www.metaltorg.ru/n/9A96F1.) [In Russian.]
Minprom.ua, 2017, Eks-direktora ZAlKa budut sudit’ za unichtozheniye predpriyatiya v interesah RUSALa [Ex-director of ZAlK will be tried for destroying the plant in RUSAL’s interests]: Minprom.ua, December 19. (Accessed December 4, 2019, at https://minprom.ua/news/239331.html.) [In Russian.]
Neftegaz.ru, 2018, Na Ukraine nachalas’ podgotovka k auktsionu po prodazhe spetsial’nyh razresheniy na pol’zovaniye nedrami [Preparation for a special permits auction for subsoil use began in Ukraine]: Neftegaz.ru, April 6. (Accessed December 4, 2019, at https://neftegaz.ru/news/Geological-exploration/202370-na-ukraine-nachalas-podgotovka-k-auktsionu-po-prodazhe-spetsialnykh-razresheniy-na-polzovanie-nedram/.) [In Russian.]
Olson, D.W., 2019, Graphite (natural): U.S. Geological Survey Mineral Commodity Summaries 2019, p. 72–73.
Rambler.ru, 2018, Evraz prodal svoi posledniy metallurgicheskiy aktiv na Ukraine za $106 mln [EVRAZ sold its last asset in Ukraine for $106 million]: Rambler.ru, March 1. (Accessed December 4, 2019, at https://finance.rambler.ru/business/39262032-evraz-prodal-svoy-posledniy-metallurgicheskiy-aktiv-na-ukraine-za-106-mln/.) [In Russian.]
Rosinvest.com, 2017, LNR i DNR berut pod kontrol’ 14 predpriyatiy gorno-metallurgicheskogo kompleksa [LNR and DNR take control of 14 mining and metallurgy enterprises]: Rosinvest.com, March 1. (Accessed December 4, 2019, at http://rosinvest.com/novosti/1300943.) [In Russian.]
Schnebele, E.K., 2019, Bromine: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 38–39.
State Statistics Service of Ukraine, 2018a, Statistical yearbook of Ukraine for 2017: Kyiv, Ukraine, State Statistics Service of Ukraine, 611 p. (Accessed December 4, 2018, at http://www.ukrstat.gov.ua/druk/publicat/kat_u/2018/zb/11/zb_seu2017_e.pdf.)
State Statistics Service of Ukraine, 2018b, Ukraine’s foreign trade, 2017: Kyiv, Ukraine, State Statistics Service of Ukraine, 86 p. (Accessed December 4, 2018, at http://www.ukrstat.gov.ua/druk/publicat/kat_u/2018/zb/06/zb_ztu_2017.pdf/.)
State Statistics Service of Ukraine, 2018c, Volume of industrial products sold, by types of activity in 2017: Kyiv, Ukraine, State Statistics Service of Ukraine. (Accessed December 4, 2019, via http://www.ukrstat.gov.ua/.)
State Statistics Service of Ukraine, 2019, National accounts of Ukraine for 2017: Kyiv, Ukraine, State Statistics Service of Ukraine, 195 p. (Accessed December 4, 2018, at http://www.ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/02/zb_nru2017.pdf.)
State Statistics Service of Ukraine, 2020, Statistical yearbook of Ukraine for 2019: Kyiv, Ukraine, State Statistics Service of Ukraine, 463 p. (November 4, 2020, at http://www.ukrstat.gov.ua/druk/publicat/kat_u/2020/zb/11/zb_yearbook_2019.pdf.)
Tuck, C.A., 2019a, Iron and steel: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 82–83.
Tuck, C.A., 2019b, Iron ore: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 88–89.
Uaprom.info, 2017, Ukrainskiy rynok metalloloma prodolzhaet ispytyvat’ nehvatku syryya [Ukrainian scrap metal market continues to experience lack of raw materials]: Uaprom.info, July 28. (Accessed December 4, 2019, at http://uaprom.info/news/159857-ukrainskij-rynok-metalloloma-prodolzhaet-ispytyvat-nehvatku-syrya-upe.html.) [In Russian.]
Uaprom.info, 2018, Mintorg SShA opublikoval resheniye o prodlenii poshlin na silikomarganets iz Ukrainy [USA’s Department of Commerce published its decision to extend tariffs on silicomanganese from Ukraine]: Uaprom.info, December 13. (Accessed December 4, 2019, at http://uaprom.info/news/167294-mintorg-ssha-opublikoval-reshenie-prodlenii-poshlin-ferrosilikomarganec-ukrainy.html.) [In Russian.]
Ubr.ua, 2017, Ukraina prodlila povyshennuyu eksportnuyu poshlinu na metallolom [Ukraine extended higher export tariff for scrap metal]: Ubr.ua, July 14. (Accessed December 4, 2019, at https://ubr.ua/market/trade/ukraina-prodlila-povyshennuju-eksportnuju-poshlinu-na-metallolom--3848277.) [In Russian.]
Ukrrudprom.com, 2018, Titanovyye kombinaty Dmitriya Firtasha vdvoye uvelichili dobychu syryya [Dmitry Firtash’s titanium complexes doubled raw material production]: Ukrrudprom.com, November 8. (Accessed December 4, 2019, at https://www.ukrrudprom.com/news/Titanovie_kombinati_Dmitriya_Firtasha_vdvoe_uvelichili_dobichu_s.html.) [In Russian.]
U.S. Central Intelligence Agency, 2021, Ukraine, in The world factbook: U.S. Central Intelligence Agency, February 24. (Accessed February 25, 2021, at https://www.cia.gov/the-world-factbook/countries/ukraine/.)
Volkov, Alexei, 2019, Uranovyy rasklad [Situation with uranium]: Zavarnik.biz. (Accessed December 4, 2019, at http://zavarnik.biz/uranovyj-rasklad.) [In Russian.]
West, D.N., 2019, Clays: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 48–49.

TABLE 1

UKRAINE: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS						
Alumina		1,457,000	1,481,000	1,510,000	1,676,000	1,715,000
Copper, refinery, secondary		15,200 r	18,500 r	21,973	25,186	24,901
Ferroalloys:						
Ferromanganese		102,934	87,740	104,470	114,500	79,400
Ferronickel:						
Gross weight		114,222 r	95,209	79,900	72,500	79,537
Ni content		18,600 e	18,000 r, e	18,100	15,300	15,807
Ferrosilicon, electric furnace		142,300 r	90,200	101,420 r	92,910	97,084
Silicomanganese		840,433 r	698,400 r	814,970	810,670	859,600
Other, unspecified		15,326	19,360	22,219 r	12,635	13,150
Gallium	kilograms	13,000 r, e	9,400 r	9,000 r, e	4,000 e	4,000 e
Germanium, Ge content[e]	do.	600	500	500	500	500
Iron ore, mine:						
Crude ore		184,000,000	175,000,000	167,815,000	165,548,200	160,877,900
Usable ore		68,300,000	66,900,000	62,876,000	60,574,400	60,548,900
Fe content		42,700,000	41,800,000	39,300,000	37,900,000	37,800,000
Iron and steel:						
Pig iron		24,801,000	21,878,000	23,560,000	20,123,000	20,531,200
Steel:						
Raw steel	thousand metric tons	27,373	22,935	24,197	21,334	21,060
Products:						
Pipe		1,407,000	852,400	849,000	1,047,800	1,100,000
Rolled		23,830,000	20,016,000	21,400,000	18,400,000	18,450,000
Lead, refinery, secondary		30,000 e	30,000 e	28,465	33,633	29,755
Magnesium, primary, metal[e]		7,200	7,700	6,770	9,000	9,000
Manganese:						
Mine, marketable:						
Gross weight		1,526,218	1,203,320 r	1,250,000 r	1,424,650	1,521,140
Mn content		519,000	409,000 r	425,000 r	484,000	517,140
Metal		1,300	10,100	7,420	7,640	7,460
Titanium:						
Ilmenite and leucoxene, mineral concentrate:						
Gross weight		450,000 e	350,000 e	350,000 e	392,000	745,417
TiO_2 content		200,000 e	155,000 e	155,000 e	160,000 e	300,000
Rutile, 95% TiO_2		110,000 e	90,000 e	100,000 e	100,000 e	106,858
Sponge		7,200	7,700 e	6,770	7,300 e	9,342
Zirconium, zircon concentrate		27,000 e	25,000 e	22,200 e	26,500	21,614
INDUSTRIAL MINERALS						
Bromine		3,549 r	4,060 r	4,866 r	4,500 e	4,500 e
Cement, hydraulic	thousand metric tons	8,636	8,511	9,023	9,003	9,241
Clay:						
Bentonite		210,000 e	210,000 e	210,000 e	113,200	178,200
Kaolin	thousand metric tons	1,426	1,815	2,335	2,380	2,092
Kaolinitic clay	do.	2,250 e	2,510 e	560	71	148
Feldspar		94,506	44,460	33,627	35,000 e	35,000 e
Graphite, crystalline flake		13,800 r	14,500 r	15,000 r, e	20,000 e	20,000 e
Gypsum, including anhydrite		1,525,000	1,255,000	1,303,000	1,528,900	1,386,400
Lime	thousand metric tons	3,134	2,717	2,542	2,151	2,608
Nitrogen, ammonia, N content	do.	2,419 r	2,168 r	1,678 r	979	657
Salt, all types		2,498,000	2,137,000 r	1,783,500 r	1,815,700	2,191,619
Soda ash, synthetic		600,000 e	600,000 e	600,000 e	608,200	618,500
Stone, crushed, limestone	thousand metric tons	11,564	7,620	7,675	6,525	6,117

See footnotes at end of table.

TABLE 1—Continued
UKRAINE: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
INDUSTRIAL MINERALS—Continued						
Sulfur:						
Compounds, sulfuric acid	thousand metric tons	554	526	498 r	561	676
Native, S content[e]		100,000	120,000	120,000	120,000	120,000
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	thousand metric tons	8,705	8,325	8,361	6,807	5,809
Bituminous	do.	51,300	31,420	32,503	28,109	27,477
Lignite[e]	do.	5,000	5,000	5,000	5,000	4,700
Coke, metallurgical		13,858,000	11,617,000	12,723,000	10,102,100	10,824,100
Natural gas	million cubic meters	20,500	19,900	20,472 r	20,510	20,806
Peat:						
Fuel use		463,000	491,000	539,100	517,600	540,300
Horticultural use		119,000	79,000	136,400	88,200	146,400
Total		582,000	570,000	676,000	606,000	687,000
Petroleum:						
Crude, including condensate[3]	thousand 42-gallon barrels	19,800 r	17,800 r	16,400 r	15,600	16,500
Refinery[4]	do.	20,400 r	21,000 r, e	21,100 r	22,400	19,700
Uranium, mine, U content		926	980	1,050 r	836	1,180

[e]Estimated. [r]Revised. do. Ditto.

[1]Table includes data available through December 29, 2019. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, a number of other mineral commodities may have been produced, but available information was inadequate to make reliable estimates of output.

[3]Figures were converted to barrels from metric tons, which were reported as follows: 2014—2,739,000; 2015—2,461,700; 2016—2,272,100; 2017—2,169,900; and 2018—2,456,000.

[4]Figures were converted to barrels from metric tons, which were reported as follows: 2014—2,600,000; 2015—2,605,000; 2016—2,626,000; 2017—2,791,000; and 2018—2,456,000.

TABLE 2
UKRAINE: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons)

Commodity	Major operating companies and major equity owners[1, 2]	Location or deposit names	Annual capacity[e]
Alumina	Nikolayevskiy alumina refinery (Glencore plc)	20 kilometers south of Mykolaiv	1,700,000
Aluminum, primary	Zaporozhye Aluminum Complex (ZAlK) [Government][3]	do.	114,000
Bromine	AO Brom	Krasnoperekopsk, Crimea	5,000
Cement	Facilities:	Locations:	14,600,000 [4]
	OOO Cement (CRH plc)	Odessa, Odes'ka Oblast'	
	PAO Dyckerhoff Cement Ukraine	Kyiv and Mykolayiv	
	PAO Eurocement Ukraine	Balakleya, Kharkivs'ka Oblast'	
	PAO HeidelbergCement Ukraine	Kriviy Rih	
	PAO Ivano-Frankovsktsement	Ivano-Frankivsk, Ivano-Frankivs'ka Oblast'	
	PAO Kramatorskiy Tsementnyi Zavod PUSHKA	Kramatorsk, Donets'ka Oblast'	
	PAO Nikolayevtsement (CRH plc)	Mykolayiv	
	PAO Podolsk Cement (CRH plc)	Khmel'nyts'ka Oblast'	
Clay:			
Bentonite	ChAO Weighting Agents Plant	Konstantinivka, Donets'ka Oblast'	NA
Do.	PAO Dashukovskiye Bentonity	Dashukovka, Cherkas'ka Oblast'	NA
Kaolin	AKW Ukrainian Kaolin Co.	Gluhivtsi, Vinnits'ka Oblast'	320,000
Do.	Kirovohrads'ke Rudoupravlenne	Katerinivka, Kirovohrads'ka Oblast'	NA
Do.	OOO Mineral Mining Co.	Pology, Zaporizhs'ka Oblast'	200,000
Do.	OOO YkrRosKaolin	Ekaterinivka, Donets'ka Oblast'	NA
Do.	Prosco Resources Ltd.	Prosyano Deposit, Dniepropetrovs'ka Oblast'	NA
Coal	About 150 active surface and underground mines, including:	About 95% of coal produced in Donets'ka, Dnipropetrovs'ka, and Luhans'ka Oblasts	90,000,000 [4]
	Donbass Fuel and Energy Co. (DTEK) (System Capital Management, 100%):		
	DTEK Dobropolyeugol	5 mines near Dobropillya, Donets'ka Oblast'	
	DTEK Komsomolets Donbassa Mine	Kirovskoe, Donets'ka Oblast'	
	DTEK Pavlogradugol	10 mines in Dnipropetrovs'ka and Donets'ka Oblasts	
	DTEK Rovenkyanthracite	6 mines and 3 processing plants in Luhans'ka Oblast'	
	DTEK Sverdlovanthracite	5 coal mines and 3 processing plants in Luhans'ka Oblast'	
	Krasnoarmeiskaya-Zapadnaya No. 1	1 mine at Krasnoarmeisk, Donets'ka Oblast'	
	JSC Krasnodon Coal Co. (Metinvest B.V.)	7 mines and 2 processing plants in Luhans'ka Oblast'	
	Smaller producers	Donets'ka, Dnipropetrovs'ka, Luhans'ka, Lvivs'ka, and Volyns'ka Oblasts	
Coke	OAO Bagliykoks coke plant	Dniprodzerzhinsk, Dnipropetrovs'ka Oblast'	NA
Do.	OAO Dneprkoks coke plant	Dnepr, Dnipropetrovs'ka Oblast'	NA
Do.	OAO Dneprodzerzhinsk coke plant	Dniprodzerzhinsk, Dnipropetrovs'ka Oblast'	NA
Do.	JSC Donetskkoks (Metinvest B.V., 24.5%, and OJSC Ilyich Iron and Steel Works, 12.96%)	Donetsk, Donets'ka Oblast'	390,000
Do.	Horlivka coke plant	Horlivka, Donets'ka Oblast'	440,000
Do.	Kharkov coke plant	Kharkiv	225,000
Do.	Makeevka coke plant	Makeevka, Donets'ka Oblast'	NA
Do.	Metinvest B.V.:		
	JSC Avdiivka coke plant	Avdeyevka, Donets'ka Oblast'	4,000,000
Do.	JSC Azovstal Iron and Steel Works	Mariupol, Donets'ka Oblast'	3,180,000
Do.	OAO Alchevsk coke plant [Industrial Union of Donbass Corp. (ISD Corp.)]	Alchevsk, Luhans'ka Oblast'	3,700,000

See footnotes at end of table.

TABLE 2—Continued
UKRAINE: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons)

Commodity	Major operating companies and major equity owners[1, 2]	Location or deposit names	Annual capacity[e]
Coke—Continued	OAO Yasinovskiy coke plant	Makeevka, Donets'ka Oblast'	NA
Do.	OAO Zaporozhkoks (JSC Zaporizhstal, 42%, and Metinvest B.V., 25%)	Zaporizhia	NA
Do.	PAO ArcelorMittal Kryviy Rih	Kryviy Rih, Dnipropetrovs'ka Oblast'	3,300,000
Do.	Yenakievo coke plant	Yenakievo, Donets'ka Oblast'	NA
Ferroalloys:			
Ferromanganese	Nikopol'skiy ferroalloys plant (PrivatBank Group and EastOne Group)	Nikopol	700,000
Do.	Stakhanovskiy ferroalloys plant (PrivatBank Group)	Luhans'ka Oblast'	NA
Do.	Zaporozhskiy ferroalloys plant (PrivatBank Group)	Zaporizhia	100,000
Ferromanganese, blast furnace	Konstantinovka Iron and Steel Works	Konstyantynivka, Donets'ka Oblast'	NA [5]
Do.	Kramatorskiy ferroalloys plant	Kramatorsk, Donets'ka Oblast'	NA
Ferronickel	Pobuzhskiy ferronickel plant	Pobuzhye, Kirovohrads'ka Oblast'	100,000
Ferrosilicon	Stakhanovskiy ferroalloys plant (PrivatBank Group)[6]	Luhans'ka Oblast'	120,000
Do.	Zaporozhskiy ferroalloys plant (PrivatBank Group)	Zaporizhia	100,000
Silicomanganese	Nikopol ferroalloys plant (PrivatBank Group and EastOne Group)	Nikopol	900,000
Do.	Stakhanovskiy ferroalloys plant (PrivatBank Group)[6]	Luhans'ka Oblast'	50,000
Do.	Zaporozhye ferroalloys plant (PrivatBank Group)	Zaporizhia	250,000
Gallium	Nikolaev alumina refinery [United Company RUSAL (RUSAL)]	20 kilometers south of Mykolaiv	13
Germanium	Zaporozhskiy Titanium and Magnesium Complex (ZTMK) (Government, 51%, and Tolexis Trading Ltd., 49%)	Zaporizhia	1
Graphite	Zavalyevskiy graphite complex	Zavalyevskiy deposit, Kirovohrads'ka Oblast'	20,000
Gypsum	AO Dekonskiy Gips (Knauf Gips KG)	Soledar, Donets'ka Oblast'	NA
Do.	OAO Mamalygovskiy Gypsovyi Zavod	Mmalyga, Chernivets'ka Oblast'	NA
Do.	PAO Gipsovik	Kamyanets-Podol'skiy, Khmel'nits'ka Oblast'	NA
Iron ore:			
Underground mining	ChAO Tsentral'nyi GOK (Metinvest B.V.)	1 mine in Dnipropetrovs'ka Oblast'	2,200,000
Do.	ChAO Zaporozhskiy Iron Ore Complex	Ekspluatatsionnaya Mine in Zaporiz'ka Oblast'	4,500,000
Do.	OOO Belanovskiy GOK (Ferrexpo plc)	Poltavs'ka Oblast'	NA
Do.	OOO Yeristovskiy GOK (Ferrexpo plc)	do.	NA
Do.	PAO ArcelorMittal Kryviy Rih	2 mines at Kryviy Rih	1,500,000
Do.	PAO Krivorozhskiy Iron Ore Complex (Metinvest B.V., 50%, and PrivatBank Group, 50%)	4 mines, in Kryvorizkiy iron ore basin	7,000,000
Do.	Sukha Balka GOK (Berklemont Investments Ltd.)	2 mines in Dnipropetrovs'ka Oblast' (Yubileynaya and Frunze Mines)	3,100,000
Open pit mining	ChAO Inguletskiy GOK (Metinvest B.V.)	Ingulets Mine south of Kryviy Rih	35,000,000
Do.	ChAO Severnyi GOK (Metinvest B.V.)	2 mines in Dnipropetrovs'ka Oblast'	30,000,000
Do.	ChAO Tsentral'nyi GOK (Metinvest B.V.)	3 mines in Dnipropetrovs'ka Oblast'	12,000,000
Do.	PAO ArcelorMittal Kryviy Rih	2 mines at Kryviy Rih	26,600,000
Do.	PAO Yuzhnyi GOK	Mine at Kryviy Rih	22,000,000
Do.	Poltavskiy GOK (Ferrexpo plc)	Gorishne-Plavninskoye and Lavrikovskoye (GPL) Mine 15 kilometers east of Kremenchug	30,000,000

See footnotes at end of table.

TABLE 2—Continued
UKRAINE: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons)

Commodity	Major operating companies and major equity owners[1, 2]	Location or deposit names	Annual capacity[e]
Lead, secondary	CJSC Svinets	Kostyantynivka	20,000
Magnesium metal	Magnii concern	Kalush	22,000
Manganese:			
Ore, marketable, Mn content	Ordzhonikidzevskiy GOK (PrivatBank Group)	Ordzhonikidze, Dnieprovskaya Oblast'	700,000
Do.	PAO Marganetskiy GOK (PrivatBank Group)	7 mines in Marhanets, Dnieprovskaya Oblast'	NA
Metal	Zaporozhskiy ferroalloys plant (PrivatBank Group)	Zaporizhia	NA
Natural gas	Olesskoye deposit (Chevron Corp.)	Lvivs'ka and Ivano-Frankivs'ka Oblasts	NA
Do.	Yuzovskoye deposit (Royal Dutch Shell plc)	Kharkivska and Donets'ka Oblasts	NA
Nickel, Ni content in FeNi	Pobuzhskiy GOK (Solway Investment Group)	Pobuzhye, Kirovohrads'ka Oblast	20,000
Peat	SC Ukrtorf	Plants in Chernihivs'ka, Lvivs'ka, Rivnens'ka, and Volшns'ka Oblasts	600,000
Petroleum, refined	JSC Naftokhimik Prykarpattya	Nadvirna, Ivano-Frankivs'ka Oblast'	NA [3]
Do.	Halychyna refinery (Ukraine Oil Co.)	Drohobych, Lvivs'ka Oblast'	NA [3]
Do.	Kherson oil refining plant	Kherson	NA [3]
Do.	Kremenchug refinery (CJSC Ukrtatnafta)	Kremenchug	NA
Do.	Lisichanskiy refinery (TNK-BP)	Lisichansk	NA [3]
Do.	Odessa refinery (OAO Lukoil)	Odessa	NA [3]
Do.	Shebelinskiy refinery	Shebelinka, Kharkivs'ka Oblast'	NA
Soda ash, synthetic	AO Krymskiy Sodovyi Zavod	Krasnoperekopsk, Crimea	NA
Steel, raw	Donetskiy electrometallurgical plant (Mechel OAO)[7]	do.	1,000,000 [7]
Do.	Industrial Union of Donbass Corp. (ISD Corp.): ChAO Dneprovskiy Metallurgical Plant	Dnipropetrovs'ka Oblast'	3,850,000
Do.	OOO Alchevskiy Metallurgical Complex	Alchevsk, Luhans'ka Oblast'	5,200,000
Do.	JSC Energomashspetsstal (OJSC Atomenergomash)	Kramatorsk, Donets'ka Oblast'	NA
Do.	JSC Zaporizhstal (Metinvest B.V., 24.9%)	Zaporizhia	4,350,000
Do.	Kramatorskiy Metal Plant “Kuibiysheva”	Kramatorsk, Donets'ka Oblast'	NA
Do.	OOO Elektrostal	Kurakhovo, Donets'ka Oblast'	NA
Do.	Metinvest B.V.: OAO Azovstal Iron and Steel Works	Mariupol, Donets'ka Oblast'	6,200,000
Do.	OAO Yenakievskiy Iron and Steel Works	Yenakiieve, Donets'ka Oblast'	2,700,000
Do.	OAO Ilyich Iron and Steel Works	Mariupol, Donets'ka Oblast'	6,000,000
Do.	PAO ArcelorMittal Kryviy Rih	Kryviy Rih, Dnipropetrovs'ka Oblast'	7,500,000
Do.	PJSC Azovelectrostal (JSC Azovmash)	Mariupol, Donets'ka Oblast'	500,000
Titanium:			
Mineral concentrate:			
Ilmenite	Irshanskiy GOK (Government)	Irshansk, 50 kilometers north of Zhitomir	NA
Do.	OOO Valki-Ilmenit (OstChem GmbH, 75%)	do.	65,000
Do.	OOO Mezhdurechenskiy GOK (OstChem GmbH, 75%)	Zhytomyrs'ka Oblast'	180,000
Do.	Velta LLC[8]	Korobchino, Novomirgorod district, Kirovograds'ka Oblast'	NA
Do.	Volnogorskiy GOK (Government)	Volnogorsk, 70 kilometers west of Dnipropetrovsk	NA
Do.	Demurinskiy GOK (Limpeza Ltd., 25%, and VSMPO-Avisma, 75%)	Dnipropetrovs'ka Oblast'	NA
Rutile	do.	do.	NA

See footnotes at end of table.

TABLE 2—Continued
UKRAINE: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons)

Commodity	Major operating companies and major equity owners[1, 2]	Location or deposit names	Annual capacity[e]
Titanium:—Continued			
Sponge	Zaporozhskiy Titanium & Magnesium Complex (ZTMK) (Government, 51%, and Tolexis Trading Ltd., 49%)	Zaporizhia	NA
Ingots	OOO Antares	Kyev	NA
Do.	OOO Fico	do.	NA
Do.	Zaporozhskiy Titanium & Magnesium Complex (ZTMK) (Government, 51%, and Tolexis Trading Ltd., 49%)	Zaporizhia	NA
Titanium dioxide, pigment	Crimea Titan CJSC	Crimea	NA
Do.	OAO Sumykhimprom	Sumy	NA
Uranium, U content:			
Ore	Vostochnyi GOK (Government)	Michurinskoye Mine at Kirovohrad	NA
Do.	do.	Novokonstantinovskoye Mine in Kirovohrads'ka Oblast'	1,000
Do.	do.	Tsentral'noye Mine in Kirovohrads'ka Oblast'	NA
Do.	do.	Vatutinskoye Mine in Kirovohrads'ka Oblast'	NA
Concentrate	do.	Hydrometallurgical concentration plant at Zheltye Vody	1,000
Zinc, secondary	CJSC Svinets	do.	30,000
Do.	Ukrzinc plant	Kostyantynivka	25,000
Zirconium minerals:			
Concentrate	Volnogorsk state mining-metals complex [Leased from the Government by Crimea Titan CJSC (Ukraine Government, 50% plus one share, and OstChem GmbH, 50% minus one share)]	Volnogorsk, 70 kilometers west of Dnipropetrovsk	30,000
Metal and compounds	State Research and Production Enterprise "Zirconium"	Dniprodzerzhinsk	NA [9]

[e]Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

[1]Inconsistencies in enterprise and location names may appear in this table because both Ukrainian and Russian spellings were used for transliterations. English versions of company names are used as given by official company sources (websites, press releases, and so forth). Ukrainian versions of location names are used whenever possible.

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

[3]Not in operation as of 2018.

[4]Capacity estimates are totals for all enterprises that produce that commodity.

[5]Konstantinovka Iron and Steel Works stopped production of blast furnace ferromanganese in 2008.

[6]The Stakhanovskiy Ferroalloys Plant stopped operations in July 2014.

[7]In December 2011, Mechel OAO of Russia purchased 100% of the shares of the Donetsk electrometallurgical plant.

[8]Velta LLC was ordered to stop operations by the Government Service for Geology and Subsoil in November 2015.

[9]Operational status in 2018 was unknown.