



2019 Minerals Yearbook

POLAND [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF POLAND

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In 2019, Poland was the world's third-ranked producer of rhenium (accounting for 15.7% of world production), fifth-ranked producer of silver (5.5%), and seventh-ranked producer of selenium (excluding United States production) (2.2%). In Europe, Poland was ranked second in the production of bituminous coal, third in the production of refined copper and lignite, and fourth (estimated) in the production of cement. Other mineral commodities, such as mined copper, helium, lime, nitrogen (ammonia), peat, salt, industrial sand and gravel, and sulfur were also produced in significant quantities (table 1; Central Statistical Office of Poland, 2020, p. 754; International Monetary Fund, 2020a, b; Anderson, 2021a, b; Polyak, 2021).

Minerals in the National Economy

In 2019, Poland's real gross domestic product (GDP) decreased by 3.6%. The nominal GDP was \$592.4 billion.¹ Mining and quarrying accounted for 1.4% of Poland's GDP, and the total industrial sector (including mining and quarrying) accounted for 21.7% of the GDP. The total sold production of the industrial sector was valued at \$420.68 billion. Of this amount, the manufacture of metal products accounted for \$33.71 billion (8.0%); coke and refined petroleum products, \$21.67 billion (5.1%); base metals, \$14.77 billion (3.5%); other nonmetallic mineral products, \$16.84 billion (4.0%); and mining and quarrying, \$14.48 billion (3.4%). Bituminous coal and lignite together accounted for 46.9% of the mining and quarrying sold production (Central Statistical Office of Poland, 2020, p. 507, 508, 701).

Out of the 2,627 companies engaged in mining and quarrying in 2019, 2,541 companies had less than 100 employees each and together accounted for \$1.52 billion (10.5%) of the total sold production in mining and quarrying; and 9 companies had more than 1,000 employees each and accounted for \$11.16 billion (77.1%) of the total sold production in mining and quarrying. The number of people employed in the mining and quarrying sector increased to 140,100 in 2019 from 138,600 in 2018 and accounted for 0.9% of total employment in Poland. Of this number, 82,100 people were employed in mining of bituminous coal and lignite (Central Statistical Office of Poland, 2020, p. 243, 510).

Government Policies and Programs

Mining activities in Poland are regulated primarily by the Geological and Mining Law (GML) of June 9, 2011, which came into force on January 1, 2012. The GML defines the terms and conditions for conducting mineral development activities; mining; nonreservoir storage; and waste storage in the subsurface, and it specifies the requirements for the protection of mineral deposits. The state treasury owns certain types of mineral

¹Where necessary, values have been converted from Polish zlotys (PLN) to U.S. dollars (US\$) at the annual average exchange rate of PLN3.8395=US\$1.00 for 2019.

deposits, irrespective of their location (that is, whether on private or public lands). The Act of July 2014 amending the GML came into force on January 1, 2015. The amendments include changes in the obligatory qualification procedures and to the concession-awarding processes to allow for an integrated license that covers exploration, appraisal, and the production of hydrocarbons. The Act of May 2017 came into force on July 25, 2017, as another amendment to the GML. The amendment applies the provisions of the European Parliament's directive of June 12, 2013, on improving the safety of offshore oil and gas extraction. It also simplifies mining companies' reporting requirements. On August 29, 2018, the Act of June 15, 2018, came into force as a new amendment to the GML. The amendment implements new principles regarding the priority right to apply for the establishment of a mining usufruct, water injection into rock mass, and simplification of the joint operating agreements for mining operations. It also clarifies the grounds for concession withdrawal and refusing to grant a concession, and introduces a new procedure known as the "open door procedure" for granting hydrocarbon concessions. Legal provisions regarding hydrocarbons also apply to noble gases (Palukiewicz, 2017, 2018; Polish Geological Institute, 2017, p. 17, 18; 2020g; Chancellery of the Sejm of the Republic of Poland, 2020a, b).

Production

In 2019, the most significant increases in mineral production were for that of quartz and quartz crystal, which increased by 64%; lead (lead-zinc ore, Pb content), 52%; refined copper (secondary), 30%; gold (mine, Au content), 29%; refined lead (primary), 20%; aluminum (secondary), 19%; refined silver, 18%; diatomite and glass sand (marketable), 17% each; peat (horticultural and fuel uses), 15%; selenium (Se content), 14%; and dolomite (crushed), 12%. The most significant production decreases were for that of feldspar, by 41%; refined cadmium (primary), 35%; quartzite (refractory), 32%; magnesite ore, 19%; lignite, fire clay (crude), and lime-sand brick production sand, 14% each; raw steel, 12%; bentonite and pig iron, 11% each; and magnesite concentrate and sulfur (native, frasch, S content), 10% each. Data on mineral production are in table 1.

Structure of the Mineral Industry

The mineral industry in Poland was composed mostly of privately owned companies. The Polish Government owned a small number of mineral producers, including Poludniowy Koncern Węglowy S.A. The Government also owned shares in ENEA S.A., Grupa LOTOS S.A., Jastrzebska Spolka Węglowa S.A., KGHM Polska Miedz S.A. (KGHM), PGE Polska Grupa Energetyczna S.A., Polski Koncern Naftowy Orlen S.A. (PKN Orlen S.A.), and Polskie Gornictwo Naftowe i Gazownictwo (PGNiG). Table 2 is a list of major mineral industry facilities.

Mineral Trade

In 2019, exports of mineral raw materials (chemicals; metals; stones; and fuels, excluding natural gas) increased slightly in terms of value and dropped significantly in terms of volume, whereas imports of mineral raw materials decreased in terms of value and volume. Poland's total exports were valued at \$266.59 billion. The total value of exported mineral raw materials increased to \$14.67 billion, or by 2.0% compared with that in 2018, and accounted for approximately 5.5% of the country's total exports. The major mineral raw material exports were bituminous coal and coal derivatives (19.9% of the total value of mineral raw materials exports); crude petroleum and petroleum products (16.0%); raw materials and products of copper metallurgy (15.2%); precious metals, excluding silver (7.6%); iron and ferroalloys (6.9%); aluminum (5.7%); silver (5.0%); nitrogen and multicomponent fertilizers (4.8%); and insulating materials (2.5%). Poland's leading mineral raw material export partners were Germany (which received 23.7% of Poland's total mineral raw material exports, by value), Czechia (11.2%), the Netherlands (6.1%), the United Kingdom (5.7%), and China (5.2%) (Central Statistical Office of Poland, 2020, p. 564; Polish Geological Institute, 2020d).

Poland's total imports were valued at \$265.23 billion. The total value of imported mineral raw materials increased to \$28.14 billion, or by 4.7% compared with that in 2018, and accounted for approximately 10.6% of the country's total imports. The major mineral raw material imports were crude petroleum and petroleum products (58.8% of the total value of mineral raw material imports), bituminous coal and coal derivatives (7.2%), aluminum (6.6%), iron and ferroalloys (4.7%), raw materials and products of copper metallurgy (3.3%), nitrogen and multicomponent fertilizers (2.4%), precious metals (1.8%), and zinc and bitumen and natural asphalt (1.4% each). Poland's leading mineral raw material import partners were Russia (which provided 40.7% of Poland's mineral raw material imports, by value), Germany (7.8%), Saudi Arabia (6.4%), Kazakhstan (4.9%), Norway (3.1%), and Lithuania (2.4%) (Central Statistical Office of Poland, 2020, p. 564; Polish Geological Institute, 2020d).

Commodity Review

Metals

Copper.—KGHM was Poland's only copper producer and one of the leading producers in the world. In 2019, KGHM mined 29.9 million metric tons (Mt) of ore with an average copper content of 1.50% compared with 30.3 Mt and 1.49%, respectively, in 2018. The company produced approximately 449,300 metric tons (t) of copper in ore and 398,900 t of copper in concentrate. From the mined copper ore in Poland, 1,990 t of nickel sulfate, 1,400 t of silver, 75,760 kilograms (kg) of selenium, 28,510 t lead, 8,340 kg of rhenium, and 674 kg of gold were produced as well as byproducts (KGHM Polska Miedz S.A., 2020a, p. 190; Polish Geological Institute, 2020b).

In 2019, KGHM brought online a copper concentrate roasting installation in the Glogow copper smelter and refinery plant, which produced 79,000 t of roasted ore since the start

of the continuous operation in January. In June 2019, KGHM launched a revolving casting-refining (RCR) furnace dedicated primarily to the processing of scrap, which was the largest project in the history of the Legnica copper smelter and refinery. With the addition of the RCR furnace, Legnica's total capacity for processing scrap and copper-bearing materials in anode and RCR furnaces reached 26,000 metric tons per year (KGHM Polska Miedz S.A., 2020a, p. 174).

Iron and Steel.—In 2019, Europe increased its imports of steel produced from Asia, as producers in Asia redirected some of their production to Europe after the United States introduced tariffs on steel imports in 2018. At the same time, consumption of finished steel products in Poland decreased by about 12% to 13.2 Mt. As a result, Poland's raw steel production decreased to 9.1 Mt in 2019. Owing to the weakening demand, ArcelorMittal Poland S.A. lowered the capacity utilization of its three blast furnaces (one in Krakow and two at Dabrowa Gornicza) in September 2019 and, in November, the blast furnace in Krakow was shut down. ArcelorMittal Poland was the leading steel producer in Poland and accounted for about 70% of the country's steel production capacity. Another steel producer, ISD Huta Czestochowa Sp. z o.o., which owned a steel plant at Czestochowa, declared bankruptcy on September 4 (table 1; ArcelorMittal Poland S.A., 2019, 2020; Mamon, 2019; Polish Steel Association, 2020, p. 3).

Rhenium.—KGHM was the only producer of rhenium in Poland and the only European producer of metallic rhenium from its own resources. KGHM was the third-ranked producer of rhenium in the world in 2019, accounting for 15.7% of the world's production. Rhenium was produced as a byproduct of the copper smelting process (KGHM Polska Miedz S.A., 2020b; Polish Geological Institute, 2020b; Polyak, 2021).

Industrial Minerals

Cement.—In 2019, the cement industry in Poland comprised 13 plants with 3,500 employees. Polish cement production had been increasing steadily until 2018, when it increased by 10%, which was the largest year-on-year increase in the Polish cement production. In 2019, cement production was slightly below that in 2018 and amounted to about 18.7 Mt, of which 99% was sold domestically. Owing to climate regulations and additional business costs to reduce the environmental impact of cement plants in the European Union (EU), cement from geographically close countries outside of the EU became competitive. The share of cement imports to Poland from non-EU countries increased to 29% in 2019 from 8% in 2013. In 2017 (the latest year for which data were available), Belarus accounted for 24% of cement imports to Poland. In 2019, Poland's cement consumption was estimated to be 19.8 Mt, which was a 1.4% increase from that in 2018 (CEMEX S.A.B. de C.V., 2020, p. 72; EYGM Ltd., 2020, p. 3; Polish Cement Association, 2020).

Mineral Fuels

Coal.—Overall coal production had been decreasing since 2011 owing to a push towards "clean" energy. In 2019, bituminous coal (hard coal) production decreased by 3.5% to 50.0 Mt from 51.8 Mt in 2018. As of December 31, 2019, a total

of 162 bituminous coal deposits were documented in Poland; 46 of these deposits were being mined, and their reserves were estimated to be about 27 billion metric tons (Gt). The total reserves of bituminous coal in the country were estimated to be about 64 Gt in 2019, which was an increase of 4.7% from the total estimated reserves in 2018. In 2019, one new coal deposit was documented (Dankowice 1), which had 72.1 Mt of resources and was allocated from the already existing Dankowice deposit in the Upper Silesian coal basin. Polska Grupa Gornicza S.A. (PGG), which was established in 2016, was the leading bituminous coal producer in the EU and one of the leading employers in Poland. In 2019, PGG produced 29.5 Mt of bituminous coal and employed approximately 40,000 people (table 1; Polska Grupa Gornicza, 2016, p. 3; Polish Geological Institute, 2020e; Polska Agencja Prasowa, 2020).

Production of lignite (brown coal) decreased by 14% to 50.3 Mt in 2019 from 58.6 Mt in 2018; the majority (36.4 Mt) was mined from the Belchatow deposit. A total of 91 lignite deposits were documented in the country; 9 of these deposits were being mined, and their reserves were estimated to be about 1.2 Gt. The total reserves of lignite in the country were estimated to be 23 Gt in 2019, which was a decrease of 54 Mt compared with the estimated reserves in 2018. In 2019, besides Belchatow, lignite was produced at four other mines: Adamow, Konin, Sieniawa, and Turow (table 1; Polish Geological Institute, 2020a).

Natural Gas and Petroleum.—In 2019, Poland’s reserves of natural gas increased by 2.1 billion cubic meters to about 140 billion cubic meters. Resources at developed gasfields were estimated to be 90 billion cubic meters and accounted for 63% of the total resources in the country. As of the end of 2019, seven new natural gas fields were documented and 11 licenses for running underground storage facilities for natural gas, crude petroleum, and liquid fuel were issued (Polish Geological Institute, 2020f).

As of 2019, 87 oilfields were documented in Poland, including 57 that were in production. The total reserves of crude petroleum and condensate amounted to about 23 Mt [about 166 million barrels (Mbb)]. In 2019, crude petroleum production in Poland was 973,000 t (about 7.1 Mbb), and consumption was 27.28 Mt (about 200 Mbb) compared with 1.01 Mt (about 7.4 Mbb) and 27.0 Mt (about 198 Mbb), respectively, in 2018. The country’s import dependency was 96%. Imports of crude petroleum during the year totaled 26.62 Mt (about 195 Mbb), and exports totaled 243,000 t (about 1.8 Mbb) (Central Statistical Office of Poland, 2020 p. 100, 511, 519; Polish Geological Institute, 2020c).

PGNiG was the leading hydrocarbon exploration and production company in Poland. In 2019, the company’s overall production (including its operations in other countries) of crude petroleum, condensate, and natural gas liquids (NGLs) was 1.2 Mt, and natural gas production was 4.49 billion cubic meters, of which 776,200 t and 3.82 billion cubic meters, respectively, were produced in Poland. PGNiG conducted

natural gas and crude petroleum extraction in three countries: Norway, Pakistan, and Poland. In Poland, PGNiG owned 54 oil and gas production facilities. One of the key elements of the PGNiG Group Strategy for 2017–2022 (a document that is part of the company’s operation plan) was to extend the upstream portion of the business to outside of Poland to ensure supply diversification; in other words, the company planned both to develop domestic deposits and to source gas from abroad. PGNiG had improved the diversification of its gas imports after the liquefied natural gas (LNG) terminal in Swinoujscie was commissioned in June 2016. The terminal had a production capacity of 5 billion cubic meters per year. In 2019, approximately 80% of PGNiG’s domestic gas sales volume came from imports and 20% was produced domestically. The share of PGNiG’s imported gas supplies (including its own overseas production) from eastern of Poland decreased to 48% in 2019 from 66% in 2016, whereas imports from western and southern directions increased to 13% from 2%, respectively, and LNG imports from Norway, Qatar, and the United States increased to 18% of PGNiG’s supplies (Fitch Ratings Inc., 2020; Polskie Gornictwo Naftowe i Gazownictwo S.A., 2020a–d).

Grupa LOTOS S.A. (LOTOS) was the second-ranked producer of refined fuels in Poland. Its refinery, which was located in Gdansk, had a refining capacity of 10.5 million metric tons per year (Mt/yr) (about 77.0 million barrels per year) of crude petroleum. In 2019, the refinery processed 10.7 Mt of crude petroleum. LOTOS’ fuel sales in Poland amounted to 8 Mt in 2019. LOTOS completed the Effective Refining Project (“EFRA”) at its Gdansk refinery in 2019, which had been ongoing since 2015. In June 2019, LOTOS finished construction of the delayed coking unit, which was the major part of the project. The coking unit started operations in September and was placed in service in December. Owing to the completion of the EFRA, approximately 1.1 Mt/yr of additional high-quality fuels, mainly diesel and aviation fuels, would be produced from the heavy residue (Grupa LOTOS S.A., 2020a; 2020b, p. 11, 25).

Outlook

The Government will continue to maintain control in a limited number of key mining and energy companies that are essential to the Polish economy and energy security. Poland will continue to be dependent on imports of mineral fuels. Coal production is expected to remain a significant part of the country’s mineral industry in the near term; in the long term, coal production is expected to decrease owing to the global push towards clean energy and the strict EU climate and environmental regulations. The cement industry may face increasing competition from cement imports from countries outside of the EU, and the steel industry may face a similar challenge as a result of increasing steel imports from Asia into the European market. Production of byproducts (mainly lead, precious metals, and rhenium) may increase owing to KGHM’s new capacity to recover byproducts during the copper smelter process.

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TABLE 1
POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
METALS					
Aluminum, metal, secondary	7,577	8,264	8,308	11,320	13,496
Cadmium, refinery, primary	383	319	309	305	199
Copper:					
Mine:					
Ore:					
Gross weight	31,571,000 ^r	32,000,000 ^r	31,200,000 ^r	30,300,000 ^r	29,900,000
Cu content	478,727	480,038	466,793	452,034	449,284
Concentrates:					
Gross weight	1,860,000	1,867,000	1,833,000 ^r	1,761,000 ^r	1,763,000
Cu content	425,870 ^r	424,300 ^r	419,300 ^r	401,300 ^r	398,900
Smelter:					
Primary	514,774	446,902	457,549	461,865	489,242
Secondary	67,624	60,369	53,024	50,001	51,904
Refinery:					
Primary	470,900	429,000	429,600	423,600	463,600
Secondary	103,400	106,600	92,400	78,200	102,000
Ferroalloys:					
Ferrosilicon	77,754	77,682	65,732	63,618	65,523
Other, unspecified	460	12,517	24,800	33,250 ^r	30,000 ^e
Gold, mine, Au content	kilograms 431	402	572	523	674
Iron and steel:					
Pig iron	4,826,492	4,679,616	5,159,128	4,787,696	4,241,941
Steel:					
Raw steel	9,336,489	9,160,660	10,540,354	10,336,483	9,123,107
Products:					
Cold-rolled	1,705,000	1,818,000	2,197,071	2,418,680	2,255,603
Hot-rolled	8,345,000	8,793,000	9,771,182	10,106,047	9,280,068
Pipe, cold formed and hollow sections	784,000	718,000	808,000	850,000 ^e	850,000 ^e
Lead:					
Mine, Pb content:					
From copper ore	29,000	26,060	26,000	27,210	28,510
From lead-zinc ore	20,000	17,000	12,706	13,234	20,156
Refinery:					
Primary	40,000	40,000	41,000	40,000	48,000
Secondary	114,000	115,000	119,000	120,000	114,000
Platinum-group metals, refinery:					
Palladium	kilograms 20	30	7	5 ^r	5 ^e
Platinum	do. 40	50	11	8 ^r	8 ^e
Rhenium, ammonium perrhenate, Re content	do. 9,170	9,310	10,930	9,090	8,340
Selenium, Se content	do. 87,000	81,660	73,900	66,360	75,760
Silver:					
Mine, Ag content	do. 1,407,000	1,482,000	1,490,000	1,471,400 ^r	1,455,900
Refinery, metal	do. 1,283,209	1,191,127	1,218,100	1,188,900 ^r	1,400,200
Zinc:					
Mine, Zn content	65,000	61,000	50,000	43,483 ^r	40,309
Smelter, primary	161,500 ^r	161,200 ^r	161,800 ^r	160,000 ^r	159,400
INDUSTRIAL MINERALS					
Cement:					
Clinker	thousand metric tons 11,602 ^r	12,016 ^r	12,934 ^r	14,174 ^r	14,098
Hydraulic	do. 15,665 ^r	15,720 ^r	17,145 ^r	18,788 ^r	18,653

See footnotes at end of table.

TABLE 1—Continued
POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019	
INDUSTRIAL MINERALS—Continued						
Clay:						
Bentonite	450	1,000	--	560	500	
Fire clay, crude	116,000	102,807 ^r	89,856 ^r	95,581 ^r	82,095	
Kaolin:						
Crude	287,000	299,830	284,650	310,850	317,190	
Beneficiated	172,000	176,000	177,051	192,447	187,184	
Diatomite	600	500	500	580	680	
Feldspar	76,540	88,140	91,200	71,480	42,160	
Gemstones, quartz and quartz crystal	14,700	7,600	8,000	8,800	14,400	
Gypsum:						
Mine:						
Anhydrite	thousand metric tons	136	137	114	128	133
Gypsum rock	do.	882	898	994	914	887
Synthetic	do.	2,800 ^e	3,659	2,937	2,985	3,040
Lime, hydrated and quicklime	do.	1,942	1,869	1,904	2,684	2,645
Magnesite:						
Ore		111,077	97,868	127,613	117,478	94,668
Concentrate		96,000	77,920	101,920	102,110	91,490
Nitrogen, ammonia, N content	thousand metric tons	2,200	2,237	2,367	2,172	2,200 ^e
Salt:						
Evaporated salt	do.	671	647	615	620	590
Rock salt	do.	650	709	994	862 ^r	921
Other, brine and desalination of mine waste water	do.	2,798	2,965	2,989	2,929	2,929
Sand and gravel, industrial:						
Filling sand	do.	6,033	4,949	4,585	4,600 ^e	4,600 ^e
Foundry sand	do.	1,103	1,081	1,023	1,030 ^e	1,030 ^e
Glass sand, marketable	do.	2,669	2,262	2,472	2,435	2,854
Lime-sand brick production sand	do.	996	1,045	881	1,010 ^r	871
Molding sand	do.	1,633	1,253	1,643	1,512	1,480
Soda ash, synthetic, carbonate		1,074,320	1,250,420	1,280,997	1,239,131	1,250,000 ^e
Sodium, compounds, caustic soda, carbonate, 96% NaOH		397,369	386,385	431,817	405,861	406,000 ^e
Stone, sand, and gravel, construction:						
Sand and gravel, unspecified	thousand metric tons	167,930	173,175	186,296	197,005 ^r	182,811
Stone, crushed:						
Dolomite	do.	3,164	3,364	2,868	3,144	3,522
Limestone, for lime production	do.	18,655	17,463	18,091	18,780 ^r	19,270
Quartzite, refractory	do.	55	65	78	138	94
Sulfur, S content:						
Byproduct, natural gas	do.	24	25	23	24 ^r	25
Native, frasch	do.	628	621	663	617	555
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand metric tons	60,329	57,579	53,494	51,817	50,009
Lignite	do.	63,128	60,246	61,160	58,571	50,329
Metallurgical	do.	12,985	13,204	12,481	12,047 ^r	12,071
Coke, metallurgical	do.	9,792	9,718	9,418	9,473 ^r	8,917
Gas, manufactured, coke oven	million cubic meters	4,272	4,254	4,156	4,208	3,976
Natural gas	do.	5,762	5,794	5,408	5,348	5,374
Peat, horticultural and fuel uses		876,816	906,954	955,094	871,988	1,001,886
Petroleum:						
Crude	thousand 42-gallon barrels	6,800 ^r	7,340 ^r	7,080 ^r	7,400 ^r	7,130 ^r
Refinery	do.	217,000	216,000 ^r	214,000 ^r	225,000 ^r	226,000 ^e

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through January 28, 2021. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, beneficiated barite, cobalt, refined gold, helium, nickel sulfate, refined rhenium, and sulfur (byproduct of metallurgy) may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2019¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, secondary	Alumetal S.A.	Smelter at Kety	45.
Do.	Boryszew S.A. Branch Modern Products Aluminium Skawina (Boryszew Capital Group, 100%)	Smelter at Skawina	NA.
Do.	Grupa KETY S.A.	Smelter at Kety	60.
Do.	Huta Aluminium Konin (Impexmetal S.A., 95.52%)	Smelter at Konin	20.
Do.	Nicromet	Smelter at Bestwinka	18.
Do.	POLST Sp. z o.o.	Smelter at Walbrzych	22.
Cadmium, refined	metric tons Huta Cynku "Miasteczko Slaskie" S.A. (HCM) (Stalprodukt S.A.)	Smelter at Miasteczko Slaskie	540.
Cement:			
Aluminous	Gorka Cement Sp. z o.o. (Mapei Group)	Plant at Trzebinia	70 clinker, ^e 70 cement. ^e
Portland	Cementownia Krakow Nowa Huta Sp. z o.o. (Polska Energetyka Holding S.A.)	Krakow	300 clinker, ^e 500 cement. ^e
Do.	Cementownia Odra S.A. (Miebach Projektgesellschaft GmbH)	Opole	400 clinker, ^e 800 cement. ^e
Do.	Cementownia Warta S.A. (Polen Zement Beteiligungsgesellschaft GmbH)	Dzialoszyn	1,500 clinker, ^e 2,000 cement. ^e
Do.	CEMEX Polska Sp. z o.o. (CEMEX S.A.B de C.V., 100%)	Plants at Chelm and Rudniki	2,300 clinker, ^e 3,800 cement.
Do.	Dyckerhoff Polska Sp. z o.o. (Dyckerhoff/Buzzi Unicem SpA)	Nowiny	1,100 clinker, 1,600 cement.
Do.	Gorazdze Cement S.A. (HeidelbergCement AG, 100%)	Ekocem Plant at Dabrowa Gornicza and plant at Gorazdze	4,000 clinker, 6,000 cement.
Do.	Grupa Ozarow S.A. (CRH Plc., 100%)	Plants at Ozarow and Rejowiec	2,800 clinker, ^e 3,250 cement. ^e
Do.	Lafarge Cement S.A. (LafargeHolcim Ltd., 100%)	Kujawy Plant at Bielawy and plant at Malgoszcz	3,000 clinker, ^e 7,000 cement.
Clay:			
Bentonite	Zaklady Gorniczo-Metalowe "Zebiec" S.A.	Plant at Starachowice	40. ^e
Kaolin	Grudzen Las Sp. z o.o.	Grudzen Las	55. ^e
Do.	KSM "Surmin-Kaolin" S.A.	Nowogrodziec	90. ^e
Do.	Tomaszowskie Kopalnie Surowcow Mineralnych "Biala Gora" Sp. z o.o.	Smardzewice	30. ^e
Coal:			
Bituminous	Includes: 100% Government owned: Polska Grupa Gornicza S.A. Poludniowy Koncern Weglowy S.A. Jastrzebska Spolka Weglowa S.A. (Government, 55%) Lubelski Wegiel "Bogdanka S.A." (ENEA S.A., 66%) SILTECH Sp. z o.o.	Of which: Upper Silesia Voivodeship (8 mines) Upper Silesia Voivodeship (2 mines) Upper Silesia Voivodeship (5 mines) Bogdanka, Lublin Voivodeship (1 mine) Upper Silesia Voivodeship (1 mine)	65,000. ^{e,2}
Lignite	Includes: Kopalnia Wegla Brunatnego "Adamow" S.A. PAK Kopalnia Wegla Brunatnego "Konin" S.A. PGE KWB Belchatow S.A. [PGE Polska Grupa Energetyczna S.A. (Government, 57.39%)] PGE KWB Turow S.A. [PGE Polska Grupa Energetyczne S.A. (Government, 57.39%)] Sieniawa Brown Coal Mine Ltd.	Of which: Adamow Mine in Turek, Greater Poland Voivodeship Konin Mine in Kleczew, Greater Poland Voivodeship (3 open pits) Belchatow Mine, Lodz Voivodeship (2 open pit mines) Turow Mine, Lower Silesia Voivodeship Sieniawa Mine, Podkarpackie Voivodeship	70,000. ^{e,2}

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2019¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Coke	Includes: ArcelorMittal Poland S.A. CARBO-KOKS Sp. z o.o. ISD Huta Czesochowa Sp. z o.o. ³ Koksownia Przyjazn S.A. Kombinat Koksochemiczny Zabrze S.A. Zaklady Koksownicze "Victoria" S.A. Zaklady Koksownicze "Zdzieszowice" Sp. z o.o. (ArcelorMittal Poland S.A., 100%)		Of which: Krakow, Upper Silesia Voivodeship Bytom, Upper Silesia Voivodeship Czesochowa, Upper Silesia Voivodeship Dabrowa Gornicza, Upper Silesia Voivodeship Cokeries at Debiensko, Jadwiga, and Radlin Upper Silesia Voivodeship Walbrzych, Upper Silesia Voivodeship Zdzieszowice, Upper Silesia Voivodeship	10,800. ²
Copper:				
Ore, gross weight (averaged 1.57% Cu)	KGHM Polska Miedz S.A. (Government, 31.79%)		Lubin Mine, Lubin-Glogow District	8,100.
Do.	do.		Polkowice-Siersoszowice Mine, Lubin-Glogow District	12,400.
Do.	do.		Rudna Mine, Lubin-Glogow District	12,700.
Concentrate, gross weight (averaged 23.1% Cu)	do.		Lubin beneficiation plant, Lubin-Glogow District	465.
Do.	do.		Polkowice beneficiation plant, Lubin-Glogow District	450.
Do.	do.		Rudna beneficiation plant, Lubin-Glogow District	700.
Metal, refined	do.		Smelter and refineries at Glogow I, Glogow II, and Legnica	540.
Feldspar	Strzeblowskie Kopalnie Surowcow Mineralnych Sp. z o.o.		Sobotka, Lower Silesia, exploiting the Pagorki Wschodnie, Pagorki Zachodnie, and Strzeblow I deposits	50.
Ferroalloys:				
Electric furnace (FeSiMn, FeMn, FeSi)	Huta Laziska S.A.		Pant at Laziska Gorne	170.
Blast furnace (FeMn)	STALMAG Sp. z o.o.		Ruda Slaska	50. ^c
Gold:				
Mine, Au content	kilograms	KGHM Polska Miedz S.A. (Government, 31.79%)	Lubin Mine, Polkowice-Siersoszowice Mine, NA. and Rudna Mine	
Refined	do.	do.	Glogow Smelter and Refnery	550.
Gypsum, anhydrite	Includes: Kopalnia Gipsu i Anhydrytu "Nowy Lad" Sp. z o.o. Rigips Polska Stawiany Sp. z o.o. (Saint-Gobain) Zaklady Przemyslu Gipsowego "Dolina Nidy" S.A.		Of which: Mines at Niwnice and Iwiny Plant at Szarbkow Plant at Gacki	140. ²
Helium	million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 71.88%)	Plant at Odolanow	3.
Lead:				
Mine, Pb content	KGHM Polska Miedz S.A. (Government, 31.79%)		Lubin Mine, Polkowice-Siersoszowice Mine, NA. and Rudna Mine	
Do.	Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Stalprodukt S.A., 86.92 %)		Mine at Olkusz and concentrator at Pomorzany, Bukowno region	30 lead. ^c
Refined	"Baterpol" Sp. z o.o. (Impexmetal S.A.)		Refinery at Katowice	20. ^c
Do.	Huta Cynku "Miasteczko Slaskie" S.A. (HCM)		Refinery at Miasteczko Slaskie	35.
Do.	KGHM Polska Miedz S.A. (Government, 31.79%)		Refinery at Legnica	60.
Do.	Orzel Bialy S.A.		Refinery at Bytom	40. ^c

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2019¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Lime		Includes: Lhoist Group: Lhoist Opolwap S.A. Lhoist Bukowa Sp. z o.o. Zakład Wapienniczy Wojcieszow Sp. z o.o. Zakłady Wapiennicze Lhoist Sp. z o.o. Zakłady Przemysłu Wapienniczego (ZPW) Trzuskawica S.A. (CRH plc., 100%)	Of which: Plant at Tarnow Opolski Plant at Bukowa Plant at Wojcieszow Plant at Gorazdze Plants in Sitkowka-Nowiny and Bielawy	2,200. ^{c,2}
Natural gas	million cubic meters	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.19%)]	Gasfields in Baltic Sea Shelf	20. ^c
Do.	do.	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 71.88%)	Gasfields in southeastern Poland in the Carpathian Mountains, the Carpathian Foothills, and the Polish Lowlands	4,600. ^c
Nitrogen, ammonia, N content		Includes: Azoty-Adipol S.A. (former Chorzow Plant) Zakłady Azotowe "Anwil Wloclawek" S.A. Zakłady Azotowe "Kedzierzyn" S.A. Zakłady Azotowe "Pulawy" S.A. Zakłady Azotowe S.A. w Tarnowie Zakłady Chemiczne "Police"	Of which: Plant at Chorzow Plant at Wloclawek Plant at Kedzierzyn Plant at Pulawy Plant at Tarnow Plant at Police	2,600. ^{c,2}
Petroleum:				
Crude	thousand 42-gallon barrels	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.19%)]	Oilfields in Baltic Sea Shelf	1,700. ^c
Do.	do.	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 71.88%)	Oilfields in southeastern and western Poland with about 75% of production from the Barnowko-Mostno-Buszewo field near Debno	6,000. ^c
Refined	do.	ORLEN Poludnie S.A. [Polski Koncern Naftowy Orlen S.A. (PKN Orlen S.A.) (Government, 27.52%)]	Jedlicze and Trzebinia refineries	4,000.
Do.	do.	Petrochimia-Plock [Polski Koncern Naftowy Orlen S.A. (PKN Orlen S.A.) (Government, 27.52%)]	Refinery at Plock	119,000.
Do.	do.	Rafineria Gdanska S.A. [Grupa LOTOS S.A. (Government, 53.19%)]	Refinery at Gdansk	77,000. ^c
Rhenium:				
Ammonium perrhenate, Re content	kilograms	KGHM Metraco S.A. [KGHM Polska Miedz S.A. (Government, 31.79%)]	Plant at Lubin	15,000. ^c
Metal	do.	do.	do.	3,500.
Salt:				
Brine		Includes: Inowroclawskie Kopalnie Soli Solino S.A. Kopalnia Soli "Wieliczka" S.A.	Of which: Mines at Gora and Mogilno in central Poland Mines at Barycz and Wieliczka, near Krakow	5,000. ^{c,2}
Rock salt		KGHM Polska Miedz S.A. (Government, 31.79%)	Mine at Siersoszowice	NA.
Do.		Kopalnia Soli "Klodawa" S.A.	Klodawa	NA.
Selenium	metric tons	KGHM Polska Miedz S.A. (Government, 31.79%)	Refinery at Glogow	90.
Silver:				
Mine, Ag content	do.	do.	Lubin Mine, Polkowice-Siersoszowice Mine, 1,500. and Rudna Mine	
Refined	do.	do.	Precious metals plant at the Glogow smelter	1,400.
Do.	do.	Institute of Non-ferrous Metals	Plant at Gliwice	30. ^c

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2019¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel, raw	ArcelorMittal S.A., of which: ArcelorMittal Poland S.A.	Steelworks at Dabrowa Gornicza (former Huta Katowice S.A.)	8,000.
	do.	Steelworks at Krakow (former Huta Sendzimir S.A.) ³	
	ArcelorMittal Warszawa Sp. z o.o.	Steelworks in Warsaw (former Huta "Lucchini-Warszawa" Sp. z o.o.)	
Do.	Celsa Huta Ostrowiec S.A. (Celsa Group)	Steelworks at Ostrowiec-Swietokrzyski	800. ^c
Do.	CMC Zawiercie S.A. (Commercial Metals Co.)	Steelworks at Zawiercie	1,200.
Do.	Ferrostal Labydy Sp. z o.o. (Cognor S.A.)	Steelworks at Gliwice	375.
Do.	Huta Batory Sp. z o.o. (Alchemia S.A., 100%)	Steelworks at Chorzow	150. ^c
Do.	Huta Stali Jakosciowych S.A. (Cognor S.A.)	Steelworks at Stalowa Wola	261.
Do.	ISD Huta Czestochowa Sp. z o.o. ⁴	Steelworks at Czestochowa	800. ^c
Sulfur	P.P. Kopalnie i Zaklady Chemiczne Siarki "Siarkopol"	Osiek deposit at Grzybow	800.
Zinc:			
Mine, Zn content	Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Stalprodukt S.A., 86.92 %)	Mine and concentrator at Olkusz and Pomorzany, Bukowno region	100.
Metal	Huta Cynku "Miasteczko Slaskie" S.A. (HCM) (Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A., 91%)	Imperial smelter at Miasteczko Slaskie	85.
Do.	Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Stalprodukt S.A., 86.92 %)	Refinery at Boleslaw	75.
Do.	Zaklady Metalurgiczny Silesia S.A.	Refinery at Katowice	12.

^cEstimated. Do., do. Ditto. NA Not available.

¹The data presented in this table were compiled, in large measure, from information provided in the Minerals Yearbook of Poland 2020, which was prepared and published by the Division of Mineral Policy, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences.

²Annual capacity listed is total for all facilities that produce the commodity.

³In December 2019, ArcelorMittal Poland S.A. stopped steelwork production at Krakow.

⁴In September 2019, ISD Huta Czestochowa Sp. z o.o. announced bankruptcy.