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The Mineral Industry of Poland

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In 2016, Poland's economy was the 9th largest in Europe and the 23d largest in the world in terms of gross domestic product (GDP). Poland was estimated to be Europe's second-ranked producer of coal, the third-ranked producer of copper, and the fourth-ranked producer of cement. Poland was the world's second-ranked producer of rhenium, seventh-ranked producer of feldspar (tied with the Republic of Korea and Spain) and helium, eighth-ranked producer of peat and silver, and ninth-ranked producer of selenium (not including the United States). Other commodities, such as lime, nitrogen (ammonia), salt, industrial sand and gravel, and sulfur were also produced in significant quantities (Central Statistical Office of Poland, 2017, p. 755, 756; World Bank, The, 2017b; Anderson, 2018; Apodaca, 2018; Bennett, 2018; Hamak, 2018; Polyak, 2018; Tanner, 2018).

Minerals in the National Economy

In 2016, Poland's real GDP increased by 2.6% compared with that of 2015. The nominal GDP was $469.3 billion. Mining and quarrying accounted for $6.4 billion[1] in 2016, or 1.4% of the total GDP, and construction accounted for $28.1 billion, or 5.9%. The total sold production of the industrial sector was valued at $310.6 billion. The mining and quarrying sector accounted for $11.1 billion (3.6%) of the total sold production of the industrial sector, and the mining of coal accounted for $5.1 billion (1.7%). The manufacture of metal products accounted for $23.2 billion (7.5% of the total sold production of the industrial sector); coke and refined petroleum products, $12.9 billion (4.2%); nonmetallic mineral products, $11.9 billion (3.8%); and basic metals, $10.6 billion (3.4%). In 2016, the number of people employed in the mining and quarrying sector decreased by 5.5% to 139,800 people from 148,000 in 2015 (Central Statistical Office of Poland, 2017, p. 239, 505, 506, 698, 699; International Monetary Fund, 2017).

Government Policies and Programs

The Polish Geological and Mining Law (GML) of June 9, 2011, defines the terms and conditions for undertaking, pursuing, and concluding geologic activities; mining; nonreservoir storage; and waste storage in the subsurface; as well as the requirements for the protection of mineral deposits. The state treasury owns certain types of mineral deposits, irrespective of the deposit location. An act of July 2014 amended the GML to include changes in the obligatory qualifications procedures, increased royalty fees, and allowance for an integrated license that covers exploration, appraisal, and production of hydrocarbons (Library of Congress, 2013; Ministry of Environment, 2018).

Other relevant laws and policy documents include the Polish Energy Law of April 10, 1997; the Environmental Protection Law of April 27, 2001; the Act on Reserves of Crude Oil, Petroleum Products and Natural Gas of February 16, 2007; the Energy Policy of Poland Until 2030 of November 10, 2009; and the Act on Tax on Extraction of Certain Minerals of March 2, 2012 (Rutkowska-Subocz, 2012; Library of Congress, 2013).

Production

In 2016, the production of bentonite increased by 120% to 1,000 metric tons (t); gold, by 30.9% to 3,539 kilograms; synthetic gypsum, by 30.7% to 3,659,000 t; refractory quartzite, by 17.5% to 64,500 t; and ferroalloys, by 15.3% to 90,699 t. The production of quartz and quartz crystal (gemstones) decreased by 48% to 7,600 t; moulding sand, by 23.3% to 1,253,000 t; primary zinc (smelter production), by 23.1% to 123,800 t; magnesite (concentrate), by 18.8% to 77,920 t; filling sand, by 18% to 4.95 million metric tons (Mt); cadmium, by 16.7% to 319 t; diatomite, by 17% to 500 t; magnesite (crude, gross weight), by 11.9% to 97,868 t; and fire clay, by 11.2% to 103,000 t (table 1).

Structure of the Mineral Industry

The majority of companies in the mineral industry in Poland were privately owned; however, the Government of Poland owned a small number of mineral producers, including Katowicki Holding Weglowy S.A., Kompania Weglowa S.A., KWK Kazimierz-Juliusz Sp. z.o.o., and Poludniowy Koncern Weglowy S.A. The Government also owned shares in Polskie Gornictwo Naftowe i Gazownictwo (70.8% stake), PGE Polish Energy Group Plc. (58.4%), Jastrzebska Spolka Weglowa S.A. (55%), Grupa LOTOS S.A. (53.2%), KGHM Polska Miedz S.A. (KGHM; 31.8%), and Polski Koncern Naftowy Orlen S.A. (PKN Orlen; 27.5%). In February, the Treasury Minister announced that Poland would be winding down privatization and increasing state control over companies that were in financial trouble in order to increase their value. The Ministry of the Treasury identified 19 areas for consolidation and planned by the end of 2017 to launch a tax capital group that would be made up of KGHM, Grupa Azoty S.A., PKO Bank Polski, and PZU S.A. Tax capital groups in Poland may combine income and losses among multiple companies (table 2; bne IntelliNews, 2016).

Mineral Trade

Poland's total exports were valued at $205 billion in 2016. The total value of exported raw materials decreased to $10.4 billion, or by 11.1% compared with that of 2015. In terms of value, the major mineral exports were crude petroleum and petroleum products, which accounted for 23.1% of the total value of

[1]Where necessary, values have been converted from Polish zlotys (PLN) to U.S. dollars (US$) at an annual average exchange rate of PLN4.19182=US$1.00 for 2016.

mineral exports; bituminous coal and coal derivatives, 17.9%; raw materials and products of copper metallurgy, 14.5%; silver, 6.3%; aluminum, 6.2%; iron and ferroalloys, 5.9%; nitrogen and other fertilizers, 5.1%; precious metals, 4.4%; and zinc, 2.7%. Poland's leading mineral export partners were Germany, which received 22.7% of Poland's total mineral exports, by value; Czechia, 13.9%; the Netherlands, 6.5%; the United Kingdom, 5.7%; and China, 4.4% (Central Statistical Office of Poland, 2017, p. 560; Polish Geological Institute, 2017b).

Poland's total imports were valued at $200.7 billion in 2016. The total value of imported raw materials decreased to $17 billion, or by 7.2% compared with that of 2015. In terms of value, the major mineral imports were crude petroleum and petroleum products, which accounted for 56.5% of the total value of mineral imports; aluminum, 8.2%; iron and ferroalloys, 5.1%; raw materials and products of copper metallurgy, 4.4%; bituminous coal and coal derivatives, 4.2%; nitrogen and other fertilizers, 2.8%; precious metals, 1.9%; zinc, 1.7%; and potassium raw materials, 1.6%. Poland's leading mineral import partners were Russia, which provided 44.1% of Poland's mineral imports, by value; Germany, 12.1%; Norway and Kazakhstan, about 3% each; and Saudi Arabia, 2.8% (Central Statistical Office of Poland, 2017, p. 560; Polish Geological Institute, 2017b).

Poland's total exports to the United States were valued at $5.96 billion in 2016 compared with $5.62 billion in 2015. Iron and steel products accounted for $64.8 million; petroleum and petroleum products, $10.9 million; copper, $4.8 million; nonferrous metals, $3.7 million; stone, sand, and cement, $3.2 million; bauxite and aluminum, $2.1 million; nonmetallic minerals, $751,000; zinc, $748,000; nickel, $427,000; and coal, $292,000. Imports from the United States were valued at $3.66 billion compared with $3.72 billion in 2015. Iron and steel products accounted for $48.8 million; coal, $23.3 million; nonferrous metals, $19.8 million; aluminum and alumina, $5.6 million; nonmetallic minerals, $4.8 million; petroleum and petroleum products, $2.8 million; and copper, $2.6 million (U.S. Census Bureau, 2016a, b).

Commodity Review

Metals

Copper.—KGHM was Poland's only copper producer in 2016. In September, the company began making investments to replace the shaft furnace copper concentrate smelting technology at its Glogow I copper smelter with a flash furnace system. By yearend, the shaft furnaces were extinguished, the flash furnace installation had begun, and the first kilograms of concentrate had been fed into the smelter. The new smelter was scheduled to begin commercial operations in 2017 and was projected to be the world's largest flash furnace and electrical furnace for blister copper production. In 2016, KGHM produced 536,000 t of electrolytic copper (table 2; KGHM Polska Miedz S.A., 2016, 2017; Mining See, 2017; Polish Geological Institute, 2017a).

Iron and Steel.—In 2016, Poland's raw steel production decreased to 9.2 Mt from 9.3 Mt in 2015, or by almost 2%. ArcelorMittal Poland S.A. was Poland's leading steel producer in 2016. In April, the blast furnace at the company's Krakow Unit was stopped for modernization and repairs. The blast furnace was restarted in July, and normal operations began again in August. The company was also in the process of modernizing the powerplant for the steel mill. Investment in the modernization of this unit exceeded $73.95 million and was scheduled for completion in 2018. The modernization would enable the powerplant to meet new environmental requirements, including increasing the efficiency of the boilers so as to increase electricity generation by 10% and decrease carbon dioxide emissions by 20% (table 1; ArcelorMittal Poland S.A., 2016, 2017).

Industrial Minerals

Cement.—In 2016, the production of hydraulic cement increased by 3.4% to 15.7 Mt from 15.2 Mt in 2015. CEMEX Polska Sp. z.o.o. (CEMEX) (a subsidiary of CEMEX S.A.B. de C.V. of Mexico) estimated the country's total cement consumption to be 16.3 Mt in 2016, which was an increase from the reported 15.4 Mt in 2015. CEMEX operated two cement plants, each with a production capacity of 3 million metric tons per year (Mt/yr), as well as 41 concrete plants and 8 aggregate quarries (table 1; CEMEX, S.A.B. de C.V., 2017, p. 84).

Mineral Fuels

Coal.—Poland was one of the top coal producers in Europe, and more than 80% of the country's electricity came from coal as of 2015. Overall coal production had been decreasing since 2011, however, owing to a push towards cleaner energy. In 2016, bituminous coal production in Poland decreased by nearly 3% to about 70.8 Mt from 72.7 Mt in 2015. Poland's "anticipated economic resources" of bituminous coal were 58.6 billion metric tons, which was an increase of more than 4% from that of 2015. In 2016, four new coal deposits were documented in the Lublin coal basin of southeastern Poland (table 1; Polish Geological Institute, 2017c; World Bank, The, 2017a).

In 2016, Prairie Mining Ltd. (Prairie) of Australia acquired all the issued shares of the Debiensko coal mine from New World Resources Karbonia S.A., which was a subsidiary of New World Resources plc of the Netherlands. The mine is located in the Upper Silesian coal basin of southern Poland. By yearend, power, water, and transportation infrastructure had been developed at the project site; the mining concession was complete; and all necessary environmental permissions had been obtained. Prairie was in the process of surveying and drilling for an upcoming feasibility study (Prairie Mining Ltd., 2017a).

In March, Prairie announced the results of a prefeasibility study for a new coal mine in Lublin. The new Jan Karski Mine project site was located adjacent to the Bogdanka coal mine in the Lublin coal basin. The Bogdanka Mine had been in production since 1982 and, in 2016, was the metallurgical coal mine with the lowest operating cost in Europe because of the ideal geologic and mining conditions of the area for underground longwall operations. The Jan Karski Mine was projected to have an average operating cost of

$24.96 per metric ton and a total coal resource estimate of 728 Mt, with a production capacity of 8 Mt/yr, yielding an average of 6.34 Mt/yr of salable coal. In 2015, Prairie secured exclusive rights to apply for a mining concession and planned to submit the application in 2017. Construction was scheduled to begin in 2018, and production, in 2023; a mine life of 24 years was projected following first production (Prairie Mining Ltd., 2017b).

Natural Gas and Petroleum.—In 2016, crude petroleum production in Poland was 7.4 million barrels (Mbbl), which was an increase of more than 7% from that of 2015. Natural gas production decreased by 4.7% to about 5,500 million cubic meters, and refined petroleum production decreased by more than 1% to 214 Mbbl (table 1).

On December 31, 2015, Orlen Upstream, which was a wholly owned subsidiary of PKN Orlen, completed the acquisition of 100% equity interest in FX Energy, Inc. of the United States for $125 million. The acquisition granted PKN Orlen access to three new exploration and production sites located in the Polish lowlands and the Lublin basin covering a total area of approximately 7,400 square kilometers. In February 2016, Orlen Upstream began drilling works at its Kijewo Krolewskie commune, within the Tuchola hydrocarbon deposit. The deposit was discovered in 2013 through logging data analysis of previous wells as well as two-dimensional (2D) and three-dimensional (3D) seismic surveys. The total proven and probable reserves were estimated to be 272 million cubic meters. In July, PKN Orlen purchased a license from Lummus Technology Inc. (a subsidiary of the CB&I Group of the United States) for a new petrochemical project, which was approved by the company's management and supervisory boards for Orlen's plant in Plock. The new metathesis unit would produce polymer-grade propylene and increase the plant's current production capacity to 550,000 metric tons per year (t/yr) of propylene from 450,000 t/yr. Also in July, Orlen Upstream signed a letter of intent to cooperate with Polskie Gornictwo Naftowe i Gazownictwo in the exploration for and the development and production of hydrocarbons in new areas, including the Pomeranian basin, the Lublin basin, the Fore-Sudetic monocline, the Gorzow block, and the Carpathian foreland (Polski Koncern Naftowy Orlen S.A., 2015; 2016a–c).

Outlook

The Polish economy was expected to continue its growth in the upcoming years. The country's real GDP was expected to increase by about 3.8% in 2017 and 3.4% in 2018. Coal, copper, and petroleum products are expected to remain the leading mineral products in terms of value; however, production of coal is likely to decrease in the long term owing to outdated powerplants and a global push towards cleaner energy. The International Energy Agency stated that nuclear power could play a significant role in Poland's future energy supply. Metal production is likely to increase owing to modernization of furnaces at the Glogow I copper smelter and the Krakow steel plant. Production of industrial minerals will likely remain steady in 2017 (International Monetary Fund, 2017; World Nuclear News, 2017).

References Cited

Anderson, C.S., 2018, Selenium: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 146–147.

Apodaca, L.E., 2018, Peat: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 118–119.

ArcelorMittal Poland S.A., 2016, Commissioning of blast furnace in Krakow Unit of ArcelorMittal Poland nearing completion: ArcelorMittal Poland S.A., August 11. (Accessed January 5, 2018, at http://poland.arcelormittal.com/en/media/news/2014/news/article/rozruch-wielkiego-pieca-w-krakowskiej-hucie-arcelormittal-poland-juz-na-finiszu.html.)

ArcelorMittal Poland S.A., 2017, Modernization of power plant at TAMEH Polka in Krakow has just started: ArcelorMittal Poland S.A., January 3. (Accessed January 5, 2018, at http://poland.arcelormittal.com/en/media/news/2014/news/article/ruszyla-modernizacja-elektrocieplowni-tameh-polska-w-krakowskiej-nowej-hucie.html.)

Bennett, S.M., 2018, Silver: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 150–151.

bne IntelliNews, 2016, Poland officially halts privatization: bne IntelliNews, February 28. (Accessed January 12, 2018, at http://www.intellinews.com/poland-officially-halts-privatisation-91655/.)

CEMEX, S.A.B. de C.V., 2017, Form 20–F—2016: U.S. Securities and Exchange Commission, April 28, variously paged. (Accessed January 11, 2018, at https://www.cemex.com/documents/20143/21521932/CEMEX2016_20F.pdf/cbb118a9-3efd-e5c2-677f-f71caef77cb0.)

Central Statistical Office of Poland, 2017, Statistical yearbook of the Republic of Poland 2017: Central Statistical Office of Poland, December 29, 907 p. (Accessed January 12, 2018, at http://stat.gov.pl/en/topics/statistical-yearbooks/statistical-yearbooks/statistical-yearbook-of-the-republic-of-poland-2017,2,17.html.)

Hamak, J.E., 2018, Helium: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 76–77.

International Monetary Fund, 2017, World economic outlook database: Washington, DC, International Monetary Fund, October. (Accessed January 12, 2018, at http://www.imf.org/external/pubs/ft/weo/2017/02/weodata/index.aspx.)

KGHM Polska Miedz S.A., 2016, Welcome to the flash furnace: KGHM Polska Miedz S.A., October 18. (Accessed January 5, 2018, at http://kghm.com/en/welcome-flash-furnace.)

KGHM Polska Miedz S.A., 2017, New era at the Glogow copper smelter: KGHM Polska Miedz S.A., January 20. (Accessed January 5, 2018, at http://kghm.com/en/new-era-glogow-copper-smelter.)

Library of Congress, 2013, Poland—Draft proposals completed on hydrocarbon tax law and amendment to geology and mining law: Washington, DC, Library of Congress, April 8. (Accessed January 1, 2018, at http://www.loc.gov/lawweb/servlet/lloc_news?disp3_l205403543_text.)

Mining See, 2017, KGHM builds copper smelter in Poland: Mining See, February 25. (Accessed January 5, 2018, at https://www.miningsee.eu/kghm-builds-copper-smelter-poland/.)

Ministry of Environment, 2018, Polish Geological and Mining Law: Ministry of Environment, 122 p. (Accessed January 12, 2018, https://www.mos.gov.pl/g2/big/2012_06/e1fd8f256cbc5cefb421364232bf09dc.pdf.)

Polish Geological Institute, 2017a, Mineral resources of Poland—Copper and silver ores: Warsaw, Poland, Poland Geological Institute, Ministry of Environment. (Accessed January 18, 2018, at http://geoportal.pgi.gov.pl/surowce/metaliczne/rudy_cu-ag/2016.)

Polish Geological Institute, 2017b, Mineral resources of Poland—Export and import of mineral raw materials: Warsaw, Poland, Poland Geological Institute, Ministry of Environment. (Accessed January 16, 2018, at http://geoportal.pgi.gov.pl/surowce/export_import/2016.)

Polish Geological Institute, 2017c, Mineral resources of Poland—Hard coal: Warsaw, Poland, Poland Geological Institute, Ministry of Environment. (Accessed January 18, 2018, at http://geoportal.pgi.gov.pl/surowce/energetyczne/wegiel_kamienny/2016.)

Polski Koncern Naftowy Orlen S.A., 2015, Orlen completes the acquisition of FX Energy: Warsaw, Poland, Polski Koncern Naftowy Orlen S.A., December 31. (Accessed January 9, 2018, at http://www.orlen.pl/EN/PressOffice/Pages/ORLEN-completes-the-acquisition-of-FX-Energy.aspx.)

Polski Koncern Naftowy Orlen S.A., 2016a, Metathesis project approved for execution: Warsaw, Poland, Polski Koncern Naftowy Orlen S.A., July 21. (Accessed January 9, 2018, at http://www.orlen.pl/EN/PressOffice/Pages/Metathesis-project-approved-for-execution.aspx.)

Polski Koncern Naftowy Orlen S.A., 2016b, Orlen commences works on new assets in Poland: Warsaw, Poland, Polski Koncern Naftowy Orlen S.A., May 2. (Accessed January 16, 2018, at http://www.orlenupstream.pl/EN/Press/PressReleases/Pages/ORLEN-commences-works-on-new-assets-in-Poland.aspx?year=2016.)
Polski Koncern Naftowy Orlen S.A., 2016c, PGNiG and Orlen expand the area of exploration and production cooperation: Warsaw, Poland, Polski Koncern Naftowy Orlen S.A., July 14. (Accessed January 9, 2018, at http://www.orlen.pl/EN/PressOffice/Pages/PGNiG-and-ORLEN-expand-the-area-of-Exploration-and-Production-cooperation.aspx.)
Polyak, D.E., 2018, Rhenium, U.S. Geological Survey Mineral Commodity Summaries 2018, p. 134–135.
Prairie Mining Ltd., 2017a, Debiensko coal project: Prairie Mining Ltd. (Accessed January 8, 2018, at http://www.pdz.com.au/debiensko-coal-project.html.)
Prairie Mining Ltd., 2017b, Jan Karski Mine: Prairie Mining Ltd. (Accessed January 8, 2018, at http://www.pdz.com.au/jan-karski-mine.html.)
Rutkowska-Subocz, E., 2012, Poland—Legal aspects of shale gas exploration and production: Shale Gas Information Platform, March 14. (Accessed January 12, 2018, at http://www.shale-gas-information-platform.org/de/categories/gesetzgebung/expertenartikel/poland-legal-aspects-of-shale-gas-exploration-and-production/.)
Tanner, A.O., 2018, Feldspar and nepheline syenite: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 58–59.
U.S. Census Bureau, 2016a, U.S. exports to Poland by 5-digit end-use code 2006–2015: U.S. Census Bureau. (Accessed January 16, 2018, at http://www.census.gov/foreign-trade/statistics/product/enduse/exports/c4550.html.)
U.S. Census Bureau, 2016b, U.S. imports from Poland by 5-digit end-use code 2006–2015: U.S. Census Bureau. (Accessed January 16, 2018, at http://www.census.gov/foreign-trade/statistics/product/enduse/imports/c4550.html.)
World Bank, The, 2017a, Energy production from coal sources (% of total): Washington, DC, The World Bank Group. (Accessed January 17, 2018, at https://data.worldbank.org/indicator/EG.ELC.COAL.ZS?end=2015&locations=PL&start=1960&year_high_desc=true.)
World Bank, The, 2017b, GDP ranking: Washington, DC, The World Bank Group, July 1. (Accessed January 16, 2018, at https://data.worldbank.org/data-catalog/GDP-ranking-table.)
World Nuclear News, 2017, IEA welcomes Poland's nuclear energy plans: World Nuclear News, January 25. (Accessed January 16, 2018, at http://www.world-nuclear-news.org/NP-IEA-welcomes-Polands-nuclear-energy-plans-2701175.html.)

TABLE 1
POLAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS						
Aluminum metal, secondary	metric tons	11,090	16,014	14,908 r	7,577 r	8,264
Cadmium, refinery production, primary, metal	do.	370	460	628	383	319
Copper:						
Mine production:						
Ore:						
Gross weight		31,725	32,215	32,613	33,187	33,620
Cu content	metric tons	479,253 r	481,770	473,258	478,727	480,038
Concentrate:						
Gross weight		1,862	1,858	1,843	1,860	1,867
Cu content	metric tons	427,064	429,275	421,695	426,196	424,704
Refinery production:						
Primary	do.	457,800	450,600	469,100	471,800	429,000
Secondary	do.	108,100	114,500	107,800	102,900	106,600
Smelter production:						
Primary		467	459	503	515	467
Secondary		82	78	73	68	60
Ferroalloys:						
Ferromanganese, blast furnace	metric tons	800	820 r	549 r	460 r	500 e
Ferrosilicon	do.	78,115	73,589	62,878	77,754 r	77,682
Silicomanganese	do.	200 r	100	32 r	-- r	-- e
Other, unspecified	do.	300 r	11,250 r	24,909 r	460 r	12,517
Total	do.	79,400 r	85,800	88,400	78,700 r	90,700 e
Gold, refined	kilograms	916	1,066	2,575	2,703	3,539

See footnotes at end of table.

TABLE 1—Continued

POLAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS—Continued						
Iron and steel:						
Pig iron		3,944	4,014	4,640	4,826	4,680
Raw steel		8,543	8,199	8,800	9,336	9,161
Products:						
Cold rolled		1,353	1,460	1,640	1,705	1,742
Hot rolled		7,882	7,660	7,985	8,345 r	8,793
Pipe, cold formed and hollow sections		948 r	860	848	784	718
Lead:						
Mine production, Pb content:						
Lead-zinc ore	metric tons	26,600	24,500 r	24,000	20,000	17,000
Copper ore	do.	62,400	54,480	59,150	49,190 r	45,750
Refinery production:						
Primary		47	40	36	40 r	40
Secondary		87	103	112	114 r	115
Magnesite:						
Gross weight	metric tons	129,641	116,274	116,000	111,077	97,868
Concentrate	do.	84,000	97,000	92,000	96,000	77,920
Platinum-group metals, mine production, primary:						
Palladium	kilograms	23	30	51	55 e	60 e
Platinum	do.	39	51	86	90 e	95 e
Rhenium:						
Ammonium perrhenate:						
Gross weight[e]	do.	11,630	10,800	11,100	13,200	13,500
Re content	do.	8,100 e	7,530	7,710	9,170	9,310
Metal, in pellet form[e]	do.	620	620	600	600	600
Selenium	metric tons	90	80	90	87	82
Silver:						
Mine production, Ag content	kilograms	1,148,994 r	1,199,029 r	1,186,014 r	1,209,094 r	1,264,659
Refinery production, metal	do.	1,273,837	1,161,114	1,256,238	1,283,209	1,191,127
Zinc:						
Mine production, Zn content	metric tons	75,160 r	73,000 r	70,000	65,000	61,000
Smelter production, primary	do.	138,300	146,300	154,000	161,000 r	123,800
INDUSTRIAL MINERALS						
Cement:						
Clinker		11,807	10,855	11,866 r	11,278	12,075
Hydraulic		15,735 r	14,539 r	15,534 r	15,206 r	15,722
Clay and shale:						
Bentonite	metric tons	780 r	1,050 r	650	450	1,000
Fire clay, crude		119	118	112	116	103
Kaolin:						
Beneficiated		138	166	197 r	172 r	176
Crude		249	268	278	287	300
Diatomite	metric tons	600	600	590	600	500
Feldspar, mine production:						
Crude ore	do.	376,500	690,600	691,000	691,000 e	691,000 e
Processed, including imported material	do.	487,200	483,000 r	519,896 r	539,875 r	540,000 e
Gemstones, quartz and quartz crystal	do.	5,400	5,800	11,300	14,700	7,600
Gypsum:						
Anhydrite, natural		150	133	147	136	137
Rock, natural		1,077 r	952	905	882	898
Synthetic		2,572	2,768	2,800 e	2,800 e	3,659

See footnotes at end of table.

TABLE 1—Continued

POLAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
INDUSTRIAL MINERALS—Continued						
Lime, hydrated and quicklime		1,799	1,710 r	1,817	1,942	1,869
Nitrogen, N content, ammonia		2,026 r	2,119 r	2,200	2,200	2,200
Salt:						
Evaporated		658	686	647	671	647
Other, brine and desalination of mine waste water		2,891 r	2,735	2,705	2,798	2,965
Rock		793	1,321	775	650	709
Soda ash, synthetic, carbonate	metric tons	1,111,124 r	1,051,924	1,053,143	1,074,320	1,100,000 e
Sodium compounds, caustic soda, carbonate, 96% NaOH	do.	387,794	396,255	378,867	397,369	386,385
Stone, sand, and gravel:						
Sand and gravel, construction, unspecified, natural		184,745	173,267	146,527	167,930 r	173,175
Sand and gravel, industrial:						
Filling sand	metric tons	6,395,400	6,203,300	6,478,700	6,033,300	4,948,700
Foundry sand		1,206	1,311 r	1,353	1,103	1,081
Lime-sand brick production sand	metric tons	1,169,104	830,480	923,136	995,776	1,044,816
Moulding sand		2,934	3,361	1,796	1,633	1,253
Silica, mine production:						
Quartzite, refractory	metric tons	53,200	88,300	82,900	54,900	64,500
Glass sand, marketable		2,150 r	2,112 r	2,071	2,669	2,262
Stone, crushed:						
Dolomite		1,830	1,915	2,065	3,164	3,364
Limestone:						
For lime production		16,728	16,812	16,561	18,655	17,463
For nonlime end use		38,211 r	35,353 r	35,152	36,522	35,188
Road stone		289	300 e	300 e	300 e	300 e
Stone, dimension, unspecified		4,118	3,913	3,900 e	3,900 e	3,900 e
Sulfur, S content:						
Byproduct:						
Metallurgy		267	260	260 e	280 e	300 e
Natural gas		25	24	24	24	25
Petroleum, oil refineries and coking plants		260	269	269 e	269 e	269 e
Native	metric tons	676,800	526,300	605,400	627,600 r	620,500
MINERAL FUELS AND RELATED MATERIALS						
Carbon black	metric tons	11,100	32,000	32,000 e	32,000 e	32,000 e
Coal:						
Bituminous		79,813	77,056	73,271	72,686	70,784
Lignite		64,280	65,849	63,877	63,128	60,246
Metallurgical		11,738	12,115	12,288	12,985	13,204
Coke, metallurgical		8,891	9,360	9,568	9,792	9,708
Gas, manufactured, coke oven	million cubic meters	3,873	4,079	4,161	4,272	4,254
Natural gas	do.	5,871	5,489	5,764	5,762	5,492
Peat, horticultural and fuel uses	metric tons	762,000	818,000	829,000	877,000 r	907,000
Petroleum:						
Crude	thousand 42-gallon barrels	5,000	7,100	7,100	6,900	7,400
Refinery production	do.	212,000 r	206,000 r	198,000 r	217,000 r	214,000

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

[1]Table includes data available through December 15, 2017. All data are reported unless otherwise noted. Estimated data and totals are rounded to no more than three significant digits.

[2]In addition to the commodities listed, beneficiated barite, cobalt, gold content of copper concentrate, nickel sulfate, and town gas may have been produced in Poland, but available information was inadequate to make reliable estimates of output.

TABLE 2
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, secondary	Huta Aluminium Konin (Impexmetal S.A., 95.52%)	Konin	NA.
Do.	Boryszew S.A. Branch Modern Products Aluminium Skawina (Boryszew Capital Group, 100%)	Skawina	NA.
Do.	Grupa KETY S.A.	Kety	NA.
Do.	Nicromet	Bestwinka	NA.
Do.	Alumetal S.A.	Kety	NA.
Do.	POLST Sp. z o.o.	Walbrzych	NA.
Cadmium, refined metric tons	Huta Cynku "Miasteczko Slaskie" S.A. (Stalprodukt S.A.)	Miasteczko Slaskie smelter	540.
Cement:			
Aluminous	Gorka Cement Sp. z o.o. (Mapei Group)	Trzebinia	70 clinker,[e] 70 cement.[e]
Portland	Gorazdze Cement S.A. (HeidelbergCement AG, 100%)	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.	Cemex Polska Sp. Z o.o. (CEMEX S.A.B de C.V., 100%)	Plants at Chelm and Rudniki	2,300 clinker,[e] 3,000 cement.[e]
Do.	Cementownia Warta S.A. (Polen Zement Beteiligungsgeselschaft GmbH)	Dzialoszyn	1,500 clinker,[e] 2,000 cement.[e]
Do.	Lafarge Cement S.A.	Plants at Malogoszcz and Piechcin	3,000 clinker,[e] 5,700 cement.
Do.	Dyckerhoff Polska Sp. z o.o. (Dyckerhoff/Buzzi Unicem SpA)	Nowiny	1,100 clinker,[e] 1,600 cement.
Do.	Cementownia Krakow Nowa Huta Sp. Z.o.o. (Polska Energetyka Holding SA)	Krakow	300 clinker,[e] 500 cement.[e]
Do.	Cementownia "Odra" S.A. (Miebach Projektgesellschaft GmbH)	Opole	400 clinker,[e] 800 cement.[e]
Clay:			
Bentonite	Zaklady Gornico-Metalowe "Zebiec" S.A.	Starachowice	40.[e]
Kaolin	KSM "Surmin-Kaolin" S.A.	Lower Silesia, Nowogrodziec	90.[e]
Do.	Grudzen Las Sp. z o.o.	Grudzen Las, in Lodz Voivodeship	55.[e]
Do.	Tomaszowskie Kopalnie Surowcow Mineralnych "Biala Gora" Sp. z o.o.	Smardzewice, Tomaszowski Voivodeship	30.[e]
Coal:			
Bituminous	Includes:	Of which:	90,000.[e, 2]
	100% Government owned:		
	Kompania Weglowa S.A.	Upper Silesia (14 mines)	
	Katowicki Holding Weglowy S.A.	Upper Silesia (4 mines)	
	Poludniowy Koncern Weglowy S.A.	Upper Silesia (2 mines)	
	KWK Kazimierz-Juliusz Sp. z o. o.	Upper Silesia (1 mine)	
	Jastrzebska Spolka Weglowa S.A. (Government, 55%)	Upper Silesia (5 mines)	
	Lubelski Wegiel "Bogdanka S.A." (ENEA SA, 66%)	Bogdanka, east of Leczna, eastern Poland (1 mine)	
	SILTECH Sp. z o. o.	Upper Silesia (1 mine)	

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal:—Continued			
Lignite	Includes:	Of which:	95,000.[e, 2]
	PGE KWB Belchatow S.A. [PGE Polish Energy Group Plc. (Government, 58.39%)]	Belchatow, south of Lodz (2 open pit mines)	
	PGE KWB Turow S.A. [PGE Polish Energy Group Plc. (Government, 58.39%)]	Bogatynia, at the southwest corner of Poland (1 mine)	
	Kopalnia Wegla Brunatnego "Konin" w Kleczewie S.A.	Kleczew (4 open pit mines)	
	Kopalnia Wegla Brunatnego "Adamow" S.A.	Turek (3 open pit mines)	
	Sieniawa Brown Coal Mine Ltd.	Sieniawa (1 mine)	
Coke	Includes:	Of which:	10,800.[2]
	Zaklady Koksownicze Zdzieszowice (ArcelorMittal Poland S.A., 100%)	Upper Silesia (Zdzieszowice)	
	Koksownia Przyjazn S.A.	Upper Silesia (Dabrowa Gornicza)	
	Kombinat Koksochemiczny Zabrze S.A.	Upper Silesia (cokeries at Jadwiga, Radlin, and Debiensko)	
	ArcelorMittal Poland S.A.	Upper Silesia (Krakow)	
	ISD Huta Czestochowa Sp. z o.o.	Upper Silesia (Czestochowa)	
	Zaklady Koksownicze "Victoria" S.A.	Upper Silesia (Walbrzychu)	
	CARBO-KOKS Sp. z.o.o.	Upper Silesia (Bytom)	
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-Sieroszowice 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.	Refineries at Glogow I, Glogow II, and Legnica	540.
Feldspar	Strzeblowskie Kopalnie Surowcow Mineralnych Sp. z o.o.	Sobotka, Lower Silesia, exploiting the Pagorki Zachodnie, Pagorki Wschodnie, and Strzeblow I deposits	50.
Do.	Pol-Skal Sp. z o.o.	Karpniki, southwestern region of Jelenia Gora	100.
Ferroalloys:			
Electric furnace (FeSiMn, FeMn, FeSi)	Huta Laziska S.A.	Upper Silesia at Laziska Gorne	170.
Blast furnace (FeMn)	STALMAG Sp. z o.o.	Upper Silesia at Ruda Slaska	50.[e]
Gold, metal kilograms	KGHM Polska Miedz S.A. (Government, 31.79%)	Refinery at Glogow	550.
Gypsum and anhydrite	Includes:	Of which:	1,400.[2]
	Zaklady Przemyslu Gipsowego "Dolina Nidy" S.A.	Southeastern Poland, Gacki	
	Rigips Polska Stawiany Sp. z o.o. (Saint-Gobain)	Southeastern Poland, Szarbkow	
	Kopalnia Gipsu i Anhydrytu "Nowy Lad" Sp. z o.o.	Lower Silesia, mines at Niwnice and Iwiny	
Helium million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 70.8%)	Western Poland, Odolanow	3.

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Lead and zinc:				
Mine output		Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Stalprodukt S.A., 86.92 %)	Mine and concentrator at Olkusz and Pomorzany, Bukowno region	30 lead,[e] 150 zinc.
Metal:				
Pb, refined		Huta Cynku Miasteczko Slaskie (HCM) S.A.	Refinery at Miasteczko Slaskie	35.
Do.		"Baterpol" Sp. z o.o. (Impexmetal S.A.)	Refinery at Katowice	20.[e]
Do.		Orzel Bialy S.A.	Refinery at Bytom	40.[e]
Do.		KGHM Polska Miedz S.A. (Government, 31.79%)	Smelter at Legnica	60.
Zn, refined		Huta Cynku Miasteczko Slaskie (HCM) S.A. (ZGH, 91%)	Imperial smelter at Miasteczko Slaskie	85.
Do.		Zaklady Metalurgiczny Silesia S.A.	Refinery at Katowice	12.
Do.		Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Stalprodukt S.A., 86.92%)	Refinery at Boleslaw	75.
Lime		Includes:	Of which:	2,200.[e, 2]
		Zaklady Przemyslu Wapienniczego (ZPW) Trzuskawica S.A. (CRH plc, 100%)	Plants in Sitkowka-Nowiny and Bielawy	
		Lhoist Group:		
		Lhoist Opolwap S.A.	Tarnow Opolski, Opole County	
		Lhoist Bukowa Sp. z o.o.	Bukowa, 90 kilometers north of Krakow	
		Zaklad Wapienniczy Wojcieszow Sp. z o.o.	Wojcieszow	
		Zaklady Wapiennicze Lhoist Sp. z o.o.	Gorazdze	
Natural gas	million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 70.8%)	Gasfields in southeastern Poland in the Carpathian Mountains, the Carpathian Foothills, and the Polish Lowlands	4,600.[e]
Do.	do.	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.20%)]	Baltic Sea Shelf	20.[e]
Nitrogen, ammonia (NH_3)		Includes:	Of which:	2,600.[e, 2]
		Zaklady Azotowe "Pulawy" S.A.	Pulawy in eastern Poland	
		Zaklady Azotowe "Kedzierzyn" S.A.	Kedzierzyn in Upper Silesia	
		Zaklady Azotowe "Anwil Wloclawek" S.A.	Wloclawek in central Poland	
		Zaklady Azotowe S.A. w Tarnowie	Tarnow in southern Poland	
		Azoty-Adipol S.A. (former Chorzow plant)	Chorzow in Upper Silesia	
		Zaklady Chemiezne "Police"	Police in northwestern Poland	
Petroleum:				
Crude	thousand 42-gallon barrels	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 70.8%)	Oilfields in southeastern and western Poland with about 75% of production from the Barnowko-Mostno-Buszewo field near Debno	4,000.[e]
Do.	do.	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.20%)]	Baltic Sea Shelf	1,200.[e]
Refined	do.	Petrochimia-Plock [PKN Orlen S.A. (Government, 27.52%)]	Plock in central Poland	119,000.
Do.	do.	Rafineria Gdanska S.A. (Grupa LOTOS S.A.) (Government, 53.20%)	Gdansk in northern Poland	77,000.[e]
Do.	do.	ORLEN Poludnie S.A. [PKN Orlen S.A. (Government, 27.52%)]	Jedlicze and Trzebinia refineries in southern Poland	4,000.
Rhenium:				
Ammonium perrhenate, Re content	kilograms	KGHM Metraco S.A. [KGHM Polska Miedz S.A. (Government, 31.79%)]	Lubin	15,000.[e]
Rhenium metal	do.	do.	do.	3,500.

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Salt:				
Brine		Includes:	Of which:	5,000.[e, 2]
		Inowroclawskie Kopalnie Soli Solino S.A.	Mines at Gora and Mogilno in central Poland	
		Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 70.8%)	Mine at Mogilno in central Poland	
		Kopalnia Soli "Wieliczka" S.A.	Wieliczka in southern Poland, near Krakow, mining deposits at Barycz and Wieliczka	
Rock		Kopalnia Soli "Klodawa" S.A.	Klodawa in central Poland	NA.
Do.		KGHM Polska Miedz S.A. (Government, 31.79%)	Sieroszowice in southwestern Poland	NA.
Selenium	metric tons	do.	Refinery at Glogow	90.
Silver, refined	do.	do.	Precious metals plant at the Glogow smelter	1,400.
Do.	do.	Institute of Non-Ferrous Metals	Gliwice	30.[e]
Steel, crude		ArcelorMittal S.A., of which:		8,000.
		ArcelorMittal Poland S.A.	Steelworks at Dabrowa Gornicza (former Huta Katowice S.A.)	
		do.	Steelworks at Krakow (former Huta Sendzimir S.A.)	
		ArcelorMittal Warszawa Sp. z o.o.	Steelworks in Warsaw (former Huta "Lucchini-Warszawa" Sp. z o.o.)	
Do.		CMC Zawiercie S.A. (Commercial Metals Co.)	Steelworks at Zawiercie	1,200.
Do.		ISD Huta Czestochowa S.A. (Industrial Union of Donbass Corp.)	Steelworks at Czestochowa	800.[e]
Do.		Celsa Huta Ostrowiec S.A. (Celsa Group)	Steelworks at Ostrowiec-Swietokrzyski	800.[e]
Do.		Ferrostal Labedy Sp. z o.o. (Cognor S.A.)	Steelworks at Gliwice	375.
Do.		Huta Stali Jakosciowych S.A. (Cognor S.A.)	Steelworks at Stalowa Wola	261.
Do.		Huta Batory Sp. z o.o. (Alchemia S.A., 100%)	Steelworks at Chorzow	150.[e]
Sulfur		P.P. Kopalnie i Zaklady Chemiczne Siarki "Siarkopol"	Osiek deposit at Grzybow	800.

[e]Estimated. Do., do. Ditto. NA Not available.

[1]The data in this table were compiled, in large measure, from information provided in the Minerals Yearbook of Poland 2016, which was prepared and published by the Division of Mineral Policy, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences.

[2]Annual capacity listed is total for all deposits, mines, or companies that produce the commodity.