



# 2014 Minerals Yearbook

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**POLAND**

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# THE MINERAL INDUSTRY OF POLAND

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In 2014, the gross domestic product (GDP) of Poland amounted to \$544.863 billion,<sup>1</sup> which was an increase of 3.8% compared with that of 2013. In 2014, Poland was the 8th most populated country in Europe and the 34th most populated in the world. The country had an annual average total unemployment rate of 9%. The annual long-term unemployment rate was 3.8%. Poland's foreign direct investment, as a percentage of its GDP at current prices, amounted to 0.7%. The debt of the public sector was 50.4% of the GDP, and the deficit in Government expenditures was 3.3% of the GDP. Its GDP was produced by the services sector (64.6%); the industrial and construction sectors (32.5%); and the agricultural, fishing, and forestry sectors (2.9%).

In 2014, Poland was estimated to be the world's 3d-ranked producer of rhenium, the 8th-ranked producer of silver, and the 11th-ranked producer of cadmium and mined copper. Industrial minerals, such as feldspar, gypsum, lime, salt, sand and gravel, and sulfur, were also produced in significant quantities. Poland was estimated to be the world's 10th-ranked producer of bituminous coal in 2014 and the 2d-ranked producer in Europe; however, it was dependent on imports to meet domestic demand for natural gas and crude oil (Central Statistical Office of Poland, 2015, p. 692, 754–756, 759; Apodaca, 2016; Bolen, 2016; Brininstool, 2016; Crangle, 2016; George, 2016; Polyak, 2016; Tanner, 2016; Tolcin, 2016).

## Minerals in the National Economy

In 2014, Poland had a total of 4,661 companies in the mining and quarrying sector and 479,680 in the construction sector. Of all sold production in the industrial sector in 2014, mining and quarrying accounted for 4.1% and the manufacture of basic metals accounted for 3.6%. Metal products accounted for 7% of all sold production in the industrial sector; manufactured coke and refined petroleum products, 6.4; and manufactured other nonmetallic mineral products, 3.7%. The mining and quarrying industry employed about 159,500 people, and the entire manufacturing sector employed about 2,248,800 people (Central Statistical Office of Poland, 2015, p. 506–507, 509, 694, 731).

## Government Policies and Programs

The Polish Geological and Mining Law (GML) of June 9, 2011, which included particular regulations on hydrocarbons, became effective on January 1, 2012. In March 2013, a draft proposal to amend the GML was published by Poland's Ministry of Environment, which sought to add some new features related to licensing, the environment, effects on communities, taxation, and the National Energy Minerals Operator Fund (a national fund for environmental protection and water management).

<sup>1</sup>Where necessary, values have been converted from Polish zlotys (PLN) to U.S. dollars (US\$) at an average rate of PLN3.1551=US\$1.00 for 2014.

It proposed new taxes based on the value of the extracted raw materials for gas, oil, and other hydrocarbons, and a limit on the extraction tax equal to 40% of the company's gross profit (Rutkowska-Subocz, 2012; Library of Congress, 2013).

Poland's Ministry of Finance started collecting new taxes on the extraction of copper and silver on April 18, 2012, through the Act of March 2, 2012. The new tax targeted the country's sole copper and silver producer, KGHM Polska Miedz S.A. (KGHM). In March 2013, the Ministry of Finance completed a draft hydrocarbon taxation proposal, which called for a tax rate of 39% for shale deposits and 41.92% for conventional deposits (Library of Congress, 2013; Ministry of Finance of the Republic of Poland, 2013).

In March 2012, the Government announced its new Privatization Plan for 2012–2013. The primary purpose of the plan was to present the main objectives of the privatization policy and to list the affected companies. The plan included leading mining and energy companies. Implementation of the plan was reported to be on schedule as of September 2013 (Ministry of Treasury of the Republic of Poland, 2015, p. 14, 16).

## Production

In 2014, gold metal production increased by 142%, and the lead content of copper ore increased by 61%. Other significant increases in production included that of primary cadmium metal, which increased by 37%; lead content of lead-zinc ore, 36%; pig iron, 16%; silver content of copper concentrate, 15%; and zinc (metal, refined), primary and secondary, 6%. In industrial mineral production, anhydrite gypsum production increased by 11%, and cement clinker, by 9%. Significant production decreases in the metals sector included production of zinc (mine output), which decreased by 23%; secondary aluminum metal, by 7%; and rhenium content of ammonium perrhenate, 6%. Significant production decreases in the industrial minerals sector included that of rock salt, which decreased by 41%; dolomite, 30%; crude fire clay, 16%; evaporated salt, 6%; and gypsum rock, 5%. Significant decreases in the mineral fuels sector included the production of peat (both fuel and agricultural), which decreased by 25%; and bituminous coal, by 5%. Data on mineral production are in table 1.

## Structure of the Mineral Industry

The majority of companies in the mineral industry in Poland were privately owned; however, the Polish Government (through ownership of shares by the Polish Ministry of Treasury) owned shares in a small number of producers of mineral products. The Ministry of Treasury's priorities in the management of its portfolio, including a plan active until 2015, listed 53 companies. Besides these companies, another 190 enterprises that may be subject to ownership transformations were included

in the Government's priority plan. The strategically important companies included energy production companies ENEA S.A., ENERGA S.A., PGE Polska Grupa Energetyczna S.A., Zespół Elektrowni "Patnow-Adamow-Konin" S.A., and Zespół Elektrowni Wodnych Niedzica S.A.; and mining companies Jastrzebska Spolka Weglowa S.A., Katowicki Holding Weglowy S.A., Kompania Weglowa S.A., Kopalnia Wegla Brunatnego "Adamow" S.A., Kopalnia Wegla Brunatnego "Konin" w Kleczewie S.A., and Lubelski Wegiel Bogdanka S.A. (Ministry of Treasury of the Republic of Poland, 2015, appendixes 1–3).

As of 2014, the Government's most important holdings in the mineral sector included a 31.79% stake in KGHM (copper, silver, and other metals), a 53.20% stake in Grupa LOTOS S.A. (oil and gas), a 72.41% stake in PGNiG S.A. (oil and gas), a 27.52% stake in PKN Orlen S.A. (refinery), a 55% stake in Jastrzebska Spolka Weglowa S.A. (bituminous coal), and a 61.88% stake in PGE Polish Energy Group plc. (bituminous coal and lignite). Table 2 is a list of major mineral industry facilities.

## Mineral Trade

In 2013 (the latest year for which data were available), the value of the country's exports amounted to \$206 billion, and the value of imports was \$208 billion. The leading export mineral commodity, by value, was copper and copper alloys at about \$2.56 billion, followed by silver at about \$894 million. The country's major export trade partners for copper and copper alloys were Germany (42%), China (27%), France (9%), and Italy (8%). The leading import commodity, by value, was crude petroleum and natural gas condensate (about \$18.0 billion), followed by natural gas at \$1.5 billion, and iron ore and concentrates (including roasted iron pyrite) at \$689 million. Russia supplied 94% of Poland's crude petroleum imports (Central Statistical Office of Poland, 2014).

## Commodity Review

### Metals

**Copper and Silver.**—In 2014, Poland had 14 copper-silver deposits with total estimated resources of 1,736 million metric tons (Mt) containing 33.22 Mt of copper and 102,110 metric tons (t) of silver. Of these deposits, six were operating mines from which the total estimated resources were 1,421 Mt containing 27.81 Mt of copper and 82,950 t of silver. Six deposits were in the exploration stage, and they had estimated resources of 292 Mt containing 5.16 Mt of copper and 18,070 t of silver. Two abandoned deposits had estimated resources of 24 Mt containing 0.26 Mt of copper and 1,080 t of silver (Polish Geological Institute, 2015c).

KGHM was Poland's only producer of mined copper and primary copper metal, and it operated three mines (the Lubin, the Polkowice-Sieroszowice, and the Rudna Mines) and three copper refineries (Glogow I, Glogow II, and Legnica) (KGHM Polska Miedz S.A., 2015, p. 24).

In 2014, the company produced about 33 Mt of copper ore, with an average copper content of 1.53%, which was lower than the average of 1.57% in 2013 and was owing to a decrease in the

content of the copper in the deposit. The copper content of the extracted ore was 473,000 t compared with 482,000 t in 2013; KGHM's leading foreign customers were China, the Czech Republic, France, and Germany (KGHM Polska Miedz S.A., 2015, p. 39, 41).

**Gold.**—In 2014, all gold was extracted from copper-silver deposits in the area of the Fore-Sudetic monocline in southwestern Poland, and all gold production was entirely a byproduct of copper mining. The anode slime, which was produced by the copper electro-refining process that takes place at all three smelters, contained precious metals. This anode slime was the principal material in the production of gold, as well as other mineral commodities. In 2014, Poland produced 226.1 kilograms (kg) of gold recovered from domestic sulfide copper-mercury ores.

KGHM produced 2,574 kg of gold, which was a 142% increase compared with that of 2013. This increase in the company's production of gold metal was owing to the increase in the production of gold concentrate at KGHM's mining facilities outside of Poland, as well as the processing of imported concentrates not produced at KGHM's mines. This enabled the company to increase its gold revenues by 127% (KGHM Polska Miedz S.A., 2015, p. 24, 42; Polish Geological Institute, 2015b).

**Iron and Steel.**—In 2014, steel production amounted to about 8.6 Mt, of which 59% was produced by the basic oxygen furnace (BOF) process and 41% was produced by the electric arc furnace process (table 1).

ArcelorMittal Poland S.A. was the leading steel producer in Poland, representing about 70% of the country's steel production capacity. Approximately 50% of raw steel in the country was produced at ArcelorMittal's plants at Dabrowa Gornicza and Krakow using the BOF process (Burkowicz and others, 2013, p. 282).

Cognor S.A. held a 100% interest in Ferrostal Labydy Sp. z o.o. and Huta Stali Jakosciowych S.A., which had a combined crude steel production capacity of 636,000 t. In 2014 the company produced 582,549 t of crude steel, which represented a 91.6% capacity utilization rate and a 15% increase compared with the 505,966 t produced in 2013. The company accounted for 6.8% (about 8.6 Mt) of Poland's steel production in 2014. Cognor produced 176,094 t of high-grade alloy steel in 2014, which was 35.5% of Poland's market share, and 188,053 t of billets, or about a 20% share of the Polish billet sales market (Cognor S.A., 2015, p. 13).

**Molybdenum and Tungsten.**—Molybdenum, tungsten, and copper were produced from the Myszkow deposit located at the northeastern margin of the Upper Silesian coal basin; the deposit is in the contact zone of the Malopolska Block and Upper Silesian Block, which are separated by the Hamburg-Krakow tectonic zone. This deposit is of the molybdenum-tungsten-copper porphyry type. Its ore mineralization is of the stockwork type, forming a system of quartz veins with sulfide and oxide ore minerals related to Variscan igneous rocks. The resources of the Myszkow deposit down to a depth of 1,000 meters are estimated to exceed 550 Mt (Polish Geological Institute, 2015e).

**Rhenium.**—In 2014, Poland produced 7.71 t of rhenium, which was an increase from that of the previous year.

Rhenium is an important additive in superalloys used in the production of jet engines and catalysts. KGHM Ecoren S.A. (Ecoren) was the only European producer of ammonium perhenate (APR) and metallic rhenium from its own sources, with an average rhenium content of 0.6 part per million (ppm) and a range of 0.4 to 1.1 ppm in the copper ore from the Fore-Sudetic monocline deposits. The company had the capacity to produce 3.5 metric tons per year of rhenium pellets, and it was capable of producing marketable quantities of pellets containing 99.95% rhenium. Ecoren was the world's third-ranked producer of rhenium contained in APR, accounting for 16% of total world production (Burkowicz and others, 2013, p. 419–420; Polyak, 2016).

### *Industrial Minerals*

**Gypsum.**—In 2014, Poland's production of gypsum and anhydrite decreased by 3% to 1.06 Mt; it included 904,990 t of gypsum from three deposits and 147,480 t of anhydrite, also from three deposits. Poland had 15 deposits of gypsum and anhydrite with total estimated resources of 260 Mt; 5 of these deposits (accounting for a total of 128 Mt of estimated resources) were being mined. Detailed exploration had been conducted on another five of these deposits, resulting in a combined estimated resource of 95 Mt, and preliminary exploration had been conducted on another two of these deposits, resulting in a combined estimated resource of 33 Mt. The remaining three deposits had been abandoned; they had a total estimated resource of 3.57 Mt (Polish Geological Institute, 2015b).

### *Mineral Fuels*

**Coal.**—In 2014, Poland's estimated resources of bituminous coal were about 52.0 billion metric tons (Gt), and all the country's operating coal mines were situated in the Upper Silesian coal basin except the large Bogdanka Mine. Total resources at the deposits that were being exploited amounted to 19.9 Gt in 2014 and accounted for 38.2% of total estimated resources. A new deposit was discovered in the Nowa Ruda field in the Piast-Waclaw-Lech region and four new deposits were discovered in the Upper Silesian coal basin and designated as Barbara-Chorzów 2, Brzezinka 3, Bzie-Dębina 2, and Jan Kanty 2, adding about 723 Mt of estimated resources (Polish Geological Institute, 2015d).

Estimated resources of brown coal (subbituminous) amounted to about 23.5 Gt in 2014. Nine deposits were being mined and the estimated resources of these deposits amounted to 1.48 Gt. Also, 73 unexploited deposits had total estimated resources of 22.0 Gt and 8 abandoned deposits had an estimated total of 16 Mt of resources. Production of brown coal amounted to about 63.877 Mt in 2014, which was a decrease of 3.23% compared with that of 2013. The leading producing mines (located in the Belchatow field) were the Belchatow Mine, which produced 26.64 Mt, or a 41.6 % of the country's brown coal production in 2014, and the Szczerców Mine, which produced 15.76 Mt, or 24.5% of the country's brown coal production in 2014 (Polish Geological Institute, 2015a).

Kompania Węglowa S.A. (KW) was the leading bituminous coal producer in Poland and in the European Union. It operated mines in Malopolskie Province and Silesia Province. The company had estimated resources of about 7.8 Gt and operating resources of about 1.6 Gt. The 14 coal mines operated by KW had a total mining capacity of 34 million metric tons per year. KW planned to decrease the number of its mines to 8 from 14 by 2020, and to reduce its production from about 38 to 40 Mt in 2012 to about 25 Mt in 2020. One reason for the high cost of mining was that the coal seams were too deep to be mined cost effectively (Kompania Węglowa S.A., 2014; Vorutnikov, 2014).

### **Outlook**

The economy of Poland continued its growth trend, and its domestic consumption increased as well. This continuing recovery could possibly lead to a demand-driven increase in mineral commodity production, as long as the international commodity prices are sufficiently high to support this production. Much of the growth will depend on the demand for Polish products by its main trade partners, in particular those in the EU. Because coal and copper are two of the most significant mineral commodities that Poland produces, they are expected to remain the leading mineral products in terms of production and trade value. Poland will likely continue to depend on imports of mineral fuels, and this dependence will remain one of Poland's biggest challenges in the long term as coal production will gradually decline because of tightening environmental regulations. The Government's privatization efforts are continuing and, thus, the Government's ownership of mineral-producing companies will continue to decline; however, a few key industries considered essential for the economy of Poland will continue to have some percentage of Government investment for the foreseeable future.

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TABLE 1  
POLAND: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2,013	2014	
<b>METALS</b>						
Aluminum, metal, secondary <sup>c,3</sup>	metric tons	16,000	14,000	11,090	16,014 <sup>r</sup>	14,908
Cadmium, metal, primary	do.	451	526	370	460 <sup>r</sup>	628
<b>Copper:</b>						
<b>Ore:</b>						
Gross weight		30,805	31,241	31,725	32,215	32,613
Cu content	metric tons	480,600	479,300	479,250	481,770	473,258
<b>Concentrate:</b>						
Gross weight		1,842	1,877	1,862	1,858	1,843
Cu content	metric tons	425,400	426,700	427,064	429,275	421,695
<b>Metal:</b>						
<b>Smelter:</b>						
Primary	do.	469,700	481,900	466,700	456,100 <sup>r</sup>	476,100
Secondary	do.	94,600 <sup>r</sup>	82,100 <sup>r</sup>	108,900 <sup>r</sup>	114,600 <sup>r</sup>	108,700
Total	do.	564,300 <sup>r</sup>	564,000 <sup>r</sup>	575,600 <sup>r</sup>	570,700 <sup>r</sup>	584,800
Refined, electrolytically	do.	547,100	571,000	565,834	565,155	576,876
Gold, metal	kilograms	776	704	916	1,066	2,574
<b>Iron and steel:</b>						
Pig iron		3,638	3,975	3,944	4,014 <sup>r</sup>	4,637
<b>Ferroalloys:</b>						
Blast furnace, ferromanganese	metric tons	800	800	800	760 <sup>e</sup>	760
<b>Electric furnace:</b>						
Silicomanganese	do.	100	400	200	190 <sup>e</sup>	190
Ferrosilicon	do.	53,206	72,668	79,400	75,500 <sup>e</sup>	75,500
Other	do.	200	300	300	280 <sup>e</sup>	280
Total ferroalloys	do.	54,306	74,168	80,700	76,730 <sup>e</sup>	76,730
<b>Steel, crude:</b>						
From oxygen converters		3,995	4,424	4,333	4,399 <sup>r</sup>	5,067
From electric arc furnaces		4,001	4,353	4,206	3,551 <sup>r</sup>	3,492
Total		7,996	8,777	8,539	7,950 <sup>r</sup>	8,559
<b>Finished steel products:</b>						
Hot rolled		6,658	7,504	7,700	7,514 <sup>r</sup>	7,650
Cold rolled		835	807	755	815	800 <sup>e</sup>
Pipe (cold formed and hollow sections)		840	910	945	860	848
<b>Lead:</b>						
<b>Mine output:</b>						
Pb content of Pb-Zn ore	metric tons	35,300	28,200	26,600	25,000	34,000
Pb content of Cu ore	do.	24,900	24,900	30,000	26,710	43,000
Total	do.	60,200	53,100	56,600	51,710	77,000
<b>Metal, refined:</b>						
Primary	do.	38,000	47,000	47,000	39,000	36,000
Secondary	do.	82,000	87,000	87,000	103,000	112,000
Total	do.	120,000	134,000	134,000	142,000	148,000
<b>Rhenium:</b>						
<b>Ammonium perrhenate:</b>						
Gross weight	kilograms	6,709	8,650	11,630	10,800 <sup>e</sup>	10,800 <sup>e</sup>
Re content of ammonium perrhenate	do.	4,656	6,000	8,100 <sup>e</sup>	7,530	7,700
Rhenium metal in pellet form	do.	620	620 <sup>e</sup>	620 <sup>e</sup>	620 <sup>e</sup>	600 <sup>e</sup>
Selenium	metric tons	79	85	90	80	80 <sup>e</sup>
<b>Silver:</b>						
Mine output, Ag content of Cu concentrate	metric tons	1,181	1,167	1,149	1,199	1,384
Metal	do.	1,175	1,260	1,274	1,161	1,160 <sup>e</sup>
<b>Zinc:</b>						
Mine output, Zn content	do.	88,500	81,800	75,200	73,000	56,000
Metal, refined, primary and secondary	do.	135,100	144,100	138,300	154,379	164,000

See footnotes at end of table.

TABLE 1—Continued  
POLAND: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014
<b>INDUSTRIAL MINERALS</b>					
<b>Cement:</b>					
Clinker	11,768	13,630	11,807	10,855 <sup>r</sup>	11,864
Hydraulic	15,812	18,993	15,919	14,831 <sup>r</sup>	15,358
<b>Clays and clay products:</b>					
<b>Bentonite:</b>					
Crude	2,200	900	800	1,018 <sup>r</sup>	1,000 <sup>e</sup>
Processed, including imported material	86,000	113,800	102,100	105,000 <sup>e</sup>	100,000 <sup>e</sup>
Fire clay, crude	82	136	119	118 <sup>r</sup>	99
<b>Kaolin:</b>					
Crude	238	285	249	200 <sup>r</sup>	199
Beneficiated	125	164	138	150 <sup>e</sup>	150 <sup>e</sup>
Diatomite	500	600	600	600	600 <sup>e</sup>
<b>Feldspar:</b>					
Run of mine	513,700	550,000	376,500	374,000 <sup>e</sup>	374,000 <sup>e</sup>
Processed, including imported material	485,000	538,800	487,200	500,000 <sup>e</sup>	500,000 <sup>e</sup>
<b>Gypsum and anhydrite</b>					
<b>Natural:</b>					
Gypsum rock	1,012	1,067	1,078	952	905
Anhydrite	167	158	150	133	147
Total	1,179	1,225	1,228	1,085	1,052
Synthetic gypsum	2,389	2,586	2,790	2,700 <sup>e</sup>	2,700 <sup>e</sup>
Grand total	3,568	3,811	4,018	3,785 <sup>e</sup>	3,752 <sup>e</sup>
Lime, hydrated and quicklime	1,799	2,036	1,799	1,709 <sup>r</sup>	1,782
<b>Magnesite:</b>					
Crude	108,809	129,166	129,641	116,274 <sup>r</sup>	116,000
Concentrate	63,000	75,000	84,000	97,000	97,000
Nitrogen, N content of ammonia	1,700	1,918	2,026	2,100 <sup>e</sup>	2,100
<b>Quartz, quartzite, and quartz schist, marketable:</b>					
Quartz and quartz crystal	5,600	6,100	5,300	5,000 <sup>e</sup>	5,000
Quartzite, refractory	34,200	46,500	53,200	50,000 <sup>e</sup>	50,000
Quartz schist	700	700	600	550 <sup>e</sup>	550
<b>Salt:</b>					
Rock	1,236	1,234	793	1,320	775
Evaporated salt	411	415	658	686 <sup>r</sup>	642
Other (brine and desalination of mine waste water)	2,464	2,633	2,891	2,735 <sup>r</sup>	2,800 <sup>e</sup>
Total	4,111	4,282	4,342	4,741 <sup>r</sup>	4,217
<b>Sand and gravel:</b>					
Aggregates (construction sand and gravel), natural, mine output	157,236	248,690	184,745	173,267	174,000 <sup>e</sup>
Filling sand	5,090	4,405	3,762	3,649	3,600 <sup>e</sup>
Foundry sand	1,053	1,475	1,206	1,311	1,300 <sup>e</sup>
Lime-sand brick production sand	615	780	731	519	520 <sup>e</sup>
Moulding sand	1,817	2,096	2,934	2,900 <sup>e</sup>	2,900 <sup>e</sup>
Silica sand (glass sand), marketable	1,995	2,290	2,149	2,112	2,100 <sup>e</sup>
<b>Sodium compounds:</b>					
Carbonate (soda ash), 98%	1,010	1,061	1,111	1,052	1,000 <sup>e</sup>
Caustic soda (96% NaOH)	285	361	388	391	390 <sup>e</sup>
<b>Stone, mine output:</b>					
Dimension stone	4,598	6,224	4,118	3,800 <sup>e</sup>	3,800 <sup>e</sup>
Dolomite	1,821	1,880	1,830	1,915 <sup>r</sup>	1,346
<b>Limestone:</b>					
For lime production	17,588	21,703	16,728	16,808	16,000 <sup>e</sup>
For non-lime end use	35,528	47,929	40,178	38,000 <sup>e</sup>	38,000 <sup>e</sup>
Road stone	168	326	289	300 <sup>e</sup>	300 <sup>e</sup>

See footnotes at end of table.

TABLE 1—Continued  
POLAND: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014	
<b>INDUSTRIAL MINERALS—Continued</b>						
<b>Sulfur:</b>						
Native, Frasch	metric tons	517,000	657,000	676,800	526,300	605,400
<b>Byproduct:</b>						
From natural gas	do.	24,900	23,800	25,300	24,300	24,300 <sup>c</sup>
From oil refineries and coking plants	do.	225,000	234,600	259,700	259,000 <sup>c</sup>	260,000 <sup>c</sup>
From metallurgy	do.	253,000	250,000 <sup>c</sup>	250,000 <sup>c</sup>	250,000 <sup>c</sup>	250,000 <sup>c</sup>
Other	do.	500	600	400	500 <sup>c</sup>	500 <sup>c</sup>
Total	do.	503,400	509,000 <sup>c</sup>	535,000 <sup>r,c</sup>	534,000	535,000 <sup>c</sup>
Grand total	do.	1,020,400	1,170,000 <sup>c</sup>	1,210,000 <sup>c</sup>	1,060,000	1,140,000 <sup>c</sup>
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Carbon black	metric tons	34,700	45,000	11,100	11,000 <sup>c</sup>	11,000 <sup>c</sup>
<b>Coal:</b>						
Bituminous		76,728	76,448	79,813	76,775	73,011
Lignite		56,510	62,841	64,280	65,849	63,877
Total		133,238	139,289	144,093	142,624	136,888
Coke		9,738	9,377	8,891	9,213	9,431
<b>Gas:</b>						
Natural	million cubic meters	5,666	5,825	5,871	5,883	5,800 <sup>c</sup>
Coke oven gas, manufactured	do.	4,239	4,200 <sup>c</sup>	3,873	4,079	4,000 <sup>c</sup>
Peat, fuel and agricultural		672	746	762	817 <sup>r</sup>	615
<b>Petroleum:</b>						
Crude <sup>c,4</sup>	thousand 42-gallon barrels	5,100	4,600	5,000	7,100	7,014
Refinery products <sup>c,5</sup>	do.	158,000	160,000	195,000	190,000	190,000

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto.

<sup>1</sup>Table includes data available through February 17, 2016.

<sup>2</sup>In addition to commodities listed, beneficiated barite, cobalt, gold content of copper concentrate, nickel, palladium, platinum, sulfate, and town gas were thought to have been produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Based on official Polish Government estimates.

<sup>4</sup>Figures were converted to barrels from production in metric tons, which was reported as the following: 2010—686,487; 2011—616,525; 2012—673,582; 2013—956,807; 2014—945,267.

<sup>5</sup>Figures were converted to barrels from production in metric tons, which was reported as the following: 2010—21,557,363; 2011—21,770,253; 2012—26,587,000; and 2013—25,849,000. Production for 2014 was estimated, as information was not available at the time the data were collected.



TABLE 2  
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(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.
Bentonite	Zakłady Gorniczo-Metalowe "Zebiec" S.A.	Starachowice	40. <sup>e</sup>
Cadmium, refined	metric tons Huta Cynku "Miasteczko Slaskie" S.A. (Stalprodukt S.A.)	Miasteczko Slaskie smelter	540.
Cement	Gorazdze Cement S.A. (HeidelbergCement AG, 100%)	Gorazdze	4,000 clinker, 5,600 cement.
Do.	Grupa Ozarow S.A. (CRH plc., 100%)	Plants at Ozarow and Rejowiec	2,800 clinker, <sup>e</sup> 3,250 cement. <sup>e</sup>
Do.	Cemex Polska Sp. Z o.o. (CEMEX S.A.B de C.V., 100%)	Plants at Chelm and Rudniki	2,300 clinker, <sup>e</sup> 3,000 cement. <sup>e</sup>
Do.	Cementownia Warta S.A. (Polen Zement Beteiligungsgesellschaft GmbH)	Dzialoszyn	1,500 clinker, <sup>e</sup> 2,000 cement. <sup>e</sup>
Do.	Lafarge Cement S.A.	Plants at Malogoszcz and Piechcin	3,000 clinker, <sup>e</sup> 5,700 cement.
Do.	Dyckerhott Sp. z o.o. (Dyckerhott/Buzzi Unicem's)	Nowiny	1,100 clinker, <sup>e</sup> 1,600 cement.
Do.	Cementownia "Nowa Huta" S.A.	Krakow	300 clinker, <sup>e</sup> 500 cement. <sup>e</sup>
Do.	Cementownia "Odra" S.A.	Opole	400 clinker, <sup>e</sup> 800 cement. <sup>e</sup>
Cement, aluminous	Gorka Cement Sp. z o.o.	Trzebinia	70 clinker, <sup>e</sup> 70 cement. <sup>e</sup>
Coal:			
Bituminous	Includes: 100% Government owned: Kompania Węglowa S.A. Katowicki Holding Węglowy S.A. Południowy Koncern Węglowy S.A. KWK Kazimierz-Juliusz Sp. z o. o. Jastrzebska Spolka Węglowa S.A. (Government, 55%) Lubelski Węgiel "Bogdanka S.A." (Government, 5%) SILTECH Sp. z o. o.	Of which: Upper Silesia (14 mines) Upper Silesia (4 mines) Upper Silesia (2 mines) Upper Silesia (1 mine) Upper Silesia (5 mines) Bogdanka, east of Leczna, eastern Poland (1 mine) Upper Silesia (1 mine)	90,000. <sup>e,2</sup>
Brown coal and lignite	Includes: PGE KWB Belchatow S.A. [PGE Polish Energy Group Plc. (Government, 61.88%)] PGE KWB Turów S.A. [PGE Polish Energy Group Plc. (Government, 61.88%)] Kopalnia Węgla Brunatnego "Konin" w Kleczewie S.A. Kopalnia Węgla Brunatnego "Adamow" S.A. Kopalnia Węgla Brunatnego Sieniawa Sp. z o.o.	Of which: Belchatow, south of Lodz (2 open pit mines) Bogatynia, at the southwest corner of Poland (1 mine) Kleczew (4 open pit mines) Turek (3 open pit mines) Sieniawa (1 mine)	95,000. <sup>e,2</sup>
Coke	Includes: Zakłady Koksownicze Zdzeszowice (ArcelorMittal Poland S.A., 100%) Koksownia Przyjazn S.A. Kombinat Kokschemiczny Zabrze S.A. ArcelorMittal Poland S.A. ISD Huta Czestochowa Sp. z o.o. Zakłady Koksownicze "Victoria" S.A. CARBO-KOKS Sp. z.o.o.	Of which: Upper Silesia (Zdzieszowice) Upper Silesia (Dabrowa Gornicza) Upper Silesia (Cokeries at Jadwiga, Radlin, and Debiensko) Upper Silesia (Krakow) Upper Silesia (Czestochowa) Upper Silesia (Walbrzychu) Upper Silesia (Bytom)	10,800. <sup>2</sup>

See footnotes at end of table.

TABLE 2—Continued  
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Copper:</b>			
Ore, gross weight (averaged 1.57% Cu)	KGHM Polska Miedz S.A. (Government, 31.79%)	Lubin Mine, Lubin-Glogow District	7,000.
Do.	do.	Polkowice-Sierszowice Mine, Lubin-Glogow District	11,000.
Do.	do.	Rudna Mine, Lubin-Glogow District	12,000.
Concentrate, gross weight (averaged 23.1% Cu)	KGHM Polska Miedz S.A. (Government, 31.79%)	Lubin beneficiation plant, Lubin-Glogow District	440. <sup>c</sup>
Do.	do.	Polkowice beneficiation plant, Lubin-Glogow District	520. <sup>c</sup>
Do.	do.	Rudna beneficiation plant, Lubin-Glogow District	940. <sup>c</sup>
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	652.
Do.	Pol-Skal Sp. z o.o.	Karpniki, southwestern region of Jelenia Gora	100.
<b>Ferrous alloys:</b>			
Electric furnace (FeSiMn, FeMn, FeSi)	Huta Laziska S.A.	Upper Silesia at Laziska Gorne	120. <sup>c</sup>
Blast furnace (FeMn)	STALMAG Sp. z o.o.	Upper Silesia at Ruda Slaska	50. <sup>c</sup>
Gold, metal	kilograms KGHM Polska Miedz S.A. (Government, 31.79%)	Refinery at Glogow	1,000. <sup>c</sup>
Gypsum and anhydrite	Includes: Zaklady Przemyslu Gipsowego "Dolina Nidy" S.A. Rigips Polska Stawiany Sp. z o.o. (Saint-Gobain) Kopalnia Gipsu i Anhydrytu "Nowy Lad" Sp. z o.o.	Of which: Southeastern Poland, Gacki Southeastern Poland, Szarbkow Lower Silesia, mines at Niwnice and Iwiny	1,400. <sup>2</sup>
Helium	million cubic meters Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.40%)	Western Poland, Odolanow	3.5. <sup>c</sup>
Kaolin, crude and washed	KSM "Surmin-Kaolin" S.A.	Lower Silesia, Nowogrodzic	90. <sup>c</sup>
Do.	Grudzen Las Sp. z o.o.	Grudzen Las, in Lodz Voivodeship	55. <sup>c</sup>
Do.	Tomaszowskie Kopalnie Surowcow Mineralnych "Biala Gora" Sp. z o.o.	Smardzewice, Tomaszowski Voivodeship	30. <sup>c</sup>
<b>Lead-zinc:</b>			
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, <sup>c</sup> 110 zinc. <sup>c</sup>
<b>Metal:</b>			
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. <sup>c</sup>
Do.	Orzel Bialy S.A.	Refinery at Bytom	40. <sup>c</sup>
Do.	KGHM Polska Miedz S.A. (Government, 31.79%)	Smelter at Legnica	50. <sup>c</sup>
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: Zaklady Przemyslu Wapienniczego (ZPW) Trzuskawica S.A. (CRH plc, 100%) Lhoist Group: Lhoist Opolwap S.A. Lhoist Bukowa Sp. z o.o. Zaklad Wapienniczy Wojcieszow Sp. z o.o. Zaklady Wapiennicze Lhoist Sp. z o.o.	Of which: Plants in Sitkowka-Nowiny and Bielawy Tarnow Opolski, Opole County Bukowa, 90 kilometers north of Krakow Wojcieszow Gorazdze	2,200. <sup>c,2</sup>

See footnotes at end of table.

TABLE 2—Continued  
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas	million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.41%)	Gasfields in southeastern Poland in the Carpathian Mountains, the Carpathian Foothills, and the Polish Lowlands	4,600. <sup>c</sup>
Do.	do.	FX Energy, Inc.	Western Poland	120. <sup>c</sup>
Do.	do.	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.20%)]	Baltic Sea Shelf	20. <sup>c</sup>
<b>Nitrogen:</b>				
Ammonia (NH <sub>3</sub> )		Includes: Zaklady Azotowe "Pulawy" S.A. Zaklady Azotowe "Kedzierzyn" S.A. Zaklady Azotowe "Anwil Wloclawek" S.A. Zaklady Azotowe S.A. w Tarnowie Azoty-Adipol S.A. (former Chorzow plant) Zaklady Chemiczne "Police" S.A.	Of which: Pulawy in eastern Poland Kedzierzyn in Upper Silesia Wloclawek in central Poland Tarnow in southern Poland Chorzow in Upper Silesia Police in northwestern Poland	2,600. <sup>c,2</sup>
<b>Petroleum:</b>				
Crude	thousand 42-gallon barrels	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.41%)	Oilfields in southeastern and western Poland with about 75% of production from the Barnowko-Mostno-Buszewo field near Debno	4,000. <sup>c</sup>
Do.	do.	LOTOS Petrobaltic S.A. [Grupa LOTOS S.A. (Government, 53.20%)]	Baltic Sea Shelf	1,200. <sup>c</sup>
Do.	do.	FX Energy, Inc.	Western Poland	50. <sup>c</sup>
Refined		Petrochimia-Plock [PNK Orlen S.A. (Government, 27.52%)]	Plock in central Poland	115,000.
Do.	do.	Rafineria "Gdansk" (Grupa LOTOS S.A.)	Gdansk in northern Poland	70,000. <sup>c</sup>
Do.	do.	Rafineria "Trzebinia" [PNK Orlen S.A. (Government, 27.52%)]	Trzebinia in southern Poland	3,000.
Do.	do.	Rafineria "Jedlicze" [PNK Orlen S.A. (Government, 27.52%)]	Jedlicze in southern Poland	1,000.
<b>Rhenium:</b>				
Rhenium content of ammonium perrhenate	kilograms	KGHM Ecoren S.A. [KGHM Polska Miedz S.A. (Government, 31.79%)]	Lubin	7,500.
Rhenium metal	do.	do.	do.	3,500.
<b>Salt:</b>				
Brine		Inowroclawskie Kopalnie Soli Solino S.A.  Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.94%) Kopalnia Soli "Wieliczka" S.A.	Of which: Mines at Gora and Mogilno in central Poland Mine at Mogilno in central Poland  Wieliczka in southern Poland, near Krakow, mining deposits at Barycz and Wieliczka	5,000. <sup>c,2</sup>
Rock salt		Kopalnia Soli "Klodawa" S.A. KGHM Polska Miedz S.A. (Government, 31.79%)	Klodawa in central Poland Sierszowice in southwestern Poland	
Desalination of mine wastewater		Zaklad Odsalania Wod Dolowych "Debiensko" Sp. z o.o.	Czerwionka-Leszczyzny, west of Debiensko	
Selenium	metric tons	KGHM Polska Miedz S.A. (Government, 31.79%)	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. <sup>c</sup>
Steel, crude		ArcelorMittal S.A., of which: ArcelorMittal Poland S.A.  do.  ArcelorMittal Warszawa Sp. z o.o.	Steelworks at Dobrowa Gornicza (former Huta Katowice S.A.) Steelworks at Krakow (former Huta Sendzimir S.A.) Steelworks in Warsaw (former Huta "Lucchini-Warszawa" Sp. z o.o.)	8,000.

See footnotes at end of table.

TABLE 2—Continued  
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel, crude—Continued	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. <sup>c</sup>
Do.	Celsa Huta Ostrowiec S.A. (Celsa Group)	Steelworks at Ostrowiec-Swietokrzyski	800. <sup>c</sup>
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. <sup>c</sup>
Sulfur	P.P. Kopalnie i Zaklady Chemiczne Siarki "Siarkopol"	Osiek deposit at Grzybow	800.

<sup>c</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>The data presented in this table were compiled, in large measure, from information provided in the Minerals Yearbook of Poland 2012, which was prepared and published by the Division of Mineral Policy, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences.

<sup>2</sup>Annual capacity listed is total for all deposits, mines, or companies that produce the commodity.