



2015 Minerals Yearbook

GERMANY [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF GERMANY

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In 2015, Germany's nominal gross domestic product (GDP) was \$3.358 trillion compared with \$3.237 trillion (revised) in 2014—an increase of 3.7%. The finance, rental, and business services sector accounted for 26.2% of Germany's GDP in 2015; the manufacturing industries sector accounted for 22.6%; and the commerce, transportation, and catering sector accounted for 15.5%. The construction sector contributed 4.7% of the GDP in 2014 and the information and communications sector contributed 5%; the remainder was accounted for by various other sectors of the German economy. Germany's GDP was the highest in the European Union (EU) in 2015, accounting for the equivalent of 20.7% of the EU's GDP. The inflation rate in Germany in 2015 was 0.1%, which was a decrease from the 0.8% inflation rate of the previous year. Germany had an unemployment rate in 2015 of 4.6%, which was a decrease from the 5.0% (revised) rate in 2014 (Federal Ministry for Economic Affairs and Energy, 2016a, p. 70; 2016b, p. 2, 5).

In 2015, Germany was estimated to have been the second-ranked producer of refined selenium in the world; the third-ranked producer of kaolin and secondary refined lead; the fourth-ranked producer of salt; the fifth-ranked producer of potash; the seventh-ranked producer of crude steel; and the ninth-ranked producer of bentonite (table 1; Anderson, 2017; Bolen, 2017; Fenton, 2017; Flanagan, 2017; Jasinski, 2017).

In terms of foreign direct investment (FDI), Germany hosted about 60,000 foreign companies, which provided employment to about 3 million people. Between 2010 and 2015, FDI markets added a total of 5,267 investment projects from about 5,200 foreign companies and, in 2015, 950 projects were created, which ranked Germany fourth in the world in terms of FDI projects. The principal countries that were the sources of new investment in Germany were the United States, which sponsored 20% of the new foreign investment projects; Switzerland, 11%; and the United Kingdom, 9%. The principal sectors of the economy that received FDI investment in 2015 were the information and communications technology and software sector, which received 19% of the total FDI, and the business and financial services sector, which received 15%; projects in the energy, minerals, and metals sectors received 4% (Federal Ministry for Economic Affairs and Energy, 2016b, p. 4).

Minerals in the National Economy

In 2015, Germany was a leading global exporter of industrial goods and services (including processed and fabricated mineral products). The country's mineral industry depended heavily on imported mineral raw materials; however, all the lignite consumed in the country was supplied by domestic production. Germany was dependent on imports of other mineral fuels for most of the remainder of its primary energy consumption. Germany's metal-processing sector relied on imports of metal ores and concentrates and reprocessing of metallic scrap and waste materials (both imported and produced

domestically), because no metals were mined in sufficient amounts for metallurgical use in the country. The country was also heavily reliant on imports of numerous industrial minerals and many refined metals. The international competitiveness of the country's nonfuel mineral processing and fabrication sector relied primarily on such factors as a highly skilled labor force, research, development and rapid assimilation of new technologies (including metal and other mineral materials recycling technologies), and the development and maintenance of liberal trade relationships both within and outside the EU. Germany's position in the global mineral economy was predominantly that of a major consumer and processor of minerals (Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 5–44).

In 2015, the most important mineral commodities were, in terms of value, those related to energy production, which were valued at \$14.87 billion and included coal (bituminous and lignite), crude petroleum, natural and petroleum gas, and peat. Lignite was the principal source of locally produced energy in the country. In terms of tonnage produced, sand and gravel [239 million metric tons (Mt) of output] accounted for one-third of all German mineral commodity production in 2015, followed by natural broken stone (210 Mt), and lignite (178 Mt). Taken together, sand and gravel and natural broken stone accounted for 75% of all recovered mineral commodities. The processing and manufacture of metals, such as lead, nickel, and steel was also an important sector in the German economy, as well as the processing and manufacture of industrial components and of such industrial mineral commodities as cement (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 16–21).

Government Policies and Programs

Germany's main mining law is the Federal Mining Act (BGBl. IS. 1310), which was approved on August 13, 1980, and revised on December 9, 2006, through a slight revision to provisions of Article 11 (BGBl. IS. 2833). The country's production of some minerals (including gypsum and anhydrite, limestone and some other types of natural stone, peat, and some types of sand and gravel) was not directly regulated under the Federal Mining Act but was covered by a variety of other land-management and environmental regulations at both the Federal and State levels. Also, the setup of the Federal Mines Inspectorate was not mandated in the Federal Mining Act, although this inspectorate does enforce many of the regulations in the main mining law; the Federal Mines Inspectorate was established through Articles 83 and 84 of Germany's Constitution (Bundesministerium der Justiz, 2007, p. 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 13–20).

The Environmental Impact Assessment Act (EIA Act) (BGBl. IS. 1757, 2797), which was approved on June 25, 2005,

and revised through slight changes to Article 2 (BGBl. IS. 3316) of the act on December 21, 2006, was the environmental law that was most applicable to the mineral industry. This act incorporates provisions of an older ordinance concerning the assessment of environmental impacts for mining projects (BGBl. IS. 1420), which was approved on July 13, 1990, and revised through slight changes to Article 8 (BGBl. IS. 2819) on December 9, 2006. The EIA Act also incorporates other older ordinances, such as one for the protection of groundwater against pollution caused by certain dangerous substances (BGBl. IS. 542), which was approved on March 18, 1997, and was still applicable to the use and disposal of many of the chemicals used in mining and mineral processing in Germany. The EIA Act requires environmental impact assessments for all domestic waste repositories created or used by the mineral industry. The Federal Mining Act stipulates how these repositories are to be constructed, operated, and monitored (Bundesministerium der Justiz, 2007, p. 30; Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 13–15).

Production

In 2015, the most salient mineral production changes in Germany were the decreases in barite production, by 48%, and anthracite production, by 20%. Production of fluor spar decreased by 14%; and dimension stone, by 10%, whereas production of rock salt increased by 22%, and industrial brines, by 15%. (table 1).

Structure of the Mineral Industry

Table 2 lists the major mineral industry facilities in Germany in 2015. Since the closure of the last metal mines in 1992, no metallic ores with enough metal content for metallurgical use have been produced in Germany. Many of the leading companies in the global metal-processing sector owned and operated significant facilities in Germany, however. ThyssenKrupp AG (based in Duisburg, Germany) was the leading producer of crude steel in Germany and the 16th-ranked producer of crude steel in the world. Salzgitter AG (based in Salzgitter, Germany) was the third-ranked producer of crude steel in the country but was not among the top 40 producers of crude steel in the world. ArcelorMittal S.A. (based in Luxembourg) was the second-ranked producer of crude steel in Germany and the leading producer in the world. Aurubis AG of Germany was the leading producer of refined copper in Germany and the EU, and Salzgitter held a 25% ownership interest in Aurubis. Aurubis was the second-ranked producer of copper cathodes and the leading producer of secondary refined copper in the world. Glencore plc (based in Switzerland and registered in the United Kingdom) was the leading producer of zinc metal in Germany and the leading producer of mined zinc in the world. Norsk Hydro ASA of Norway was the second-ranked producer of aluminum in Germany and the fifth-ranked producer of primary aluminum in the world, and the company owned the largest single primary aluminum smelter in Germany (the Rheinwerk primary smelter at Neuss). Berzelius Metall GmbH (based in Stolberg, Germany) was the leading

producer of primary lead in the country (Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 22–46).

In the mining and quarrying sector, the majority of the enterprises that extracted building stone, clay (kaolin and ceramic raw materials), and sand and gravel were small enterprises. In the sand and gravel industry, 53% of the companies had less than 10 employees, and 43% of the companies in the area of crushed stone also had 10 or fewer employees. The small size of the enterprises was made possible by the Government's promotion of small enterprises as well as the considerable level of mechanization in the industry (table 2; Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 22–46; World Steel Association, 2016, p. 10).

Mineral Trade

In 2015, Germany imported 115.4 million cubic meters of natural gas, which was an increase of 20% compared with that of the previous year; the principal countries from which Germany imported natural gas were, in order of imported volume, Russia, the Netherlands, and Norway. Germany also imported 90.5 Mt of crude petroleum, most of which also came from Russia, the Netherlands, and Norway. Germany exported 2.34 Mt of lignite in 2015; of this amount, 47.7% went to the Czech Republic, and 17.9%, to Belgium. Germany also imported 7,277 kilograms (kg) of enriched uranium, of which 51.6% came from Russia; 23.2%, from France; and the remainder, from the United Kingdom. Germany exported 21,589 kg of enriched uranium, mostly to France (37.1%), the United States (32.3%), and the United Kingdom (19.8%). For nonferrous metals, Germany imported 1.16 Mt of copper concentrate, of which 24.2% originated in Peru; 22.8%, in Chile; 20.8%, in Brazil; and 10.6%, in Canada. Germany also imported 283,098 metric tons (t) of zinc concentrate, of which 26.4% originated in Australia; 23.3%, in the United States; and 20.7%, in Sweden. Germany also exported 91,689 t of zinc metal, of which 61% went to France; 33.4%, to the Netherlands; and the rest, to other recipients. Germany imported 19,397 t of tin metal, of which 23.4% was from Indonesia; 21.8%, from Belgium; 18.6%, from Peru; and the rest, from the United Kingdom. Germany imported 42 Mt of iron ore and concentrates, of which 54% originated in Brazil; 18.2%, in Canada; and the rest, in Sweden. Its imports of crude steel totaled 12,177 t, of which 35.4% originated in Italy; 20.9%, in the Netherlands; 20.8%, in Ukraine; 11.8%, in Austria; and the rest, in other countries. Germany also exported 4,045 t of crude steel, of which 15.2% went to the United States; 13.8%, to Poland; and the rest, to other countries (Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 76–86).

Commodity Review

Metals

Gallium and Other Specialty Metals.—In 2015, Germany produced various specialty metals that were recovered either as byproduct of the refining of other metal commodities or from recycling operations. In the Aluminum Oxide Stade (AOS) plant, a subsidiary of DADCO Alumina & Chemicals Ltd.

produced about 20 to 30 metric tons per year of primary gallium metal from the sodium hydroxide used in the Bayer process that the company uses to treat bauxite. AOS processes about 2.5 Mt of bauxite to produce about 1 Mt of alumina and hydroxide per year. Ingal Stade was a 50–50 joint venture between 5N Plus Inc. of Canada and Molycorp Inc. of the United States. Ingal Stade was the world's second-ranked producer of primary gallium (Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 49).

PPM Pure Metals GmbH (PPM) produced high-purity metals and compounds for use mainly in electronics, optoelectronics, and the photovoltaic industry. The company recovered and produced antimony, arsenic, cadmium, copper, gallium, germanium, indium, lead, tellurium, and tin and their compounds. The company's production and recycling facilities were located in Langelsheim and in Osterwieck (table 2).

H.C. Starck GmbH was a major processor and producer of molybdenum, niobium, rhenium, tantalum, and tungsten, as well as a manufacturer of high-performance ceramics and thermal spray powder. The company operated five plants in Germany. It had 1,630 employees in Germany and about 2,700 employees worldwide. In 2015, H.C. Starck reported sales of \$904 million (table 2; Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 49).

Iron and Steel.—In 2015, Barbara Erzbergbau GmbH produced 467,690 t of iron ore at the Porta Westfalica facility in North Rhine-Westphalia. The iron content in the ore was about 14.5%, however, and because this level of iron was not economically recoverable for the company, the ore was used as aggregate in the construction industry. Another 28,389 t of iron ore was recovered in Saxony-Anhalt by depleting the stock of an old deposit. This ore was also used as a construction additive. In 2015, the country's crude steel production decreased slightly to about 42.7 Mt, accounting for 2.6% of all world production and making the German steel industry the seventh-ranked producer of crude steel in the world. Germany was the leading steel producer in the EU, accounting for about 26% of all EU steel production. Approximately two-thirds of this steel was made by the basic oxygen steelmaking process in integrated mills and the rest was made from steel scrap using electric arc furnaces. The leading producers of steel in Germany were ThyssenKrupp, with 12.4 Mt of output; Salzgitter, 6.8 Mt; ArcelorMittal Germany, 7.8 Mt; HKM AG, 4.6 Mt; Saarstahl AG, 2.8 Mt; Dillinger Huttenwerke AG, 2.4 Mt; Riva Group, 2.3 Mt; and Badische Sathkwerke GmbH, 2.2 Mt (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 39–40).

Tungsten.—In 2015, Germany imported 162 t of tungsten ore and concentrate from Bolivia and exported about 62 t to China and the Netherlands. Germany also imported 61 t of tungsten metal and 1,249 t of ferrotungsten, mostly from China and Vietnam. H.C. Starck processed specialized tungsten semifinished products and tungsten powder chemicals; the company had a partnership with Jiangxi Rare Earth and Rare Metal Tungsten Group (JXTC) in two joint ventures in Jiangxi Province in China (Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 37–38; 2016, p. 94).

Industrial Minerals

Barite.—In 2015, the production of barite in Germany decreased by about 48%. Barite is principally used for oil and gas drilling and, in 2015, with the decrease in prices of crude petroleum, the demand for barite fell worldwide. The levels of barite production in Germany returned to about where they were in 2013. Germany also imported barite, mostly from China, Bulgaria, and the Netherlands; in 2015, the country imported 101,000 t of barite (Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, p. 101).

Clay and Shale (Kaolin).—The leading region of kaolin production in Germany was Bavaria, which has deposits in the Upper Palatinate; other significant deposits are located in Hesse, North Rhine-Westphalia, Rhineland-Palatinate, Saxony, and Saxony-Anhalt. In 2015, Germany produced 5.3 Mt of kaolin, which was an increase of about 25% from the 4.28 Mt produced in 2014. Germany was the principal producer of kaolin in the EU and the third-ranked producer in the world (Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 45; 2016, p. 51).

Salt.—In 2015, Germany produced about 14.2 Mt of salt and was the leading salt producer in the EU. Salt mining in Germany was done by rock salt mining and by obtaining salt through saline plants located in Baden-Württemberg, Bavaria, Hesse, Lower Saxony, North Rhine-Westphalia, Saxony-Anhalt, and Thuringia. Rock salt production in 2015 was about 6.1 Mt, which was a decrease of about 23% compared with that of 2014. Evaporated salt and brine for balneotherapy were produced in five mines and at six saltwork sites. The European Salt Co. (ESCO), which was a subsidiary of K+S Aktiengesellschaft, was the leading supplier of salt and a leading supplier of rock and evaporated salt in the EU. The company had mines in Bernburg, Borth, and Grasleben. Also, Wacker Chemie AG operated a salt mine in Stetten, and the company employed 70 people. Saline Luisenhall GmbH obtained brine from a saline deposit at Goettingen. Salzgewinnungsgesellschaft Westfalen, which was a 65% subsidiary of the Solvay Group of France, obtained brine from the region of Gronau-Epe. Dow Chemicals Inc. of the United States owned the salt domes at Ohrensen and Teutschenthal from which it extracted brine (Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 44; 2016, p. 50).

Mineral Fuels

Coal.—In 2015, the Government continued to implement a program to eliminate its anthracite subsidy, which was envisioned to end by 2018. The German coal industry had decreased its production of anthracite and bituminous coal to 6.65 Mt in 2015 from 8.34 Mt in 2014. The leading consumers of coal in Germany were powerplants, although the German steel industry also consumed some coal for the production of steel. The production of lignite in Germany in 2015 was 178.1 Mt, which was a slight decrease from the production level of the previous year. The main areas where lignite was still mined were the Rheinisch mining area, the Lausitz region, the central German region, and the Helnsteder area. RAG Deutsche Steinkohle AG had three mines—two in the Ruhr and one in Ibbenburen—that still produced coal in 2015 (Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, p. 8, 32–34; 2016, p. 36–38).

Outlook

In 2015, the German economy continued to grow, and employment was also increasing. Production within the mineral sector was stable, as Germany was mostly a processor of minerals and its industry is responsive to external demand for its products. Germany has several challenges that it will have to face in the long term, and which are dictated by Government policy; these include the elimination of nuclear power as a source of primary energy and the elimination of subsidies for the coal industry. To eliminate nuclear power gradually from Germany's energy mix by 2022 and still be on track to reduce greenhouse gas emissions by 80% in 2050 (compared with the level of emissions in 2010), the Government projects that about 38% of the electricity generated in the country in 2030 will have to come from renewable energy resources; 23%, from lignite; about 20%, from natural gas; and about 4%, from heating oil, pumped storage, and other sources. Concurrently, in 2030, the country's entire hard coal demand would have to be satisfied with imports if the elimination of the hard coal subsidy results in zero production. The indirect implications of increased consumption of renewable energy resources for the mineral industry could include increases in the consumption of minerals used in wind turbines (including rare earths), in solar cells (including silicon and silver), and in other renewable energy technologies (Gesamtverbands Steinkohle e.V., 2011, p. 22–26; AG Energiebilanzen e.V., 2013, p. 25–27).

References Cited

AG Energiebilanzen e.V., 2013, Energieverbrauch in Deutschland im Jahr 2012 [Energy consumption in Germany in 2012]: Berlin, Germany, AG Energiebilanzen e.V., March, 40 p.
Anderson, C.S., 2017, Selenium: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 148–149.

Bolen, W.P., 2017, Salt: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 140–141.
Bundesanstalt für Geowissenschaften und Rohstoffe, 2015, Rohstoffsituation 2014 [Raw materials situation 2014]: Hannover, Germany, Bundesanstalt für Geowissenschaften und Rohstoffe, November, 161 p.
Bundesanstalt für Geowissenschaften und Rohstoffe, 2016, Rohstoffsituation 2015 [Raw materials situation 2015]: Hannover, Germany, Bundesanstalt für Geowissenschaften und Rohstoffe, November, 166 p.
Bundesministerium der Justiz, 2007, Bundesberggesetz (BBergG) [Federal mining law (BBergG)]: Berlin, Germany, Bundesministerium der Justiz, April 29, 95 p.
Federal Ministry for Economic Affairs and Energy, 2016a, Annual economic report 2016: Berlin, Germany, Federal Ministry for Economic Affairs and Energy, January, 670 p. (Accessed March 12, 2017, at https://www.bmwi.de/Redaktion/EN/Publikationen/annual-economic-report-2016.pdf?__blob=publicationFile&v=4.)
Federal Ministry for Economic Affairs and Energy, 2016b, Economic overview Germany—Market, productivity, innovation—German trade and invest: Federal Ministry for Economic Affairs and Energy, August, 15 p. (Accessed March 10, 2017, at <https://www.gtai.de/GTAI/Content/EN/Invest/SharedDocs/Downloads/GTAI/Brochures/Germany/economic-overview-germany-market-productivity-innovation-en.pdf?v=9>.)
Fenton, M.D., 2017, Iron and steel: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 84–85.
Flanagan, D.M., 2017, Clays: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 50–51.
Gesamtverbands Steinkohle e.V., 2011, Steinkohle jahresbericht 2011 [Hard coal annual report—2011]: Essen, Germany, Gesamtverbands Steinkohle e.V., October, 65 p.
Jasinski, S.M., 2017, Potash: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 128–129
World Steel Association, 2016, World steel in figures 2015: Brussels, Belgium, World Steel Association, May 30, 30 p.

TABLE 1
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2011	2012	2013	2014	2015
METALS					
Aluminum:					
Of which:					
Alumina	950 ^e	967	1,360 ^r	1,000	1,000 ^e
Aluminum hydroxide, Al ₂ O ₃ equivalent	1,405	1,364	1,360	1,400 ^r	1,400 ^e
Metal	1,067	1,045	1,089	1,130	1,161
Of which:					
Primary	432	410	492	531	541
Secondary	634	635	597	599	620
Cadmium, metal, refinery ^e	300	400 ^r	400 ^r	400 ^r	400
metric tons					
Cobalt, matte, including shavings and scrap	671	497	500 ^e	NA	NA
do.					
Copper, metal:					
Smelter	564	534	464	524	521
Of which:					
Primary	346	352	295	351	338
Secondary	218	182	169	173	183
Refined	709	686	678	677	678
Of which:					
Primary	401	390	390	392	397
Secondary	308	296	288	285	281
Gallium, crude ^e	30	30	38	30 ^r	30
metric tons					
Gold, metal, refined, including secondary	50,682	53,476	53,000 ^e	53,000 ^e	45,000
kilograms					
Indium, refined ^e	10	10	NA	NA	NA
metric tons					
Iron and steel:					
Ore, run of mine: ²					
Gross weight	489	448	413	456	488
Fe content	51	47	43	73 ^r	68
Metal:					
Pig iron	27,943	27,046	27,177	27,943	27,844
Direct-reduced iron	380	555 ^r	498 ^r	566 ^r	550
Ferroalloys:					
Ferromanganese ^e	18,500	17,800	17,800	17,800	17,700
Other	9,985	8,248	8,200 ^e	8,200	8,200
do.					
Steel, crude	44,284	42,661	42,645	42,941	42,674
Semimanufactures	39,286 ^r	37,843 ^r	36,381 ^r	36,449 ^r	36,551
Lead, metal, refined	429	424 ^e	400	380 ^r	378
Of which:					
Primary	136	134 ^e	151	132 ^r	130
Secondary	293	290 ^e	249	248	248
Magnesium, metal, including castings	15	16	16	15	15
Platinum-group metals, metal, refined	50	54	54 ^e	54	54
do.					
Selenium, contained Se in metal ^e	700	650	650	650	650
do.					
Silicon, metal	30,134	29,000 ^e	30,000 ^r	28,000	30,000
do.					
Silver, metal, refined, including secondary	1,886	1,753	1,750 ^e	1,750	1,750
do.					
Tin, alloys ^e	6,000	7,000	7,000	7,000	7,000
do.					
Zinc, metal	170	169 ^e	188	193	195
Of which:					
Primary	142	139 ^e	162	165	165
Secondary	28	30 ^e	26	28	30
INDUSTRIAL MINERALS					
Abrasives, manufactured:					
Corundum	90	83	80	76	69
Fused aluminum oxide, crude ^e	20	20	NA	NA	NA
Silicon carbide ^e	20	20	NA	NA	NA
Aluminum salt slag, Al ₂ O ₃ equivalent ^e	200	200	NA	NA	NA
Barite, marketable (contained BaSO ₄)	55	52	45	87 ^r	45
Boron compounds, manufactured, including boric acid and oxide	157	149	143	139	36
Bromine compounds, including oxide ^e	1,600	1,600	NA	NA	NA
metric tons					

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2011	2012	2013	2014	2015
INDUSTRIAL MINERALS—Continued					
Cement and clinker:					
Clinker, intended for market	24,775	24,581	23,127	23,871	23,355
Hydraulic	32,779	32,432	31,308	32,099	31,160
Chalk, natural, including ground ^c	1,400	1,450	NA	1,740	NA
Clay, natural:					
Bentonite	375	366	359	395	395 ^e
Ceramic and refractory clay	4,027	4,045	4,183	3,863	3,800 ^e
Of which, fire clay and chamotte	253	270	270 ^e	NA	NA
Kaolin, marketable	4,899	4,399	4,290	4,275	5,300
Other, unspecified	200 ^e	172	140	54	56
Dolomite, neither burnt nor sintered	622	504	500 ^e	NA	NA
Feldspar, all uses ³	5,483	5,321	5,300 ^e	5,300	5,300
Of which, feldspar for industrial uses ^c	218	205	200	200	200
Fluorspar, acid-grade	66	54	49	58 ^r	50
Gypsum and anhydrite:					
Natural	2,021	1,949	1,778	1,802	1,848
Byproduct of flue-gas desulfurization ^e	6,780	7,010	7,100	6,810 ^r	7,100 ^e
Lime, quicklime, dead-burned dolomite	7,113	6,575	6,883	6,390	6,500
Magnesium compounds, byproduct of potash mining	1,348	1,372	1,365	1,455	1,376
Mullite, synthetic ^c	15	15	NA	NA	NA
Nitrogen, N content of ammonia	2,821	2,823	2,757	2,540	2,372
Peat, horticultural use	4,000 ^r	4,000 ^r	4,000 ^r	4,100 ^r	4,200
thousand cubic meters					
Phosphoric acid, manufactured, P ₂ O ₅ content	20	12	14	24	18
Pigments, iron oxide (including synthetic iron oxide)	223	204	200 ^e	200	200
Potash, K ₂ O content:					
Crude	3,827	3,767	3,675	3,738	3,750
Marketable	3,215	3,149	3,075	3,178 ^r	3,110
Salt, NaCl content, marketable	17,442	14,656	17,396	12,049 ^r	14,164
Of which:					
Evaporated salt, including marine salt	329	301	297	274	275 ^e
Industrial brines	8,066	7,515	8,073	6,776 ^r	7,765
Rock salt and other brines	9,048	6,840	9,026	4,999 ^r	6,124
Siliceous earth, marketable	53	50	50	54 ^r	53
Soda ash (Na ₂ CO ₃), manufactured	2,668	2,627	2,548	2,558	2,536
Stone, sand and gravel:					
Stone, crude:					
Dimension, including partially worked	467	477	505	495	444
Of which, marble and other calcareous stone	314	356	350 ^e	350	350
Crushed, not including chalk	164,487	154,020	154,000 ^e	154,000	154,000
Dolomite and limestone, not for cement manufacture	18,400	17,600	18,800	19,000	19,000
Sand and gravel	167,398	157,604	154,992	161,088	157,000
Of which:					
Gravel, natural:					
Construction gravel	76,191	72,615	72,105	71,811	69,184
Crude, including flint and pebbles	11,043	9,639	9,600 ^e	9,600	9,600
Sand, natural:					
Construction sand	72,394	67,852	66,039	71,841	67,912
Silica sand, including glass sand and quartz sand	7,770	7,498	7,248	7,836	7,242
Strontium carbonate, manufactured ^c	130	120	120	120	120
Sulfur:					
Marketable	875	798	755	708	628
Byproduct:	3,908	3,818	3,800 ^e	3,800	3,800
Of which:					
Metallurgy	2,394	2,373	2,400 ^e	2,400 ^e	2,400 ^e
Natural gas and petroleum	1,514	1,445	1,400 ^e	1,400 ^e	1,400 ^e

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2011	2012	2013	2014	2015
MINERAL FUELS AND RELATED MATERIALS					
Carbon black	908	923	920 ^e	NA	NA
Coal:					
Anthracite and bituminous, marketable	12,059	11,558	8,260	8,340	6,650
Lignite	176,502	185,432	182,696	178,178	178,065
Coke:					
From anthracite and bituminous coal	7,990	8,050	8,379	8,770	8,800
From lignite	171	170	171 ^r	182 ^r	185
Fuel briquets of lignite	2,136	1,910	2,022 ^r	1,637 ^r	1,598
Gas:					
Manufactured:					
Blast furnace ^c million cubic meters	9	9	9	NA	NA
Coke oven do.	922 ^e	929 ^e	920 ^e	NA	NA
Total ^c do.	931	938	929	NA	NA
Natural:					
Associated (byproduct of crude petroleum) do.	80	78	73	67	65
Gross (nonassociated) do.	12,873	11,706	10,751	10,127	9,388
Marketable (dry or net) do.	11,799	10,660	9,693	9,193	8,558
Petroleum: ⁴					
Crude thousand 42-gallon barrels	19,600	19,200	19,387	17,737	17,520
Refinery products:					^e
Liquefied petroleum gas do.	32,860	33,010	33,280	29,200	29,000 ^e
Distillate fuel oil do.	330,000	345,100	338,200	332,000	330,000 ^e
Residual fuel oil do.	42,400	44,200	39,290	45,400	45,000 ^e
Gasoline, including aviation do.	180,000	173,000	168,300	164,400	164,000 ^e
Kerosene and jet fuel do.	38,100	40,700	37,100	37,900	38,000 ^e
Naphtha do.	70,000	70,000	67,400	61,200	61,000 ^e
Refinery gas do.	45,100	44,000	43,600	42,290	42,000 ^e
Bitumen, bituminous mixtures, and other residue do.	34,600	33,000	32,000	32,400	32,000 ^e
Lubricants and miscellaneous oils do.	17,000	17,000	17,000	17,000	17,000 ^e
Petroleum coke do.	10,100	9,970	10,620	9,720	9,700 ^e
Mineral jelly, waxes, and paraffins do.	900	1,000	990	1,210	1,200 ^e
Other do.	6,590	8,330	8,000	8,000	8,000 ^e
Total ^c do.	808,000	819,000 ^r	796,000	781,000	777,000
Uranium concentrate, U ₃ O ₈ content	60	52	27	33	--

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through January 11, 2017, and does not reflect the production of some commodities, such as arsenic metal, graphite, and zeolites, which are known to have been produced, but for which available information was inadequate to make reliable estimates of output.

²Iron ore was used domestically as an additive in cement and other construction materials but was too low grade to be used in the steel industry.

³All uses include use as gravel for road construction, and industrial uses include uses in the manufacturing of ceramics.

⁴All figures through 2012 were converted to barrels from those reported in metric tons according to data from Mineralölwirtschaftsverband e.V., 2013, Jahresbericht—Mineralöl-Zahlen, 2012: Berlin, Germany, Mineralölwirtschaftsverband e.V., July, p. 48 and 79, and reflect the significant digits of the conversion factors.

TABLE 2
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
Abrasives (silicon carbide)	ESK-SiC GmbH	Plant at Grefrath, Frechen	36	
Alumina	Almatis GmbH (Dubai International Capital LLC)	Plant at Ludwigshafen	NA	
Do.	Nabaltec AG	Plant at Schwandorf	120	
Do.	Aluminium Oxid Stade GmbH (DADCO Alumina & Chemicals Ltd., 100%)	Plant at Stade	1,050	
Do.	Martinswerk GmbH (Albemarle Corp., 100%)	Plant at Bergheim	350	
Do.	Alufin GmbH Tabularoxide (Alteo Holdings, 100%)	Plant at Teutschenthal	17	
Alumina, fused	Treibacher Schleifmittel GmbH (Imerys S.A., 100%)	Plant at Zschornowitz	NA	
Aluminum	Hydro Aluminium Deutschland GmbH (Norsk Hydro ASA, 100%)	Rheinwerk primary smelter at Neuss	235	
Do.	Metallhüttenwerke Bruch GmbH	Secondary foundry alloy plant at Dortmund; secondary cast alloy plants at Asperg and Bad Saeckingen	110	
Do.	Aleris Recycling (German Works) GmbH (Aleris Corp., 100%)	Secondary smelters: Erftwerk at Grevenbroich, Innwerk at Toeing am Inn, and Neckarwerk at Deizisau	320	
Do.	TRIMET Aluminium AG	Primary smelter at Essen-Borbeck	175 °	
Do.	do.	Recycling plant and secondary smelter at Gelsenkirchen	160 °	
Do.	do.	Recycling plant and secondary smelter at Harzgerode	40	
Do.	Hamburger Aluminium-Werke GmbH (TRIMET Aluminium AG, 100%)	Primary smelter at Hamburg	133	
Do.	Aluminiumwerk Voerde Aluminium GmbH (Klesch & Company Ltd., 100%)	Primary smelter at Voerde, North Rhine-Westphalia	130	
Aluminum, hot-rolled products	Aluminium Norf GmbH [Novelis Inc. (Hindalco Industries Ltd., 100%), 50%, and Hydro Aluminium Deutschland GmbH, 50%]	Lippenwerk at Luenen (secondary) and rolling mill at Neuss	1,500	
Aluminum salt slag	Befesa Medio Ambiente S.A.	Plants at Hannover, Luenen, and Toeing	380	
Do.	K+S Entsorgung GmbH (K+S Aktiengesellschaft, 100%)	REKAL plant at Wanstorf	100	
Arsenic, metal	metric tons	PPM Pure Metals GmbH ² (Recylex S.A., 100%)	Plant at Langelsheim	5
Do.	do.	Reinstmetalle Osterwieck GmbH (PPM Pure Metals GmbH, ² 100%)	Plant at Osterwieck	NA
Barite	Sachtleben Bergbau GmbH	Clara Mine in the Black Forest and plant at Wolfach, and Dreislar Mine at Medebach-Dreislar	87	
Do.	Deutsche Baryt-Industrie Dr. Rudolf Alberti GmbH & Co. KG (Sachtleben Bergbau GmbH, 75%, and other private, 25%)	Wolkenhügel Mine in the Harz Mountains and plant at Bad Lauterberg	50	
Clay, bentonite	Süd-Chemie AG (Clariant International Ltd., 100%)	Mining near Gammelsdorf, Bavaria, and plants at Duisburg, Heufeld, and Moosburg	500	
Do.	S&B Industrial Minerals GmbH (S&B Industrial Minerals S.A., 100%)	Mining in region between Landshut and Mainburg, Bavaria	400	
Do.	do.	Stolberg plant at Oberhausen	200 °	
Do.	do.	Plant at Neuss	50	
Do.	Kärlicher Ton- und Schamotte-Werke Mannheim & Co. KG (KTS)	Quarry at Muelheim-Kaerlich	50	
Cadmium, metal:				
Primary (byproduct)	Metaleurop Zinkbetrieb GmbH & Co. KG (Glencore plc, 100%)	Nordenham Smelter, near Bremerhaven	160	
Secondary	Accurec Recycling GmbH (I-met GmbH, 100%)	Battery recycling plant at Muelheim an der Ruhr	NA	
Calcium carbonate, natural, ground	Alpha Calcit Fullstoff GmbH & Co. KG	Plant at Cologne	250	
Do.	Omya GmbH (Omya AG, 100%)	Plants at Emden	2,250	
Do.	Omya Weil GmbH (Omya AG, 100%)	Plant at Weil am Rhein	NA	
Do.	Eduard Merkle GmbH & Co. KG (Omya AG, 100%)	Plant at Blaubeuren-Altental	NA	
Calcium carbonate, natural, including chalk	Vereinigte Kreidewerke Dammann KG (Omya AG, 100%)	Plants at Laegerdorf and Soehle	500	
Do.	Kreidewerk Rügen GmbH (Omya AG, 100%)	Quarries and plant at Sassnitz, on Ruegen Island	NA	

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Carbon black	Orion Engineered Carbons GmbH (Rhône Capital LLC, 50%, and Triton Advisors Ltd., 50%)	Kalscheuren plant at Cologne, and plant at Dortmund	NA
Cement	HeidelbergCement AG	Plant at Burglengenfeld; two plants at Ennigerloh; two plants at Geseke; plants at Königs Wusterhausen, Leimen, Paderborn, Mainz-Weisenau, and Schelklingen; the Lengfurt plant at Triefenstein; plant at Wetzlar	12,700
Do.	Dyckerhoff AG (Buzzi Unicem SpA, 88.37%, and other private, 11.63%)	Plants at Deuna, Geseke, Goellheim, Lengerich, Neuss, Neuwied, and the Amöneburg plant at Wiesbaden	7,200
Do.	SCHWENK Zement KG	Plants at Allmendingen, Bernburg, Heidenheim-Mergelstetten, and Karlstadt	6,900
Do.	CEMEX Deutschland AG (CEMEX S.A. de C.V., 100%)	Two plants at Beckum; plants at Dortmund, Duisburg, Eisenhuettenstadt, and Ruedersdorf	5,300
Do.	Holcim (Deutschland) AG (LafargeHolcim Ltd., 88.9%, and other private, 11.1%)	HANSA plant at Bremen, plants at Laegerdorf and Rostock, and the Hoever plant at Sehnde	3,600
Do.	Lafarge Zement GmbH (LafargeHolcim Ltd., 100%)	Plants at Kall-Soetenich, Karsdorf, and Walzbachtal	3,400
Do.	Holcim (Baden-Württemberg) AG (LafargeHolcim Ltd., 100%)	Plant at Dotternhausen	1,600
Do.	TEUTONIA Zementwerk AG (HeidelbergCement AG, 94.2%, and other private, 5.8%)	Plant at Hannover	900
Do.	Märker Zement GmbH	Plants at Harburg and Lauffen	NA
Clay, bentonite	Süd-Chemie AG (Clariant International Ltd., 100%)	Mining near Gammelsdorf, Bavaria, and plants at Duisburg, Heufeld, and Moosburg	500
Do.	S&B Industrial Minerals GmbH (S&B Industrial Minerals S.A., 100%)	Mining in region between Landshut and Mainburg, Bavaria	400
Do.	do.	Stolberg plant at Oberhausen	200 ^e
Do.	do.	Plant at Neuss	50
Do.	Kärlicher Ton- und Schamotte-Werke Mannheim & Co. KG (KTS)	Quarry at Muelheim-Kaerlich	50
Clay, including ball, ceramic, kaolinitic, and refractory clay	Sibelco Deutschland GmbH (S.C.R.- Sibelco NV, 100%)	25 quarries and 8 plants, including 2 at Ransbach and the Kannenbäckerland plant in Hoehr-Grenzhausen, Westerwald region; also including quarries and plants of Kaolin- und Tonwerke Seilitz-Loethain, Saxony region	2,000
Do.	Stephan Schmidt KG	Tonbergbau Grube Anton open pit mine, Dornburg-Langendernbach, Muellenbach and Thewald Mines, Hoehr-Grenzhausen; Wiesa-Thonberg and Cunnersdorf quarries, Kamenz-Wiesa, Westerwald	1,600
Do.	Marx Bergbau GmbH & Co. KG (Stephan Schmidt KG, 100%)	Lämmersbach and Meudt Mines, Ruppach-Goldhausen quarry, Dornburg-Langendernbach, Westerwald	350
Do.	Goerg & Schneider GmbH & Co. KG	Quarry and main plant at Boden, others at Mogendorf, Goddert, Siershahn, Wirges-Staudt, and Kettenbach-Taunus, Westerwald region; others in Saxony and Eifel regions	NA
Do.	Mittelhessische Tonbergbau GmbH (Goerg & Schneider GmbH & Co. KG, 50%, and Stephan Schmidt KG, 50%)	Quarry and plant in the Giessen-Lahn region	100
Do.	Rohstoffgesellschaft GmbH Ponholz	Mine and chamotte plant at Maxhuetten-Haidoff, and Aufofweiher Mine, Bavaria	150
Do.	Adolf Gottfried Tonwerke GmbH	Quarries and plant near Grossheirath, Coburg, Bavaria	100
Do.	Erbsloh Lohrheim GmbH (Erbsloh family, 100%)	Mine at Lohrheim, Rhineland-Palatinate	30
Coal:			
Anthracite and bituminous	RAG Deutsche Steinkohle AG (RAG Aktiengesellschaft, 100%)	Augusta Victoria-Blumenthal, Prosper-Haniel, and West Mines, Ruhr region, North Rhine-Westphalia	11,000 ^e
Do.	do.	Ibbenbüren Mine, Steinfurt District, North Rhine-Westphalia	2,100

See footnotes at end of table

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal:—Continued				
Lignite		RWE Power AG (RWE Aktiengesellschaft, 100%)	Open pit mines in Rheinish mining area: Bergheim, Garzweiler, Inden, and Hambach	105,000
Do.		Vattenfall Europe Mining AG	Jänschwalde-Cottbus-Nord, Nochten, and Welzow-Süd Mines, Lausatian mining area	60,000
Do.		Mitteldeutsche Braunkohlengesellschaft AG	Profen and Vereinigtes Schleenhain Mines	25,000
Coke		ThyssenKrupp Steel AG	Schwelgern plant at Duisburg	2,100
Do.		ArcelorMittal Bremen GmbH (ArcelorMittal, 100%)	Coking plant at the Prosper-Haniel Mine	2,000 ^e
Do.		Hüttenwerke Krupp Mannesmann GmbH (ThyssenKrupp Steel AG, 50%; Salzgitter AG, 30%; Vallourec & Mannesmann Tubes SA, 20%)	Plant at Duisberg-Huckingen steel complex	1,100
Copper, refined		Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Primary smelter and refinery and secondary plant at Hamburg	500 ^e
Do.		Hüttenwerke Kayser AG (Aurubis AG, 100%)	Secondary plant and refinery at Luenen	210 ^e
Feldspar		Saarfeldspatwerke H. Huppert GmbH & Co. KG	Mine at Oberthal, Gudesweiler, Saarland	60
Do.		Gottfried Feldspat GmbH	Mine at Freihung-Thansuss, Weiden, Bavaria	15
Ferrochrome		Elektrowerk Weisweiler GmbH (Kermas Ltd., 100%)	Plant at Eschweiler-Weisweiler, near Aachen	30
Fluorspar		Sachtleben Bergbau GmbH	Clara Mine in the Black Forest and plant at Wolfach	55 ^e
Gallium	metric tons	Ingal Stade GmbH (5N Plus Inc., 50%, and Molycorp Inc, 50%)	Ingal plant at Stade	35
Do.	do.	PPM Pure Metals GmbH ² (Recylex S.A., 100%)	Plant at Langelsheim	NA
Gold, metal		Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Primary smelter and refinery and secondary plant at Hamburg	NA
Do.	metric tons	Hüttenwerke Kayser AG (Aurubis AG, 100%)	Secondary plant and refinery at Luenen	40 ^e
Do.		Heracus Precious Metals GmbH & Co. KG	Primary smelter and refinery and secondary plant at Hanau	NA
Do.		Umicore AG & Co. KG (Umicore S.A., 100%)	Plant at Hanau	NA
Do.		Allgemeine Gold- und Silberscheideanstalt AG (Umicore S.A., 91.21%, and other, 8.79%)	Plant at Pforzheim	NA
Graphite, manufactured		GK Graphit Kropfmühl GmbH (Advanced Metallurgical Group N.V., 100%)	Plant at Kropfmuehl, Passau	20
Do.		do.	Plants at Bad Godesberg and Wedel, Holstein	8
Gypsum		VG-ORTH GmbH & Co. KG	Mine and plant at Stadtoldendorf, and plants at Osterode, Spremberg, and Witzenhausen	150
Do.		Gyproc GmbH (Etex Group S.A., 80%, and LafargeHolcim S.A., 20%)	Mines and plant in Lower Saxony	110
Do.		Knauf Gips KG	Mines and plant at Iphofen	NA
Iron, blast furnace		ThyssenKrupp Steel AG	Two blast furnace plants at Hamborn and Schwelgern	12,000
Iron, direct reduced		ArcelorMittal Hamburg GmbH (ArcelorMittal, 100%)	Plant at Hamburg	600 ^e
Iron oxide, pigments		Lanxess AG	Plant at Krefeld-Uerdingen	300
Kaolin, feldspar, and quartz		Amberger Kaolinwerke GmbH—Eduard Kick GmbH & Co. KG (Quarzwerke GmbH, 100%)	Mines at Caminau, Hirschau, Kemmlitz, and Schnaittenbach, Bavaria	350
Do.		Gebrüder Dorfner GmbH & Co Kaolin- und Kristallquartzsand Werk KG	Mine near Hirschau, Bavaria	NA
Lead, metal		Weser Metall GmbH (Recylex S.A., 100%)	Primary and secondary smelter and refinery at Nordenham	145
Do.		Berzelius Metall GmbH [Eco-Bat Technologies Ltd. (Quexco Inc., 100%), 100%]	Secondary smelters at Braubach am Rhein and Freiberg-Saxony	200
Do.		do.	Primary smelter at Stolberg	160 ^e
Do.		Johnson Controls Recycling GmbH (Johnson Controls Inc., 100%)	Battery recycling plant and secondary smelter at Krautscheid	120
Do.		Muldenhütten Recycling- und Umwelttechnik GmbH	Secondary smelter at Freiburg, Saxony	55
Do.		Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Refinery at Hamburg	50
Lead, oxide, Pb content		Weser Metall GmbH (Recylex S.A., 100%)	Primary and secondary smelter and refinery at Nordenham	20
Magnesium, metal, secondary		Norsk Hydro Magnesiumgesellschaft GmbH (Norsk Hydro ASA, 100%)	Plant at Bottrop	26
Do.		Aleris Recycling (German Works) GmbH (Aleris International Inc., 100%)	Plant at Toeing am Inn	15

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Mullite, fused		Imerys Fused Minerals Zschornowitz GmbH (Imerys S.A., 100%)	Plant at Zschornowitz	31
Mullite, sintered		Nabaltec AG	Plant at Schwandorf	10
Natural gas	million cubic meters	Mobil Erdgas-Erdöl GmbH (Exxon Mobil Corp., 100%), including any fields owned or operated by BEB Erdgas und Erdöl GmbH (Exxon Mobil Corp., 50%, and Royal Dutch Shell plc, 50%)	Goldenstedt, Hemmelte, Klosterseele, Söhlingen, and other fields in Lower Saxony	14,000 °
Do.	do.	RWE-Dea AG (RWE Power AG, 100%)	Böttersen, Hemsbünde, Völkersen, and smaller fields in Lower Saxony; Inzenham-West Field, Bavaria	3,000 °
Do.	do.	Gaz de France Produktion Exploration Deutschland GmbH (Gaz de France S.A., 100%)	Salzwedel Field, Saxony-Anhalt; Schneeren and smaller fields in Lower Saxony	1,500 °
Do.	do.	Wintershall Holding AG (BASF AG, 100%)	A6 and B4 Blocks offshore Schleswig Holstein; smaller fields in Lower Saxony	1,200 °
Do.	do.	EEG-Erdgas Erdöl GmbH (GDF Suez S.A., 100%)	Muehlhausen and other fields in Thüringen	50 °
Petroleum:				
Crude	thousand 42-gallon barrels	Wintershall Holding AG (BASF AG, 100%), 50%, and RWE-Dea AG (RWE Power AG, 100%), 50%	Mittelplate-Dieksand field in tidal flats of the North Sea offshore Schleswig-Holstein	15,500
Do.	do.	Wintershall Holding AG (BASF AG, 100%)	A6 and B4 Blocks offshore Schleswig Holstein; Aitingen field, Bavaria; Emlichheim field, Lower Saxony; and smaller fields in Lower Saxony and Rhineland-Palatinate	2,000 °
Do.	do.	Gaz de France Produktion Exploration Deutschland GmbH (GDF Suez S.A., 100%)	Bramberge, Ruehlertwist, Scheerhorn, and Ringe fields in Lower Saxony; smaller fields in the States of Bavaria, Hamburg, Lower Saxony, and Mecklenburg-Western Pomerania	3,500 °
Do.	do.	Mobil Erdgas-Erdöl GmbH (Exxon Mobil Corp., 100%)	Barenburg, Ruchme, and Lueben fields, Lower Saxony; smaller fields in the States of Lower Saxony and Rhineland-Palatinate	1,800 °
Do.	do.	BEB Erdgas und Erdöl GmbH (Exxon Mobil Corp., 50%, and Royal Dutch Shell plc, 50%)	Georgsdorf, Meppen, and Ruelermoor fields, west of the Ems River (Emsland), Lower Saxony	3,000 °
Refined		do. Deutsche Shell AG	Refineries at Godorf, Hamburg, and Grasbrook	256,000 °
Do.		do. Raffinerie Heide GmbH (Klesch & Co. SA, 100%)	Refinery near Heide, State of Schleswig Holstein	35,000 °
Do.		do. Esso Deutschland GmbH (ExxonMobil Central Europe Holding GmbH, 100%)	Refineries at Karlsruhe and Ingolstadt	245,000 °
Do.		do. Ruhr Oel GmbH (Petróleos de Venezuela S.A., 50%, and BP Gelsenkirchen GmbH, 50%)	Refinery at Gelsenkirchen	216,000 °
Do.		do. BAYERNOIL Raffineriegesellschaft mbH (OMV AG, 45%; Ruhr Oel GmbH, 25%; AGIP Deutschland GmbH, 20%; Deutsche BP AG, 10%)	Refinery at Neustadt-Donau	145,000 °
Platinum-group metals, refined		Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Primary smelter and refinery and secondary plant at Hamburg	NA
Do.		do. Heraeus Precious Metals GmbH & Co. KG	Primary smelter and refinery and secondary plant at Hanau	NA
Do.		do. Umicore AG & Co. KG (Umicore S.A., 100%)	Plant at Hanau	NA
Do.		do. Allgemeine Gold- und Silberscheideanstalt AG (Umicore S.A., 91.21%, and other, 8.79%)	Plant at Pforzheim	NA
Potash, K ₂ O content		K+S Kali GmbH (K+S Group, 100%)	Mines at Hattorf, Neuhoef-Ellers, Niedersachsen-Riedel, Sigmundshall, Unterbreizbach, Wintershall, and Zielitz	6,000
Salt (evaporated and rock)		ESCO - European Salt Company GmbH & Co. KG [K+S Salz GmbH (K+S Aktiengesellschaft, 100%)]	Bernburg Mine and evaporated salt works; Borth Mine and evaporated salt works near Wesel; Braunschweig-Lüneburg Mine near Helmstedt	5,300 °
Do.		do. Wacker Chemie AG	Stetten rock salt mine near Haigerloch	500
Do.		do. Südsalz GmbH (Südwestdeutsche Salzwerke AG, 90%, and Vereinigte Schweizerische Rheinsalinen AG, 10%)	Rock salt mine at Berchtesgaden and evaporated salt works at Bad Reichenhall, Bavaria; and mine at Heilbronn and evaporated salt works at Bad Friedrichshall-Kochendorf, Heilbronn district, State of Baden-Württemberg	5,000
Do.		do. Saline Luisenhall GmbH	Evaporated salt works at Goettingen	NA

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Selenium, metal	metric tons	Retorte GmbH (Aurubis AG, 100%)	Plant at Röthenbach	2,500
Sand, industrial, silica sand		Quarzwerke GmbH	Mines and plants at Frechen, Gambach, Haltern, Hohenbocka, and Weferlingen	4,500 ^e
Do.		Amberger Kaolinwerke GmbH—Eduard Kick GmbH & Co. KG (Quarzwerke GmbH, 100%)	Mines and plants at Hirschau and Schnaittenbach	850
Siliceous earth, silica		Hoffmann Mineral and Co. KG	Mine and plant near Neuburg	55
Silicon, metal	metric tons	RW Silicium GmbH (Advanced Metallurgical Group N.V., 100%)	Four electric arc furnaces in plant at Pocking	32,000
Silver, metal		Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Primary smelter and refinery and secondary plant at Hamburg	NA
Do.	metric tons	Hüttenwerke Kayser AG (Aurubis AG, 100%)	Secondary plant and refinery at Luenen	1,300 ^e
Do.	do.	Berzelius Metall GmbH [Eco-Bat Technologies Ltd. (Quexco Inc., 100%), 100%]	Secondary (lead) smelters at Braubach am Rhein and Freiberg-Saxony; primary (lead) smelter at Stolberg	400 ^e
Do.		Heraeus Precious Metals GmbH & Co. KG	Primary smelter and refinery and secondary plant at Hanau	NA
Do.		Umicore AG & Co. KG (Umicore S.A., 100%)	Plant at Hanau	NA
Do.		Allgemeine Gold- und Silberscheideanstalt AG (Umicore S.A., 91.21%, and other, 8.79%)	Plant at Pforzheim	NA
Soda ash		Solvay S.A.	Plant at Rheinberg	NA
Stone:				
Dolomite		Rheinkalk Hagen-Halden GmbH & Co KG (Lhoist NV, 100%)	Steinbruch-Donnerkuhle quarry and Hönnetal plant at Menden, and plant at Hagen-Halden	7,500
Dolomite and lime		Geomin Erzgebirgische Kalkwerke GmbH	Underground mines at Hermsdorf and Lengenfeld	NA
Limestone		Harz-Kalk GmbH	Quarry at Ruebeland	2,000 ^e
Do.		Kalkwerk Bad Kösen GmbH	Quarry at Bad Koesen	2,000 ^e
Do.		Fels-Werke GmbH	Quarry at Kaltes Tal	2,000 ^e
Do.		Schäfer Kalk GmbH & Co KG	Plants at Hahnstaetten, Steeden, Stromberg, and Grevenerbrueck	3,000
Do.		Rheinkalk GmbH & Co KG (Lhoist NV, 100%)	Flandersbach quarry and plant at Wuelfrath, and lime plant at Menden-Hoennetal	7,500
Steel, crude		ThyssenKrupp Steel AG (ThyssenKrupp AG, 100%)	Bruckhausen and Beeckerwerth plants, near Duisburg	12,000
Do.		Salzgitter AG	Plants at Peine and Salzgitter	6,400 ^e
Do.		Hüttenwerke Krupp Mannesmann GmbH (ThyssenKrupp Steel AG, 50%; Salzgitter AG, 30%; Vallourec & Mannesmann Tubes SA, 20%)	Plant at Duisburg-Huckingen	5,600
Do.		ArcelorMittal Bremen GmbH (ArcelorMittal S.A., 100%)	Plant at Bremen	4,000
Do.		Saarstahl AG (Struktur-Holding-Stahl GmbH & Co KG, 74.9%, and Dillinger Hüttenwerke AG, 25.1%)	Plants at Burbach, Neunkirchen, and Voelklingen	3,000
Do.		AG der Dillinger Hüttenwerke (Saarstahl AG, 33.75%; ArcelorMittal, 30.08%; Struktur-Holding-Stahl GmbH & Co KG, 26.17%; Dillinger Hütte und Saarstahl mbH, 10%)	Plant at Dillingen	2,800
Do.		ArcelorMittal Eisenhüttenstadt GmbH (ArcelorMittal, 100%)	Plant at Eisenhuettenstadt	2,400
Do.		Badische Stahlwerke GmbH	Plant at Kehl	2,300 ^e
Do.		Brandenburger Elektrostahlwerk GmbH (RIVA FIRE S.p.A, 100%)	Plant at Brandenburg	1,700 ^e
Do.		Outokumpu Norosta GmbH (Outokumpu oyj 100%)	Plants at Bochum and Krefeld	1,600 ^e
Do.		ArcelorMittal Ruhrort GmbH (ArcelorMittal, 100%)	Plant at Duisburg	1,500 ^e
Do.		Georgsmarienhütte GmbH	Plants at Bous, Georgsmarienhütte, and Groeditz	1,300 ^e
Do.		Stahlwerk Thüringen GmbH (Alfonso Gallardo S.A., 100%)	Plant at Unterwellenborn	1,100
Do.		Deutsche Edelstahlwerke GmbH	Plants at Siegen and Witten	1,100 ^e
Do.		Lech-Stahlwerke GmbH (Max Aicher GmbH & Co. KG, 100%)	Plant at Herbertshofen	1,100 ^e
Do.		ArcelorMittal Hamburg GmbH (ArcelorMittal, 100%)	Plant at Hamburg	1,100 ^e

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2015¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel, crude—Continued	Hennigsdorfer Elektrostahlwerk GmbH (RIVA FIRE S.p.A, 100%)	Plant at Hennigsdorf	1,000 ^e
Do.	Elbe-Stahlwerke Feralpi GmbH (Feralpi Siderurgica S.p.A., 100%)	Plant at Riesa	950 ^e
Strontium carbonate	Solvay & CPC Barium Strontium GmbH & Co. KG (Solvay S.A., 75%, and Chemical Products Corp., 25%)	Plant at Bad Hoenningen, near Hannover	95
Sulfur	Norddeutsche Erdgas-Aufbereitungs GmbH NEAG [BEB Erdgas und Erdöl GmbH (ExxonMobil Production Deutschland GmbH, 50%, and Royal Dutch Shell plc, 50%), 100%]	Natural gas desulfurization plants at Grossenkneten and Voigtei (near Nienburg-Weser), Lower Saxony	600
Sulfuric acid	Aurubis AG (Salzgitter AG, 25%; institutional investors, 45%; other private investors, 30%)	Acid plant, part of primary copper production facilities at Hamburg	2,500 ^e
Do.	BASF SE	Plant at Ludwigshafen	NA
Do.	Berzelius Metall GmbH [Eco-Bat Technologies Ltd. (Quexco Inc., 100%), 100%]	Plant near primary lead smelter at Stolberg	NA
Do.	Evonik Degussa GmbH (Evonik Industries AG, 100%)	Plant at Worms	NA
Do.	Lanxess AG	Plant at Leverkusen	NA
Do.	Weser Metall GmbH (Recylex S.A., 100%)	Acid plant near primary lead smelter and refinery at Nordenham	55
Do.	Metaleurop Zinkbetrieb GmbH & Co. KG (Glencore plc, 100%)	Acid plant near primary zinc smelter and refinery at Nordenham	NA
Tin alloys, tinplate	ThyssenKrupp Rasselstein GmbH	Plant at Andernach	NA
Zeolites	Hans G. Hauri Mineralstoffwerk GmbH	Mine and plant at Boetzingen, near Freiburg	NA
Zinc, metal	Metaleurop Zinkbetrieb GmbH & Co. KG (Glencore plc, 100%)	Nordenham Smelter, near Bremerhaven	160
Zinc, oxides	Harz Metall GmbH (Recylex S.A., 100%)	Waëlz rotary kilns at Oker-Goslar	80 ^e
Do.	Norzinco GmbH (Recylex S.A., 100%)	Secondary plant at Harlingerode	20
Zinc, powder	do.	do.	5

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

¹Table includes data available through February 27, 2015.

²In addition to producing arsenic as a byproduct of chemical manufacturing and gallium as a byproduct of aluminum production, PPM Pure Metals GmbH produced small quantities of germanium as a byproduct of processing imported ores and concentrates and small quantities of indium and tellurium as byproducts of zinc metal production by PPM's parent company, Recylex S.A.