



2013 Minerals Yearbook

GERMANY

THE MINERAL INDUSTRY OF GERMANY

By Alberto Alexander Perez

In 2013, Germany was estimated to have been the second-ranked producer of refined selenium in the world (and was estimated to have accounted for about 30% of global production), the 3d-ranked producer of kaolin (12.2%) and refined lead (4%), the 11th-ranked producer of salt (4.5%) and bentonite (3.1%), and the 3d-ranked producer of potash (9.3%) (table 1; Anderson, 2015; Bolen, 2015; Guberman, 2015; Jasinski, 2015; Virta, 2015).

In 2013, Germany was a leading global exporter of industrial goods and services (including processed and fabricated mineral products). The country's mineral industry, however, depended heavily on imported mineral raw materials. Germany was the leading producer of lignite in the world, and essentially 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. Germany was also heavily reliant on imports of numerous industrial minerals and many refined metals (tables 1, 3, 4; Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 12–32, 43–44, 109; Bundesministerium für Wirtschaft und Technologie, 2013, p. 5–12, 29–34).

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 European Union (EU). Germany's position in the global mineral economy was predominantly that of a major consumer and processor of minerals, and this role was continuing to evolve as emerging economies were growing and competition for mineral raw materials was increasing (Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 6–26).

Minerals in the National Economy

Germany's nominal gross domestic product (GDP) in 2013 was \$3,593 billion, a 3.4% increase from that of 2012 and in 2012 (the latest year for which data were available) the total value of Germany's industrial output (including the value of output by the country's mineral industry, but not that of the construction sector) accounted for 23.3% (\$793 billion¹) of the

¹Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of about EUR0.7187=US\$1.00 for 2011 and EUR0.7775=US\$1.00 for 2012. All values are nominal, at current prices, unless otherwise stated.

GDP compared with 23.4% (\$845 billion) in 2011. The value of marketed production by the country's metal-processing sector (up to the foundry stage) accounted for about 3.4% (\$117 billion) of the GDP compared with about 3.7% (about \$135 billion) in 2011, and that of the minerals extraction sector (excluding coal) accounted for about 0.24% (about \$8 billion) of the GDP compared with 0.24% (\$8.7 billion) in 2011. Within the metal-processing sector, the value of production of the nonferrous-metal-processing sector was \$65 billion in 2012, which was 8% lower than in 2011; about \$28 billion of the production by the nonferrous-metal-processing sector was exported, and two-thirds of that went to other countries within the euro area (Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 11; International Monetary Fund, 2013; Statistisches Bundesamt, 2013b, p. 8, 11; 2013c).

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 anhydrite and gypsum, 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. In addition, the organization of the Federal Mines Inspectorate was not determined 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, 2013, p. 13–15; Bundesministerium für Wirtschaft und Technologie, 2013, p. 35–46).

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), had been approved on July 13, 1990, and revised through slight changes to Article 8 (BGBl. IS. 2819) on December 9, 2006. The EIA Act also incorporated 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 and operated (monitored) (Bundesministerium der Justiz, 2007, p. 30; Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 13–15; Bundesministerium für Wirtschaft und Technologie, 2013, p. 35–46).

Production

Data on mineral production are in table 1. The production level of most metals and industrial minerals in Germany in 2013 remained about the same or decreased slightly compared with levels of production in 2012. An exception was the increase of about 32% in the production of rock salt and salt brines. There was also a decrease of 48% in the production of uranium concentrates. The only increases of greater than 10% in the year-on-year production of other industrial minerals during this timeframe were a 20% increase in the production of primary aluminum, a 17% increase in the production of phosphoric acid reported in P_2O_5 content, and an increase of 13% in primary lead production. The commodities that showed decreases in production of more than 10% were primary smelter copper production (which decreased by 16.2%), secondary lead production (14.1%), barite (13.5%), and secondary zinc (13.3%). Other than for salt, information was not available concerning the main causes of the significant changes in Germany's production of these individual industrial mineral commodities (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 42–45; Bundesministerium für Wirtschaft und Technologie, 2013, p. 19–29; K+S Aktiengesellschaft, 2013, p. 88, 92–94, 119).

Structure of the Mineral Industry

Table 2 lists the major mineral industry facilities in Germany in 2013. The last metal mines—other than those that produce low-grade iron ore used as a construction additive—closed in 1992. Since that time, there has been no production of metallic ores with enough metal content for metallurgical use in Germany; however, many of the leading companies in the global metal-processing sector owned and operated significant facilities in Germany. ThyssenKrupp AG (based in Duisburg) 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) was the second-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 third-ranked producer of crude steel in Germany and the leading producer in the world. Aurubis AG in which Salzgitter held a 25% interest, was the leading producer of refined copper in Germany and the EU. Aurubis was also the second-ranked producer of copper cathodes in the world and the leading producer of secondary refined copper. Glencore Xstrata 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; the company owned the single

largest primary aluminum smelter in Germany (the Rheinwerk primary smelter at Neuss). Berzelius Metall GmbH (based in Stolberg) was the leading producer of primary lead in the country (table 2; Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 35–45; Stahlinstitut VDEh and Wirtschaftsvereinigung Stahl, 2013; World Steel Association, 2014b, p. 10).

Mineral Trade

In 2013, the tonnage of Germany's imports of mineral fuels increased to 243.2 million metric tons (Mt) from about 223 Mt in 2012; that of metallic raw materials (including mineral ores and concentrates and other metallic raw materials, such as scrap metal) increased to 63.5 Mt from 62.4 Mt in 2012; and that of industrial mineral raw materials decreased to 24.8 Mt from 26 Mt in 2012. Of the country's total volume of imports of mineral fuels in 2013, natural gas imports accounted for 40.4%, and imports of crude oil, for 37.6%. The remainder was almost entirely accounted for by imports of various types of coal, led by (in order of decreasing tonnage) steam coal, coking coal, and coke. Of the total volume of imports of metallic raw materials, imports of ores and concentrates accounted for 70%, of which imports of iron ore accounted for about 89%; scrap metal (all types), 15.6% (of which iron and steel scrap accounted for the majority); and intermediate processed metals and refined metals, slightly less than 10%. Imports of intermediate processed metals were led by imports of alumina and ferroalloys, and those of refined metals were led by aluminum and refined copper. By far the leading industrial mineral (raw material) imports were (in decreasing order of tonnage) gravel and stone, pebbles, which accounted for about 44.2% of the total; limestone and cement manufacturing products accounted for 15.5% of the total (Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 17–20).

According to Germany's Federal Statistics Office (DESTATIS), the country's estimated mineral trade balance in 2012 (the latest year for which data were available) for all sectors of the mineral industry (including trade in intermediate mineral products, such as cement) was $-\$151$ billion compared with a revised negative balance of $-\$158$ billion in 2011 and $-\$118$ billion in 2010. In 2012, Germany's mineral trade deficit decreased slightly compared with that of 2011 almost entirely because of a decrease in the total value of the country's mineral imports (to $\$234$ billion from a revised value of about $\$241$ billion). The decrease in the trade balance was also affected by the slight decrease in the total value of its mineral exports (to about $\$82.7$ billion from a revised value of $\$83$ billion). The highest value mineral imports were crude petroleum and natural gas, and the highest value nonfuel mineral import was iron ore. The highest mineral export was petroleum refinery products, the highest value nonfuel mineral export was gold for commercial or industrial use, and the highest value nonprecious metal export was iron and steel scrap. Germany's leading suppliers (by value) of mineral imports were Russia ($\$52$ billion), Norway ($\$27$ billion), and the Netherlands ($\$23$ billion), mainly because these countries were significant sources of mineral fuels. Despite being the leading source of imported iron ore for Germany, Brazil ranked 10th as a supplier of mineral imports (overall), with a total value of about $\$4.5$ billion (tables 3, 4;

Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 17–21; International Monetary Fund, 2013; Statistisches Bundesamt, 2013a, p. 74–79).

Commodity Review

Metals

Iron and Steel.—In 2013, the level of production of crude steel in Germany remained about the same as in 2012 at 42.645 million metric tons (mt), as did pig iron at 27.177 Mt (table 1; World Steel Association, 2014a, p. 1).

Mineral Fuels

Coal.—The Government's program to eliminate the hard coal subsidy by the end of 2018 resulted in the closure of the Saar Mine on July 1, 2012, so there was no longer any production in Saarland by the beginning of 2013. The West Mine (in the Ruhr coalfields) closed at the end of 2012, and the last of Germany's hard coal mines was expected to close in 2018. An economic consequence of decreasing production of hard coal domestically was that Germany would become more dependent on imported coke and coking coal from hard coal mines outside the country, and this would subject sectors of the mineral industry, such as steel manufacturing, and other sectors of the economy to greater cost uncertainty (Bundesanstalt für Geowissenschaften und Rohstoffe, 2013, p. 8, 32; Bundesministerium für Wirtschaft und Technologie, 2013, p. 11–12).

Outlook

In order 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), it is projected that about 38% of the electricity generated in the country in 2030 will come from renewable energy resources (compared with 24% in 2013, according to preliminary data); 23% from lignite (25.4% in 2013); about 20% from natural gas (about 10% in 2013); about 4% from heating oil, pumped storage, and other fuels (5% in 2013); and 0% from nuclear power (about 15.4% in 2013). In energy equivalents, the direct implications of the realization of this scenario could be that Germany would consume about 50% more natural gas in the generation of electricity in 2030 than in 2013, about 7% less lignite, and about 19% less hard coal. 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 by 2030 (as expected). In addition, almost all the increase in natural gas consumption would have to be satisfied through increased imports of natural gas. This projected 2030 energy mix would require an approximately 96% increase in electrical power generated from renewable energy resources compared with that of 2013. Indirect implications of increased consumption of renewable energy resources for the mineral industry could include increases in consumption of minerals used in wind turbines (including rare-earth elements), 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; Bundesministerium für Wirtschaft und Technologie, 2013, p. 4–5, 8, 16–18, 38, 49–51).

Future levels of production of fertilizer materials (such as potash) in Germany are expected to vary more because of fluctuations in demand outside of Europe than within Europe. Expected increases in the global population and in the level of prosperity in emerging market economies, including those of Latin America and Southeast Asia, are likely to increase food consumption and thus the intensity of land cultivation. Also, expected increases in meat consumption will likely drive the need for animal feed and therefore increase demand for almost all of Germany's fertilizer products even more. Germany is expected to be a leading metal processor in the world and a leading steel manufacturer, for both its industry and for export within the EU and the rest of the world.

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TABLE 1
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

| Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|-------------|----------------------|---------------------|------------------|---------------------|
| METALS | | | | | |
| Aluminum: | | | | | |
| Alumina | 638 | 973 | 950 ^e | 967 | 1,000 ^e |
| Aluminum hydroxide, Al ₂ O ₃ equivalent | 1,154 | 1,485 | 1,405 | 1,364 | 1,360 ^e |
| Metal: | | | | | |
| Primary | 292 | 402 | 432 | 410 | 492 |
| Secondary | 561 | 611 | 634 | 635 | 597 |
| Total ² | 853 | 1,014 | 1,067 | 1,045 | 1,089 |
| Cadmium, metal, refinery ^e | metric tons | 278 | 290 | 300 | 300 |
| Cobalt, matte, including shavings and scrap | do. | 654 | 829 | 671 | 497 |
| 500 ^e | | | | | |
| Copper, metal: | | | | | |
| Smelter: | | | | | |
| Primary | 286 | 379 | 346 | 352 ^r | 295 |
| Secondary | 248 | 212 | 218 | 182 ^r | 169 |
| Total ² | 534 | 591 | 564 | 534 ^r | 464 |
| Refined: | | | | | |
| Primary | 290 | 402 | 401 | 390 | 392 |
| Secondary | 379 | 302 | 308 | 296 | 288 |
| Total ² | 669 | 704 | 709 | 686 | 680 |
| Gallium, crude ^e | metric tons | 20 | 30 | 30 | NA |
| Gold, metal, refined, including secondary | kilograms | 204,766 ³ | 44,100 ^e | 50,682 | 53,476 |
| 53,000 ^e | | | | | |
| Indium, refined ^e | metric tons | 10 | 10 | 10 | NA |
| Iron and steel: | | | | | |
| Ore, run of mine:⁴ | | | | | |
| Gross weight | 364 | 390 | 489 | 448 | 413 |
| Fe content | 38 | 41 | 51 | 47 | 43 |
| Metal: | | | | | |
| Pig iron | 20,104 | 28,560 | 27,943 | 27,046 | 27,177 |
| Direct-reduced iron | 380 | 450 | 380 | 560 | 560 ^e |
| Ferroalloys: | | | | | |
| Ferchromium ^e | metric tons | 13,667 ⁵ | 18,300 | 18,500 | 17,800 |
| Other | do. | 6,336 | 9,200 ^e | 9,985 | 8,248 |
| 8,200 ^e | | | | | |
| Steel, crude | 32,671 | 43,830 | 44,284 | 42,661 | 42,645 |
| Semimanufactures | 29,041 | 36,827 | 37,933 | 36,495 | 36,500 ^e |
| Lead, metal, refined: | | | | | |
| Primary | 105 | 125 | 136 | 134 ^e | 151 |
| Secondary | 286 | 279 | 293 | 290 ^e | 249 |
| Total | 391 | 404 | 429 | 424 ^e | 400 |
| Magnesium, metal including castings | 12 | 15 | 15 | 16 | 16 |
| Platinum-group metals, metal, refined | metric tons | 110 ^e | 100 ^e | 50 | 54 |
| 54 ^e | | | | | |
| Selenium, contained metal ^e | do. | 600 | 650 | 700 | 650 |
| Silicon, metal | do. | 27,620 | 30,105 | 30,134 | 29,000 ^e |
| 28,000 ^r | | | | | |
| Silver, metal, refined, including secondary | do. | 1,616 | 1,768 | 1,886 | 1,753 |
| 1,750 ^e | | | | | |
| Tin, alloys ^e | do. | 5,003 ⁵ | 7,000 | 6,000 | 7,000 |
| 7,000 | | | | | |
| Zinc, metal: | | | | | |
| Primary | 134 | 144 | 142 | 139 ^e | 136 |
| Secondary | 19 | 21 | 28 | 30 ^e | 26 |
| Total | 153 | 165 | 170 | 169 ^e | 162 |
| INDUSTRIAL MINERALS | | | | | |
| Abrasives, manufactured: | | | | | |
| Corundum | 49 | 83 | 90 | 83 | 80 |
| Fused aluminum oxide, crude ^e | 20 | 20 | 20 | 20 | NA |
| Silicon carbide ^e | 20 | 20 | 20 | 20 | NA |
| Aluminum salt slag, Al ₂ O ₃ equivalent ^e | 150 | 200 | 200 | 200 | NA |

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

| Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|---------------------|---------------------|---------------------|---------------------|----------------------|
| INDUSTRIAL MINERALS—Continued | | | | | |
| Barite, marketable (contained BaSO ₄) | 46 | 56 | 55 | 52 | 45 |
| Boron compounds, manufactured, including boric acid and oxide | 130 | 163 | 157 | 149 | 143 |
| Bromine compounds, including oxide ^e metric tons | 985 | 1,500 | 1,600 | 1,600 | NA |
| Cement and clinker: | | | | | |
| Clinker, intended for market | 23,232 | 22,996 | 24,775 | 24,581 | 23,143 |
| Hydraulic | 29,974 ^r | 29,203 ^r | 32,779 ^r | 32,432 | 31,308 |
| Chalk, natural, including ground ^c | 1,322 ^s | 1,350 | 1,400 | 1,450 | NA |
| Clays, natural: | | | | | |
| Bentonite | 326 | 363 | 375 | 366 | 359 |
| Ceramic and refractory clays | 3,711 | 3,978 | 4,027 | 4,045 ^r | 4,183 |
| Of which, fire clay and chamotte | 250 ^e | 246 | 253 | 270 ^e | 270 ^e |
| Kaolin, marketable | 4,514 | 4,560 | 4,899 | 4,399 | 4,290 |
| Other, unspecified | 193 | 198 | 200 ^e | 172 | 140 |
| Dolomite, neither burnt nor sintered | 800 ^e | 792 | 622 | 504 | 500 ^e |
| Feldspar, all uses ⁶ | 3,698 | 5,203 | 5,483 | 5,321 | 5,300 ^e |
| Of which, feldspar for industrial uses ^c | 201 | 203 | 218 | 205 | 200 |
| Fluorspar, acid-grade | 50 | 59 | 66 | 54 | 49 |
| Gypsum and anhydrite: | | | | | |
| Natural | 1,898 | 1,822 | 2,021 | 1,949 | 1,778 |
| Byproduct of flue-gas desulfurization ^c | 6,600 | 6,320 | 6,780 | 7,010 | 7,100 |
| Lime, quicklime, dead-burned dolomite | 5,945 | 6,856 | 7,113 | 6,575 ^r | 6,883 |
| Magnesium compounds, byproduct of potash mining | 811 | 1,310 | 1,348 | 1,372 | 1,365 |
| Mullite, synthetic ^c | 15 | 15 | 15 | 15 | NA |
| Nitrogen, N content of ammonia | 2,363 | 2,677 | 2,821 | 2,823 | 2,757 |
| Peat, horticultural use thousand cubic meters | 8,364 | 7,759 | 7,911 | 8,205 | 8,200 ^e |
| Phosphoric acid, manufactured, P ₂ O ₅ content | 20 | 21 | 20 | 12 | 14 |
| Pigments, iron oxide (including synthetic iron oxide) | 209 | 234 | 223 | 204 | 200 ^e |
| Potash, K ₂ O content: | | | | | |
| Crude | 2,208 | 3,630 | 3,827 | 3,767 | 3,675 |
| Marketable | 1,825 | 3,024 | 3,215 | 3,149 | 3,075 |
| Salt, NaCl content, marketable: | | | | | |
| Evaporated salt, including marine salt | 325 | 322 | 329 | 301 ^r | 297 |
| Industrial brines | 9,798 | 8,752 | 8,066 | 7,515 ^r | 8,073 |
| Rock salt and other brines | 8,816 | 10,602 | 9,048 | 6,840 ^r | 9,026 |
| Total ² | 18,939 | 19,676 | 17,432 | 14,656 ^r | 17,396 |
| Siliceous earth, marketable | 43 | 49 | 53 | 50 | 50 ^e |
| Soda ash (Na ₂ CO ₃), manufactured | 2,291 | 2,539 | 2,668 | 2,627 | 2,548 |
| Stone, sand and gravel: | | | | | |
| Stone, crude: | | | | | |
| Dimension, including partially worked | 380 | 425 | 467 | 477 | 505 |
| Of which, marble and other calcareous stone | 247 | 287 | 314 | 356 | 350 ^e |
| Crushed, not including chalk | 156,752 | 149,463 | 164,487 | 154,020 | 154,000 ^e |
| Dolomite and limestone, not for cement manufacture | 19,000 | 18,000 | 18,400 | 17,600 | 18,800 |
| Gravel, natural: | | | | | |
| Construction gravel | 70,136 | 67,822 | 76,191 | 72,615 | 72,105 |
| Crude, including flint and pebbles | 10,442 | 9,693 | 11,043 | 9,639 | 9,600 ^e |
| Other gravel, including quartzite | NA | NA | NA | NA | NA |
| Sand, natural: | | | | | |
| Construction sand | 66,010 | 63,962 | 72,394 | 67,852 | 66,039 |
| Silica sand, including glass sand and quartz sand | 6,453 | 7,234 | 7,770 | 7,498 | 7,248 |
| Other, including from granite and pegmatite | NA | NA | NA | NA | NA |
| Total, sand and gravel | 153,041 | 148,711 | 167,398 | 157,604 | 154,992 |
| Strontium carbonate, manufactured ^c | 100 | 120 | 130 | 120 | 120 |

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

| Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|---------|---------|------------------|----------------------|----------------------|
| INDUSTRIAL MINERALS—Continued | | | | | |
| Sulfur: | | | | | |
| Marketable | 927 | 832 | 875 | 798 | 755 |
| Byproduct: | | | | | |
| Metallurgy | 2,137 | 2,266 | 2,394 | 2,373 | 2,400 ^c |
| Natural gas and petroleum | 1,623 | 1,447 | 1,514 | 1,445 | 1,400 ^c |
| Total | 3,760 | 3,713 | 3,908 | 3,818 | 3,800 ^c |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Carbon black | 494 | 684 | 908 | 923 | 920 ^c |
| Coal: | | | | | |
| Anthracite and bituminous, marketable | 13,766 | 12,900 | 12,059 | 11,558 ^f | 8,260 |
| Lignite | 169,857 | 169,403 | 176,502 | 185,432 | 182,696 |
| Coke: | | | | | |
| Of anthracite and bituminous coal | 6,771 | 8,241 | 7,990 | 8,050 | 8,273 |
| Of lignite | 153 | 176 | 171 | 170 | 161 |
| Fuel briquets of lignite | 1,959 | 2,024 | 2,136 | 1,910 | 1,951 |
| Gas: | | | | | |
| Manufactured: | | | | | |
| Blast furnace ^e million cubic meters | 6 | 9 | 9 | 9 | 9 |
| Coke oven do. | 718 | 951 | 922 ^e | 929 ^e | 920 ^e |
| Total ^e do. | 724 | 960 | 931 | 938 | 929 |
| Natural: | | | | | |
| Associated (byproduct of crude petroleum) do. | 90 | 81 | 80 | 78 | 73 |
| Gross (nonassociated) do. | 15,464 | 13,584 | 12,873 | 11,706 | 10,678 |
| Marketable (dry or net) do. | 14,380 | 12,571 | 11,799 | 10,660 | 9,693 |
| Petroleum: ⁷ | | | | | |
| Crude thousand 42-gallon barrels | 20,500 | 18,400 | 19,600 | 19,200 | 19,387 |
| Refinery products: | | | | | |
| Liquefied petroleum gas do. | 33,490 | 33,180 | 32,860 | 33,010 | 33,280 ^p |
| Distillate fuel oil do. | 360,000 | 340,000 | 330,000 | 345,100 ^f | 338,200 ^p |
| Residual fuel oil do. | 55,600 | 41,600 | 42,400 | 44,200 | 39,290 ^p |
| Gasoline, including aviation do. | 200,000 | 180,000 | 180,000 | 173,000 ^f | 168,300 ^p |
| Kerosene and jet fuel do. | 35,200 | 37,400 | 38,100 | 40,700 ^f | 37,100 ^p |
| Naphtha do. | 75,000 | 72,000 | 70,000 | 70,000 | 67,400 ^p |
| Refinery gas do. | 44,500 | 44,500 | 45,100 | 44,000 | 43,600 ^p |
| Bitumen, bituminous mixtures, and other residues do. | 34,300 | 32,800 | 34,600 | 33,000 | 32,000 ^p |
| Lubricants and miscellaneous oils do. | 16,000 | 18,000 | 17,000 | 17,000 | 17,000 ^p |
| Petroleum coke do. | 10,900 | 11,500 | 10,100 | 9,970 | 10,620 ^p |
| Mineral jelly, waxes, and paraffins do. | 800 | 900 | 900 | 1,000 | 990 ^p |
| Other do. | 6,040 | 8,630 | 6,590 | 8,330 | 8,000 ^p |
| Total ^e do. | 872,000 | 821,000 | 808,000 | 811,000 | 796,000 ^p |
| Uranium concentrate, U ₃ O ₈ content | -- | 9 | 60 | 52 ^f | 27 |

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^pPreliminary. ^fRevised. do. Ditto.

NA Not available. -- Zero.

¹Table includes data available through February 27, 2015.

²Data may not add to totals shown.

³Could include production in 2008.

⁴Iron ore is used domestically as an additive in cement and other construction materials but is of too low a grade to be used in the steel industry.

⁵Reported figure.

⁶All uses include use as gravel for road construction, and industrial uses include uses in the manufacturing of ceramics.

⁷All 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 2013¹

(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: Ertfwerk at Grevenbroich, Innwerk at Toeing am Inn, and Neckarwerk at Deizisau | 320 | |
| Do. | TRIMET Aluminium AG | Primary smelter at Essen-Borbeck | 175 ^c | |
| Do. | do. | Recycling plant and secondary smelter at Gelsenkirchen | 160 ^c | |
| 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 | |
| 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. | Stollberg plant at Oberhausen | 200 ^c | |
| 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 Xstrata plc, 100%) | Nordenham Smelter, near Bremerhaven | 160 | |
| Secondary | Accurec Recycling GmbH (I-met GmbH, 100%) | Battery recycling plant at Mülheim 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 2013¹

(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 Koenigs 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 (Holcim Ltd., 88.9%, and other private, 11.1%) | HANSA plant at Bremen, plants at Laegerdorf and Rostock, and the Höver plant at Sehnde | 3,600 |
| Do. | Lafarge Zement GmbH (Lafarge S.A., 100%) | Plants at Kall-Soetenich, Karsdorf, and Walzbachtal | 3,400 |
| Do. | Holcim (Baden-Württemberg) AG (Holcim 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 |
| Clays, including ball, ceramic, kaolinitic, and refractory clays | 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, Müllenbach 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, Rheinland-Pfalz | 30 |
| Coal, anthracite and bituminous | 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 |
| 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 Duisburg-Huckingen steel complex | 1,100 |

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|------------------------------|---|--|------------------|
| 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 |
| 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 |
| 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 Langelshiem | 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. | 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 |
| 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 Stadtdoldendorf, and plants at Osterode, Spremberg, and Witzenhausen | 150 |
| Do. | Gyproc GmbH (Etex Group S.A., 80%, and Lafarge 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 (Quarzwerte 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/Sachsen | 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 |
| Lignite | RWE Power AG (RWE Aktiengesellschaft, 100%) | Open pit mines in Rhenish mining area: Bergheim, Garzweiler, Inden, and Hambach | 105,000 |
| Do. | Vattenfall Europe Mining AG | Jänschwalde-Cottbus-Nord, Nochten, and Welzow-Mines, Lausatian mining area | 60,000 |

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|--------------------------------|----------------------------|---|--|----------------------|
| Lignite—Continued | | Mitteldeutsche Braunkohlengesellschaft AG | Profen and Vereinigtes Schleenhain Mines | 25,000 |
| Limestone | | Harz-Kalk GmbH | Quarry at Ruebeland | 2,000 ^e |
| Do. | | Kalkwerke Bad Kösen GmbH | Quarry at Bad Kösen | 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 Grevenbrueck | 3,000 |
| Do. | | Rheinkalk GmbH & Co KG (Lhoist NV, 100%) | Flandersbach quarry and plant at Wuelfrath, and lime plant at Menden-Hoennetal | 7,500 |
| 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 |
| 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 ^e |
| Do. | do. | RWE-Dea AG (RWE Power AG, 100%) | Bötersen, Hemsbünde, Völkersen, and smaller fields in Lower Saxony; Inzenham-West Field, Bavaria | 3,000 ^e |
| 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 ^e |
| Do. | do. | Wintershall Holding AG (BASF AG, 100%) | A6/B4 Blocks offshore Schleswig Holstein; smaller fields in Lower Saxony | 1,200 ^e |
| Do. | do. | EEG-Erdgas Erdöl GmbH (GDF Suez S.A., 100%) | Muehlhausen and other fields in Thüringen | 50 ^e |
| 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/B4 Blocks offshore Schleswig Holstein; Aitingen field, Bavaria; Emlichheim field, Lower Saxony; and smaller fields in Lower Saxony and Rheinland-Pfalz | 2,000 ^e |
| 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 ^e |
| Do. | do. | Mobil Erdgas-Erdöl GmbH (Exxon Mobil Corp., 100%) | Barenburg, Ruehme, and Lueben fields, Lower Saxony; smaller fields in the States of Lower Saxony and Rheinland-Pfalz | 1,800 ^e |
| Do. | do. | BEB Erdgas und Erdöl GmbH (Exxon Mobil Corp., 50%, and Royal Dutch Shell plc, 50%) | Georgsdorf, Meppen, and Ruehlmoor fields, west of the Ems River (Emsland), Lower Saxony | 3,000 ^e |
| Refined | do. | Deutsche Shell AG | Refineries at Godorf, Hamburg, and Grasbrook | 256,000 ^e |
| Do. | do. | Raffinerie Heide GmbH (Klesch & Co. SA, 100%) | Refinery near Heide, State of Schleswig Holstein | 35,000 ^e |
| Do. | do. | Esso Deutschland GmbH (ExxonMobil Central Europe Holding GmbH, 100%) | Refineries at Karlsruhe and Ingolstadt | 245,000 ^e |
| Do. | do. | Ruhr Oel GmbH (Petróleos de Venezuela S.A., 50%, and BP Gelsenkirchen GmbH, 50%) | Refinery at Gelsenkirchen | 215,500 ^e |
| 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 ^e |
| 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. | | 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 |

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|--|---|---|--------------------|
| Platinum-group metals, refined —Continued | 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 Aktiengesellschaft, 100%) | Mines at Hattorf, Neuhoof-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 ^e |
| Do. | Wacker Chemie AG | Stetten rock salt mine near Haigerloch | 500 |
| 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. | Saline Luisenhall GmbH | Evaporated salt works at Göttingen | NA |
| Selenium, metal metric tons | Retorte GmbH (Aurubis AG, 100%) | Plant at Röthenbach | 2,500 |
| Silica sand (industrial sand) | Quarzwerte GmbH | Mines and plants at Frechen, Gambach, Haltern, Hohenbocka, and Weferlingen | 4,500 ^e |
| Do. | Amberger Kaolinwerke GmbH—Eduard Kick GmbH & Co. KG (Quarzwerte 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/Sachsen; 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 |
| 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, 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%; other, 4.72%) | Plant at Dillingen | 2,800 |
| Do. | ArcelorMittal Eisenhüttenstadt GmbH (ArcelorMittal, 100%) | Plant at Eisenhüttenstadt | 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 |

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|------------------------|--|---|--------------------|
| Steel, crude—Continued | 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 |
| Do. | 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 Hoeninggen, 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 Xstrata 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 Xstrata 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.

¹Includes 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 produces 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.