



2010 Minerals Yearbook

GERMANY

THE MINERAL INDUSTRY OF GERMANY

By Steven T. Anderson

In 2010, 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. Combustion of lignite accounted for 10.8% of total primary energy consumption in the country. Germany was dependent on imports of other mineral fuels for most of the remainder of its primary energy consumption, and combustion of petroleum and petroleum refinery products accounted for 33.3% of total primary energy consumption in Germany; that of natural gas, 21.9%; and that of bituminous and anthracite (hard) coal, 12.2%. Nuclear energy accounted for 10.9% of total primary energy consumption; renewable energy resources, such as wind power, accounted for 9.4%; and other energy sources, including imported electricity, accounted for 1.5%. 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 (Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 15–35, 44, 157; Bundesministerium für Wirtschaft und Technologie, 2011, p. 5–12, 28–30).

In 2010, the country was estimated to have been the second ranked producer of refined selenium in the world; it was the third ranked producer of kaolin (and was estimated to have accounted for 13.6% of global production), salt (6.8%), and refined lead (4.2%); Germany was estimated to be the fourth ranked producer of sulfur (all forms), and was the fifth ranked producer of potash (9.0%) and bentonite (3.3%), the sixth ranked producer of refined copper (3.7%), and the seventh ranked producer of crude steel (3.1%). Additionally in 2010, Germany either produced or was estimated to have produced at least 1% of the world's output of primary aluminum, barite, refined cadmium, cement, feldspar, gallium, natural gypsum, indium, crude iron, iron oxide pigments (including synthetic iron oxide), lime, magnesium compounds (as byproducts of potash mining), nitrogen (ammonia), industrial quartz, silica (industrial sand and gravel), and zinc metal. Germany's domestic mineral processing sector was estimated to have accounted for at least 5% of the world's total production capacity of alumina, fused aluminum oxide (abrasive), graphite, magnesium metal (secondary), rhenium metal (byproduct), strontium compounds, and titanium dioxide pigments (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 17–18, 43–46, 114–116, 122–127, 130–133, 138–145, 154–156; U.S. Geological Survey, 2011, p. 6, 15, 17, 25, 35, 37, 39, 45, 55, 59, 71, 75, 79, 87, 93, 97, 113, 123, 135, 139, 143, 157, 159, 173).

Minerals in the National Economy

In 2010, 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 about 21% (about \$706 billion) of the gross domestic product (GDP). In 2009 [the latest year for which detailed information was available from the Federal Statistical Office of Germany (DESTATIS)], the total value of output by the country's metals processing sector (up to the foundry stage) accounted for about 3% (\$101 billion¹) of the GDP, and the minerals extraction sector [mining (including coal mining), quarrying, and the extraction of crude petroleum and natural gas] reportedly accounted for about 0.5% (about \$15 billion) of the GDP. According to Germany's Federal Institute for Geosciences and Natural Resources (BGR), the value of the country's total production of mineral raw materials and fuels was about \$23 billion in 2010 compared with about \$24 billion in 2009, which would account for about 0.7% of the GDP during each year, but this BGR figure appears to include the value of production of some mineral products that are not included in the DESTATIS series (Bundesanstalt für Geowissenschaften und Rohstoffe, 2010, p. 21, 28, 35–39, 83; 2011, p. 15–18, 47; International Monetary Fund, 2011; Statistisches Bundesamt, 2012, p. 371, 619, 625, 631–633, 637).

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 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 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.

During 2010, the Government program to phase out the subsidy for the mining of hard coal was ongoing and continued to adhere to a schedule to completely eliminate the subsidy by the end of 2018. In 2010, the total amount of this subsidy was scheduled to decrease to about 2 billion euros (about \$2.7 billion)

¹Where necessary, values have been converted from euro area euros (€) to U.S. dollars (US\$) at an annual average exchange rate of about €0.6795=US\$1.00 for 2008, €0.718=US\$1.00 for 2009, and about €0.7536=US\$1.00 for 2010. All values are nominal, at current prices, unless otherwise stated.

compared with 2.2 billion euros (about \$3.1 billion) in 2009 and 2.4 billion euros (\$3.5 billion) in 2008, and the subsidy was scheduled to be further reduced to 1.8 billion euros in 2012 (Bundesministerium der Justiz, 2007, p. 1; Bundesministerium für Wirtschaft und Technologie, 2011, p. 9, 34–45; Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 17–19, 32–34; Gesamtverbands Steinkohle e.V., 2011, p. 12).

Production

Data on mineral production are in table 1. Production of most minerals and mineral-based products in Germany increased compared with that of 2009 mostly in response to increases in demand domestically and in the leading destination markets for Germany's mineral exports (especially in Europe). In 2010, a notable exception to the widespread recovery of production in this sector were decreases in the production of many secondary metals either in absolute terms or as shares in total production. For example, the share of secondary aluminum production in the total production of aluminum metal was 60% compared with about 66% in 2009, that of secondary smelter copper in total smelter copper production was 36% compared with about 46%, that of secondary refined copper in total production of refined copper was 43% compared with about 57%, and that of secondary refined lead in total production of refined lead was 69% compared with 73% in 2009. These relative decreases in secondary production of base metals in the country could have been primarily owing to a decrease in the availability (and an increase in the cost) of scrap metal compared with that of imported ores and concentrates, but accurate information concerning the changes, relative impacts, or importance of varying limiting factors or cost considerations (such as the cost of labor, energy, updates in technology, and so forth) for the secondary metals production sector in Germany was not available. In the case of aluminum, the share of secondary production in 2009 was substantially higher than the 54% share of secondary aluminum production in the total production of aluminum metal in 2008, possibly owing to attempts by aluminum producers to cut costs but still keep production facilities operating at least at some fraction of their full-scale capacity during the period of depressed demand from mid-2008 through most of 2009. In addition to the added cost of importing alumina and bauxite, primary aluminum costs much more to produce than secondary, primarily owing to the greater amounts of electrical power required (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 15, 19–25, 38–41).

According to the BGR, the most valuable minerals produced in Germany in 2010 were, in decreasing order of value of production, lignite (\$9.0 billion); natural gas (about \$3.9 billion); construction sand and gravel (\$1.9 billion); crushed stone, including chalk (\$1.6 billion); hard coal (about \$1.5 billion); crude petroleum (about \$1.2 billion); potash (\$1.0 billion); rock salt and industrial brines, NaCl content (\$800 million); kaolin (\$613 million); dolomite, limestone and marble (about \$598 million); ceramic and refractory clays (about \$458 million); and silica sand (\$248 million). Of these minerals commodities, those for which production increased by 10% or more compared with that of 2009 were marketable potash, by

about 66%; rock salt and other brines, by about 20%; and silica sand, by 12%. Those for which production decreased by 10% or more were natural gas, by about 16%, and crude petroleum, by 10%. The decrease in production of natural gas was owing to the depletion of various gasfields, and that of crude petroleum was mostly owing to decreased production at the Mittelplate-Dieksand oilfield (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2010, p. 35–38; 2011, p. 18, 43–45; Landesamt für Bergbau, Energie und Geologie, 2011, p. 10).

Although Germany's level of marketable potash production in 2010 was still 8% lower than in 2008 and 17% lower than in 2007, the decreased use of fertilizers by the country's major customers for potash in 2009 resulted in increased fertilizer demand to replenish soils in 2010, and this, combined with increases in global grain prices during 2010, increased the demand for (and Germany's production of) potash. The country's production of salt increased in response to increased demand for deicing salt compounds during the relatively severe winter weather both at the beginning and end of 2010. In addition to the increase in the country's production of silica sand, its production of siliceous earth increased by about 16% compared with that of 2009. In 2010, about 85% of the country's production of silica sand was exported to Belgium and Luxembourg, but further information concerning the main causes of any changes in demand for silica or reliable information about the exact source(s) of the increased production of silica in Germany was not available (table 1; Bundesanstalt für Geowissenschaften und Rohstoffe, 2010, p. 35–38; 2011, p. 18, 43–45; K+S Aktiengesellschaft, 2011, p. 1, 43–45, 52–63, 78–81).

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities. Since the closure of the last metal mines in 1992, there had been no mining of metallic minerals in Germany. Many of the leading companies in the global metals processing sector owned and operated significant facilities in Germany, however. ArcelorMittal (based in Luxembourg) was the leading producer of crude steel in the world and the second ranked producer in Germany. ThyssenKrupp AG (based in Duisburg) was the leading producer of crude steel in Germany and the 14th ranked producer of crude steel in the world. Aurubis AG (based in Hamburg) was the third ranked producer of marketable copper metal in the world and the leading producer of secondary refined copper. Aurubis was the leading producer of total refined copper in the EU. Salzgitter AG was the third ranked producer of crude steel in Germany and held a 25% ownership interest in Aurubis. 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, and the company owned the largest single primary aluminum smelter in Germany (the Rheinwerk primary smelter at Neuss). Berzelius Metall GmbH, which was headquartered in Stolberg, was the leading producer of primary lead in the country (table 2; Aurubis AG, 2010, p. 1, 48, 55, 63–70; Bundesanstalt

für Geowissenschaften und Rohstoffe, 2011, p. 36–41; Norsk Hydro ASA, 2011, p. 29–34; Stahlinstitut VDEh and Wirtschaftsvereinigung Stahl, 2011, p. 34–37, 39, 41–46; World Steel Association, 2011, p. 8; Xstrata plc, 2011, p. 23, 91).

S.C.R.-Sibelco NV of Belgium was the leading producer of olivine, plastic (ball) clays, quartz, and silica (industrial) sand in the world, and Sibelco Deutschland GmbH (a German subsidiary of S.C.R.-Sibelco) was Germany's leading producer of mineral raw materials for use in the production of ceramics. Other than this subsidiary of a multinational company, family-owned small- and medium-scale enterprises (SMEs) accounted for most of the remainder of the country's production of ceramic, kaolinitic, and plastic (ball) clays in the country. S&B Industrial Minerals S.A. of Greece was the leading producer of bentonite in the EU and the second ranked producer of bentonite in the world. Süd-Chemie AG was the leading supplier of bentonite-based adsorbents and additives in the world, and the company was the other major producer of bentonite in Germany (besides S&B). HeidelbergCement AG was the leading producer of cement in the country and the third ranked producer in the world. HeidelbergCement was also the world's leading producer of aggregates. K+S Aktiengesellschaft (K+S) was the leading producer of potash and salt (NaCl) in the EU, and the company was the leading producer of salt and the fourth ranked producer of potash in the world (table 2; Arbeitsgemeinschaft Westerwald-Ton e.V., 2010; HeidelbergCement AG, 2011, p. 8, 24; Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 43–46; K+S Aktiengesellschaft, 2011, p. 43–44; S&B Industrial Minerals S.A., 2011, p. 29; Süd-Chemie AG, 2011, p. 34, 52; Sibelco Deutschland GmbH, undated).

In 2010, RWE Power AG accounted for about 54% of the total production of lignite in Germany, and 88% of this lignite production was used to generate electricity domestically. RWE was the leading producer of electricity in Germany, and the third ranked producer in the Netherlands and the United Kingdom. About 90% of all the lignite produced in Germany was used domestically to produce electricity. In 2010, 72% of the salable production of hard coal in the country was used to produce electricity, about 25% was used to produce steel, and about 3% was used to produce thermal energy. On September 30, 2010, the Ost Mine was closed because the operation was no longer profitable to operate given the continuing reduction of the Government's hard coal subsidy. Reliable information concerning the individual production capacities of the five remaining hard coal mines in Germany was not available, especially as production may have been decreasing as these mines continue to get nearer to their expected closure dates (table 2; Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 29–34; Bundesministerium für Wirtschaft und Technologie, 2011, p. 6–12; Gesamtverbands Steinkohle e.V., 2011, p. 11–19; RWE Aktiengesellschaft, 2011, p. 1, 100).

Outlook

RWE expected that the company would complete construction and start up a modern lignite-fired powerplant in Neurath (near Cologne) by the end of 2011 and that this new powerplant

would increase demand for (and the company's production of) lignite in Germany in 2012 and beyond. Germany appeared likely to continue to proceed towards elimination of the hard coal subsidy in the country by the end of 2018, and this was expected to cause the closure of the Saar Mine on July 1, 2012, and the West Mine at the end of 2012. This would leave only three mines producing hard coal in Germany in 2013. It was expected that Germany would produce about 12 Mt of hard coal in 2012, however (Bundesanstalt für Geowissenschaften und Rohstoffe, 2011, p. 12–14, 32–35; Gesamtverbands Steinkohle e.V., 2011, p. 14–18; RWE Aktiengesellschaft, 2011, p. 9, 96).

Future levels of production of fertilizer minerals, such as potash, in Germany were expected to vary more with respect to fluctuations in demand outside of Europe than within Europe. In 2011 and beyond, K+S expected increases in the global population and in the level of prosperity in emerging market economies, including those of Latin America and Southeast Asia. In addition to this growth leading to an expected increase in the intensity of land cultivation overall, the company also expected that consumption patterns in these countries would continue to include increases in meat consumption, which would increase the need for animal feed and therefore increase the level of demand for almost all of the company's fertilizer products (including potash) above that which would be attributable to an increase in the total level of food consumption. In 2011, K+S expected that it could increase its global sales of potash to 60 Mt compared with an estimated 57 Mt of potash sold globally by the company in 2010, but information concerning how much K+S's production of potash in Germany would increase (if at all) was not available. In 2010, the marketable production of potash in Germany was still about 400,000 t below the levels of production in 2006 and 2007, and this appeared to be far below the company's estimated potash production capacity of about 6 Mt/yr. So, marketable production of potash in the country could have increased slightly in 2011, but it is estimated to have remained about the same as in 2010 at approximately 3 Mt of K₂O content (table 1; K+S Aktiengesellschaft, 2011, p. 145–156).

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TABLE 1
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010
METALS					
Aluminum:					
Alumina ^e thousand metric tons	850	1,000	900	900	1,000
Aluminum hydroxide, Al ₂ O ₃ equivalent do.	1,393	1,388	1,395	1,154	1,485
Metal:					
Primary	515,539	551,030	605,876	291,750	402,476
Secondary	795,668	857,619	720,898	560,755	611,139
Total	1,311,207	1,408,649	1,326,774	852,505	1,013,615
Cadmium, metal, refinery, including secondary ^e	640	475 ^r	420	278	290
Cobalt, matte, including shavings and scrap	686	685	913	654	829
Copper, metal:					
Smelter:					
Primary	273,800	270,200	295,000	286,300 ^r	378,700 ^p
Secondary	266,300	273,400	293,300	247,500 ^r	212,400 ^p
Total	540,100	543,600	588,300	533,800	591,100 ^p
Refined:					
Primary	312,092	301,702	300,470	290,200	401,900 ^p
Secondary	350,246	363,815	389,300	378,745	302,400 ^p
Total	662,338	665,517	689,770	668,945	704,300 ^p
Gallium, crude ^e	12	12	12	10	12
Indium, refined ^e	10	10	10	10	10
Iron and steel:					
Ore, run of mine:²					
Gross weight thousand metric tons	416	422	455	364	390
Fe content do.	44	44	48	38	41
Metal:					
Pig iron do.	30,362	31,149	29,111	20,104	28,560
Direct-reduced iron do.	580	590	520	380	450
Ferroalloys:					
Ferrochromium	26,710	22,030	26,960	13,667	18,000 ^e
Other ^e	24,100 ³	5,000	5,000	6,336 ^{r,4}	9,200
Steel, crude thousand metric tons	47,224	48,550	45,833	32,671	43,830
Semimanufactures do.	41,174	41,999	39,805	29,041	36,827
Lead, metal, refined:					
Primary	113,760	110,934	113,200	104,900	125,000 ^p
Secondary	265,190	294,147	301,900	285,700	280,400 ^p
Total	378,950	405,081	415,100	390,600	405,400 ^p
Magnesium, metal including castings	30,556	30,791	29,818	11,603 ^r	14,859
Platinum-group metals, metal, refined kilograms	116,350	137,645	121,597	110,000 ^e	110,000 ^e
Selenium, metal ^e	720	700	250	230 ^r	250
Silicon, metal ^e	35,500	35,254 ⁴	35,000	20,000	30,000
Silver, metal, refined, including secondary	1,527	1,673	1,783	1,616	1,900 ^e
Tin, alloys	6,046	6,674	6,114	5,003	5,500 ^e
Zinc, metal:^c					
Primary	245,883 ⁴	206,000	211,370 ⁴	134,000	144,000
Secondary	96,683 ⁴	89,000	80,910 ⁴	19,000	21,000
Total	342,566 ⁴	294,735 ⁴	292,280 ⁴	153,000	165,000
INDUSTRIAL MINERALS					
Abrasives, manufactured (corundum)	75,817	84,666	94,566	48,802	82,776
Aluminum salt slag, Al ₂ O ₃ equivalent ^e thousand metric tons	200	200	200	150	200
Barite, marketable (contained BaSO ₄)	85,524	88,265	78,941	45,606	55,887
Boron compounds, manufactured, including boric acid and oxide	222,169	217,885	204,411	129,928	163,074
Bromine compounds, including oxide ^e	431 ⁴	1,612 ⁴	1,680 ^r	985 ^r	1,500

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010	
INDUSTRIAL MINERALS—Continued						
Cement:						
Clinker, intended for market	thousand metric tons	24,921	26,992	25,366	23,232	22,965
Hydraulic	do.	33,630	33,382	33,581	30,441	29,894
Chalk, natural, including ground	do.	1,309	1,358	1,495	1,322	1,350 ^e
Clays, natural:						
Bentonite	do.	364	385	414	326	363
Ceramic and refractory clays	do.	4,285 ^r	4,182 ^r	4,229 ^r	3,711 ^r	3,978
Of which, fire clay and chamotte	do.	194	252	267	250 ^e	246
Kaolin, marketable	do.	3,815	3,843	3,622	4,514	4,578
Other, unspecified	do.	509	467	182	193	198
Diatomite ^e	NA ^r	NA ^r	NA ^r	NA ^r	NA	NA
Feldspar, all uses ^s		2,982,782	3,311,523	3,616,425	3,698,134	5,202,549
Of which, feldspar for industrial uses		167,332	171,303	161,416	201,000 ^{r,e}	204,000 ^e
Fluorspar, acid-grade		53,009	54,359	48,519	49,962	59,086
Gypsum and anhydrite:						
Natural	thousand metric tons	1,771	1,898	2,112	1,898	1,822
Byproduct of flue-gas desulfurization ^e	do.	7,490	7,100	6,900	6,600 ^r	6,500
Lime, quicklime, dead-burned dolomite	do.	7,119	7,218	7,313	5,945 ^r	6,856
Magnesium compounds, byproduct of potash mining	do.	1,203	1,357	1,418	811	1,310
Nitrogen, N content of ammonia	do.	2,718	2,746	2,819	2,363	2,677
Peat, horticultural use	thousand cubic meters	7,995	8,269	7,629	8,364	7,759
Phosphoric acid, manufactured, P ₂ O ₅ content		34,373	31,684	31,756	19,531	21,529
Pigments, iron oxide (including synthetic iron oxide)		242,264	240,310	251,412	209,172	233,909
Potash, K ₂ O content:						
Crude	thousand metric tons	4,385	4,406	4,046	2,208	3,630
Marketable	do.	3,625	3,637	3,280	1,825	3,024
Salt, NaCl content, marketable:						
Evaporated salt, including marine salt	do.	593	592	580	325	322
Industrial brines	do.	9,590	10,395	9,084	9,798	8,752
Rock salt and other brines	do.	9,663	7,819	6,169	8,816	10,602
Total	do.	19,846	18,806	15,833	18,939	19,676
Siliceous earth, marketable		53,282	51,980	52,003	42,602	49,306
Soda ash (Na ₂ CO ₃), manufactured	thousand metric tons	2,587 ^r	2,595 ^r	2,715 ^r	2,291 ^r	2,539
Stone, sand and gravel:						
Stone, crude:						
Dimension, including partially worked	do.	219	200	207	380	425
Of which, limestone, marble, and similar stone	do.	75	63	68	NA ^r	NA
Crushed, not including chalk	do.	162,168	152,790	154,032	155,430	148,000 ^e
Dolomite and limestone, not for cement manufacture	do.	22,400	22,800	21,300	19,000	18,000
Gravel, natural:						
Construction gravel	do.	68,706	65,370	63,962	70,136 ^r	67,822
Crude, including flint and pebbles	do.	13,301	12,928	12,631	10,442	9,935
Other gravel, including quartzite	do.	13,326	12,639	11,911	NA ^r	NA
Sand, natural:						
Construction sand	do.	59,767	56,851	56,866	66,010 ^r	63,962
Silica sand, including glass sand and quartz sand	do.	7,703	8,382	8,186	6,453	7,234
Other, including from granite and pegmatite	do.	13,578	12,796	13,416	NA ^r	NA
Total sand and gravel	do.	176,381	168,966	166,972	153,041 ^r	148,953
Strontium carbonate, manufactured ^e	do.	80	80	80	50	70
Sulfur:						
Marketable	do.	1,114	1,093	1,030	927	832
Byproduct:						
Metallurgy	do.	2,437	2,454	2,458	2,137	2,266
Natural gas and petroleum	do.	1,686	1,637	1,709	1,623	1,447
Total	do.	4,123	4,091	4,167	3,760	3,713

See footnotes at end of table.

TABLE 1—Continued
GERMANY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010
MINERAL FUELS AND RELATED MATERIALS					
Carbon black thousand metric tons	631	665	607	494	684
Coal:					
Anthracite and bituminous, marketable do.	20,883 ^r	21,531 ^r	17,171 ^r	13,766	12,900
Lignite do.	176,324	180,412	175,313	169,857	169,403
Coke:					
Of anthracite and bituminous coal do.	8,372	8,432	8,246	6,771	8,241
Of lignite do.	181	173	177	153	176
Fuel briquets:					
Of anthracite and bituminous coal do.	96	89	--	--	--
Of lignite, including dust and dried do.	1,662	1,328	1,631	1,959	2,024
Gas:					
Manufactured:					
Blast furnace ^e million cubic meters	9	9	9	6	9
Coke oven do.	958	970	969	718	951
Total ^e do.	967	979	978	724	960
Natural:					
Gross do.	19,667	17,966	16,449 ^r	15,464 ^r	13,584
Marketable do.	18,443	16,884	15,377	14,380	12,571
Petroleum: ⁶					
Crude thousand 42-gallon barrels	25,800	25,300	22,400	20,500	18,400
Refinery products:					
Liquefied petroleum gas do.	36,800	38,560	36,390	33,490	33,180
Distillate fuel oil do.	380,000	380,000	370,000	360,000	340,000
Residual fuel oil do.	76,200	75,300	67,500	55,600	41,600
Gasoline, including aviation do.	210,000	200,000	200,000	200,000	180,000
Kerosene and jet fuel do.	33,900	35,200	36,500	35,200	37,400
Naphtha do.	90,000	86,000	87,000	75,000	72,000
Refinery gas do.	49,100	48,300	47,800	44,500	44,500
Bitumen, bituminous mixtures, and other residues do.	30,900	31,300	33,900	34,300	32,800
Lubricants and miscellaneous oils do.	16,000	17,000	17,000	16,000	18,000
Petroleum coke do.	11,000	10,600	11,500	10,900	11,500
Mineral jelly, waxes, and paraffins do.	2,000	2,100	1,300	800	900
Other do.	9,850	10,700	8,290	6,040	8,630
Total ^e do.	946,000	935,000	917,000	872,000	821,000
Uranium concentrate, U ₃ O ₈ content	77	48	--	--	9

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

NA Not available. -- Zero.

¹Table includes data available through February 6, 2012.

²Iron 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.

³Estimated from reported total marketed production of ferroalloys. Source: Statistische Bundesamt, 2007, Fachserie 4, Reihe 3.1—Produzierendes Gewerbe, Produktion im Produzierenden Gewerbe, Jahr 2006: Wiesbaden, Germany, Statistische Bundesamt, April 30, p. 176.

⁴Reported figure.

⁵All uses include use as gravel for road construction, and industrial uses include use in the manufacturing of ceramics.

⁶All values were converted to barrels from those reported in metric tons according to data from Mineralölwirtschaftsverband e.V., 2011, Jahresbericht—Mineralöl-Zahlen, 2010: Berlin, Germany, Mineralölwirtschaftsverband e.V., May, p. 48 and 79, and reflect the significant digits of the conversion factors.

TABLE 2
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(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, Cologne	65
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
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 International Inc., 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 ^e
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	90
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	Alsa Technologies GmbH (Agor AG, 100%)	Plants at Hannover, Luenen, and Toeing	380
Do.	K+S Entsorgung GmbH (K+S Aktiengesellschaft, 100%)	REKAL plant at Sigmundshall	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 ³ in the Harz Mountains and plant at Bad Lauterberg	50
Bentonite	Süd-Chemie AG	Mining near Gammelsdorf, Bavaria, and plants at Moosburg, Duisburg, and Heufeld	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 ^e
Do.	do.	Plant at Neuss	50
Do.	Kärlicher Ton- und Schamotte-Werke Mannheim & Co. KG (KTS)	Quarry at Muelheim-Kaerlich	50
Calcium carbonate, natural, ground	Alpha Calcit Fullstoff GmbH & Co. KG	Plant at Cologne	250
Do.	Omya GmbH (Omya AG, 100%)	Plants at Burgberg, Emden, Lagerdorf, and Sohlde, and another plant near Hamburg	2,250
Do.	Eduard Merkle GmbH & Co. KG	Mine at Ulm, Blaubeuren	NA
Calcium carbonate, natural, including chalk	Vereinigte Kreidewerke Dammann KG (OMYA AG, 100%)	Quarries and plants at Laegerdorf, on Ruegen Island, and at Soehle	500
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; and plant at Wetzlar	9,500 ^e
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

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued	CEMEX Deutschland AG (CEMEX S.A. de C.V., 100%)	Two plants at Beckum; plants at Dortmund, Duisburg, Eisenhuettenstadt, and Ruedersdorf	6,000
Do.	SCHWENK Zement KG	Plants at Allmendingen, Bernburg, Heidenheim-Mergelstetten, and Karlstadt	5,000 ^e
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	3,500
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 Hoeher-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, Hoeher-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 Grosseirath, 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.	Saar Mine, Saar Basin, Saarland	1,500 ^e
Do.	do.	Ibbenbüren Mine, Steinfurt District, North Rhine-Westphalia	2,100
Coke	Deutsche Steinkohle AG (RAG Aktiengesellschaft, 100%)	Pitside coking plant at the Prosper-Haniel Mine	2,000 ^e
Do.	ThyssenKrupp Steel AG	Schwelgern plant at Duisburg	2,100
Do.	Hüttenwerke Krupp Mannesmann GmbH (ThyssenKrupp Steel AG, 50%; Vallourec & Mannesmann Tubes SA, 20%; Mannesmannröhren-Werke GmbH, 30%)	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

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
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	Geo Gallium S.A. (Mining & Chemical Products Ltd., 50%, and Recapture Metals Inc., 50%)	Ingal plant at Stade	35
Do.	do.	PPM Pure Metals GmbH ² (Recylex S.A., 100%)	Plant at Langelsheim	NA
Graphite, manufactured		Graphit Kropfmühl AG	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 Witzzenhausen	150
Do.		Gyproc GmbH (Lafarge S.A., 100%)	Mines and plant in Lower Saxony	110
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 Nordenhan	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	150
Do.		Muldenhütten Recycling- und Umwelttechnik GmbH	Secondary smelter at Freiburg, Saxony	55
Do.		Aurubis AG	Refinery at Hamburg	50
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	Jämschwalde-Cottbus-Nord, Nochten, and Welzow-Süd Mines, Lausatian mining area	60,000
Do.		Mitteldeutsche Braunkohlengesellschaft AG	Profen and Vereinigtes Schleenhain Mines	25,000
Limestone		Harz-Kalk GmbH	Quarry at Ruebeland	2,000 ^e
Do.		Kalkwerk 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	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 Toeging am Inn	15
Do.		do.	Plant at Deizisau	50
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%)	Böttersen, Hemsbünde, Völkersen, and smaller fields in Lower Saxony; and 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

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas—Continued	million cubic meters	Wintershall Holding AG (BASF AG, 100%)	A6/B4 blocks offshore of Schleswig Holstein; and smaller fields in Lower Saxony	1,200 ^e
Do.	do.	EEG-Erdgas Erdöl GmbH (Gaz de France 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 of Schleswig-Holstein	15,500
Do.	do.	Wintershall Holding AG (BASF AG, 100%)	A6/B4 blocks offshore of 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 (Gaz de France S.A., 100%)	Bramberge, Ruhlertwist, Scheerhorn, and Ringe fields in Lower Saxony; and 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; and 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 Ruehlermoor 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.	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
Potash, K ₂ O content		K+S Kali GmbH (K+S Aktiengesellschaft, 100%)	Mines at Hattorf, NeuhoF-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; and the 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)		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 (Graphit Kropfmühl AG, 100%)	Four electric arc furnaces in plant at Pocking	27,500
Soda ash		Solvay S.A.	Plant at Rheinberg, Germany	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 Mannesmann GmbH, 30%; Vallourec & Mannesmann Tubes SA, 20%)	Plant at Duisberg-Huckingen	5,600

See footnotes at end of table.

TABLE 2—Continued
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel, crude—Continued	ArcelorMittal Bremen GmbH (ArcelorMittal, 99.88%, and other private, 0.12%)	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 Eisenhuettenstadt	2,700
Do.	Badische Stahlwerke GmbH	Plant at Kehl	2,300 ^ε
Do.	Brandenburger Elektrostahlwerk GmbH (RIVA FIRE S.p.A, 100%)	Plant at Brandenburg	1,700 ^ε
Do.	ThyssenKrupp Nirosta (ThyssenKrupp Steel AG, 100%)	Plants at Bochum and Krefeld	1,600 ^ε
Do.	ArcelorMittal Ruhrort GmbH (ArcelorMittal, 100%)	Plant at Duisburg	1,500 ^ε
Do.	Georgsmarienhütte GmbH	Plants at Bous, Georgsmarienhütte, and Groeditz	1,300 ^ε
Do.	Stahlwerk Thüringen GmbH (Alfonso Gallardo S.A., 100%)	Plant at Unterwellenborn	1,100 ^ε
Do.	Deutsche Edelstahlwerke GmbH	Plants at Siegen and Witten	1,100 ^ε
Do.	Lech-Stahlwerke GmbH (Max Aicher GmbH & Co. KG, 100%)	Plant at Herbertshofen	1,100 ^ε
Do.	ArcelorMittal Hamburg GmbH (ArcelorMittal, 100%)	Plant at Hamburg	1,100 ^ε
Do.	Hennigsdorfer Elektrostahlwerk GmbH (RIVA FIRE S.p.A, 100%)	Plant at Hennigsdorf	1,000 ^ε
Do.	Elbe-Stahlwerke Feralpi GmbH (Feralpi Siderurgica S.p.A., 100%)	Plant at Riesa	950 ^ε
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
Zeolites	Hans G. Hauri Mineralstoffwerk GmbH	Mine and plant at Boetzingen, near Freiburg	NA
Zinc, metal	Metaleurop Zinkbetrieb GmbH & Co. KG (Xstrata plc, 100%)	Nordenham Smelter, near Bremerhaven	160
Do.	Ruhr-Zink GmbH (GEA Group AG, 100%)	Refinery at Datteln ⁴	140
Zinc, oxides	Harz Metall GmbH (Recylex S.A., 100%)	Wälz rotary kilns at Oker-Goslar	80 ^ε
Do.	Norzinco GmbH (Recylex S.A., 100%)	Secondary plant at Oker-Goslar	35 ^ε

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

¹Table includes data available through December 31, 2011.

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.

³Closed in 2007.

⁴Closed at the end of 2008, and approximately 40% of total production of zinc metal at this refinery was from secondary materials.