

2017–2018 Minerals Yearbook

BELGIUM

THE MINERAL INDUSTRY OF BELGIUM

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Note: In this chapter, information for 2017 is followed by information for 2018.

The mineral industry of Belgium was engaged primarily in the manufacture and processing of metals. Because there was no mining of metal ores in the country, raw materials for Belgium's metal-refining sector were sourced from imports or secondary scrap. In 2017, Belgium was the world's 4th-ranked selenium producer, 5th-ranked arsenic producer, 6th-ranked indium producer, 19th-ranked lime producer, and 21st-ranked raw steel producer. The country accounted for 7% of the world's selenium output and 3% each of the world's arsenic and indium output. Within the European Union, it was a significant processor of cobalt, primary and secondary copper, lead, pig iron, steel, and zinc. For the United States, Belgium was an important import source of antimony, bismuth, gemstones, germanium, mica, and rhenium. The city of Antwerp remained an important global trading center for diamond and was also one of the largest ports in Europe (table 1; National Bank of Belgium, 2018b, p. 2; Anderson, 2019a, b; Antwerp World Diamond Centre, 2019; Curry, 2019; George, 2019; Klochko, 2019a, b; Olson, 2019; Polyak, 2019; Thomas, 2019; World Steel Association, 2019, p. 1–2).

Minerals in the National Economy

The real gross domestic product (GDP) of Belgium in 2017 increased by 1.7% compared with that of 2016; the nominal GDP was \$494.1 billion¹ (EUR437.2 billion). In 2017, manufacturing output account for 12.5% of the GDP. The manufacturing of chemicals and chemical products accounted for 2% of the GDP. The manufacturing of base metals and fabricated metal products (excluding machinery and equipment) made up 1.6% of the GDP; rubber, plastic products, and other nonmetallic mineral products, 1.1%; and coke and refined petroleum products, 0.4% (National Bank of Belgium, 2018a, p. 21; 2019, p. 16).

Belgium consisted of three geographic regions; the Brussels capital region, Flanders, and Wallonia. The Flanders region, which constitutes the northern half of Belgium, produced principally industrial minerals, such as clay, loam, and sand and gravel by open pit mining. Mineral commodities, primarily industrial minerals, were one of the leading exports of the region. The Flemish mineral industry employed directly about 3,500 people. The mineral industry of the Wallonia region produced primarily metals and metallic products. Manufacturing accounted for a higher share of value added than mineral extraction, which employed few people in the Wallonia region (Environment, Nature, and Energy Department, 2010, p. 4–6; European Commission, 2018a, b).

¹Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR0.885=US\$1.00 for 2017.

Government Policies and Programs

The management of mineral resources is the responsibility of the three geographic regions of Belgium, with the exception of those on the continental shelf in the North Sea, which are managed by the central Government of Belgium. There is no national mining law. The central Government of Belgium is responsible for security of the energy supply and nuclear energy, whereas regional governments are responsible for overseeing the distribution of natural gas and electricity. In Flanders, the Flemish Parliament Act on Surface Mineral Resources forms the legislative framework of the Flemish minerals policy and defines the making of a general surface mineral resources plan and specific Surface Mineral Resource Summaries, which, in practice, apply to sand and clay. Flemish regulations on environmental permits (VLAREM) form the legal basis for the environmental regulation of any activities that affect the environment and applied primarily to extraction of sand and gravel and brick clay. In Wallonia, the government decree of July 4, 2002, regarding environmental permitting and the Walloon Town and Country Planning and Heritage Code (CWA-TUP) both apply to quarry products. For offshore activities, the Act on the Exploration and Exploitation of Non-Living Resources in the Territorial Sea and the Continental Shelf (formerly the “Continental Shelf Act”) of June 13, 1969, governs the extraction of sand and gravel, including specifying concessions and royalties (European Commission, 2017; European Union, 2018a, b).

Production

The refining of copper, minor metals (cadmium, cobalt, germanium, selenium, tellurium, and tin, among others), and zinc, and the production of steel and steel products were the leading components of the mineral industry in Belgium. In 2017, the production of residual fuel oil increased by 30%; ammonia, by 21%; secondary tin, by 14%; liquefied petroleum gas, by 11%; and copper (secondary, refined) and naphtha, by 10% each. The production of kerosene decreased by 51%, and that of copper (smelter, secondary) by 12% (table 1).

Structure of the Mineral Industry

The principal mining and mineral-processing facilities in Belgium, with their locations and capacities, are listed in table 2. Most of these facilities were privately owned either by Belgian companies or companies based in other member states of the European Union.

Mineral Trade

In 2017, Belgium exported a total of \$425.5 billion worth of goods, which accounted for 2.4% of the world's exports of goods, and imported a total of \$396.5 billion, which was 2.2% of the world's imports. Belgium ranked 11th among global merchandise exporters and 14th among global merchandise importers. The country was a leading exporter of multiple minerals and mineral products globally. Belgium remained the world's leading exporter of master alloys of copper, accounting for 41.9% of world exports; dolomite (29.9%); and zinc bars, rods, profiles, and wire (17.4%). The country was the second-ranked exporter of nitric acid, with a 15.3% share; and of base metals, silver or gold, and clad with platinum (9.1%). Belgium was the world's third-ranked exporter of kaolin and other kaolinic clays (11.7%); articles of asbestos cement (10.4%); quicklime, slaked lime, and hydraulic lime (8.3%); and copper wire (7.5%). It was the fourth-ranked exporter of diamond (worked and nonworked), with a 12.3% share. Diamond was the country's leading mineral export, valued at \$14.6 billion (EUR13.5 billion) in 2017. Belgium ranked seventh globally in exports of semifinished and finished steel products (Belgian Foreign Trade Agency, 2018a, p. 11, 14; 2018b, p. 3–9; World Steel Association, 2019, p. 9–11).

Commodity Review

Metals

Cobalt and Specialty Metals.—In 2017, N.V. Umicore S.A., which was one of the world's leading metal recyclers and processors, produced about 1,600 metric tons (t) (estimated) of refined cobalt in Olen, Belgium. The company's global cobalt production increased by 10% to 6,987 t; this output included the refined cobalt production from its facilities in Belgium and China. Umicore did not report the breakdown of its cobalt output by country. Umicore's cobalt and specialty materials plant in Olen produced arsenic trioxide, cobalt and cobalt compounds, manganese compounds, and nickel compounds. In 2017, the company was in the process of upgrading and expanding the cobalt and nickel refinery in Olen. The facility was expected to be fully commissioned in the second half of 2018. In May, Umicore announced an investment program for between 2017 and 2019 to further increase its production of NMC (nickel-manganese-cobalt) cathode materials for lithium-ion rechargeable batteries in China and the Republic of Korea. Umicore was also in the process of expanding the capacity of its major metals recycling plant in Hoboken to 500,000 metric tons per year (t/yr) from 350,000 t/yr. The rampup of the additional capacity in Hoboken over the course of 2017 resulted in an increased throughput rate and higher processed volumes compared with those of 2016. The company recovered precious metals (gold, iridium, platinum, palladium, rhodium, ruthenium, and silver), minor metals (bismuth, indium, selenium, and tellurium), and base metals (antimony, copper, lead, nickel, and tin) in Hoboken. Umicore had a global capacity to produce 2,400 t/yr of silver, 300 t/yr of selenium, 150 t/yr of tellurium, 100 t/yr of gold, 50 t/yr of indium, 25 t/yr each of platinum and

palladium, and 5 t/yr of rhodium (Umicore Group, 2017; Cobalt Institute, 2018; Umicore Group, 2018a–c; 2018d, p. 8).

Copper, Lead, and Tin.—Metallo Belgium S.A., which was a subsidiary of Metallo Group, had a production capacity of about 120,000 t/yr of copper anodes and about 36,000 t/yr of copper cathodes at its Beerse plant in Belgium. The company also produced about 24,000 t/yr of soft and hard lead ingots and up to 12,000 t/yr of tin ingots in Beerse. The Metallo Group, which had refining facilities in Belgium and Spain, treated about 350,000 t of secondary raw materials annually, focusing on complex low-grade scrap streams. The company was the leading producer of tin in Europe. The tin produced by Metallo was entirely “low lead” (less than 100 parts per million), and the London Metal Exchange (LME) registered it as “MC” brand. In May, Metallo rebranded its two smelting facilities; as a result, the Metallo-Chimique N.V. smelter and scrap trading operation based in Beerse was renamed Metallo Belgium, and the Elmet S.L.U. facility in Vizcaya, Spain, was renamed Metallo Spain (Taylor, 2016; Recycling Today, 2017; Metallo Group, 2018a, b).

Iron and Steel.—In 2017, Belgium produced 7.8 million metric tons (Mt) of raw steel, up from 7.7 Mt in 2016. All output was continuously cast steel. About 68% of the raw steel output was produced by oxygen process, and the remaining 32% was processed through electric arc furnaces. Exports of semifinished and finished steel totaled 18.1 Mt in 2017, which was an increase from the 16.7 Mt exported in 2016. The country accounted for 4% of global semifinished and finished steel exports. In terms of value, steel made up 2.3% of Belgium's total goods exports in 2017 (U.S. International Trade Administration, 2018, p. 1; World Steel Association, 2019, p. 5, 9–11).

Zinc.—Nyrstar N.V., which was a leading producer of zinc globally, operated smelters at Balen and Overpelt. In 2017, the company's Balen and Overpelt smelters in Belgium produced 249,000 t of zinc metal and Balen produced 310,000 t of sulfuric acid, which was an increase of 6% and a decrease of 2%, respectively, compared with the output levels in 2016. The two facilities, which are located 18 kilometers apart, were complementary and highly integrated. Cathodes produced at the Balen smelter and Nyrstar's Auby smelter in France were transported to the centralized melting and casting facilities in Overpelt. The Overpelt site also included one of Europe's largest oxide washing facilities, where Nyrstar pretreated purchased secondary material before sending it on to the company's smelters in Europe. The Balen smelter produced zinc from feedstock of both zinc concentrates and recycled zinc secondary feed materials. Balen's zinc concentrates were sourced from suppliers worldwide. The Balen and Overpelt operations produced specialty high-grade zinc and a range of high-value alloy products, such as diecasting alloy. Balen also produced copper cement and leach products that contained lead and precious metals and were sold as a raw material to secondary smelters (Nyrstar N.V., 2018).

Industrial Minerals

Diamond.—Belgium's top trading partners in diamond were the United States, Hong Kong, and India. Although the volume of diamond traded increased substantially in 2017, the overall value decreased slightly owing to demand being mainly for

smaller rough diamonds, which command a lower price per carat; this shift in demand was a consistent trend for the diamond market globally during the year. In 2017, Antwerp's trade in diamond increased by 16% in volume. A total of 233.8 million carats of rough and polished diamond valued at \$46 billion was traded in Antwerp. In 2017, the total trade volume of polished diamond was 10.7 million carats valued at \$22.5 billion. The total volume and value of polished diamond trade decreased by 7% and 3%, respectively, compared with those of 2016. The total trade volume of rough diamond was 223.1 million carats valued at \$23.3 billion. Although the total trade volume of rough diamond increased by 17% compared with that of 2016, the total trade volume of polished diamond decreased by 6% (Antwerp World Diamond Centre, 2018, 2019).

In 2017, most of the diamond output from three new mines (two in Canada and one in Lesotho) was traded on the Antwerp diamond market, and more tenders were organized to increase the supply of rough diamond to the market. During the year, 109 tenders were organized by various Antwerp tender houses, which was a 27% increase compared with the 86 tenders held in 2016. Additionally, mining companies held 68 tenders in Antwerp in 2017 (Antwerp World Diamond Centre, 2018).

Mineral Fuels and Related Materials

Refinery Products.—Belgium had four active refineries located in Antwerp with a total crude petroleum distillation capacity of about 776,000 barrels per day in 2017. The two largest refineries, which were owned by Total S.A. of France and Exxon Mobil Corp. of the United States, were among the largest in Europe and produced a high yield of light and middle distillates. Total was the largest refiner and marketer of refined petroleum products in Belgium. Its Antwerp refinery, which was the company's largest refining and petrochemical platform in Europe, produced gasoline, diesel, liquefied petroleum gas (LPG), and jet fuel. Total also operated the Feluy site south of Brussels, which produced petrochemical products. In November, the company completed the upgrading of the Antwerp refinery that had been launched in 2013. The new refining complex had the capacity to process heavy fuel oil into low-sulfur light products. It also reduced the high-sulfur heavy fuel oil yield in anticipation of the new global marine fuel regulation that would take effect in 2020 (table 2; International Energy Agency, 2016, p. 59; Total S.A., 2017a, b; Concawe, 2018).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

In 2018, Belgium was the world's 4th-ranked selenium and arsenic producer, 6th-ranked indium producer, and 22d-ranked lime producer. The country accounted for 7% of world selenium output and 3% each of indium and arsenic output (table 1; Anderson, 2020 a, b; Apodaca, 2020; George, 2020).

Minerals in the National Economy

The real GDP of Belgium in 2018 increased by 1.5% compared with that of 2017; the nominal GDP was

\$542.9 billion² (EUR459.8 billion). In 2018, manufacturing output accounted for 12.3% of the GDP. The manufacturing of base metals and fabricated metal products (excluding machinery and equipment) made up 1.6% of the GDP; rubber, plastic products, and other nonmetallic mineral products, 1.1%; and coke and refined petroleum products, 0.3%. Mining and quarrying accounted for 0.1% of the GDP (National Bank of Belgium, 2019, p. 16–17, 21).

Production

In 2018, the production of smelter copper (secondary) increased by 11%; refined indium (primary), hot-rolled steel products, and zinc slab (primary), by 10% each. The production of refined lead (secondary) decreased by 5% (table 1).

Commodity Review

Metals

Iron and Steel.—ArcelorMittal S.A. of Luxembourg, which was the leading producer of steel and steel products in Belgium, operated four sites, including steel plants at Ghent and Liege and a galvanizing plant at Genk-Zuid. The company planned to construct the first commercial-scale production facility in Europe in Ghent, Belgium, to produce bioethanol from steel-mill waste. The “Steelanol” (steel + ethanol) Project would use a patented process from LanzaTech Inc. to convert carbon dioxide (CO₂) gas generated from steelmaking at the Ghent plant into ethanol, which could be used as biofuel and thus reduce the environmental effects of steel production. Bioethanol production was expected to start in 2020 with a total capacity of 80 million liters per year (approximately 21.1 million gallons per year) of ethanol, which would yield an annual CO₂-saving equivalent of 100,000 electric vehicles (table 2; Steelanol, 2018).

Outlook

Belgium is likely to remain a leading secondary metal producer, particularly of precious and specialty metals, and a major trading hub of diamond globally. The country is also expected to retain its significant role in international cargo handling of mineral products through its ports. The country's production of base metals, precious metals, and specialty metals (particularly cobalt) is expected to increase owing to Umicore's capacity expansion in Hoboken and Olen and increases in global demand for minerals used in lithium-ion batteries. Steel output may continue its pattern of slight increase with higher rates of economic growth in Europe.

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²Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR0.847=US\$1.00 for 2018

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TABLE 1
BELGIUM: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2014	2015	2016	2017	2018
METALS					
Cobalt, refinery, metal powder, oxide, hydroxide, Co content ^c	1,300	1,500	1,500	1,600	1,650
Copper:					
Smelter, secondary	143,100	141,000	143,800	126,900	140,500
Refinery:					
Primary	228,300	226,100	217,900	235,500	230,800
Secondary	159,000	152,500	148,800	163,400	159,400
Indium, refinery, primary ^c kilograms	28,000	20,000	20,000	20,000	22,000
Iron and steel:					
Pig iron thousand metric tons	4,388	4,248	4,869	4,860	4,900
Steel:					
Raw steel do.	7,331	7,257	7,687	7,842	8,020
Products, hot rolled do.	8,392	8,938	8,735	9,292	10,260
Lead, refinery, secondary	130,000 ^{r, c}	130,000	141,000	136,000	129,000
Selenium ^c	200	200	200	200	200
Tin, smelter, secondary	9,810 ^r	8,860 ^r	8,540 ^r	9,700	9,330
Zinc, smelter, primary, slab	262,000	260,000	236,000	249,000	275,000
INDUSTRIAL MINERALS					
Arsenic trioxide ^c	1,000	1,000	1,000	1,000	1,000
Cement, hydraulic thousand metric tons	6,364	6,275	6,255	6,513	6,737
Lime ³	1,481,226	1,467,554 ^r	1,400,000 ^c	1,323,653	1,330,000 ^c
Nitrogen, ammonia, N content ^c	820,000 ^r	860,000 ^r	760,000 ^r	920,000	920,000
Sulfur, all forms and sources, S content ^c	400,000	400,000	400,000	400,000	400,000
MINERAL FUELS AND RELATED MATERIALS					
Petroleum, refinery:					
Distillate fuel oil thousand 42-gallon barrels	99,733	100,143	99,642 ^r	96,323	93,337
Gasoline do.	38,939	41,848	41,639 ^r	38,477	37,284
Kerosene do.	13,366 ^r	13,586 ^r	31,518 ^r	15,333	14,858
Liquefied petroleum gas do.	8,201	7,784	7,745 ^r	8,561	8,295
Naphtha, including white spirits do.	21,117	18,594	18,501 ^r	20,268	19,640
Residual fuel oil do.	38,088	36,664	36,481 ^r	47,549	46,075
Total do.	219,000	219,000	236,000 ^r	227,000	219,000

^cEstimated. ^rRevised. do. Ditto.

¹Table includes data available through December 4, 2019. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, secondary aluminum, bismuth metal, cadmium, deadburned dolomite, gold, kaolin, quicklime, platinum-group metals, silica sand, silver, sodium sulfate, tellurium, and worked and natural stone may have been produced, but available information was inadequate to make reliable estimates of output.

³Includes hydraulic lime.

TABLE 2
BELGIUM: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cadmium, metal	metric tons	N.V. Umicore S.A.	Metals recycling plant at Hoboken	1,800
Cement		Cimenteries CBR S.A. (HeidelbergCement Group, 100%)	Major plants at Lixhe, Antoining, and Ghent	3,000
Do.		Compagnie des Ciments Belges-CCB S.A. (Aalborg Portland S.A., 100%)	Plant at Gaurain-Ramecroix	1,800
Do.		Holcim Belgique S.A. (LafargeHolcim Ltd., 100%)	Plants at Obourg and Antwerp	2,100
Do.		VVM NV (CRH plc.)	Plants at Ghent and Antwerp	1,500
Cobalt, refined	metric tons	N.V. Umicore S.A.	Refinery at Olen	1,650 ^c
Copper, metal, secondary		Metallo Belgium S.A. (Metallo Group, 100%)	Smelter at Beerse	160
Dolomite		SA Dolomeuse (Group Lhoist)	Quarry at Marche les Dames	500
Do.		do.	Plant at Marche les Dames	750
Do.		SA Dolomies de Merlemont (Group Lhoist)	Quarry at Philippeville	100
Do.		SA de Marche-les-Dames (Group Lhoist)	Quarries at Nameche	3,000
Do.		do.	Plant at Nameche	3,000
Gold, metal	metric tons	N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	100
Lead, metal		Metallo Belgium S.A. (Metallo Group, 100%)	Smelter at Beerse	24
Do.		N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	90
Do.		do.	Refinery at Antwerp-Hoboken	125
Limestone		Carmeuse S.A. (Heidelberg Cement Group, 100%)	Mines and plant at Engis	1,850
Do.		do.	Mines and plant at Maizeret	850
Do.		do.	Mines and plant at Moha	800
Do.		do.	Mines and plant at Frasnes	450
Do.		SA Transcar (Royal Volker Stevin)	Mines and plant at Maizeret	850
Petroleum, refined	42-gallon barrels per day	ATPC (Vitol Group)	Refinery at Antwerp	24,000
Do.	do.	Belgian Refining Corp. (Gunvor Group, 100%)	do.	107,000
Do.	do.	ExxonMobil Petroleum & Chemical B.V.B.A. (Exxon Mobil Corp., 100%)	do.	307,000
Do.	do.	Total S.A.	do.	338,000
Platinum-group metals	metric tons	N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	55
Sand, silica		SRC-Sibelco S.A.	Mines and plants at Lommel, Mol, and Maasmechelen	500
Selenium	metric tons	N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	300
Silver, metal	do.	do.	do.	2,400
Steel:				
Raw		ArcelorMittal Liege (ArcelorMittal S.A., 100%)	Plant at Liege	3,000
Do.		ArcelorMittal Gent (ArcelorMittal S.A., 100%)	Plant at Ghent	3,000
Manufactured		do.	Galvanizing plant at Genk-Zuid	360
Do.		Industeel Belgium S.A. (ArcelorMittal S.A., 100%)	Rolling mill at Charleroi	600
Do.		NLMK La Louviere S.A. (NLMK Group, 100%)	Rolling mill at La Louviere	900
Do.		NMLK Clabecq S.A. (NLMK Group, 100%)	Rolling mill at Clabecq	750
Do.		Tubemeuse Industries S.A.	Tube mill at Flemalle	50
Sulfuric acid		Nyrstar N.V.	Smelter at Balen	350 ^c
Tellurium	metric tons	N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	150
Tin, metal, secondary		Metallo Belgium S.A. (Metallo Group, 100%)	Smelter at Beerse	12
Zinc, metal		Nyrstar N.V.	Smelter at Overpelt	350
Do.		do.	Smelter at Balen	290

^cEstimated. Do., do. Ditto.