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2019 Minerals Yearbook

BELGIUM [ADVANCE RELEASE]

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The Mineral Industry of Belgium

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The mineral industry of Belgium constituted primarily manufacturing and the processing of metals. Raw materials for Belgium's metal refining sector were sourced from imports or secondary scrap, as there was no mining of metallic ores in the country. In 2019, Belgium was the world's fourth-ranked producer of refined arsenic and selenium, and the fifth-ranked producer of refined indium. The country accounted for 7% of the world's selenium output, 3% of the world's arsenic output, and 2% of the world's indium output. Within the Europe and Central Eurasia region, Belgium was a significant processor of cobalt, copper, lead, pig iron, steel, and zinc. For the United States, Belgium was an important source of imports of antimony, bismuth, gemstones, germanium, and mica. The city of Antwerp remained an important global trading center for diamond (table 1; Safirova and others, 2019, p. 1.8–1.14; Antwerp World Diamond Centre, 2020; National Bank of Belgium, 2020b; World Steel Association, 2020, p. 2; Anderson, 2021a, b; George, 2021; Jasinski, 2021; Klochko, 2021; Merrill, 2021; Olson, 2021; Tolcin, 2021).

Minerals in the National Economy

The real gross domestic product (GDP) of Belgium increased by 1.7% in 2019 compared with that in 2018; the nominal GDP was $532.8 billion[1] (EUR476.2 billion). In 2019, manufacturing output accounted for 12.2% of the GDP. Of the manufacturing output, the manufacturing of chemicals and chemical products made up 1.9% of the GDP; base metals and fabricated metal products (excluding machinery and equipment), 1.4%; and coke and refined petroleum products, 0.3%. Mining and quarrying accounted for 0.1% of the GDP (National Bank of Belgium, 2020a, p. 16).

Belgium consisted of three geographic regions—the Brussels capital region, Flanders, and Wallonia. Flanders (the Flemish Region), which constitutes the northern half of Belgium, produced principally such industrial minerals 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 mineral industry of Wallonia (the Walloon Region) produced primarily refined metals and metallic products (Environment, Nature, and Energy Department, 2010, p. 4–6; European Commission, 2020b, c).

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. 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 mandates the drafting 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 permitting (Vlaams Reglement betreffende de Milieuvergunning, or VLAREM) form the legal basis for the environmental regulation of any activities that have an impact on the environment and apply primarily to the 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, 2020a; European Union, 2020a, 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 2019, the production of liquefied petroleum gas increased by 34%; kerosene, by 19%; lime, by 17%; and distillate fuel oil and ammonia, by 9% each. The production of residual fuel oil decreased by 39%. Other notable production decreases included that of refined cobalt metal, primary refined copper, and primary refined indium, which decreased by 9% each (table 1).

Structure of the Mineral Industry

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

Mineral Trade

Belgium exported a total of $444.3 billion worth of goods in 2019, which was an increase of 0.1% compared with that of 2018. In 2019, chemical products were the leading export category, accounting for 25.1% of total exports and increasing in value by 2.7% compared with the value in 2018. Mineral products were the fourth-ranked export category, accounting for 8.8% of total exports; the value of mineral products exports decreased by 12.2% compared with the value in 2018. Base metals exports made up 7.6% of total exports and decreased in

[1]Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US$) at the annual average exchange rate of EUR0.894=US$1.00 for 2019 and €0.847=US$1.00 for 2018.

value by 6.9%, whereas exports of precious metals and stones accounted for 4.0% of the total and increased in value by 2.1% (Belgian Foreign Trade Agency, 2020a, p. 4).

The country imported a total of $425.9 billion worth of goods and services, which was a decrease of 1.1% compared with the amount imported in 2018. In 2019, chemical products were the leading import category, accounting for 22.5% of total imports and increasing in value by 2.2% compared with that in 2018. Mineral products were the fourth-ranked import category, accounting for 12.9% of total imports and decreasing in value by 14.2% compared with that in 2018. Base metals imports made up 6.8% of total imports and decreased in value by 10.6%, whereas imports of precious metals and stones accounted for 3.7% of total imports and decreased in value by 9.6% (Belgian Foreign Trade Agency, 2020a, p. 5).

In 2019, Belgium remained a leading exporter of multiple minerals and mineral products globally. The country was the world's leading exporter of master copper alloys, accounting for 32.9% of the world's exports, as well as of dolomite (26.3%), and zinc dust, powders, and flakes (26.1%). Belgium was the second-ranked exporter of zinc bars, rods, and wires (accounting for 21.5% of the world's exports); cobalt oxides and hydroxides (20.6%); flat-rolled products of stainless steel (11.0%); slag, ash and residues (10.8%); and nitric acid (3.5%). It was the third-ranked exporter of bismuth (13.1%); tin waste and scrap (8.3%); flat-rolled iron and steel products (7.8%); and copper wire (6.7%). Belgium ranked fourth in the world in diamond exports, which were valued at $11.6 billion in 2019. Belgium ranked seventh globally in exports of semifinished and finished steel products (Belgian Foreign Trade Agency, 2020b, p. 3–8; World Steel Association, 2020, p. 9–11).

In 2019, Belgium's top export partners were Germany, which received 18% of Belgium's exports, in terms of value; France, 14%; the Netherlands, 12%; the United Kingdom, 8%; and the United States, 6%. The country's top import partners were the Netherlands, which supplied 17% of Belgium's total imports, by value; Germany, 13%; France, 10%; the United States, 8%; and Ireland, 5% (Belgian Foreign Trade Agency, 2020a, p. 2–3).

Commodity Review

Metals

Cobalt.—In 2019, N.V. Umicore S.A., which was one of the world's leading metal recyclers and processors, produced about 1,500 metric tons (t) (estimated) of refined cobalt in Olen, Belgium. Umicore operated a cobalt and specialty materials plant at Olen where the company produced arsenic trioxide, cobalt and cobalt compounds, manganese compounds, and nickel compounds. The company also recovered precious metals (gold, iridium, palladium, platinum, rhodium, ruthenium, and silver), minor metals (bismuth, indium, selenium, and tellurium), and base metals (antimony, copper, lead, nickel, and tin) in Hoboken. In 2019, the company reported that processed volumes of material had decreased compared with the volumes in 2018 owing to an extended maintenance period at the Hoboken plant in the beginning of 2019, as well as a fire incident in July. However, the company completed the multiyear expansion program at the Hoboken plant in 2019, which increased its processing capacity to 500,000 metric tons per year (t/yr) from 350,000 t/yr. In September, Umicore signed a multiyear supply agreement with LG Chem Ltd. and Samsung SDI Co., both of the Republic of Korea, to supply 125,000 t and 80,000 t of lithium nickel cobalt manganese oxide cathode materials, respectively, beginning in 2020 (table 1; Umicore Group, 2018; 2020a, p. 31, 32; 2020b, c; Roskill, 2019).

Copper, Lead, and Tin.—In May, Aurubis AG of Germany announced a share purchase agreement for the acquisition of Metallo Group, which was the parent company of Metallo Belgium S.A. The transaction had not been completed by yearend, as the acquisition needed to be approved by the European Commission antitrust authorities. Metallo Belgium had a production capacity of about 220,000 t/yr of copper anodes and cathodes, tin ingots, and lead ingots at its Beerse plant in Belgium (table 2; Aurubis AG, 2019a, p. 3; 2019b).

Iron and Steel.—In 2019, Belgium produced 7.9 million metric tons (Mt) of raw steel, which was a slight decrease from the nearly 8.0 Mt produced in 2018. All output was continuously cast steel. About 68% of raw steel output was produced by the basic oxygen process, and the remaining 32% was produced by electric arc furnaces. Exports of semifinished and finished steel were 16.9 Mt in 2019, which was a 6% decrease from the 18.0 Mt exported in 2018. The country accounted for 4% of the world's semifinished and finished steel exports (table 1; World Steel Association, 2020, p. 5, 9–11).

In June, ArcelorMittal S.A. of Luxembourg completed the sale of several European steel-finishing facilities, including those in Belgium, to Liberty House Group of the United Kingdom. Included in the sale were finishing lines at the steel plant in Liege, which had an annual capacity of 3.0 Mt, two hot-dip galvanizing lines in Flemalle, as well as hot-rolled and cold-rolled lines and tin-packaging lines in Tilleur. ArcelorMittal was the leading producer of steel and steel products in Belgium and operated three sites; in addition to the site in Liege, the other two sites were a steel plant at Ghent and a galvanizing plant at Genk-Zuid (table 2; ArcelorMittal S.A., 2020, p. 51, 129; Liberty Liege-Dudelange, 2020).

ArcelorMittal continued construction of the Carbalyst project at the production facility at Ghent. The project, also called the "Steelanol" (steel + ethanol) project, would use a patented process from LanzaTech to convert CO_2 gas generated from steelmaking at the Ghent plant into ethanol, which could be used as fuel and thus reduce the environmental impact of steel production. Ethanol production at Ghent was expected to start in 2020 with a total capacity of 80 million liters per year of ethanol, which would yield an annual CO_2 savings equivalent of 100,000 electric vehicles. The project was expected to be completed in 2021 (table 2; Steelanol, 2018; ArcelorMittal S.A., 2020, p. 60).

Zinc.—In July, Trafigura Group Pte. Ltd. of the Netherlands acquired a 98.5% equity interest in Nyrstar N.V. of Belgium from NN2 Newco Ltd. of the United Kingdom. The acquisition was a result of a restructuring of Nyrstar's debt burden. Nyrstar N.V., which was a leading producer of zinc globally, operated the Balen smelter, which had a capacity of 290,000 t/yr of zinc metal. In 2019, Nyrstar's Balen and Overpelt smelters in Belgium were estimated to have produced 270,000 t of zinc

metal, which was a decrease of 2% compared with that in 2018. The two facilities, which were located 18 kilometers apart, were complementary and highly integrated. Zinc 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 for the pretreatment of purchased secondary material prior to supplying it to Nyrstar's smelters in Europe. The Balen smelter produced zinc from feedstock of both zinc concentrates and secondary feed materials (table 2; Trafigura Group Pte. Ltd., 2019; 2020, p. 27, 94; Nyrstar N.V., 2020).

Industrial Minerals

Nitrogen.—In 2019, ammonia production was estimated to have increased by 9% compared with than in 2018. Yara Tertre S.A., which was a subsidiary of Yara Nederland B.V. of the Netherlands, produced nitrogen at the Tertre production site. The site was composed of three plants—a nitrate plant with a capacity of 1 million metric tons per year (Mt/yr), a nitric acid plant with a capacity of 700,000 t/yr, and an ammonia plant with a capacity of 400,000 t/yr. The majority of the nitrates produced was exported to European markets (Yara International ASA, 2020, p. 130).

Outlook

Belgium is likely to remain a leading secondary metal producer of precious and specialty metals, and a major trading hub of diamond globally. Manufacturing and export of chemical products, fertilizers, and steel will likely remain a significant portion of the country's industry. Belgium 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, in particular of cobalt and copper, is expected to decrease in the short term owing to the economic slowdown resulting from the coronavirus disease 2019 (COVID-19) pandemic. However, Umicore's capacity expansion in Hoboken and increases in global demand for minerals used in lithium-ion batteries will likely result in continued production increases in the long term. The acquisition of metal-producing assets by Trafigura Group and Liberty House Group from Nyrstar N.V. and ArcelorMittal, respectively, will likely result in additional investments in capacity (International Monetary Fund, 2020, p. 55).

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TABLE 1
BELGIUM: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2015	2016	2017	2018	2019
METALS						
Cobalt, refinery, metal powder, oxide, hydroxide, Co content[e]		1,500	1,500	1,600	1,650	1,500
Copper:						
Smelter, secondary		141,000	143,800	126,900	140,500	139,900
Refinery:						
Primary		226,100	217,900	235,500	230,800	209,600
Secondary		152,500	148,800	163,400	159,400	147,000
Indium, refinery, primary, In content[e]	kilograms	20,000	20,000	20,000	22,000	20,000
Iron and steel:						
Pig iron	thousand metric tons	4,248	4,869	4,860	4,900	4,800
Steel:						
Raw steel	do.	7,257	7,687	7,842	7,980 r	7,905
Products, hot rolled	do.	8,938	8,735	9,292	10,260	10,100 e
Lead, refinery, secondary		130,000	141,000	136,000	129,000	127,000
Selenium, Se content		200	200 e	200 e	200 e	200 e
Tin, smelter, secondary		8,860	8,540	9,700	9,330	9,300
Zinc, smelter, primary, slab		260,000	236,000	249,000	275,000	270,000 e
INDUSTRIAL MINERALS						
Arsenic trioxide[e]		1,000	1,000	1,000	1,000	1,000
Cement, hydraulic	thousand metric tons	6,275	6,255	7,314 r	7,546 r	7,857
Lime[3]		1,467,554	1,400,000 e	1,323,653	1,330,700 r	1,561,275
Nitrogen, ammonia, N content[e]		860,000	760,000	920,000	800,000 r	870,000
MINERAL FUELS AND RELATED MATERIALS						
Petroleum, refinery:						
Distillate fuel oil	thousand 42-gallon barrels	92,626 r	84,932 r	88,617 r	93,323 r	101,402
Gasoline	do.	41,848	40,918 r	39,306 r	34,231 r	36,346
Kerosene	do.	13,249 r	13,041 r	15,251 r	14,471 r	17,199
Liquefied petroleum gas	do.	7,784	8,085 r	8,561	9,616 r	12,899
Naphtha, including white spirit	do.	18,594	20,081 r	19,062 r	21,462 r	22,745
Residual fuel oil	do.	35,338 r	35,491 r	49,870 r	49,997 r	30,543
Total	do.	209,000 r	203,000 r	221,000 r	223,000 r	221,000

eEstimated. rRevised. do. Ditto.

[1]Table includes data available through December 16, 2020. 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.

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

[3]Includes hydraulic lime.

TABLE 2
BELGIUM: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(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 Antoing, Lixhe, 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	1,500 e
Copper, metal		Aurubis A.G.	Refinery at Olen	345
Do.		Metallo Belgium S.A. (Metallo Group, 100%)	Smelter at Beerse	160
Do.		do.	Refinery at Beerse	35
Do.		N.V. Umicore S.A.	Smelter at Hoboken	28
Do.		do.	Refinery at Hoboken	31
Dolomite		SA Dolomeuse (Group Lhoist, 100%)	Quarry at Marche les Dames	500
Do.		do.	Plant at Marche les Dames	750
Do.		SA Dolomies de Merlemont (Group Lhoist, 100%)	Quarry at Philippeville	100
Do.		SA de Marche-les-Dames (Group Lhoist, 100%)	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 e
Indium, metal, secondary		do.	Refinery at Olen	NA
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. (HeidelbergCement 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, 100%)	Mines and plant at Maizeret	850
Nitrogen:				
Ammonia		Yara Tertre S.A. (Yara Nederland B.V., 100%)	Plant at Tertre	400
Do.		BASF S.E.	Plant at Antwerp	650
Nitric acid		Yara Tertre S.A. (Yara Nederland B.V., 100%)	do.	700
Nitrates		do.	do.	1,000
Do.		EuroChem Antwerpen N.V.	do.	2,200
Petroleum, refined	42-gallon barrels per day	ATPC (Vitol Group, 100%)	Refinery at Antwerp	24,000
Do.	do.	Belgian Refining Corp. (Gunvor Group, 100%)	do.	107,500
Do.	do.	ExxonMobil Petroleum & Chemical B.V.B.A. (ExxonMobil Corp., 100%)	do.	307,000
Do.	do.	Total S.A.	do.	338,000
Platinum-group metals		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		N.V. Umicore S.A.	Smelter at Antwerp-Hoboken	600
Silver, metal		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.		NMLK Clabecq S.A. (NLMK Group, 100%)	Rolling mill at Clabecq	750
Do.		NLMK La Louviere S.A. (NLMK Group, 100%)	Rolling mill at La Louviere	900
Do.		Tubemeuse Industries S.A.	Tube mill at Flemalle	50

See footnotes at end of table

TABLE 2—Continued
BELGIUM: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Sulfuric acid	Nyrstar N.V. (Trafigura Group Pte. Ltd., 98.5%, and NN2 Newco Ltd., 1.5%)	Smelter at Balen	350 [e]
Tellurium	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. (Trafigura Group Pte. Ltd., 98.5%, and NN2 Newco Ltd., 1.5%)	Smelter at Balen	290
Do.	do.	Smelter at Overpelt	350

[e]Estimated. Do., do. Ditto.