



2017–2018 Minerals Yearbook

NETHERLANDS [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF THE NETHERLANDS

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

The mineral industry of the Netherlands is engaged primarily in the processing of metals, extraction of natural gas and petroleum, and mining of industrial minerals, such as salt. In Europe, the Netherlands was the second-ranked producer and third-ranked exporter of natural gas and a significant producer of cadmium, lead, pig iron, steel, and zinc. In 2017, the country ranked 9th globally in the production of cadmium (not including the production from the United States) and 15th in the production of nitrogen (N content of ammonia), accounting for 2.4% and 1.6% of world output, respectively (table 1; Ministry of Economic Affairs and Climate Policy, 2018, p. 7–8; World Steel Association, 2018, p. 9; Apodaca, 2019; BP p.l.c., 2019, p. 32, 41; Tolcin, 2019).

Minerals in the National Economy

The real gross domestic product (GDP) of the Netherlands increased by an estimated 2.9% in 2017; the nominal GDP was EUR738.1 billion (\$832.8 billion¹). Manufacturing accounted for 10.9% (estimated) of national output in 2017, which was unchanged from that of 2016, and mining and quarrying accounted for 1% (estimated) of national output compared with 1.1% in 2016. In 2017, manufacturing output increased by 8.3% from that of 2016. Mining and quarrying output decreased by 6.9%, and electricity and gas supply, by 0.6%. The output of coke and petroleum and base metal products increased by 20.4% and 9.9%, respectively (Statistics Netherlands, 2018, p. 13, 48, 61).

The Netherlands was a significant participant in global trade. In 2017, the country's total exports of goods were valued at \$528.2 billion, of which iron and steel products and natural gas each accounted for 2.2%; manufactured metals, 1.8%; nonferrous metals, 1.2%; metalliferous ores and metal scrap, 1%; and nonmetallic mineral products and fertilizers, 0.6% each. Of the country's total imports of goods, which were valued at \$462 billion in 2017, petroleum products accounted for 13.2%; natural gas, 2.4%; iron and steel, 2.2%; manufactured metals, 2.0%; nonferrous metals, 1.5%; metalliferous ores and metal scrap, 1.0%; nonmetallic mineral products, 0.8%; coal, coke, and briquets, 0.6%; and fertilizers, 0.4% (Statistics Netherlands, 2019a).

The Port of Rotterdam remained the largest port in northern Europe, in terms of throughput of weight, and one of the largest coal trading hubs in the world, in terms of weight, in 2017. Among the cargo throughput in the port were, in descending order of quantity, crude petroleum, mineral oil products, ore and scrap metal, coal, bulk agricultural products, and liquefied natural gas. The Port of Rotterdam was the leading transhipper

of coking coal and thermal coal in Europe (Port of Rotterdam Authority, 2018, p. 9–10; 2019).

Production

In 2017, the production of cement increased by 10%; refined lead, by 9%; and salt, by 5%. The production of natural gas decreased by 13%; petroleum condensate, by 15%; and refined petroleum products and zinc (smelter, primary), by 12% each (table 1).

Structure of the Mineral Industry

The mineral industry of the Netherlands was largely privately owned. The Government held ownership stakes in a few mineral-related companies that were involved in either mineral exploration or distribution of mineral fuels, including N.V. Nederlandse Gasunie and GasTerra B.V. (natural gas), Ultra-Centrifuge Nederlands N.V. (uranium), and Energie Beheer Nederland B.V. (natural gas and energy). Table 2 is a list of the major mineral industry facilities in the Netherlands (Ministry of Finance, 2018, p. 5, 13, 15, 47, 60, 104, 122, 126).

Commodity Review

Metals

Aluminum.—Damco Aluminium Delfzijl Coöperatie U.A.'s (ALDEL) aluminum smelter in Delfzijl operated at about one-third of its capacity, producing about 50,000 metric tons (t) of aluminum extrusion billet in 2017. In August, the company filed for insolvency owing to ongoing financial difficulties. In October, ALDEL was acquired by York Capital Management of the United States, which planned to restart idled capacity and aimed to bring the smelter back to full capacity of 150,000 metric tons per year (t/yr) at the beginning of 2018. In November, ALDEL signed a multiyear supply and metal offtake agreement with Concord Resources Ltd. of the United Kingdom. According to the agreement, Concord would be the exclusive alumina supplier to ALDEL and would offtake a portion of the latter's billet production (Concord Resources Ltd., 2017; Walker, 2017a, b).

Iron and Steel.—In 2017, the Netherlands ranked 24th globally as a producer of raw steel with about 6.8 million metric tons (Mt) of output. All output was continuously cast steel and entirely produced using the basic oxygen process. In October, Tata Steel Europe Ltd. (a subsidiary of the Tata Steel Group of India, the 10th-ranked steel producer globally in 2017) began a 6-month test of its new HIsarna technology at a pilot plant in IJmuiden in order to lower the IJmuiden plant's carbon dioxide emissions by 20%. A new off-gas duct was installed in the pilot plant. Tata Steel Europe stated that HIsarna is a substitute for

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

the blast furnace process. Instead of preprocessing iron ore and metallurgical coal into sinter, pellets, and coke, the raw materials are injected as powders and directly converted into liquid iron (Tata Steel, 2017; World Steel Association, 2018, p. 9–11).

Zinc.—Nyrstar NV (Nyrstar) of Switzerland produced 248,000 t of zinc metal and 263,000 t of sulfuric acid at its Budel smelter in 2017, which were decreases of 12% and 24% from those of 2016, respectively. Decreases in output were owing to planned maintenance shutdowns and unplanned outages at the smelter during the year. Budel's feedstock consisted primarily of high-grade sulfide concentrates, zinc oxides, and secondary feeds. The smelter's two key products were high-grade zinc and zinc galvanizing alloys. Budel also produced cadmium, copper, cobalt cake, and a leach product that contained lead and precious metals, which was used as a raw material input by secondary smelters, including Nyrstar's fumer in Hoyanger, Norway (Nyrstar NV, 2018a; 2018b, p. 11, 30).

Industrial Minerals

Salt.—In 2017, rock salt production increased by 4.7% to about 6.9 Mt. As of January 1, 2018, 16 production licenses were in force in northern and eastern Netherlands; no exploration licenses were active. An application for an exploration license in Barradeel-Oost was submitted in 2015 by Frisia Zout BV, but it was still pending. In 2017, seven salt wells were completed. In Groningen Province, Nedmag BV converted a water injection well into a salt production well by means of a sidetrack; the production of magnesium salts started there in October. In Twente, Akzo Nobel Salt BV completed six wells, of which four were new salt production wells in the Ganzebos area (Ministry of Economic Affairs and Climate Policy, 2018, p. 51–53).

Mineral Fuels

Natural Gas and Petroleum.—Production of natural gas and crude petroleum continued to decrease in the Netherlands. In 2017, natural gas output from Dutch fields decreased by 12.7% to 41.8 billion cubic meters owing largely to production decreases at the Groningen onshore gasfield. Onshore gasfields accounted for 29.5 billion cubic meters, or about 71% of total output. Of the total onshore gas production, 23.6 billion cubic meters was from the Groningen gasfield. Offshore gasfields in the North Sea produced 12.3 billion cubic meters. In 2017, petroleum production decreased by 1% to 7.07 million barrels (Mbbbl). Crude petroleum output from onshore fields increased by 134% to 2.65 Mbbbl owing to the Schoonebeek field coming back onstream. Petroleum production offshore decreased by 26.3% to 4.45 Mbbbl, largely owing to lower production at the Q13 Amstel field (Ministry of Economic Affairs and Climate Policy, 2018, p. 7, 42–48).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

In 2018, the Netherlands ranked 8th in the production of cadmium (not including the production from the United States) and 13th in the production of nitrogen (N content of ammonia), accounting for 4.4% and 1.6% of world output, respectively (Apodaca, 2020; Callaghan, 2020).

The real GDP of the Netherlands increased by 2.6% (estimated) in 2018; the nominal GDP was EUR774.0 billion (\$913.9 billion²). Manufacturing accounted for 11.1% (estimated) of national output in 2018, which was unchanged from that of 2017 (revised), and mining and quarrying accounted for 0.9% (estimated) of national output compared with 1.0% in 2017. In 2018, manufacturing output increased by 6.1% compared with that of 2017. Mining and quarrying output decreased by 2.2%, and output of coke and petroleum and base metals and products increased by 24.8% and 4.7%, respectively (Statistics Netherlands, 2019b, p. 13, 48, 61).

In 2018, natural gas accounted for 2.3% of total exports of goods valued at \$587.8 billion; iron and steel, 2.1%; manufactured metals, 1.8%; nonferrous metals, 1.2%; metalliferous ores and metal scrap, 1.1%; and fertilizers and nonmetallic mineral products, 0.6% each. Of the total imports of goods, which were valued at \$521 billion in 2018, petroleum products accounted for 14.1%; natural gas, 3.2%; iron and steel, 2.2%; manufactured metals, 2.0%; nonferrous metals, 1.6%; metalliferous ores and metal scrap, 1.0%; nonmetallic mineral products, 0.8%; coal, coke, and briquets, 0.5%; and fertilizers, 0.4% (Statistics Netherlands, 2019a).

In 2018, the production of primary aluminum was estimated to have increased by 100%; cement, by 8%; primary zinc, by 8%; and semimanufactured steel products, by 6%. The production of natural gas decreased by 16%; petroleum condensate, by 15%; and crude petroleum, by 5% (table 1).

The aluminum smelter in Delfzijl began to restart idled capacity in mid-2018. By yearend, the smelter was reported to have been operating at full capacity of 150,000 t/yr. York Capital Management invested between 20 million and 30 million euros in the smelter and increased employment from approximately 175 to 250 workers (Walker, 2017b; Eemsdelta, 2018).

Outlook

The Netherlands is expected to remain a significant producer of cadmium and nitrogen globally. The country's natural gas and petroleum output is likely to continue decreasing owing to the gradual depletion of the currently producing fields. Salt extraction is expected to increase with the opening of new wells. Aluminum output is expected to increase with the ramping up of production in the country's sole primary aluminum smelter in Delfzijl.

References Cited

- Apodaca, L.E., 2019, Nitrogen (fixed)—Ammonia: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 117–118.
- Apodaca, L.E., 2020, Nitrogen (fixed)—Ammonia: U.S. Geological Survey Mineral Commodity Summaries 2020, p. 116–117.
- BP p.l.c., 2019, BP statistical review of world energy—2019: London, United Kingdom, BP p.l.c., 61 p. (Accessed December 23, 2020, at <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf>.)
- Callaghan, R.M., 2020, Cadmium: U.S. Geological Survey Mineral Commodity Summaries 2020, p. 40–41.
- Concord Resources Ltd., 2017, Aluminium Delfzijl: London, United Kingdom, Concord Resources Ltd., November 20. (Accessed October 18, 2018, at <https://www.concordltd.com/2017/11/aluminium-delfzijl/>.)

²Where necessary, values have been converted from euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR.847=US\$1.00 for 2017.

- Eemsdelta, 2018, Aluminum production in Delfzijl at full speed: Eemsdelta, October 22. (Accessed December 18, 2019, at http://www.eemsdelta.nl/eemsdelta/nieuws_42105/item/aluminiumproductie-in-delfzijl-op-volletoeeren-we-produceren-meer-dan-ooit_80854.html.)
- Ministry of Economic Affairs and Climate Policy [Netherlands], 2018, Natural resources and geothermal energy in the Netherlands—Annual review 2017: The Hague, Netherlands, Ministry of Economic Affairs and Climate Policy, July, 137 p. (Accessed October 19, 2018, at <https://www.nlog.nl/sites/default/files/yearbook%202017-%20englishversion.pdf>.)
- Ministry of Finance [Netherlands], 2018, Jaarverslag—Beheer staatsdeelnemingen 2017 [Yearbook—Management of state holdings 2017]: The Hague, Netherlands, Ministry of Finance, September 6, 164 p. (Accessed October 19, 2018, at <https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/jaarverslagen/2018/09/06/jaarverslag-beheerstaatsdeelneming-2017/Jaarverslag+Beheer+Staatsdeelneming+2017.pdf>.)
- Nyrstar NV, 2018a, Budel smelter—The Netherlands: Balen, Belgium, Nyrstar NV factsheet, 2 p. (Accessed October 18, 2018, at <https://www.nyrstar.com/~media/Files/N/Nyrstar/operations/melting/2018%20Fact%20Sheet%20-%20Budel.pdf>.)
- Nyrstar NV, 2018b, Nyrstar investor presentation: Balen, Belgium, Nyrstar NV, August, 31 p. (Accessed March 15, 2019, at <https://www.nyrstar.com/~media/Files/N/Nyrstar/investor-toolkit/Talkbook%20-%20August%202018.pdf>.)
- Port of Rotterdam Authority, 2018, Highlights of the 2017 annual report: Port of Rotterdam Authority, February 23, 16 p. (Accessed March 14, 2019, at https://www.portofrotterdam.com/sites/default/files/highlights_annual_report_2017.pdf?token=3WD3woSz.)
- Port of Rotterdam Authority, 2019, Coal import, export, and transshipment: Port of Rotterdam Authority. (Accessed March 14, 2019, at <https://www.portofrotterdam.com/en/doing-business/logistics/cargo/dry-bulk/coal-import-export-and-transshipment>.)
- Statistics Netherlands, 2018, National accounts of the Netherlands 2017: The Hague, Netherlands, Statistics Netherlands, July 23, 147 p. (Accessed October 22, 2018, at https://www.cbs.nl/-/media/_pdf/2018/30/2018a413-national-accounts-2017-web-new.pdf.)
- Statistics Netherlands, 2019a, International trade: import and export value, SITC (3 digit), countries: The Hague, Netherlands, Statistics Netherlands, December 27. (Accessed December 16, 2019, at <https://opendata.cbs.nl/statline/#/CBS/en/dataset/83926ENG/table?ts=1577427360498>.)
- Statistics Netherlands, 2019b, National accounts of the Netherlands 2018: The Hague, Netherlands, Statistics Netherlands, July, 147 p. (Accessed December 16, 2019, at https://www.cbs.nl/-/media/_pdf/2019/29/national-accounts-2018.pdf.)
- Tata Steel, 2017, Hisarna—Game changes in the steel industry: London, United Kingdom, Tata Steel, December, 4 p. (Accessed October 22, 2018, at https://www.tatasteeleurope.com/static_files/Downloads/Corporate/About%20us/hisarna%20factsheet.pdf.)
- Tolcin, A.C., 2019, Cadmium: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 40–41.
- Walker, Ian, 2017a, Concord Resources signs supply, metal offtake agreement with Aldel aluminium smelter: Metal Bulletin, November 20. (Accessed October 18, 2018, via <https://www.metalbulletin.com/>.)
- Walker, Ian, 2017b, Hedge fund agrees purchase for bankrupt Klesch aluminium smelter: Metal Bulletin, October 26. (Accessed October 18, 2018, via <https://www.metalbulletin.com/>.)
- World Steel Association, 2018, World steel in figures 2018: Brussels, Belgium, World Steel Association, 30 p. (Accessed October 20, 2018, at <https://www.worldsteel.org/en/dam/jcr:f9359dff-9546-4d6b-bed0-996201185b12/World+Steel+in+Figures+2018.pdf>.)

TABLE 1
NETHERLANDS: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity ²	2014	2015	2016	2017	2018
METALS					
Aluminum, metal, primary	--	25 ^{r, e}	50 ^{r, e}	50 ^e	100 ^e
Cadmium, refinery, primary ^e metric tons	1,100 ^r	1,100 ^r	1,100 ^r	1,100 ^r	1,100
Iron and steel:					
Pig iron, including blast-furnace	5,868	6,050	6,092	6,145	6,150
Steel:					
Raw steel	6,964	6,995	6,917	6,781	6,813
Products, semimanufactured	6,657	6,814	6,465	6,589	6,971
Lead, refinery, secondary	30 ^{r, e}	30 ^{r, e}	33	36 ^e	36 ^e
Zinc, smelter, primary	290 ^r	291 ^r	283	248	268
INDUSTRIAL MINERALS					
Cement, hydraulic	2,610	2,260	2,260 ^e	2,480	2,690
Nitrogen, ammonia, N content	2,200 ^r	2,300 ^r	2,300	2,400 ^e	2,400 ^e
Salt, rock	6,485	6,743	6,625	6,935	7,000 ^e
Sand and gravel, industrial	124,488	71,239	54,725	54,000	54,000 ^e
Stone, sand, and gravel, construction:					
Sand and gravel	16,934	17,683	15,821	16,000	16,000 ^e
Stone, crushed	7,414	8,020	8,436	8,400	8,400 ^e
MINERAL FUELS AND RELATED MATERIALS					
Natural gas, dry basis million cubic meters	65,954	49,690	47,900	41,800	35,100
Petroleum:					
Crude thousand 42-gallon barrels	11,378	10,416	7,145 ^r	7,070	6,690
Condensate do.	3,126	3,346	2,365	2,006	1,700
Refinery:					
Diesel do.	154,500	166,800	183,000 ^{r, e}	142,840	144,000 ^e
Gasoline do.	54,000	46,000	50,400 ^{r, e}	25,178	26,000 ^e
Kerosene, including jet fuel do.	64,000	64,000	70,100 ^{r, e}	60,189	60,800 ^e
Liquefied petroleum gas do.	18,900	20,100	22,000 ^{r, e}	18,061	18,200 ^e
Naphtha do.	58,700	72,400	79,300 ^{r, e}	90,362	91,000 ^e
Natural gas liquids do.	3,800	4,200	4,600 ^{r, e}	2,496	2,500 ^e
Residual fuel oil do.	58,700	60,500	66,300 ^{r, e}	77,815	78,600 ^e
Total do.	413,000 ^r	434,000	476,000 ^{r, e}	417,000	421,000 ^e

^eEstimated. ^rRevised. do. Ditto. -- Zero.

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 calcium, cobalt, copper magnesium compounds, peat, secondary aluminum, silica, sodium compounds, sulfur (as an elemental byproduct of metallurgy and of petroleum and natural gas), and construction materials, such as limestone and sand and gravel may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
NETHERLANDS: 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
Aluminum:				
Primary		Damco Aluminium Delfzijl Coöperatie U.A. (York Capital Management, 100%)	Smelter at Delfzijl	150
Secondary		Alumax Recycling BV	Smelter at Kerkade	50
Do.		Zeeland Aluminium Co. BV (ZALCO) (UTB Holding BV, 100%)	Plant at Flushing (Vlissingen)	230
Cadmium	metric tons	Nyrstar NV	Plant at Budel	1,200
Calcium carbonate, ground		Omya Netherlands BV	Plant at Moerdijk	500
Cement		Eerste Nederlandse Cement Industrie NV (HeidelbergCement Group, 100%)	Plants at IJmuiden, Maastricht, and Rotterdam	2,900
Do.		Orcem BV (Ecochem Materials, Ltd., 100%)	Plant in Moerdijk	350
Iron and steel, steel		Tata Steel Europe Ltd. (Tata Steel Group)	Plant at IJmuiden	7,500
Magnesia		MAF Magnesite BV	Plant at Schiedam	40
Do.		Nedmag Industries Mining & Manufacturing BV	Plant at Veendam	130
Natural gas	million cubic meters	Nederlandse Aardolie Maatschappij BV (NAM) (Exxon Mobil Corp., 50%, and Royal Dutch Shell plc., 50%)	Groningen, Leeuwarden, Assen, and other onshore gasfields and several offshore wells in the North Sea	45,000 °
Petroleum:				
Crude	42-gallon barrels per day	Dana Petroleum Netherlands BV	F02a and P11b fields	4,600 °
Do.	do.	ENGIE NL	F03b and Q13a fields	8,900
Do.	do.	Nederlandse Aardolie Maatschappij BV (NAM) (Exxon Mobil Corp., 50%, and Royal Dutch Shell plc, 50%)	Onshore fields: Botlek, Rijswijk, Schoonebeek	3,100 °
Do.	do.	Petrogas E & P Netherlands BV	P09c and Q01 fields	2,100
Do.	do.	TAQA Energy BV	P15a and P15b fields	1,100
Refined	do.	BP Raffinaderij Rotterdam BV	Rotterdam	358,500
Do.	do.	Esso Nederland BV (Exxon Mobil Corp., 100%)	Botlek	191,000
Do.	do.	Gunvor Petroleum Ltd. (Gunvor Group, 100%)	Rotterdam	83,600
Do.	do.	Koch HC Partnership (Koch Group, 100%)	do.	10,000
Do.		Shell Nederland Raffinaderij BV	Pernis	404,000
Do.	do.	Zeeland Refinery NV (Total Nederland NV, 55%, and LUKOIL, 45%)	Vlissingen	166,000
Salt		Akzo Nobel Salt BV (Akzo Nobel NV, 100%)	Mines in Adolf van Nassau and Veendam	3,100 °
Do.	do.	do.	Mines in Twente-Rijn	2,500 °
Do.		Frisia Zout BV	Barradeel and Barradeel II Mines	1,000 °
Do.		Nedmag BV	Veendam Mine	300 °
Sand, silica		Lieben Minerals BV	Mines at South Limburg	150
Do.		Sigrano Nederland NV (Sibelco Group)	Mines and plants at Heerlin and Maastricht	500
Sodium:				
Carbonate, synthetic		Brunner Mond Group BV	Plant at Delfzijl	380
Sulfate, synthetic		do.	do.	600
Stone, limestone		Ankerpoort NV (Lhoist SA, 100%)	Mines at Maastricht and Winterswijk	600
Sulfuric acid		Nyrstar NV	Plant at Budel	300 °
Zinc		do.	do.	300 °

°Estimated. Do., do. Ditto.