



# 2016 Minerals Yearbook

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**THE NETHERLANDS [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF THE NETHERLANDS

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The mineral industry of the Netherlands comprised processing of metals, extraction of natural gas and crude petroleum, and mining of industrial minerals, such as salt. The Netherlands was the second-ranked producer of natural gas and a significant producer of cadmium, lead, pig iron, steel, and zinc in Europe. In 2016, the country was globally the 9th-ranked producer of cadmium (not including the United States) and the 14th-ranked producer of nitrogen (N content of ammonia), accounting for 2.6% and 1.6% of world output, respectively (table 1; Ministry of Economic Affairs, 2017, p. 9–10; U.S. Commercial Service, 2017; Apodaca, 2018; Tolcin, 2018).

## Minerals in the National Economy

The real gross domestic product (GDP) of the Netherlands increased by 2.2% in 2016; the nominal GDP was \$761.2 billion.<sup>1</sup> Industry and mining and quarrying accounted for 15.2% and 1.4% of the gross value added, respectively. In 2016, mining and quarrying output decreased by 3.7%, whereas those of energy and water, refined fuels and chemicals, and base metals and products increased by 5.3%, 5.0%, and 0.9%, respectively (Statistics Netherlands, 2017a, b; 2018a).

The Netherlands was a significant participant in global trade. In 2016, iron and steel made up 2.2% of the country's total exports of \$460.5 billion; manufactured metals, 1.9%; nonferrous metals, 1.2%; metalliferous ores and metal scrap, 0.9%; nonmetallic mineral products, 0.6%; and fertilizers, 0.4%. Of total imports of \$403.8 billion in 2016, petroleum products accounted for 12.1%; iron and steel, 2.3%; manufactured metals, 2.0%; natural gas, 1.8%; and nonferrous metals, 1.4%. The Netherlands ceased being a net gas exporter in December 2015 (Statistics Netherlands, 2018b).

## Production

In 2016, the production of aluminum in the Netherlands increased by an estimated 47% owing to the continued rampup of the Delfzijl smelter since its restart in 2015. Refined lead production increased by 3%. The production of crude petroleum decreased by a reported 31.4%; condensate, by 29.3%; semimanufactured steel products, by 5.1%; natural gas, by 3.6%; and smelted zinc, by 3.4% (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, including N.V. Nederlandse Gasunie and GasTerra (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, 2017, p. 41, 105).

## Commodity Review

### Metals

**Aluminum.**—Klesch Aluminum Delfzijl BV (ALDEL)'s aluminum smelter in Delfzijl continued to operate at about 70% of its capacity of 150,000 metric tons per year after re-starting operations in March 2015. ALDEL's leading customer for its aluminum output and leading supplier of alumina was Noble Group Ltd. of Singapore, which was also its tolling company (American Metal Market Daily, 2017, p. 9–10).

**Iron and Steel.**—Tata Steel Europe Ltd., which was a subsidiary of Tata Steel Group of India, achieved its highest-ever total hot-strip mill output at its IJmuiden steel plant at 5.22 million metric tons (Mt) in fiscal year 2015 (the latest year for which detailed data were available). The company's direct sheet plant also produced its highest ever output at 1.31 Mt, exceeding its nameplate capacity of 1.3 million metric tons per year (Tata Steel, 2015, p. 107).

**Zinc.**—Nyrstar NV (Nyrstar) of Switzerland produced 283,000 metric tons (t) of zinc metal and 342,000 t of sulfuric acid at its Budel smelter in 2016. Budel's feedstock primarily consisted of high-grade sulfide concentrates, zinc oxides, and secondary feeds. The smelter ceased sourcing from the Century Mine in Australia in late 2015 after the mine reached the end of its life. The company subsequently began sourcing from another supplier and also invested to resolve a possible bottleneck in its supply chain, expanding the types and grades of concentrates the smelter could process (Nyrstar NV, 2017).

### Industrial Minerals

**Salt.**—In 2016, rock salt production decreased by 1.7% to 6.6 Mt. As of January 1, 2017, 16 production licenses were in force in northern and eastern Netherlands. The application for an exploration license in Barradeel-Oost by Frisia Zout BV, submitted in 2015, was still pending (Ministry of Economic Affairs, 2017, p. 57–59).

### Mineral Fuels

**Natural Gas and Petroleum.**—Production of natural gas and crude petroleum continued to decrease in the Netherlands in 2016. The decrease in total natural gas output was largely due to the reduction in output at the Groningen field. The decrease in crude petroleum output offshore was largely a result of lower production at the Q13 Amstel field. The decrease in crude petroleum output onshore was caused by technical problems with transportation of injection water at the Schoonebeek field (Ministry of Economic Affairs, 2017, p. 46–51).

<sup>1</sup>Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an average rate of EUR0.923=US\$1.00 for 2016.

## Outlook

The Netherlands is expected to remain a significant producer of cadmium and nitrogen globally. Natural gas is expected to remain the most important mineral produced in the country, though output is projected to continue to decrease owing to the gradual depletion of the currently producing gasfields. Aluminum output is expected to increase with the ramping up of production in the country's sole primary aluminum smelter in Delfzijl. Mining of metal ores in general is likely to remain nonexistent.

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TABLE 1  
NETHERLANDS: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise noted)

| Commodity <sup>2</sup>                                    | 2012                       | 2013                   | 2014                   | 2015                   | 2016                 |                      |
|---|----------------------------|------------------------|------------------------|------------------------|----------------------|----------------------|
| METALS  |                            |                        |                        |                        |                      |                      |
| Aluminum metal, primary                                   | 110,000                    | 50,000                 | --                     | 75,000 <sup>e</sup>    | 110,000 <sup>e</sup> |                      |
| Cadmium, refinery production, primary, metal <sup>e</sup> | 560                        | 610                    | 620 <sup>r</sup>       | 620 <sup>r</sup>       | 630                  |                      |
| Iron and steel:   |                            |                        |                        |                        |                      |                      |
| Pig iron, including blast-furnace                         | thousand metric tons       | 5,917 <sup>r</sup>     | 5,681 <sup>r</sup>     | 5,868                  | 6,050                | 6,092                |
| Raw steel   | do.                        | 6,879 <sup>r</sup>     | 6,713 <sup>r</sup>     | 6,964                  | 6,995                | 6,917                |
| Products, semimanufactured                                | do.                        | 6,418 <sup>r</sup>     | 6,370 <sup>r</sup>     | 6,657 <sup>r</sup>     | 6,814 <sup>r</sup>   | 6,465                |
| Lead, refinery production, secondary                      | 27,000                     | 27,000                 | 31,000                 | 32,000                 | 33,000               |                      |
| Zinc, smelter production, primary                         | 260,000 <sup>r</sup>       | 284,000 <sup>r</sup>   | 291,000 <sup>r</sup>   | 293,000 <sup>r</sup>   | 283,000              |                      |
| INDUSTRIAL MINERALS                                       |                            |                        |                        |                        |                      |                      |
| Cement, hydraulic   | thousand metric tons       | 1,940 <sup>r</sup>     | 2,050 <sup>r</sup>     | 2,610 <sup>r</sup>     | 2,260 <sup>r</sup>   | 2,260 <sup>e</sup>   |
| Nitrogen, N content, ammonia                              | 2,170,000 <sup>r</sup>     | 2,270,000 <sup>r</sup> | 2,160,000 <sup>r</sup> | 2,280,000 <sup>r</sup> | 2,300,000            |                      |
| Salt, rock  | thousand metric tons       | 6,547                  | 6,518                  | 6,485                  | 6,743                | 6,625                |
| Sulfur, byproduct, S content:                             |                            |                        |                        |                        |                      |                      |
| Metals <sup>e</sup>                                       | 118,000                    | 121,000                | 120,000                | 120,000                | 120,000              |                      |
| Petroleum <sup>e</sup>                                    | 450,000                    | 430,000                | 590,000 <sup>r</sup>   | 540,000 <sup>r</sup>   | 410,000              |                      |
| MINERAL FUELS AND RELATED MINERALS                        |                            |                        |                        |                        |                      |                      |
| Natural gas, dry basis                                    | million cubic meters       | 73,806 <sup>r</sup>    | 80,048 <sup>r</sup>    | 65,954 <sup>r</sup>    | 49,690 <sup>r</sup>  | 47,900               |
| Petroleum:  |                            |                        |                        |                        |                      |                      |
| Crude   | thousand 42-gallon barrels | 8,321 <sup>r</sup>     | 8,265 <sup>r</sup>     | 11,378 <sup>r</sup>    | 10,416 <sup>r</sup>  | 7,141                |
| Condensate  | do.                        | 3,019                  | 3,334                  | 3,126                  | 3,346                | 2,365                |
| Refinery production:                                      |                            |                        |                        |                        |                      |                      |
| Diesel  | do.                        | 149,600 <sup>r</sup>   | 151,100 <sup>r</sup>   | 154,500 <sup>r</sup>   | 166,800 <sup>r</sup> | 167,000 <sup>e</sup> |
| Gasoline  | do.                        | 59,300 <sup>r</sup>    | 53,900 <sup>r</sup>    | 54,000 <sup>r</sup>    | 46,000 <sup>r</sup>  | 50,000 <sup>e</sup>  |
| Kerosene, including jet fuel                              | do.                        | 56,700 <sup>r</sup>    | 54,400 <sup>r</sup>    | 64,000 <sup>r</sup>    | 64,000 <sup>r</sup>  | 64,000 <sup>e</sup>  |
| Liquefied petroleum gas                                   | do.                        | 17,100 <sup>r</sup>    | 16,500 <sup>r</sup>    | 18,900 <sup>r</sup>    | 20,100 <sup>r</sup>  | 20,000 <sup>e</sup>  |
| Naphtha   | do.                        | 63,500                 | 62,800                 | 58,700                 | 72,400               | 73,000 <sup>e</sup>  |
| Natural gas liquids                                       | do.                        | 3,700                  | 4,100                  | 3,800                  | 4,200                | 4,000 <sup>e</sup>   |
| Residential fuel oil                                      | do.                        | 60,300 <sup>r</sup>    | 58,300 <sup>r</sup>    | 58,700 <sup>r</sup>    | 60,500 <sup>r</sup>  | 61,000 <sup>e</sup>  |
| Total   | do.                        | 410,200 <sup>r</sup>   | 401,100 <sup>r</sup>   | 412,600 <sup>r</sup>   | 434,000 <sup>r</sup> | 439,000 <sup>e</sup> |

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through February 19, 2018. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>In addition to the commodities listed, magnesium compounds, secondary aluminum, sodium compounds, and construction materials, such as limestone, peat, and sand and gravel may have been produced in the Netherlands, but available information was inadequate to make reliable estimates of output.

TABLE 2  
NETHERLANDS: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

| Commodity                 |                           | Major operating companies and major equity owners   | Location of main facilities   | Annual capacity |
|---------------------------|---------------------------|---|---|-----------------|
| <b>Aluminum:</b>          |                           |   |   |                 |
| Primary                   |                           | Klesch Aluminum Delfzijl BV<br>(Klesch and Co. Ltd., 100%)  | Smelter at Delfzijl   | 150             |
| Secondary                 |                           | Alumax Recycling BV   | Smelter at Kerkade  | 50              |
| Do.                       |                           | Zeeland Aluminium Co. BV (ZALCO)<br>(UTB Holding B.V., 100%)  | Plant at Flushing (Vlissingen)  | 230             |
| Cadmium                   | metric tons               | Nyrstar NV  | Plant at Budel  | 650             |
| Calcium carbonate, ground |                           | Omya Netherlands BV   | Plant at Moerdijk   | 500             |
| Cement                    |                           | Eerste Nederlandse Cement Industrie NV<br>(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                  |                           | Nedmag Industries Mining & Manufacturing BV   | Plant at Veendam  | 130             |
| Do.                       |                           | MAF Magnesite BV  | Plant at Schiedam   | 40              |
| Natural gas               | million cubic meters      | Nederlandse Aardolie Maatschappij BV (NAM)<br>(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 | 50,000          |
| <b>Petroleum:</b>         |                           |   |   |                 |
| Crude                     | 42-gallon barrels per day | Dana Petroleum Netherlands BV   | F02a and P11b fields  | 4,600           |
| Do.                       | do.                       | Nederlandse Aardolie Maatschappij BV (NAM)<br>(Exxon Mobil Corp., 50%, and Royal Dutch Shell plc., 50%) | Onshore fields: Botlek, Rijswijk, Schoonebeek   | 3,100           |
| Do.                       | do.                       | ENGIE NL  | F03b and Q13a fields  | 8,900           |
| 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.                       | Shell Nederland Raffinaderij BV   | Pernis  | 416,000         |
| Do.                       | do.                       | BP Raffinaderij Rotterdam B.V.  | Rotterdam   | 400,000         |
| Do.                       | do.                       | Esso Nederland (ExxonMobil, 100%)   | Botlek  | 195,000         |
| Do.                       | do.                       | Zeeland Refinery NV (Total Nederland NV, 55%, and LUKOIL, 45%)  | Vlissingen  | 149,000         |
| Do.                       | do.                       | Gunvor Petroleum Ltd. (Gunvor Group, 100%)  | Rotterdam   | 88,000          |
| Do.                       | do.                       | Koch HC Partnership (Koch Group, 100%)  | do.   | 80,000          |
| Salt                      |                           | Akzo Nobel Salt BV (Akzo Nobel NV, 100%)  | Mines in Adolf van Nassau   | 3,100           |
| Do.                       |                           | do.   | Mines in Twent-Rijn   | 2,500           |
| Do.                       |                           | Frisia Zout BV  | Barradeel and Barradeel II Mines  | 1,000           |
| Do.                       |                           | Nedmag Industries Mining & Manufacturing BV   | Veendam Mine  | 300             |
| Sand, silica              |                           | Sigrano Nederland NV (Sibelco Group)  | Mines and plants at Heerlin and Maastricht  | 500             |
| Do.                       |                           | Lieben Minerals BV  | Mines at South Limburg  | 150             |
| <b>Sodium:</b>            |                           |   |   |                 |
| 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             |
| Zinc                      |                           | Nyrstar NV  | Plant at Budel  | 290             |

Do., do. Ditto.