### THE MINERAL INDUSTRY OF

# **THE NETHERLANDS**

### By Harold R. Newman

In terms of world production, the Netherlands was a modest producer of metallic, nonmetallic minerals, and mineral products. However, it was very important as a regional producer of natural gas and petroleum for the European market and played a major role as a transshipment center for mineral materials entering and leaving continental Europe.

Rotterdam, the world's largest container port and a major European transportation hub, remained extremely important as a shipping and storage center. With the ever-expanding inland transportation systems, goods entering or leaving Rotterdam can originate in or be destined for almost anywhere in continental Europe.

The volume of goods handled by the port of Rotterdam rose by 1.5% from the 1997 level to more than 315 million metric tons (Mt). Some categories of goods for which volumes increased were dry bulk goods (sand, gravel, minerals, up 10.5%) coal (up 6.4%), wet bulk goods (chemicals, oils, and fats, up 2.8%), and oil products (up 2.5%). Crude oil was still the largest individual goods flow at more than 100 Mt in 1998 (Holland Trade, 1999, The Dutch Economy in 1998, accessed June 14, 1999, at URL http://www.hollandtrade.com/ECON98. htm).

By contrast, the port handled less ore and scrap (down 6.5%). The facilities at Rotterdam were approaching capacity and could not accommodate a significant increase in traffic without upgrading and expansion.

Environmental policy in the Netherlands is the responsibility of the Ministry of Housing, Planning, and the Environment, and protecting and upgrading the quality of the environment is of high priority to the citizens of the Netherlands. In addition to protecting the environment, the Dutch Government also was concerned with remedying the practices of the past. One interesting feature of Dutch environmental policy is the use of covenants, which are voluntary agreements between industry and Government, and sometimes other organizations, to work together to achieve certain environmental goals, such as the reduction of waste.

Production of mineral commodities generally remained the same or dropped slightly during 1998. The high cost of social benefits contributed to the production costs of Dutch products making them less competitive on the world market. The only mining operations left in the Netherlands in 1998 were the extraction of peat, salt, and sand and gravel. The metal processing sector relied almost exclusively on imported raw materials, not only ores and concentrates, but also on scrap. (See table 1.)

The Government's role in the economy has declined since the 1980's, and privatization continued with little debate or

opposition. However, the state dominated the energy sector and played a large role in aviation, chemicals, steel, telecommunications, and transportation. (See table 2.)

The Netherlands was one of the top trading countries in the world and depended heavily on foreign trade. The country maintained a commitment to an open market and free trade. It was ranked fifth in exports of goods and services to the United States and eighth in imports of goods and services from the United States. Germany was the Netherlands' main trading partner (U.S. Department of State, 1999, 1998 economic policy and trade practices, January 1999, accessed June 8, 1999, at URL http://www.state.gov/www/issues/ec...eports/europe98/ netherlands98.html)

Hoogovens Aluminium BV continued to investigate the possibility of building its own powerplant to serve its aluminum and steel operations. An earlier study by the company had indicated that the organization could save as much as 20% on its energy costs if it were to build a 1,000-megawatt (Mw) powerplant; this would be equivalent to 6% of the country's electricity capacity.

The Atntheus Magnesium Development Programme Delfzijil (MDPD), a group of private and public interests, announced plans for the construction of a new 40,000 to 50,000-metric-tonper-year (t/yr) primary magnesium smelter to be located in the Eemsmond region in the northern part of the Netherlands. MDPD said this area was ideal owing to ready availability of a plant site at Delfzijil, more than 2,000 Mw of electric power, and nearby magnesium salt mining operations using high purity brines. The plant would be located near the existing primary aluminum producer and secondary aluminum processor, Hoogovens, which would provide optimal access for producing various alloys. The estimated capital cost would be about \$400 million (Metal Bulletin, 1998b).

The steel division of the Hoogovens Group, Hoogovens IJmuiden BV, was Europe's sixth largest steel producer. The company's reorganization plan took effect in mid-1995. The steel division was divided into five separate business-oriented organizations. In addition to the marketing, sales, and production units, a product/market unit was created to focus more attention on customer-driven innovation. To increase the international depth of the market, an international business development directorate was set up to build up sustainable positions on growth markets outside of Europe. Hoogovens was installing an in-line-strip-production (ISP) thin-slab facility from Mannesmann Demag at its steelworks at Ijmuiden. The new plant will produce 1.3 Mt of low-carbon unalloyed steel. The ISP caster will produce slabs with thickness of 70 to 90 millimeter (mm). The rolling mill will process strip with a width of 750 to 1,560 mm and a thickness of 1 to 2.5 mm. The first cast was scheduled for late 1999. The ISP plant will create 150 jobs and was expected to cost \$340 million (New Steel, 1998, Hoogovens will install Mannesmann thin-slab caster, March 1998, accessed May 27, 1998, at URL

http://www.newsteel.com/news/NW980303.htm).

Hoogovens Ijmuiden BV and Sidmar NV were going ahead with a second galvanization line as planned. Galtec-2 will be built at Hoogovens' Ijmuiden steelworks and have a capacity of 400,000 t/yr and was to be operational in 2000. Galtec was a 50-50 joint venture between Hoogovens and Sidmar. Hoogovens and Sidmar inaugurated Galtec-1 at Sidmar's steelworks near Ghent, Belgium, in mid-1998. That line had a capacity of 400,000 t/yr. When Galtec-2 is in full production, the two companies will exchange their share holdings, leaving Hoogovens owning the Ijmuiden galvanizing line and Sidmar owning the Ghent galvanizing line (Metal Bulletin, 1998a).

The Netherlands was active on the international energy supply scene in more than one respect. The Netherlands supplied energy to Europe, served as the entrepôt for oil products for the whole of northwestern Europe, and was an international supporter of sustainable energy.

After the Nederlandse Aardolie Maatschappij (NAM) struck one of the largest gasfields in the world in the northern Netherlands in 1959, the decision was made to drill for natural gas and petroleum in the North Sea as well. Natural gas has become the most important mineral fuel produced in the Netherlands. The Groningen Gasfield at Slochteren was one of the world's largest producing natural gasfields.

N.V. Nederlandse Gasunie (Gasunie) purchased the gas produced by the 29 well clusters in the Groningen field operated by NAM and also purchased gas from several smaller fields on the Dutch mainland and the Dutch sector of the continental shelf. Gasunie estimated the total gas reserves contained in fields already discovered in the Netherlands, as of January 1, 1999, to be approximately 1,850 billion cubic meters (N.V. Nederlandse Gasunie, 1998, Facts and figures, 1998, accessed June 15, 1999, at URL http://www.gasunie.nl/eng/p\_ga\_aa3. htm).

Tebodin BV won a contract from a consortium of seven Danish, Finnish, and Swedish energy companies to carry out a feasibility study into the creation of an integrated natural gas network in the north of Europe, the so-called Nordic Gas Grid. The study will investigate the possibility of developing and linking the natural gas pipelines of Denmark, Finland, Norway, Sweden, Russia, and the Baltic Republics. Tebodin will also analyze the development of gas markets in this region (Holland Bulletin, 1998, Engineering, procurement and construction, October 1998, accessed June 14, 1999 at URL http://www.hollandtrade.com/HB1098.htm).

#### **References** Cited

Metal Bulletin, 1998a, Hoogovens, Sidmar go ahead with second galv line: Metal Bulletin, no. 8311, September 21, p. 8.

#### **Major Sources of Information**

Geological Survey of the Netherlands Richard Holkade, 10 2000 AD Haarlem The Netherlands Ministry of Economic Affairs 2500 EC The Hague The Netherlands

# TABLE 1 THE NETHERLANDS: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/         1944         1955         1996         1997         1988 e/           Aliminum medal.         METALS         210,382         215,600         221,000         213,000 r/         264,000           Cadinum medal.primary         000         307         603         603         718 r/         739 J/           Dec. sintered (from imported ore)         3122,500         4,246,400         4,250,000 e'         4,250,000 e'         4,250,000 e'         4,250,000 s         5,413,000         5,646,500         5,545,000         5,804,000         5,520,000 s         6,040,000         5,320,000 s'         2,2000 e'         1,200 J         2,2000 e'         1,200 J         2,2000 e'         1,200 J         2,2000 e'         2,2000 I         1,500 J         2,2000 I         1,500 J         2,2000 I         1,500 J         2,2000 I         2,500 J         2						
METALS           Primary         219,382         219,382         219,000         227,027         231,800 tr/         264,000           Scondary c/         primary         307         0.03         150,000 er/         250,000 er/         4250,000 er/         4250,00	Commodity 2/	1994	1995	1996	1997	1998 e/
Alumium medi:         219,382         215,600         227,027         231,800 r/         264,000           Secondary c'         003         003         003         150,400         373 s/         373 s/           Ore, sintered (from impord ore)         3,021,500         4,250,000 c/         4,250,000 c/         4,250,000 c/         4,250,000 s/         1,2,000 s/	METALS	_				
Primary         219,382         215,000         227,027         231,800         72,027         231,800         72,047         73,040         71,500 <th71,500< th=""> <th71,500< th=""> <th71,5< td=""><td>Aluminum metal:</td><td></td><td></td><td></td><td></td><td></td></th71,5<></th71,500<></th71,500<>	Aluminum metal:					
Secondary e'         175,300         191,500         150,000         150,000         150,000         178,200         128,000	Primary	219,382	215,600	227,027	231,800 r/	264,000
Calmian melal, primary         307         603         718 x²         729 s²           Dre, sintered (from imported ore)         307         603         603         718 x²         729 s²           Metal:         500         540.000         4.250,000 e²         4.250,000 s²         5.200,000 s²         5.2	Secondary e/	175,300	191,500	150,000	150,400 3/	150,000
Iron and stell:         Ore, sinteed (rom imported ore) $3/21,500$ $4,246,400$ $4,250,000$ $d$ $2,250,000$ $d$ $2,200,000$ $d$ $2,200,000$ $d$	Cadmium metal, primary	307	603	603	718 r/	739 3/
Ore, stintered (from imported ore)         3,021,500         4,246,400         4,250,000 e'         4,230,000 e'         4,230,000 e'         4,250,000 f'           Pig iron, including blast-furnace ferroalloys (f any)         5,445,400         5,645,000         5,545,000         5,804,000         5,500,000 f'           Steel:         6,174,000         6,409,000         6,400,000         6,379,000 s'         5,200,000 s'         12,800 s'         5,200,000 s'         12,800 s'         5,200,000 s'         12,800 s'         12	Iron and steel:	_				
Medic         Instant         Number of the secondary of the secon	Ore, sintered (from imported ore)	3.021.500	4,246,400	4.250.000 e/	4.250.000 e/	4.250,000
Trigrin, Including blas-furmace fermalloys (if any)         5,443,400         5,646,500         5,843,000         5,843,000         5,843,000         5,545,000         5,545,000         5,545,000         5,545,000         5,545,000         5,545,000         5,779,000         3/           Crude         6,174,000         6,409,000         6,325,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,779,000         5,799,000         2,789,007         2,280,007         2,2630         1,25,000 </td <td>Metal:</td> <td></td> <td>, .,</td> <td>,,</td> <td>, ,</td> <td>, ,</td>	Metal:		, .,	,,	, ,	, ,
Sitel:         Cruck         First and the large of th	Pig iron including blast-furnace ferroalloys (if any)	5 443 400	5 646 500	5 545 000	5 804 000	5 561 000 3/
Circle         6.17 4000         6.425 000         6.425 000         6.437 000         6.325 000         6.470 000         6.325 000         6.40000         6.327 000         6.325 000         6.40000         6.370 000         6.420 000         6.325 000         6.410 000         6.370 000         6.420 000         6.420 000         6.420 000         6.420 000         6.420 000         6.420 000         6.420 000         6.325 000         6.410 000         6.320 000         7.200	Steel		2,010,200	0,0 10,000	2,00 1,000	2,201,000 2,
Seminanticutures         5.99.800 v         5.00.000 v         4.810,000 v         5.175,000 v         5.200,000 v	Crude	6 174 000	6 409 000	6 325 000	6 640 000	6 379 000 3/
Lead, meai, refined, secondary         24,500         22,200         c/         19,500         c/         13,200         3           Zaw, meai, primary         INDUSTRIAL MINERALS         212,600         20,000         23,000,000         3,300,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         12,000	Semimanufactures	- 5 9/8 000	5,500,000 e/	4 810 000	5 175 000	5 200 000
Examination         122,000         207,400         12,000         12,000         207,400         12,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         125,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,0000         125,000         125,000	Lead metal rafined secondary	- 24 500	20,200	22,000 e/	19 500 e/	13 200 3/
Zhr. ineda, primary         INDUSTRIAL MINERALS           Cement, hydraulic e'         3,400,000         3,300,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         3,200,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000 <td>Zine metal primary</td> <td>212,600</td> <td>20,200</td> <td>22,000  c/</td> <td><math>208\ 800\ r/</math></td> <td>218 700 3/</td>	Zine metal primary	212,600	20,200	22,000  c/	$208\ 800\ r/$	218 700 3/
Cenent, hydraulic e'         3,400,000         3,300,000         3,300,000         3,200,000           Magnesium compounds: e'         140,000         125,000         24,000 e'	INDUCTDIAL MINEDALC		200,300	207,400 1/	208,800 1/	210,700 3/
Centeri, nyananice'         5,400,000         5,400,000         5,500,000         5,200,000         5,200,000         5,200,000         5,200,000         5,200,000         5,200,000         5,200,000         5,200,000         125,000	INDUSTRIAL MINERALS	- 2 400 000	2 400 000	2 200 000	2 200 000	2 200 000
Magnetium compounds; e'         140,000         125,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         22,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         25,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000	Cement, nydraulic e/		3,400,000	3,300,000	3,300,000	3,200,000
$ \begin{array}{c} 140,000 & 122,000 & 122,000 & 122,000 & 100,000 \\ 100,000 & 100,000 & 100,000 & 100,000 & 100,000 \\ 100,000 & 100,000 & 100,000 & 100,000 & 100,000 \\ 2,479 tr & 2,580 tr & 2,580 tr & 2,478 tr & 2,350 \\ 2,479 tr & 2,580 tr & 2,580 tr & 2,478 tr & 2,350 \\ 2,500 tr & 2,500 tr & 2,519 & 24,000 tr & 25,000 tr & 15,000 tr & 125,000 tr & $	Magnesium compounds: e/	- 140.000	105 000	125 000	125 000	125 000
Divergen         100,000         125,000         125,000         125,000         125,000         125,000         125,000         125,000		140,000	125,000	125,000	125,000	125,000
Nitrogen, N content of ammona         thousand tons $2.479 \ t'$ $2.530 \ t'$ $2.478 \ t'$ $2.430 \ t'$ $2.478 \ t'$ $2.4300 \ t'$ $2.4000 \ t'$	Oxide	100,000	100,000	100,000	100,000	100,000
Salt, all types         do.         3.500 e'         4.976         5.530         5.500 e'         5.500           Sodium compounds, n.e.s. e/         24,000 e'         20,000         15,000 15,000 15,000         15,000         15,000         15,000         15,000         15,000         15,000         125,000         25,000         300,000 300,000 130,000         125,000         125,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         2,800,000         2,800,000         2,800,000         2,800,000         2,800,000         2,800,000         2,800,000         2,800,000         2,600,000         1,0000         10,000         10,000	Nitrogen, N content of ammonia thousand ton	s 2,479 r/	2,580 r/	2,653 r/	2,478 r/	2,350
Sand, industrial         do.         22,006         23,159         24,000 e/         24,000 f/         20,000 f/         20,	Salt, all types do	. 3,500 e/	4,976	5,530	5,500 e/	5,500
Softim compounds, ne.s.; $e'$ 400,000         400,000         400,000         400,000           Sulfare:         -	Sand, industrial do	. 25,006	23,159	24,000 e/	24,000 e/	24,000
Carbonate, synthetic         400,000         400,000         400,000         400,000         400,000         400,000           Natural         20,000         20,000         20,000         20,000         20,000         20,000         20,000         20,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         150,000         125,000<	Sodium compounds, n.e.s.: e/	_				
	Carbonate, synthetic	400,000	400,000	400,000	400,000	400,000
Natural         20,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         15,000         125,000         125,000         25,000         25,000         25,000         25,000         25,000         25,000         25,000         25,000         25,000         25,000         25,000         125,000         25,000         125,000         25,000         125,000         25,000         125,000         25,000         125,000	Sulfate:					
Synthetic         15,000         15,000         15,000         15,000         15,000           Sulfur: e'         Elemental byproduct:         125,000         125,000         150,000         150,000         125,000           Of metallurgy         125,000         125,000         137,600         125,000         125,000           Total         300,000         300,000         300,000         287,600         250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,0000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         100,000         10,000	Natural	20,000	20,000	20,000	20,000	20,000
Sulfur; e/         Elemental byproduct:           Of metallurgy         125,000         150,000         150,000         125,000           Of metallurgy         300,000         300,000         150,000         125,000         125,000           Total         300,000         300,000         150,000         125,000         125,000           Sulfuric acid, 100% H2SQ1 e/         1250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,250,000         1,0000         100,000         1	Synthetic	15,000	15,000	15,000	15,000	15,000
Elemental byproduct:         I <	Sulfur: e/	_				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Elemental byproduct:	_				
Of petroleum and natural gas         300.000 $300.000$ $137,600$ $125,000$ Total         300.000 $300.000$ $300.000$ $287,600$ $250.000$ Sulfuric acid, 100% H2SO4 e/         1,250.000 $300.000$ $125,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,250,000$ $1,0000$ $100,000$	Of metallurgy	125,000	125,000	150,000	150,000	125,000
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Of petroleum and natural gas	300.000	300,000	150.000	137.600	125,000
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Total	425.000	425,000	300.000	287.600	250,000
MINERAL FUELS AND RELATED MATERIALS         Interface         Interface <th< td=""><td>Sulfuric acid, 100% H2SO4 e/</td><td>1.250.000 3/</td><td>1.250.000</td><td>1.250.000</td><td>1.250.000</td><td>1.250.000</td></th<>	Sulfuric acid, 100% H2SO4 e/	1.250.000 3/	1.250.000	1.250.000	1.250.000	1.250.000
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	MINERAL FUELS AND RELATED MATERIALS	_ , ,	, ,	, ,	,,	, ,
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Carbon black e/	110 000	100.000	100.000	100.000	100.000
Gas: $1,0000$ $2,000,000$ $300,000$	Coke metallurgical e/	2 750 000	2 800 000	2 800 000	2 800 000	2 600 000
Manufactured e/         million cubic meters $10,000$ $10,000$ $10,000$ $10,000$ $10,000$ Natural:         Gross         do. $78,400$ $78,350$ $89,700$ $88,000$ $e/$ $80,000$ <td>Gac'</td> <td></td> <td>2,000,000</td> <td>2,000,000</td> <td>2,000,000</td> <td>2,000,000</td>	Gac'		2,000,000	2,000,000	2,000,000	2,000,000
Matural curred b         Infinit cube index s         10,000<	Manufactured e/ million cubic meter	<u> </u>	10.000	10.000	10,000	10.000
Adutal.         78,400         78,350         89,700         88,000         e/         88,000           Marketed e/         do.         forss         fors         fors <td>Natural:</td> <td><u>s</u> 10,000</td> <td>10,000</td> <td>10,000</td> <td>10,000</td> <td>10,000</td>	Natural:	<u>s</u> 10,000	10,000	10,000	10,000	10,000
Otoss         Ob.         78,500         78,500         85,000         86,000         86,000           Marketed e/         do.         77,400         78,000         86,000         170,000	Gross de	78 400	78 350	80.700	88 000 a/	88.000
Marketed (2)         do.         77,400         76,000         80,0	UI055 do	77,400	78,330	85,700	86,000 6/	86,000
Natural gas indus e'       Indusand 42-galion barrels $170,000$ $300,000$ </td <td>Natural and liquida a/</td> <td>. 170,000</td> <td>170,000</td> <td>170,000</td> <td>170,000</td> <td>170,000</td>	Natural and liquida a/	. 170,000	170,000	170,000	170,000	170,000
Pear, agriculturat e/ $500,000$	Natural gas inquids e/ thousand 42-gallon barrel	<u>s</u> 170,000	170,000	170,000	170,000	170,000
Periodum:Crudethousand 42-gallon barrels $25,298$ $24,466$ $21,006$ $21,000$ $21,000$ Refinery products: e/ $36,100$ $36,000$ <t< td=""><td>Peat, agricultural e/</td><td></td><td>300,000</td><td>300,000</td><td>300,000</td><td>300,000</td></t<>	Peat, agricultural e/		300,000	300,000	300,000	300,000
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Petroleum:		21.155	21.004	<b>21</b> 000	<b>21</b> 000
Retinery products: e/         do.         36,100         36,000	Crude thousand 42-gallon barrel	<u>s</u> 25,298	24,466	21,086	21,000 e/	21,000
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Refinery products: e/					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Liquefied petroleum gas do	. 36,100	36,000	36,000	36,000	36,000
Gasoline, motor         do.         75,000         85,000         85,000         85,000         44,000         44,200         40,000         40,000         40,000         40,000         40,000         40,000         40,000         40,000         40,000         40,000         2	Mineral jelly and wax do	. 600	600	600	600	600
Naphtha and white spirit         do.         84,200         85,000         40,000         20,000	Gasoline, motor do	. 75,000	75,000	75,000	75,000	75,000
Jet fuel         do.         44,200         40,000         20,000 </td <td>Naphtha and white spirit do</td> <td>. 84,200</td> <td>85,000</td> <td>85,000</td> <td>85,000</td> <td>85,000</td>	Naphtha and white spirit do	. 84,200	85,000	85,000	85,000	85,000
Kerosene         do.         1,520         1,600         1,600         1,600           Refinery gas         do.         22,000         20,000	Jet fuel do	. 44,200	40,000	40,000	40,000	40,000
Refinery gas         do.         22,000         20,000         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,800         3,500         85,000         85,000         85,000         85,000         85,000         85,000         85,000         4,500         4,500         4,500         4,500         4,500         4,500         4,500         4,500         25,000         25,	Kerosene do	. 1,520	1,600	1,600	1,600	1,600
Lubricants         do.         3,750         3,800         4,500         4,500         4,500	Refinery gas do	. 22,000	20,000	20,000	20,000	20,000
Residual fuel oil         do.         84,400 3/         85,000	Lubricants do	. 3,750	3,800	3,800	3,800	3,800
Bitumen         do.         4,400         4,500         4,500         4,500         4,500         4,500         4,500         4,500         4,500         4,500         25,000	Residual fuel oil do	. 84,400 3/	85,000	85,000	85,000	85,000
Unspecified         do.         25,000         25,00	Bitumen do	. 4,400	4,500	4,500	4,500	4,500
Total do. 381,170 376,500 376,500 376,500 376,500	Unspecified do	. 25,000	25,000	25,000	25,000	25,000
	Total do	. 381,170	376,500	376,500	376,500	376,500

e/Estimated. r/Revised.

1/ Table includes data available through April 1999.
2/ In addition to the commodities listed, the Netherlands produced construction materials, such as sand and gravel, but output was not reported and no basis exists to make relia of output.
3/ Reported figure.

# TABLE 2 THE NETHERLANDS: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

				Annual
	Commodity	Major operating companies	Location of main facility	capacity
Aluminum			·	
Primary		Pechiney Nederland NV	Smelter at Vlissingen	175
Do.		Hoogovens Aluminium BV	Smelter at Delfzijl	100
Secondary		do.	do.	50
Do.		Alumax Recycling BV	Smelter at Kerkade	50
Cadmium	tons	Budelco BV (Australian Overseas Smelting Pty.	Plant at Budel-Dorplein	650
		Ltd, 50%; Kempensche Zinkmaatschappij		
		Zincs de la Campine BV, 50%)		
Cement		ENCI Nederland BV (Eerste Nederlandse	10 plants at Maastrict	2,700
		Cement Industrie NV)		
Do.		Cementfabriek IJmuiden BV	3 plants at IJmuiden	1,600
Do.		Cementfabriek Rozenburg BV	2 plants at Rozenburg	920
Lead		Hollandse Metallurgische Industrie Billiton BV	Electrolytic plant at Arnhem	35
Do.		Billiton Witmetaal BV	Electrolytic plant at Naarden	6
Limestone		Ankerpoort NV (Lhoist SA, 100%)	Mines at Maastricht and Winterswijk	600
Magnesia		Nedmag Industries Mining & Manufacturing BV	Plant at Veendam	130
Do.		MAF Magnesite BV	Plant at Schiedam	40
Natural gas	nillion cubic meters per day	Nederlandse Aardolie Maatschappij BV (NAM)	Groningen, Leeuwarden, Assen, and other onshore gasfields and several offshore wells in the North Sea	225
Petroleum, crude	e barrels per day	AMOCO, CONOCO, and UNOCAL	766 wells (204 producing) including North Sea fields:	83,500
			Haven, Helder, Helm, Hoorn, Kotter, Logger, and Rijn	(63,000)
Do.	do.	NAM	Onshore fields: Berkel, DeLier, Ijselmonde, Meerkapelle,	(20,500)
			Pernis, West, Pinacke, Rotterdam, Schoonebeck,	
			Werkendam, and Zoetemeer	
Refineries		6 companies, of which the major ones are:	Refinery at:	1,230,500
Do.	do.	Netherlands Refining Co.	Rotterdam	(446,000)
Do.	do.	Shell Nederland Raffinaderij BV	Pernis	(374,000)
Do.	do.	Esso Nederland BV	Rotterdam	(175,000)
Do.	do.	Total Raffinaderij Nederland NV	Vlissingen	(150,000)
Salt		Akzo Salt and Basic Chemicals BV	Mines at:	4,000
			Hengelo	(2,000)
			Delfzijl	(2,000)
Sand, silica		Lieben Minërals BV	Mines at South Limburg	150
Sodium:				
Carbonate, syn	nthetic	do.	Plant at Delfzijl	380
Sulfate, synthe	etic	do.	do.	600
Steel		Hoogovens IJmuiden BV	Plant at IJmuiden	6,100
Zinc		Budel Zinc BV (Pasminco Europe BV)	Plant at Budel-Dorplein	215