USGS
science for a changing world

2017–2018 Minerals Yearbook

PORTUGAL

U.S. Department of the Interior
U.S. Geological Survey

August 2023

The Mineral Industry of Portugal

By Joanna Asha Goclawska

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

The geology of Portugal is complex and variable. The country hosts resources of many minerals, including copper, feldspar, kaolin, lithium, marble, tungsten, and zinc. In 2017, Portugal was tied with Zimbabwe as the fifth-ranked producer (excluding United States production) of lithium globally, accounting for 1.2% of world production, and the seventh-ranked producer of tungsten globally, accounting for 0.9% of world production. Portugal's real gross domestic product (GDP) increased by 3.5% in 2017 compared with a 2% rate of growth in 2016. The nominal GDP was $220.8 billion. Portugal was a member country of the European Union (EU) and traded goods and services mainly with France, Germany, and Spain (table 1; Veiga, 2013; Jaskula, 2019; Shedd, 2019; Statistics Portugal, 2019b; World Bank Group, The, 2019).

Minerals in the National Economy

In 2017, Portugal's total exports were valued at $59.6 billion.[1] Mineral fuels and distilled products exports accounted for 7.2% of total exports; iron and steel exports, 2.5%; and exports of ores, 0.8%. The total imports amounted to $75.5 billion. Mineral fuels accounted for 11.8% of Portugal's total imports. Portugal maintained two oil refineries but extracted no crude petroleum. In 2017, crude petroleum was imported mainly from countries of the former Soviet Union (47% of the total crude petroleum imports), the Middle East (18%), and west Africa (17%). Exports of refinery products totaled 46.2 million barrels, which was an increase of 8% from the amount exported in 2016. Diesel fuel and gasoline each accounted for 29% of total exports, and fuel oil accounted for 26%. These mineral commodities were sent mostly to France, Spain, and the United States. Portugal's employment in the manufacturing industries accounted for 17.1% of total employment in 2017, as it had been consistently since 2015 (Galp Energia, SGPS, S.A., 2018, p. 50–51, 53; Statistics Portugal, 2018; AICEP Portugal Global, 2019).

Portugal's mining sector was regulated by the Ministry of Environment and Energy Transition and was under the direct supervision of the General Directorate of Energy and Geology. Mining activity—including prospecting for, exploration for, and extraction of geologic resources—was governed by the Legal Framework for the Discovery and Use of the Geological Resources, which was enacted on June 22, 2015, and which revoked the previous Decree-Law 90/90 of March 16, 1990. Petroleum and gas were excluded from the Geological Resources Law and were regulated by other laws, such as the Decree-Law 109/94 of April 1994 (Vitor and others, 2012; Frias and Protasio, 2017; Thomson Reuters, 2019).

[1]Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US$) at an annual average exchange rate of EUR0.923=US$1.00 for 2017.

Production

In 2017, the most significant increases in mineral production were reported for silica (quartz), 200%; lithium (lepidolite, pegmatite), 97%; tin, 50%; basalt, 43%; slate, 33%; rock salt, 28%; dolomite and lead, 25% each; tungsten, 22%; talc, 16%; petroleum products, 14%; limestone, 13%; and cement, 12%. The most significant decreases in mineral production were reported for graywacke, 43%; gypsum (including anhydrite), 40%; schist, 18%; gabbro, 16%; marble, 15%; and copper (concentrates, Cu content), 14%. Data on mineral production are in table 1.

Structure of the Mineral Industry

In Portugal, the state had full ownership rights of all mineral resources, but quarries and mines were privately owned (Thomson Reuters, 2019). Table 2 is a list of major mineral industry facilities, their locations, and their production capacities.

Commodity Review

Metals

Copper and Zinc.—In 2017, Portugal produced 63,812 metric tons (t) of copper (mine production, Cu content) and 71,356 t of zinc (mine production, Zn content) compared with 74,352 t and 69,526 t, respectively, in 2016. Lundin Mining Corp. of Canada, through its wholly owned subsidiary Sociedade Mineira de Neves-Corvo, S.A. (Somincor), operated the Neves-Corvo underground mine, which is located in southern Portugal southeast of Lisbon in the western part of the Iberian Pyrite Belt (IPB). In 2017, Lundin Mining continued to work at the mine on a large-scale zinc expansion project, which had been approved by the Government in 2015. Once constructed, it would increase capacity at the plant to 2.5 million metric tons per year (Mt/yr) of ore throughput [representing about 150,000 metric tons per year (t/yr) of zinc concentrate] from 1.1 Mt/yr (table 1; Lundin Mining Corp., 2017a; 2017b, p. 4, 8, 16, 109).

Tungsten.—In January 2016, Almonty Industries Inc. of Canada (Almonty) gained ownership of Beralt Tin & Wolfram, which operated the Panasqueira Mine. In 2017, Almonty produced 669 t of tungsten concentrate (W content) compared with 549 t in 2016, which was an increase of nearly 22%. In May, the company announced plans to increase its tungsten production by 10% using XRT ore sorters. XRT sorting tests in Crominet facilities, where tailings from the heavy media separation were sent, proved a possible recovery of up to 93.6% of the contained tungsten (table 1; Almonty Industries Inc., 2016, 2017; Wheeler, 2016, p. 130; Mining Magazine, 2018).

Industrial Minerals

Cement.—The Loule cement plant operated by Cimentos de Portugal, SGPS, S.A. (Cimpor) restarted in 2017 after ceasing production in 2016 owing to low global demand for cement. Cimpor also operated a plant in Alhandra and a plant in Souselas (Global Cement, 2016, 2017).

Lithium.—Portugal continued to be the leading lithium producer in Europe, producing 50,743 t of lithium ore (lepidolite, pegmatite, 1.5% Li) in 2017, which was nearly double the 25,758 t produced in 2016. The sole producing lithium mine in the country was located in Mangualde and was owned by Pegmatítica-Sociedade Mineira de Pegmatites Lda. (tables 1, 2).

In May, Savannah Resources Plc (SAV) of the United Kingdom acquired a 75% ownership of the Mina do Barroso lithium project near the northern border with Spain. The Mina do Barroso project had an approved mining plan, environmental impact assessment (EIA), and mining license. Construction was expected to start in 2019, and first concentrate production from the mine would be in 2020. The mine was estimated to produce 175,000 t/yr of spodumene concentrate containing 6.0% lithium oxide (Mining Technology, 2018; Savannah Resources Plc, 2018).

Novo Litio Ltd. of Australia (formerly Dakota Minerals Ltd.) faced legal problems associated with the exploration licenses for the activities at its Sepeda lithium project. The company stated that it had agreement to obtain 100% of the granted license and license applications held by Lusorecursos ARG and Lusorecursos LDA. In December, Novo Litio announced that the company would shift its focus towards other projects in the northern Portugal lithium belt while continuing to pursue legal action (Novo Litio Ltd., 2017a, b).

Lepidico Ltd. of Australia and Grupo Mota developed a partnership in 2016 through which Lepidico obtained permission to identify lithium-oxide-bearing mineral resources at the Alvarroes pegmatite mine, which was operated by Felmica (a subsidiary of Grupo Mota). Lepidico aimed to separate lithium carbonate from lepidolite and zinnwaldite, which were found in the Alvarroes pegmatites. In 2017, Lepidico announced that Joint Ore Reserves Committee (JORC) code-compliant inferred resources of 1.5 million metric tons at a grade of 1.1% lithium oxide were identified at Alvarroes (Lepidico, 2018a, p. 1, 4; 2018b).

Mineral Fuels and Other Sources of Energy

Petroleum.—Petroleos de Portugal S.A. [a wholly owned subsidiary of Galp Energia, SGPS, S.A. (Galp)] operated two crude petroleum refineries—the Sines and the Matosinhos—which were the only refineries in Portugal. The two refineries had a total crude petroleum processing capacity of about 130 million barrels per year (Galp Energia, SGPS, S.A., 2017, p. 50).

Renewable Energy.—In 2017, wind power accounted for 11.6% of all electricity demand from EU countries. Portugal had a total of 5,316 megawatts of installed capacity at the end of 2017. Portugal was ranked second among EU countries in the percentage of average annual electricity demand that was covered by wind; 24.2% of the nation's electricity consumption was supplied by wind power (WindEurope, 2018, p. 9, 22).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

In 2018, Portugal's real GDP increased by 2.4% compared with an increase of 3.5% in 2017. The nominal GDP was $240.7 billion. The total value of industrial production was $108.1 billion,[2] which was an increase of 7.1% compared with that of 2017. Of this amount, the manufacture of refined petroleum products accounted for 9.1% ($9.8 billion), which was an increase of 6.1% compared with that of 2017; that of fabricated metal products (except machinery and equipment) accounted for 6.8% ($7.3 billion); that of nonmetallic mineral products accounted for 4.1% ($4.4 billion); and that of base metals accounted for 3.4% ($3.7 billion) (Statistics Portugal, 2019a, p. 18; 2019b; World Bank Group, The, 2019).

The mining sector played an important role in Portugal's international trade. Portugal's total exports amounted to $68.2 billion, which was an increase of about 5.1% from those of 2017. Following the manufacturing and agriculture sectors, mining and quarrying was the third largest sector in terms of the value of exported goods, which amounted to $830.2 million. The country's leading export mineral commodities included petroleum and mineral fuels, which were valued at $4.7 billion (6.8% of Portugal's total exports); iron and steel, $1.9 billion (2.5%); and articles of stone, plaster, cement, asbestos, mica, or similar materials, $599.2 million (0.9%). The country's total imports increased by 8.1% to $88.9 billion. The leading import mineral commodities included petroleum and mineral fuels, which were valued at $10.7 billion (12.0% of total imports) and represented the second-most imported product group; iron and steel, $3.1 billion (3.5%); and articles of stone, plaster, cement, asbestos, mica, or similar materials, $252.4 million (less than 1%) (AICEP Portugal Global, 2019; Statistics Portugal, 2019c, p. 41).

In 2018, the most significant increases in mineral production were reported for the following mineral commodities: lead, by 240%; zinc, 103%; gypsum, including anhydrite, 53%; silver, 38%; tin, 37%; slate, 25%; and cement, 11%. The most significant decreases in mineral production were reported for gabbro, by 27%; talc, 25%; copper, 23%; rock salt, 21%; dolomite, 18%; and basalt, 16%. Data on mineral production are in table 1.

In 2018, the Neves-Corvo underground mine, which was owned by Lundin Mining, produced 45,692 t of copper concentrate (Cu content) and 75,435 t of zinc concentrate (Zn content). The 12,068-t increase in copper production compared with that of 2017 and the 4,079-t increase in zinc production were the result of higher mine productivity and mill throughput and of higher grades of extracted ore. Although Lundin Mining's copper and zinc plants set annual throughput records in 2018, Portugal's copper production decreased overall. Starting in March 2018, the mill at the Aljustrel copper-silver mine (owned by Almina – Minas do Alentejo, S.A.) was converted to process zinc ore and to produce a zinc-lead-silver concentrate. Minas do Alentejo, S.A.'s mining concession was located near the mining village of Aljustrel in the Alentejo region

[2]Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US$) at an annual average exchange rate of EUR0.848=US$1.00 for 2018.

(Almina – Minas do Alentejo, S.A., 2019; Lundin Mining Corp., 2019, p. 1, 2; Wood Mackenzie, 2019).

Almonty had been generating tungsten preconcentrate using a heavy media separation unit at the Panasqueira Mine; the preconcentrate was then upgraded by gravimetric methods to produce final concentrate containing 75% WO_3, which was one of the highest commercially available grades. In July 2018, Almonty announced that a new XRT ore sorter had arrived at the Panasqueira Mine. With sufficient capacity to process the total amount of the tailings generated by the heavy media separation unit, the new ore sorter would increase tungsten production by about 10% by performing additional reclamation of the coarse fraction tailings (Almonty Industries Inc., 2018, p. 1; Mining Magazine, 2018).

In 2018, InterCement Brasil S.A. of Brazil sold its cement units in Portugal, operating under the InterCement and Cimpor brands, to OYAK Cement of Turkey. The transaction was part of the debt-reduction plan previously announced by InterCement and Cimpor. InterCement, which was owned by Brazil's Camargo Correa group, bought a majority stake in Portugal's Cimpor in 2012. In Portugal, Cimpor operated 3 integrated cement plants, 2 cement mills, 15 quarries, 43 concrete plants, 2 mortar plants, and 1 packing facility, and had a cement production capacity of approximately 6.5 Mt/yr (OYAK, 2018; World Cement, 2018).

During 2018, planned maintenance was carried out at the Galp refineries, which resulted in about 8% lower refinery production. At the beginning of the year, an outage of approximately 30 days took place in the hydrocracker unit at the Sines refinery. In the second half of the year, production at the Matosinhos refinery was stopped for approximately 25 days, and further maintenance work was performed at the Sines refinery in the fluid catalytic cracking unit (Galp Energia SGPS, S.A., 2019, p. 55–56).

Outlook

Portugal's economy has had continued growth since 2012, and the country's real GDP is expected to continue to increase into 2020. Production of metallic ores and concentrates is expected to increase as exploration efforts culminate in new development. Continued investments in wind power and hydropower are shifting Portugal towards being a renewable, self-sufficient energy producer; however, fossil fuels are expected to remain necessary when the renewable energy supply is less than demand (International Monetary Fund, 2019).

References Cited

AICEP Portugal Global, 2019, Portuguese international trade in goods from 2001 to 2018: Lisbon, Portugal, AICEP Portugal Global, September 20. (Accessed December 12, 2019, via http://www.portugalglobal.pt/EN/BIBLIOTECA/Pages/homepage.aspx.)

Almina – Minas do Alentejo, S.A., 2019, Location: Aljustrel, Portugal, Almina – Minas do Alentejo, S.A. (Accessed January 12, 2020, at https://www.almina.pt/english/location.html.)

Almonty Industries Inc., 2016, Almonty Industries Inc. completes acquisition of 100% of the Panasqueira Mine: Toronto, Ontario, Canada, Almonty Industries Inc., January 6, 4 p. (Accessed August 3, 2018, at https://almonty.com/wp-content/uploads/2019/07/nr_2016_01_06D.pdf.)

Almonty Industries Inc., 2017, Almonty announces initiatives to enhance tailings recovery at its Panasqueira Mine and the filing of an updated technical report on its Wolfram Camp Mine: Toronto, Ontario, Canada, Almonty Industries Inc., May 15, 4 p. (Accessed August 3, 2018, at https://almonty.com/wp-content/uploads/2019/07/nr_2017_05_15.pdf.)

Almonty Industries Inc., 2018, Almonty industries to improve concentrate output at Panasqueira Mine in Portugal: Toronto, Ontario, Canada, Almonty Industries Inc., July 26, 2 p. (Accessed August 3, 2018, at https://almonty.com/wp-content/uploads/2019/07/AII_NR180726.pdf.)

Frias, Marilia, and Protasio, Manuel, 2017, Portugal mining law 2018: International comparative legal guides, September 25. (Accessed August 3, 2018, at https://iclg.com/practice-areas/mining-laws-and-regulations/portugal#chaptercontent1.)

Galp Energia, SGPS, S.A., 2017, Shaping energy—Annual report and accounts 2016: Lisbon, Portugal, Galp Energia, SGPS, S.A., 415 p. (Accessed August 6, 2018, at https://www.galp.com/corp/Portals/0/Recursos/Investidores/SharedResources/Relatorios/EN/2016RA/Annual-Report-and-Accounts-2016-en.pdf.)

Galp Energia, SGPS, S.A., 2018, Global Energiser—Annual report and accounts 2017: Lisbon, Portugal, Galp Energia, SGPS, S.A., 369 p. (Accessed August 3, 2018, at https://www.galp.com/corp/Portals/0/Recursos/Investidores/SharedResources/Relatorios/EN/Annual_Report_and_Accounts_Galp_2017_1.pdf.)

Galp Energia, SGPS, S.A., 2019, A new perspective on energy—Galp integrated report 2018: Lisbon, Portugal, Galp Energia, SGPS, S.A., 327 p. (Accessed January 10, 2020, at https://www.galp.com/corp/Portals/0/Recursos/Investidores/SharedResources/Relatorios/EN/Galp_Integrated_Report_2018.pdf.)

Global Cement, 2016, Cimpor suspension sees Port of Faro lose business: Global Cement, November 21. (Accessed August 3, 2018, at http://www.globalcement.com/news/item/5509-cimpor-suspension-sees-port-of-faro-lose-business.)

Global Cement, 2017, Cimpor grows sales in first half of 2017 on back of Portuguese recovery: Global Cement, September 15. (Accessed August 3, 2018, at http://www.globalcement.com/news/item/6553-cimpor-grows-sales-in-first-half-of-2017-on-back-of-portuguese-recovery.)

International Monetary Fund, 2019, World economic outlook database: International Monetary Fund, December. (Accessed December 12, 2019, via https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx.)

Jaskula, B.W., 2019, Lithium: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 98–99.

Lepidico Ltd., 2018a, Quarterly activities report: Perth, Western Australia, Australia, Lepidico Ltd., 20 p. (Accessed August 6, 2018, at http://www.lepidico.com/wp-content/uploads/2018/01/LPD-170124-Quarterly-Activities-Report-and-Cashflow.pdf.)

Lepidico Ltd., 2018b, Third element metals: Perth, Western Australia, Australia, Lepidico Ltd. (Accessed August 6, 2018, at http://www.lepidico.com/projects/tem/#.)

Lundin Mining Corp., 2017a, Lundin mining fourth quarter and full year results: Toronto, Ontario, Canada, Lundin Mining Corp., February 22. (Accessed August 3, 2018, at http://www.marketwired.com/press-release/lundin-mining-fourth-quarter-and-full-year-results-tsx-lun-2197929.htm.)

Lundin Mining Corp., 2017b, NI 43-101 technical report for the Neves-Corvo Mine, Portugal: Toronto, Ontario, Canada, Lundin Mining Corp., June 23, 236 p. (Accessed August 3, 2018, at https://www.lundinmining.com/site/assets/files/3643/neves-corvo-technical-report.pdf.)

Lundin Mining Corp., 2019, 2018 annual filings December 31, 2018: Toronto, Ontario, Canada, Lundin Mining Corp., 32 p. (Accessed January 9, 2020, at https://ml-eu.globenewswire.com/Resource/Download/448f9334-ea46-4166-9a5e-9f9a39a3e95c.)

Mining Magazine, 2018, New ore sorter could improve Panasqueira concentrate output: Mining Magazine, July 30. (Accessed August 6, 2018, at https://www.miningmagazine.com/operational-excellence/news/1343508/new-ore-sorter-could-improve-panasqueira-concentrate-output.)

Mining Technology, 2018, Mina do Barroso lithium project: Mining Technology. (Accessed December 19, 2019, at https://www.mining-technology.com/projects/mina-barroso-lithium-project.)

Novo Litio Ltd., 2017a, Commencement of legal proceedings re Sepeda project: Perth, Western Australia, Australia, Novo Litio Ltd., July 28. (Accessed August 6, 2018, at https://www.asx.com.au/asxpdf/20170728/pdf/43kylj8k5s7y7z.pdf.)

Novo Litio Ltd., 2017b, European strategy update: Perth, Western Australia, Australia, Novo Litio Ltd., December 11, 1 p. (Accessed August 6, 2018, at https://www.asx.com.au/asxpdf/20171211/pdf/43q1ngnqch7f0d.pdf.)
OYAK, 2018, OYAK acquired the Portuguese cement giant Cimpor: Ankara, Turkey, OYAK, October 26. (Accessed January 9, 2020, at https://www.oyak.com.tr/news/oyak-acquired-the-portuguese-cement-giant-cimpor/.)
Savannah Resources Plc, 2018, Mina do Barroso: London, United Kingdom, Savannah Resources Plc. (Accessed August 6, 2018, at http://www.savannahresources.com/assets/mina-do-barroso/.)
Shedd, K.B., 2019, Tungsten: U.S. Geological Survey Mineral Commodity Summaries 2019, p. 178–179.
Statistics Portugal, 2018, Proportion of employed people in manufacturing: Lisbon, Portugal, Statistics Portugal, May 28. (Accessed August 3, 2018, at https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0009665&xlang=en&contexto=bd&selTab=tab2.)
Statistics Portugal, 2019a, Estatisticas da producao industrial 2018 [Industrial production statistics 2018]: Lisbon, Portugal, Statistics Portugal, November, 51 p. (Accessed December 12, 2019, at https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=358631083&PUBLICACOESmodo=2.)
Statistics Portugal, 2019b, National accounts—GDP increased 3.5% in real terms in 2017 and 2.4% in 2018, reaching 203,896 million euros in 2018: Lisbon, Portugal, Statistics Portugal, September 23. (Accessed December 19, 2019, at https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354411207&DESTAQUESmodo=2.)
Statistics Portugal, 2019c, Statistical yearbook of Portugal—2018: Lisbon, Portugal, Statistics Portugal, 75 p. (Accessed December 12, 2019, at https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=382073694&PUBLICACOESstema=5414331&PUBLICACOESmodo=2.)
Thomson Reuters, 2019, Mining in Portugal—Overview: Thomson Reuters, June 1. (Accessed December 12, 2019, at https://uk.practicallaw.thomsonreuters.com/w-019-2521?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1.)
Veiga, Ricardo da Mota, 2013, Focus Portugal—Strong prospects—Resource-rich and looking to the future: Mining Journal, December 13, p. 22–24. (Accessed August 6, 2018, at http://www.euromines.org/files/publications/mining-journal-feature-december-2013-portugal.pdf.)
Vitor, M.S., Rocha, A.O., and Reis, J.M., 2012, Portugal mining & minerals legal regime, incentives and taxation in Portugal: World Services Group, October. (Accessed August 3, 2018, at http://www.worldservicesgroup.com/publications.asp?action=article&artid=4804.)
Wheeler, Adam, 2016, Technical report on the mineral resources and reserves of the Panasqueira Mine, Portugal—NI 43–101 report prepared for Almonty Industries: Redruth, Cornwall, United Kingdom, Adam Wheeler, Mining Consultant, December 31, 151 p. (Accessed December 23, 2019, at https://almonty.com/wp-content/uploads/2019/06/Panasqueira_43-101_Tech_Rep_Dec16_SEDAR.pdf.)
WindEurope, 2018, Wind in power—2017 annual combined onshore and offshore wind energy statistics: Brussels, Belgium, WindEurope, February, 25 p. (Accessed August 6, 2018, at https://windeurope.org/wp-content/uploads/files/about-wind/statistics/WindEurope-Annual-Statistics-2017.pdf.)
Wood Mackenzie, 2019, Aljustrel zinc mine: Wood Mackenzie, December 10. (Accessed January 9, 2020, at https://www.woodmac.com/reports/metals-aljustrel-zinc-mine-56892933.)
World Bank Group, The, 2019, Portugal—GDP (current US$): The World Bank Group. (Accessed January 9, 2019, at https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2018&locations=PT&start=2017&view=chart.)
World Cement, 2018, InterCement sells European assets: Surrey, United Kingdom, World Cement, October 30. (Accessed December 23, 2019, at https://www.worldcement.com/europe-cis/30102018/intercement-sells-european-assets/.)

TABLE 1
PORTUGAL: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS						
Copper, mine, Cu content		75,433	83,081	74,352 [r]	63,812	49,064
Iron and steel, steel, raw steel	thousand metric tons	2,070	2,030	2,010	2,076	2,215
Lead, mine, Pb content		3,192	3,077	4,126	5,164	17,571
Silver, mine, Ag content	kilograms	39,350	37,677	35,211	36,713	50,774
Tin, mine, Sn content		75	42	54	81	111
Tungsten, mine, concentrate, W content		671	474	549 [r]	669	715
Zinc, mine, Zn content		67,378	66,871	69,526	71,356	144,983
INDUSTRIAL MINERALS						
Cement, hydraulic[e]	thousand metric tons	5,400	5,600	4,200	4,700	5,200
Clay, kaolin, washed and unwashed		269,073	252,000	283,571 [r]	307,982	300,265
Feldspar		70,865	93,789	132,105	126,211	130,475
Gypsum, mine, including anhydrite		328,730	309,966	255,026	152,209	232,921
Lithium, lepidolite, pegmatite:						
Gross weight		17,459	17,120	25,758	50,743	53,200
Li content		262	257	386	761	798
Salt, rock		69,702	30,008	6,092	7,800	6,201
Sand and gravel, industrial, silica	thousand metric tons	7	1	1	3	3 [e]
Stone, sand and gravel, construction:						
Sand and gravel, common and special sand	do.	7,157	7,517	6,779 [r]	6,436	6,409
Stone, crushed:						
Basalt	do.	266	264	268 [r]	382	322
Dolomite	do.	--	--	117 [r]	146	119
Gabbro	do.	595	817	475 [r]	400	292
Granite	do.	12,739	13,535	14,309 [r]	13,702	13,981
Graywacke	do.	19	17	14	8	8 [e]
Limestone	do.	21,034	21,757	19,332 [r]	21,869	21,854
Marble	do.	363	200 [r]	221 [r]	189	173
Quartzite	do.	30	27	25	25	25
Schist	do.	119	191	141	116	117
Slate	do.	19	7	9	12	15
Talc		14,942	11,204	11,699	13,600	10,144
MINERAL FUELS AND RELATED MATERIALS						
Petroleum, refinery	thousand 42-gallon barrels	95,000	115,000	112,000	128,000	118,000

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through October 8, 2019. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, ammonia, beryl concentrate, calcium carbonate, hot-rolled steel, iron ore and concentrate, manganese, manufactured gas, metallurgical coke, pig iron, pyrite and pyrrhotite (including cuprous), refractory clay, secondary aluminum, secondary lead, sodium compounds, sulfur, syenite, and white arsenic may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
PORTUGAL: 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
Calcium carbonate		Omya Mineral Portuguesa Lda. (Omya AG, 50%, and Salmon & Cia Lda., 50%)	Plants at Perulheira, Setubal, and Soure	NA
Cement		Cimentos de Portugal, SGPS, S.A. (Cimpor) (OYAK Cement, 94.19%)	Plants at Alhandra, Loule, and Souselas	6,500
Do.		Companhia Geral de Cal e Cimento, S.A. (Secil) [Sociedade de Investimento e Gestão, SGPS, S.A. (Semapa), 100%]	Plants at Cibra, Maceira, and Outao	4,000
Clay, kaolin		Felmica Minerals Industrais, S.A. [Grupo MOTA]	Mines at Alto da Lixa, Boticas, Cab. Basto, Goncalo, Guarda, Sabugal, Satao, Trancoso, Ponte de Lima, Vila Pouca de Aguiar	190
Do.		Saibrais Arelas e Caulinos S.A. (Denain Anzin Mineraux S.A.)	Mines at Casal dos Bracais and Mosteiros	175
Copper, concentrate, Cu content		Almina - Minas do Alentejo, S.A.	Mine at Aljustrel, Alentejo	NA
Do.		Sociedade Mineira de Neves-Corvo (Somincor), S.A. (Lundin Mining Corp., 100%)	Lombador Mine near Castro Verde	20
Do.		do.	Copper plant near Castro Verde	NA
Iron and steel, steel, semimanufactured		Lusosider Aços Planos S.A.	Rolling mill at Seixal	550
Do.		Siderurgia Nacional S.A. (Metalúrgica Galaica S.A., 100%)	Steelworks at Maia and Seixal	1,700
Lead, mine, Pb content		Almina - Minas do Alentejo, S.A.	Mine at Aljustrel, Alentejo	NA
Do.		Sociedade Mineira de Neves-Corvo (Somincor), S.A. (Lundin Mining Corp., 100%)	Neves-Corvo Mine near Castro Verde	7
Lithium minerals, pegmatite		Pegmatítica-Sociedade Mineira de Pegmatites Lda.	Mine in Mangualde	NA
Petroleum, refined	million 42-gallon barrels	Galp Energia SGPS S.A.	Refineries at Matosinhos and Sines	130
Pyrite		Almina - Minas do Alentejo, S.A.	Mine at Aljustrel, Alentejo	NA
Stone:				
Crushed, granite		Granital - Granitos de Portugal S.A. (EIP Group, 60%)	Quarries at Bardeira, Chacins, Favaco, Maria Ribeira, Pedra da Moura, Pedra do Guarda, Preto F, and Rosa Sta. Eulalia	14,500
Dimension, unspecified	metric tons	Airemármores – Extração de Mármores Lda.	Quarries at Alcobaca, Catanhede Leiria, Santarem	22,500
Tin, concentrate, Sn content	do.	Beralt Tin & Wolfram (Portugal) S.A. (Almonty Industries Inc., 100%)	Undergound Panasqueira Mine and plant at Barroca Grande	115
Tungsten, concentrate, W content	do.	do.	do.	950
Zinc, concentrate, Zn content		Almina - Minas do Alentejo, S.A.	Mine at Aljustrel, Alentejo	NA
Do.		Sociedade Mineira de Neves-Corvo (Somincor), S.A. (Lundin Mining Corp., 100%)	Zinc plant near Castro Verde	150

Do., do. Ditto. NA Not available.