



2019 Minerals Yearbook

ARGENTINA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF ARGENTINA

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In 2019, Argentina was the world's 26th largest economy and the 3d largest in Latin America after Brazil and Mexico. Argentina's real gross domestic product (GDP) decreased by 2.0% during the year compared with a decrease of 2.6% in 2018. The nominal GDP was \$452 billion. Although Argentina remained one of the leading economies in the region during the year, the production of mineral commodities, such as aluminum, barite, boron, cadmium, crude petroleum, diatomite, feldspar, gold, gypsum, iron and steel, lead, lithium, molybdenum, natural gas, perlite, silver, and zinc, represented only a minor part of the country's economy. In 2019, Argentina was the world's fourth-ranked producer of lithium, accounting for about 7% of world production, after Australia (52%), Chile (22%), and China (13%); it was the world's eighth-ranked producer of boron after Bolivia, Chile, China, Germany, Peru, Russia, and Turkey. Argentina's lithium reserves accounted for 10% of the world's reserves, and they were the third largest in the world. Argentina was not a globally significant producer of mineral fuels in 2019 (Jaskula, 2020, 2021; World Bank, The, 2020a, b; Briocche, 2021).

Minerals in the National Economy

In 2019, the value added to the country's nominal GDP by the mineral industry increased slightly to about 3.9% from 3.8% in 2018. The country's manufacturing sector accounted for about 13% of the total GDP, and the construction sector, 3.8%. During the year, the mineral industry employed a record number of more than 88,000 workers. Large-scale mining companies accounted for about 84% of the total number of people employed in the mineral industry, and the majority of them were directly employed in the petroleum and natural gas sector (Instituto Nacional de Estadística y Censos, 2020a, b; Ministerio de Trabajo, Empleo y Seguridad Social, 2020, p. 16).

In 2019, Argentina's total foreign direct investment (FDI) inflows decreased significantly, to \$6.7 billion from \$11.9 billion in 2018 owing in part to a reduction in reinvested earnings. In the lithium sector, the world's leading magnesium and nickel producer, Eramet S.A. of France, announced a total investment of \$380 million for the development of a lithium carbonate production plant at the Centenario Ratones Salar, which is located in the Province of Salta. The Republic of Korea's POSCO International Corp., a leading global steel manufacturer, also announced a total investment of \$450 million for the development of lithium carbonate resources at the Salar del Hombre Muerto (also known as Fenix), located in Salta Province (Comisión Económica para América Latina y el Caribe, 2019, p. 34; 2020, p. 50, 65; Panomara Minero, 2019).

Based on data from S&P Global Market Intelligence, the global exploration budget for nonferrous metallic minerals decreased to \$9.3 billion in 2019 from \$9.6 billion in 2018. Nonferrous mining exploration projects in Latin America in 2019 accounted for about 28% of the global mineral exploration budgets combined. With a focus on base metals, diamond,

and precious metals, Argentina was the fifth-ranked mineral exploration destination in Latin America in 2019 after Chile (\$654 million), Peru (\$549 million), Mexico (\$454 million), and Brazil (\$262 million). Argentina's mineral exploration budget remained relatively constant compared with that in 2018 at almost \$241 million. In 2019, the mineral industry's budget for gold exploration in Argentina totaled about \$118 million, which was 49% of the country's total exploration budget; the exploration budget for lithium totaled \$66 million; copper, \$35 million; silver, \$12 million; and other minerals, \$10 million (S&P Global Market Intelligence, 2020a, b).

Government Policies and Programs

The legislative framework for the mineral sector in Argentina is provided by the Mining Code Law No. 1919 of 1886. Argentina's Secretaría de Minería de la Nación [Mining Secretariat] was responsible for proposing and implementing Federal mining policies. The mining code creates the legal framework for agreements between the state and those entities that take part in mining activities through the issuance of an exploration permit or mining concession. The mining rights are given in perpetuity if the annual tax is paid, and investments are made for each stage of the mining activity. Servicio Geológico Minero Argentino [Geological and Mining Service of Argentina] (SEGEMAR) was the scientific and technological organization responsible for the generation and dissemination of environmental, geologic, mining, and technological information, which facilitates the sustainable development of the country's natural resources. The legislative framework for the hydrocarbon sector in Argentina is provided by the Hydrocarbons Law No. 17319 of 1967. The hydrocarbons law contains legislation related to the exploration, development, and production of hydrocarbons. The country is divided into 23 Provinces grouped into 5 regions. Provinces have their own enforcement authorities that control mining activities within their respective geographic boundaries (Ministerio de Energía y Minería, 2018, p. 4–5; Ministerio de Justicia y Derechos Humanos, 2020, 2021a).

Argentina's mineral industry was composed of domestic and foreign private and public companies. The individual Provinces are the owners of the natural resources present in their respective territories, and the Federal mining code creates the legal framework for agreements between the Government and those entities that partake in mining activities through the issuance of exploration permits or mining concessions. The Provinces of Chubut, Cordoba, La Pampa, Mendoza, San Luis, Tierra del Fuego, and Tucuman prohibited the use of cyanide in the processing of minerals or open pit mining. In Argentina, there are no restrictions regarding foreign investment in mining and foreign companies can hold equity shares in exploration and mining ventures (Ministerio de Energía y Minería, 2018, p. 16–17, 19).

Production

In 2019, copper production in Argentina ceased with the closing of Minera Alumbrera Ltd., which was the country's only active copper mine. The Alumbrera open pit mine closed owing to the depletion of copper reserves. Increases in the production of industrial minerals and mineral fuels in 2019 included those of rhodochrosite (464%), coal (89%), travertine (34%), shell (31%), and diatomite (30%). Decreases in the output of industrial minerals and mineral fuels included those of barite (46%), bentonite (39%), kaolin (30%), granite (22%), peat (21%), lithium chloride (14%), and basalt (10%). Cadmium production decreased by 39%; direct-reduced iron, by 37%; zinc, by 33%; and pig iron and raw steel, by 10% each. Data on mineral production are in table 1.

Structure of the Mineral Industry

Argentina's Dirección Nacional Minería [National Mining Directorate (DNM)] oversees the administration, development, and promotion of mining and mining investment. The DNM is one of the departments administered by the Ministerio de Planificación Federal, Inversión Pública y Servicios [Ministry of Federal Planning, Public Investment and Services]. The Dirección Nacional de Planificación Estratégica Regional [National Directorate of Regional Strategic Planning] and the SEGEMAR are under the authority of the Mining Secretariat of the DNM. The Cámara Argentina de Empresarios Mineros [Argentine Chamber of Mining Companies] (CAEM) is a mining industry association that advocates for development of the mineral industry. El Grupo de Empresas Mineras Exploradoras de la República Argentina [The Association of Exploration Mining Companies of the Republic of Argentina (GEMERA)], whose members are exploration companies, is a business association that is part of the CAEM (Ministerio de Justicia y Derechos Humanos, 2021b–d).

Minera Andina del Sol SRL [formerly known as Minera Argentina Gold S.A. and currently a joint venture of Barrick Gold Corp. of Canada (50% interest) and Shandong Gold Mining Co., Ltd. of China (50%)] had a production capacity of about 17,000 metric tons per year (t/yr) and continued to be Argentina's leading gold producer. Other leading gold-producing mines included the Cerro Negro Mine (solely owned by Colorado-based Newmont Corp. of the United States), and the Cerro Vanguardia Mine (majority owned by AngloGold Ashanti Ltd. of South Africa). In 2019, Goldcorp Inc. of Canada agreed to sell its 100% interest in the Cerro Negro Mine, which covers more than 11,000 hectares, to Newmont Corp. Minera Alumbrera Ltd. [a joint venture of Glencore plc of Switzerland (50% interest), Newmont Corp. (37.5%), and Yamana Gold Inc. of Canada (12.5%)] reached the end of its mine life in 2019 and was expected to be decommissioned. The country's lithium producers were the Salar del Hombre Muerto (solely owned by Livent Corp. of the United States), which had a production capacity of 23,000 t/yr, and the Salar de Olaroz, which was a joint venture among Orocobre Ltd. of Australia (66.5%), Toyota Tsusho Corp. of Japan (25%), and Jujuy Energía y Minería Sociedad del Estado (8.5%) and had a production

capacity of about 17,500 t/yr. Table 2 is a list of major mineral industry facilities (table 2; Newmont Corp., 2020, p. 39).

Mineral Trade

In 2019, the estimated value of Argentina's total free on board (f.o.b.) exports increased to about \$65.1 billion from \$61.8 billion in 2018. The value of Argentina's total imports in 2019, as reported in terms of cost, insurance, and freight (c.i.f.) arrangements, decreased by about 25% to \$49.1 billion. A total of about \$5.7 billion (\$6.0 billion in 2018) worth of goods classified as mineral products (including base metals and manufactured articles thereof) was exported from Argentina in 2019 and accounted for nearly 9% of the value of the country's total exported goods compared with almost 10% in 2018. Of this total value, base metals and manufactured articles thereof accounted for about 36% (\$2 billion); mineral fuels, mineral oils and products of their distillation, bituminous substances, and mineral waxes accounted for 56% (\$3.2 billion); ore, slag, and ash accounted for 6.6% (\$373.9 million); and other mineral products, including cement, salt, stone, and sulfur, accounted for the remaining 1.6% (\$88.5 million). In 2019, Argentina imported about \$7.6 billion worth of mineral products (including common metals and manufactures) compared with \$10.8 billion in 2018, which accounted for 15.5% of the country's total imported goods. Of that total, mineral fuels, mineral oils and products of their distillation, bituminous substances, and mineral waxes accounted for about 55% (\$4.2 billion); and base metals and manufactured articles thereof accounted for 37% (\$2.8 billion). Base metals and manufactured articles thereof traded between Argentina and other countries included aluminum, copper, iron and steel, lead, nickel, tin, zinc, and other base metals (Instituto Nacional de Estadística y Censos, 2020a, p. 12–13, 15).

In 2019, Argentina's estimated leading export partners were Brazil (which received 16% of Argentina's exports), China (10%), and the United States (6%). Exports to the United States were valued at about \$4.9 billion in 2019 compared with about \$4.8 billion in 2018. Of this amount, crude petroleum accounted for about \$789.9 million, aluminum and bauxite accounted for about \$392.9 million, and gold and other precious metals accounted for about \$293.2 million. In 2019, Argentina's leading import partners were Brazil (which supplied 21% of Argentina's imports), China (19%), and the United States (13%). Imports from the United States were valued at about \$8.2 billion compared with about \$9.9 billion in 2018. Of this amount, mineral fuels and related products accounted for about \$1.7 billion; drilling and oilfield equipment (including specialized mining and excavating machinery), about \$285 million; and iron and steel, about \$32 million (Instituto Nacional de Estadística y Censos, 2020a, p. 6; U.S. Census Bureau, 2020a, b).

Commodity Review

Metals

Aluminum.—Located in the Province of Chubut, the 460,000-t/yr-capacity Puerto Madryn aluminum smelter (owned by Aluar Aluminio Argentino S.A.I.C. [Aluar]) continued

to be Argentina's sole producer of primary aluminum. Aluar employed almost 2,200 people. The company's production of primary aluminum increased by 1.8% to 426,886 metric tons (t) during fiscal year 2019, which began on July 1, 2018, and ended on June 30, 2019. About 70% of Aluar's production was exported to Brazil, Germany, Japan, the United States, and several other countries. The company, which produced aluminum alloys, billets, pure ingot, semimanufactures, and wire rods, exported its aluminum from Port Madryn. In 2019, Argentina's total aluminum exports, by value, decreased by almost 13% year-on-year to \$818 million. In December, the United States Government announced that imports of aluminum products from Argentina would be subject to a 10% tariff owing to the Argentina's currency devaluation. Based on national security grounds, the United States had originally assessed import duties of foreign-made primary unwrought aluminum and certain semifinished aluminum products in 2018; however, Argentina had been exempted from such tariffs, as it agreed to production quotas. It was not clear as to when the tariffs would take effect. Approximately 50% of Aluar's exports during the year were destined for the United States (table 1; Platzer, 2018; Shalal and Stargardt, 2019; Aluar Aluminio Argentino S.A.I.C., 2020; Ministerio de Energía y Minería, 2020c).

Copper.—Minera Alumbrera Ltd., which had been Argentina's sole copper producer, ceased operations at the Alumbrera open pit mine owing to the depletion of copper resources. Canada's Yamana Gold Inc. announced that it would enter into an agreement with Glencore plc and Newmont Corp. to develop the Agua Rica project using the existing infrastructure at Alumbrera. The Agua Rica project is located in Catamarca Province in close proximity to the Alumbrera Mine and hosts a large-scale copper deposit with associated gold, molybdenum, and silver. The integration of Alumbrera and Agua Rica was expected to be completed once an environmental impact study and a full feasibility study with updated mineral reserve, production, and project cost estimates are completed (expected by 2020). Once production commences, the ore extracted at Agua Rica would be transported from the open pit by truck to the primary crusher area and then transported by way of a conventional conveyor to the existing Alumbrera processing plant. Proven and probable reserves at Agua Rica were 909 million metric tons (Mt) grading 0.49% copper and 0.22 gram per metric ton (g/t) gold. Other large-scale copper projects under development in Argentina included Glencore's El Pachon, and First Quantum Ltd.'s Taca projects, among others (Yamana Gold Inc., 2019, p. 1–3; Ministerio de Energía y Minería, 2020c, p. 8).

Gold.—In 2019, gold production in Argentina decreased by 9% to 53,092 kilograms (kg) from 58,375 kg in 2018. Of that amount, about 32%, or 17,045 kg, was produced from the Veladero gold mine (jointly owned by Barrick Gold and Shandong), which is located in the Province of San Juan. Since Veladero's first gold pour in 2005, the gold mine had been one of Argentina's leading producing gold mines. In 2019, after it conducted an updated mineral resources plan, Barrick Gold announced that the life of the Veladero Mine had been extended an additional 2 years, to 2027 (table 1; Barrick Gold Corp., 2020b, p. 6, 9, 12).

In 2010, the National Law on Minimum Requirements for the Protection of Glaciers was enacted in Argentina, which effectively banned new mining exploration and extraction activities by mining companies on glaciers. Argentina's glaciers are located in the western part of the country. The Veladero Mine had been the subject of various legal and regulatory proceedings since 2015, and in June, the country's highest court upheld a law that banned mining near glaciers. Barrick Gold was unable to prove that the legislation banning mining in glacial areas near Veladero was affecting its mining rights in Argentina (Barrick Gold Corp., 2020a, p. 82, 211; 2020b, p. 6, 9, 12).

AngloGold Ashanti Ltd.'s majority-owned Cerro Vanguardia Mine in Santa Cruz Province produced 7,560 kg of gold in 2019, which was a decrease of about 20% compared with that in 2018. The year-on-year decrease was partly owing to the company's planned lower grade production. The company announced plans to sell the Cerro Vanguardia Mine after operating in the country for more than 20 years. Cerro Vanguardia consisted of multiple open pits with high stripping ratios and underground mines. Exploration continued during the year (AngloGold Ashanti Ltd., 2020 p. 76–78, 85).

In November, Argentina's Dirección Nacional de Promoción de la Minería [National Mining Promotion Directorate] reported several advanced gold mining projects in the country, including two under construction; they were Fortuna Silver Mines Inc. of Canada's Lindero Mine, which is located in Salta Province, and Trident Southern Explorations de Argentina S.R.L's Andacollo project, which is located in Neuquen Province. Proven and probable reserves at Lindero were 84 Mt grading 0.11% copper and 0.63 g/t gold, and commercial production was expected in 2020. Production and technical information for the Andacollo project was not available (Fortuna Silver Mines Inc., 2020; Ministerio de Energía y Minería, 2020a, p. 9).

Silver.—In 2019, silver production in Argentina totaled 1,039,813 kg, which was a slight increase of about 1.6% from that in 2018. Silver production in Argentina included 238,688 kg from SSR Mining Inc. of Canada's Puna Operations (formerly known as the Pirquitas Mine). Puna Operations was composed of the Chinchillas Mine and the Pirquitas processing facilities. The Chinchillas Mine was brought into commercial production in 2018 following the closure of the Pirquitas open pit in 2017. The Chinchillas deposit was mined as an open pit operation. In 2019, SSR Mining became the sole owner of Puna Operations after acquiring the remaining 25% interest from Golden Arrow Resources Corp. of Canada. Other leading silver producers in the country included 212,931 kg from the San Jose Mine, which was operated by Minera Santa Cruz (a jointly owned operation by Hochschild Mining plc of the United Kingdom, 51%, and McEwen Mining Inc. of Canada, 49%)—and 196,663 kg from the Cerro Moro Mine, which was wholly owned by Yamana Gold (table 2; Hochschild Mining plc., 2020; SSR Mining Inc., 2020, p. 7, 17, 26; Yamana Gold Inc., 2020, p. 43).

Zinc.—In 2019, AR Zinc S.A. (a subsidiary of Glencore) operated the Aguilar Mine, which is located in Jujuy Province in the northwestern part of the country. Although data on production from AR Zinc were not publicly available, 2019 Provincial data indicated that the Aguilar Mine produced more than 11,000 t of zinc during the year. The Puna Operation,

which was owned by SSR Mining reported production of 3,807 t of zinc in 2019 (Ministerio de Energía y Minería, 2020b; SSR Mining Inc., 2020, p. 17).

Industrial Minerals

Cement.—In 2019, Argentina's cement production decreased by 6% compared with that in 2018. Argentina's shipments of cement were 11.1 Mt, of which 11.0 Mt went to the domestic market and about 100,000 t was exported. Per capita consumption of cement decreased to 245 kg in 2019 from 265 kg in 2018. There were no cement imports throughout the year in Argentina. Cementos Loma Negra C.I.A.S.A. (Loma Negra), which was one of Argentina's leading cement producers, reported total shipments of cement and lime at slightly more than 6 Mt, which was a decrease of about 10% compared with that in 2018. Loma Negra announced plans to upgrade its annual production capacity at L'Amali plant in Buenos Aires Province by an additional 2.7 Mt. Upgrades at L'Amali were expected to be completed in 2020 (Asociación de Fabricantes de Cemento Portland, 2020, p. 10, 20; Loma Negra, 2020, p. 5, 76).

Lithium.—In 2019, Argentina's lithium carbonate production increased slightly by about 1% to 29,994 t from 29,707 t in 2018; production of lithium chloride decreased by about 14% to 4,284 t from 5,005 in 2018. There were four lithium projects in Argentina, which included expansion projects at Olaroz and the Salar del Hombre Muerto (also known as Fenix). Lithium projects under construction included the Cauchari-Olaroz project in Jujuy Province and the Centenario Ratones project in Salta Province (table 1; Ministerio de Energía y Minería, 2020a, p. 13).

Canada's Lithium Americas Corp. and China's Jiangxi Ganfeng Lithium Co., Ltd. (Ganfeng) were developing the Cauchari-Olaroz lithium brine project in Argentina. Cauchari-Olaroz was 100% owned by Minera Exar S.A. (Minera Exar), which was a 50–50 joint venture between Lithium Americas and Ganfeng. The Cauchari-Olaroz project, which was to have an estimated annual production capacity of 40,000 t of lithium carbonate, remained under construction during the year. The project was expected to directly employ more than 1,000 people during the construction period, including almost 300 full-time employees. Eramet S.A. continued to advance its 100%-owned Centenario Ratones lithium project, which was expected to produce about 24,000 t/yr of lithium carbonate. Centenario Ratones was scheduled to be completed in late 2021 or early 2022 after Provincial mining authorities validated the environmental and social impact study of the plant. Once completed, lithium projects in Argentina were expected to increase the country's production capacity to more than 100,000 t/yr by 2022 (Eramet S.A., 2020, p. 9; Lithium Americas Corp., 2020).

In 2019, Argentina's total lithium exports, by value, decreased by almost 34% year-on-year to \$185 million. The decrease in lithium export revenues was mainly attributed to lower international lithium prices, coupled with less demand from China as a result of greater global lithium supply. Argentina's lithium exports during the year were destined mainly for China, the European Union, Japan, and the United States. Argentina's Energy Ministry expected the country's lithium exports to

increase in the coming years, as global lithium demand is projected to increase, and numerous lithium brine projects were expected to commence production (Ministerio de Energía y Minería, 2017, p. 20–21; Instituto Nacional de Estadística y Censos, 2020c, p. 12).

Mineral Fuels

Petroleum and Natural Gas.—In 2019, crude petroleum production in Argentina increased by 4% to about 186 million barrels compared with that in 2018. In 2019, 54 companies in Argentina were involved in the production of petroleum and 49 were involved in the production of natural gas. Yacimientos Petrolíferos Fiscales (YPF S.A.) and Pan American Energy Group continued to be the leading petroleum producers in the country, accounting for about 67% of total petroleum production. Natural gas production in Argentina increased by 4% to 49.1 million cubic meters in 2019 compared with that in 2018. YPF, Pan American, and Total Austral S.A. accounted for about 66% of the total natural gas production in 2019. A total of 905 wells were drilled in Argentina in 2019, of which 616 were petroleum wells and 194 were natural gas wells. Most wells drilled during the year belonged to YPF and Pan American. Argentina announced that it planned to launch an international tender for a \$2 billion pipeline to transport natural gas from the Vaca Muerta formation located in the western part of the country to Sante Fe Province, which is located in the eastern part of the country. The pipeline was expected to transport up to 22 million cubic meters per day. The country's refinery capacity remained relatively constant at almost 173,000 million barrels per year in 2019 (Instituto Argentino del Petróleo y del Gas, 2020a, b; Raszewski, 2019).

Outlook

Argentina's economy is forecasted to continue contracting in the short term, albeit at a slower pace than in 2019, as private consumption and investments are expected to continue to decline. The contribution of the mineral industry to the GDP and exports is expected to increase with the addition of production from the Andacollo and Lindero gold projects and the Cauchari-Olaroz and Centenario Ratones lithium projects. With numerous copper, gold, lithium, and silver projects under construction and continued interest in mineral exploration, The Government of Argentina is expected to continue highlighting the importance that mineral exports (including natural gas from Vaca Muerta) have to the country's future economic development. An increased emphasis on the development of responsible mining is also expected to be a focus of the Government of Argentina (Garrison, 2019; World Bank, The, 2020c).

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TABLE 1
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
METALS					
Aluminum, primary ³	433,478	412,283	403,192	419,435	426,886
Cadmium:					
Mine, Cd content	107	91	96	74	45
Refinery, primary	30 ^e	--	--	--	--
Copper:					
Mine, Cu content	61,766	81,902	33,303	17,435	--
Refinery, secondary ^e	16,000	16,000	16,000	16,000	--
Ferroalloys, ferrosilicon ^e	12,700	12,000	13,000	13,000	13,000
Gold, mine, Au content kilograms	61,310	56,998	60,956	58,375	53,092
Iron ore, mine:					
Gross weight thousand metric tons	197	94	25	25 ^e	25 ^e
Fe content do.	118	56	15	15 ^e	15 ^e
Iron and steel:					
Direct-reduced iron do.	1,252	773	1,231	1,606 ^r	1,006
Pig iron do.	2,685	2,141	2,171	2,184	1,964
Raw steel do.	5,028	4,126	4,624	5,162	4,645
Lead:					
Mine, Pb content	29,834	28,016	40,135	28,260	29,768
Refinery:					
Primary	8,000 ^e	8,000 ^e	10,000 ^e	14,000 ^e	--
Secondary ^e	33,000	33,000	35,000	26,000	28,000
Mercury, Hg content	59	135	54	50 ^e	50 ^e
Molybdenum, mine, Mo content	1,736	2,048	1,297	728	--
Silver, mine, Ag content kilograms	1,175,245 ^r	1,055,700	997,961	1,023,768 ^r	1,039,813
Zinc:					
Mine, Zn content	30,498	22,792	23,392	22,050	14,877
Smelter:					
Primary	30,000 ^e	--	--	--	--
Secondary, remelt	2,400	2,000 ^e	-- ^e	--	--
INDUSTRIAL MINERALS					
Barite	12,917	12,389	5,977	7,225	3,898
Boron	246,683	148,390	129,918	71,212	71,000 ^e
Cement, hydraulic thousand metric tons	12,193	10,899	11,960	11,842	11,082
Clay:					
Bentonite	229,715	145,723	121,735	184,969 ^r	113,390
Common clay	9,489,529	9,209,313	6,726,653	5,486,139	5,500,000 ^e
Kaolin	55,488 ^r	26,198	19,940	17,000 ^r	11,853
Diatomite	60,951	57,113	70,419	72,419 ^r	94,090
Feldspar	186,974	155,217	88,465	56,500	57,000 ^e
Fluorspar	65,282	14,222	13,696	7,924	8,000 ^e
Gemstones:					
Rhodochrosite kilograms	79,405	48,152	15,443	22,534	127,152
Other, unspecified do.	11,781	15,863	5,548	5,000 ^e	5,000
Gypsum, mine	1,314,655	1,558,390	1,275,608	897,217 ^r	900,000 ^e
Lithium:					
Lithium carbonate	21,111	24,409	26,559	29,707	29,994
Lithium, chloride	5,848	6,468	4,501	5,005	4,284
Mica	583	564	189	120	120 ^e
Perlite	23,282	17,905	19,924	18,794	19,000 ^e
Pumice and related materials	7,110	7,000	7,000 ^e	2,310	2,300 ^e
Salt, common	1,400,762	1,812,191	1,461,065 ^r	1,405,893 ^r	1,500,000 ^e
Sand and gravel, industrial, silica	673,253	1,098,056	949,313	1,599,755 ^r	1,600,000 ^e
See footnotes at end of table.					

TABLE 1—Continued
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
INDUSTRIAL MINERALS—Continued					
Stone, sand and gravel, construction:					
Sand and gravel:					
Sand	43,531,705	37,149,385	39,902,023	22,975,589	25,000,000 ^e
Gravel	28,014,042	18,578,513	17,560,089	16,221,770	17,000,000 ^e
Stone:					
Crushed:					
Basalt	2,120,290	1,639,955	2,766,811	1,390,000 ^{r, e}	1,250,000 ^e
Dolomite, calcareous	1,616,428	2,730,786	1,790,178	2,351,264	2,400,000 ^e
Granite, block	39,353	11,768	41,680	40,000 ^e	31,146
Limestone, calcareous	21,543,473	19,798,241	20,649,475	19,797,787	20,000,000 ^e
Serpentine	361,800	210,000	52,000	25,000	25,000 ^e
Shell, calcareous	590,962	608,691	610,000	177,976	232,742
Unspecified, other ^e	29,600,000	29,800,000	30,000,000	30,000,000	30,000,000
Dimension, flagstone	121,524	92,458	49,414 ^r	43,844 ^r	45,000 ^e
Other, size and shape unspecified, calcareous:					
Calcite	358,067	406,461	425,000	280,000	290,000 ^e
Marble, onyx, travertine	194,072	192,422	10,000 ^{r, e}	7,440 ^r	10,000 ^e
Sulfur compounds, sulfates (Magnesium, epsomite)	1,973	1,909	1,900 ^e	--	--
Talc	27,386	11,262	8,335	11,728	11,000 ^e
Vermiculite	90	60	--	-- ^e	-- ^e
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	thousand metric tons	49	41	38	82 ^r
Coke, metallurgical	do.	1,154 ^r	947 ^r	1,061 ^r	1,185 ^r
Natural gas	million cubic meters	42,895	44,988	44,595	47,020
Peat, horticultural use, turba		1,436	10,579 ^r	9,842 ^r	11,532 ^r
Petroleum:					
Crude	thousand 42-gallon barrels	194,290	186,639	175,017	178,631
Refinery	do.	195,494	175,565	179,580	170,455

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

¹Table includes data available through January 13, 2021. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, ammonia, antimony, celestite, uranium, and urea may have been produced, but available information was inadequate to make reliable estimates of output.

³Production is for the fiscal year that ended on June 30 of the year shown.

TABLE 2
ARGENTINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Aluminum	Aluar Aluminio Argentino S.A.I.C. [private, 77%; Government, 10%; National Social Security Administration, 13%]		Puerto Madryn smelter, Chubut Province	460.
Boron	Borax Argentina S.A. (Orocobre Ltd., 100%)		El Porvenir Mine, Jujuy Province; Sijes and Tincalayu Mines, Salta Province	130.
Do.	do.		El Porvenir plant, Jujuy Province; Sijes and Tincalayu plants, Salta Province	NA.
Do.	do.		Campo Quijano refinery, Salta Province	NA.
Do.	Procesadora de Boratos Argentinos S.A. (Ferro Corp.)		Loma Blanca Mine, Jujuy Province, and plant at Palpala, Jujuy Province	10.
Do.	Ulex S.A. (private, 100%)		Sol de Mañana Mine, Salta Province	2.
Cadmium	metric tons	AR Zinc S.A. (Glencore plc, 100%)	AR Zinc Group smelter, Santa Fe Province	72.
Cement	Cementos Loma Negra C.I.A.S.A. (private, 100%)		Plants, Buenos Aires, Catamarca, Cordoba, Corrientes, Jujuy, Neuquen, and San Juan Provinces	7,000.
Do.	LafargeHolcim Ltd., 100%		Plants, Cordoba, Jujuy, and Mendoza Provinces	4,800.
Do.	Cementos Avellaneda S.A. (Cemento Molins, 51%, and Votorantim Cimentos, 49%)		La Calera plant, San Luis Province, and Olavarria plant, Buenos Aires Province	2,000.
Coal	Yacimientos Carbonífero Río Turbio S.A. (private, 100%)		Río Turbio Mine, Santa Cruz Province	210.
Copper	Minera Alumbrera Ltd. (Glencore plc, 50%; Newmont Corp., 37.5%; Yamana Gold Inc. 12.5%)		Alumbrera Mine, Catamarca Province ¹	NA.
Fluorspar	Fluorita Cordoba S.A. (private, 100%)		Mine and flotation plant, Cerro Negros, Cordoba Province	NA.
Gold	metric tons	Minera Alumbrera Ltd. (Glencore plc, 50%; Newmont Corp., 37.5%; Yamana Gold Inc., 12.5%)	Alumbrera Mine, Catamarca Province ¹	NA.
Do.	do.	Minera Andina del Sol SRL (Barrick Gold Corp., 50%, and Shandong Gold Mining Co. Ltd., 50%)	Veladero Mine, San Juan Province	17.
Do.	do.	Newmont Corp., 100%	Cerro Negro Mine, Santa Cruz Province	11.
Do.	do.	Cerro Vanguardia S.A. [AngloGold Ashanti Ltd., 92.5%, and FOMICRUZ S.E. (Government of Santa Cruz Province), 7.5%]	Cerro Vanguardia Mine, Santa Cruz Province	9.
Do.	do.	Mineros S.A., 100%	Gualcamayo Mine, San Juan Province	7.
Do.	do.	Minera Santa Cruz (Hochschild Mining plc, 51%, and McEwen Mining Inc., 49%)	San Jose Mine, Santa Cruz Province	3.
Do.	do.	Pan American Silver Corp., 100%	Manantial Espejo Mine, Santa Cruz Province	2.
Do.	do.	Austral Gold Ltd. (private, 100%)	Casposo Gold Mine, San Juan Province	1.
Do.	do.	Yacimientos Mineros de Agua de Dionisio (YMD) (Government, 100%)	Farallon Negro, Hualfin, and Belen Mines, Catamarca Province	1.
Do.	do.	Yamana Gold Inc., 100%	Cerro Moro Mine, Santa Cruz Province	1.
Iron and steel	Acindar S.A. (AcelorMittal Group)		Plant Nos. 1 and 3, Buenos Aires Province; and Plant No. 2, near Rio Parana, Santa Fe Province	1,350 steel, 1,000 DRI. ²
Do.	Techint Group		Plant, Buenos Aires Province	900 steel, 670 DRI. ²
Do.	Ternium Argentina S.A.		do.	3,200 steel, 4,500 semimanufactures.
Iron ore ³	MCC Minera Sierra Grande S.A.		Sierra Grande Mine, Rio Negro Province	450 iron ore.

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Lead		AR Zinc S.A. (Glencore plc, 100%)	Aguilar Mine, Jujuy Province	20.
Do.	metric tons	SSR Mining Inc., 100%	Puna Operations, Jujuy Province	10.
Lithium	do.	Minera del Altiplano S.A. (Livent Corp., 100%)	Salar del Hombre Muerto, Salta Province; plants in Catamarca Province	23,000.
Do.	do.	Sales de Jujuy S.A. [Orocobre Ltd., 66.5%; Toyota Tsusho Corp., 25%; Jujuy Energia y Minería Sociedad del Estado (JEMSA), 8.5%]	Salar de Olaroz, Jujuy Province	17,500.
Molybdenum		Minera Alumbrera Ltd. (Glencore plc, 50%; Newmont Corp., 37.5%; Yamana Gold Inc., 12.5%)	Alumbrera Mine, Catamarca Province	NA.
Natural gas	thousand cubic meters	Yacimientos Petrolíferos Fiscales S.A.	Onshore oilfields, Chubut, Formosa, Jujuy, La Pampa, Mendoza, Neuquen, Rio Negro, Salta, Santa Cruz, and Tierra del Fuego Provinces	13,100.
Do.	do.	Pan American Energy Group [BP p.l.c., 60%, and Bidas Corp., 40%]	Onshore natural gas fields, Chubut and Santa Cruz Provinces	2,700.
Do.	do.	do.	Offshore oilfields, Tierra del Fuego Province	NA.
Petroleum	million 42-gallon barrels	Yacimientos Petrolíferos Fiscales S.A.	Onshore oilfields, Chubut, Formosa, Jujuy, La Pampa, Mendoza, Neuquen, Rio Negro, Salta, and Santa Cruz	366.
Do.	do.	Pan American Energy SL [BP p.l.c., 50%, and Bidas Corp., 50%]	Onshore oilfields, Chubut and Santa Cruz Provinces	100.
Do.	do.	do.	Offshore oilfields, Tierra del Fuego Province	NA.
Do.	do.	Chevron Argentina S.R.L. (Chevron Corp., 100%)	El Trapial onshore oilfield, Neuquen Province, and other concessions	46.
Do.	do.	Petrobras Energia S.A. (Petroleo Brasileiro S.A., 100%)	Onshore oilfields, La Pampa, Mendoza, Neuquen, Rio Negro, Salta, and Santa Cruz Provinces	15.
Do.	do.	Petro Andina Resources Ltd. (Pluspetrol S.A., 100%)	Onshore oilfield, Neuquen Province	10.
Do.	do.	Teepetrol S.A.	Onshore oilfields, Golfo San Jorge basin, Neuquen basin, Northwest basin	10.
Do.		Total Austral S.A. (Total S.A., 100%)	Onshore oilfield, Neuquen Province	NA.
Petroleum, refined	barrels per day	Yacimientos Petrolíferos Fiscales S.A.	La Plata refinery, Buenos Aires Province	189,000.
Do.	do.	do.	Lujan De Cuyo refinery, Mendoza Province	105,000.
Silver	metric tons	SSR Mining Inc., 100%	Chinchillas Mine, Jujuy Province	250.
Do.	do.	Minera Santa Cruz S.A. (Hochschild Mining plc, 51%, and McEwen Mining Inc., 49%)	San Jose Mine, Santa Cruz Province	215.
Do.	do.	Yamana Gold Inc., 100%	Cerro Moro Mine, Santa Cruz Province	200.
Do.	do.	Newmont Corp., 100%	Cerro Negro Mine, Santa Cruz Province	173.
Do.	do.	Cerro Vanguardia S.A. [AngloGold Ashanti Ltd., 92.5%, and FOMICRUZ S.E. (Government of Santa Cruz Province), 7.5%]	Cerro Vanguardia Mine, Santa Cruz Province	60.
Do.	do.	Troy Resources Ltd., 100%	Casposo Mine, San Juan Province	34.
Zinc	do.	AR Zinc S.A. (Glencore plc, 100%)	Aguilar Mine, Jujuy Province	20.
Do.	do.	SSR Mining Inc., 100%	Chinchillas Mine, Jujuy Province	4.

Do., do. Ditto. NA Not available.

¹Mine closed at the end of 2018. In 2019, the integration of the Agua Rica project and the Minera Alumbrera Mine was announced.

²Abbreviations used in this table for commodities include the following: DRI—direct-reduced iron.

³Mill capacity per year.