



2015 Minerals Yearbook

CHILE [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF CHILE

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In 2015, Chile was a leading mineral commodity producer in Latin America. The country's copper mining sector has, however, been hampered by lower global demand in recent years. Despite the economy growing by less than expected, Chile continued to be the world's leading producer and exporter of several raw mineral commodities, accounting for 65% of the world's iodine production, 53% of the world's rhenium production, and 30% of the world's mined copper production. Chile also was the world's second-ranked producer of lithium (accounting for 33% of the world's output), molybdenum (22% of the world's output), and boron (ulexite) (5% of the world's output). It was the world's sixth-ranked producer of silver (5% of the world's output). Chile's world rankings for mineral reserves were as follows: first for copper, lithium, and rhenium; second for iodine; third for boron (ulexite) and molybdenum; and fourth for silver (Bennett, 2017; Brininstool, 2017; Crangle, 2017; Jaskula, 2017; Polyak, 2017a, b; Schnebele, 2017).

In 2015, the nominal gross domestic product (GDP) of Chile decreased by about 7% to \$240.2 billion from \$258 billion in 2014. In 2015, the year-on-year rate of growth of the GDP in real terms increased by 2.1%. In 2015, Chile's mining and quarrying sectors accounted for about 9% of the total GDP compared with 11.2% in 2014. A decrease of 2.2% in the value of the mining and quarrying sectors was attributable mainly to lower mineral commodity prices, including for copper. Although Chile's economy had slowed owing primarily to a decrease in China's mineral commodity demand, Chile continued to have one of the region's fastest growing economies. Of the emerging economies evaluated for 2015, Chile was considered to be one of the best internationally because of its stability, transparency, and excellent business prospects. According to the annual competitiveness index prepared by the World Economic Forum, Chile ranked 1st in terms of overall economic competitiveness in the Latin America and the Caribbean region in 2015 and 35th in the world. Mining continued to be the most attractive sector for foreign investment in Chile (Servicio Nacional de Geología y Minería, 2016, p. 27; World Bank, The, 2016a, b; World Economic Forum, 2016).

Minerals in the National Economy

Chile's employment in the mining and quarrying sector decreased by 4.5% to 238,454 workers in 2015 from 249,815 workers in 2014. According to the London Metal Exchange (LME), the average price of copper was \$249.2 cents per pound (c/lb) in 2015, which was down by 20% from the average price of \$311.1 c/lb in 2014 and by nearly 38% since reaching \$399.80 c/lb in 2011. In 2015, the value of mineral production in Chile decreased by 25% to \$21.6 billion from \$28.8 billion in 2014. The value of mined copper alone was \$19.5 billion (Banco Central de Chile, 2016b; Brininstool, 2017; Servicio Nacional de Geología y Minería, 2016, p. 148).

In 2015, Chile was one of the prime destinations for foreign investment in Latin America. Foreign investment interest in Chile began in the 1970s as a result of the passage of Chile's Decree Law 600 (DL 600) in 1974, which served as the most significant guideline for foreign investors interested in investing in Chile. Since 2005, the inflow of foreign direct investment (FDI) to Chile increased notably; the country's average FDI for the years 2005 through 2009 was about \$11.8 billion, and FDI reached a record \$22 billion in 2014. In 2015, the country's FDI was about \$20 billion. The only other countries in Latin America to receive more FDI dollars than Chile in 2015 were Brazil (\$75 billion) and Mexico (\$30 billion). In 2014, the mining sector in Chile absorbed about \$7 billion in FDI. The main sources of FDI to Chile were the United States (29%), Spain (21%), and Peru (8%) (Economic Commission for Latin America and the Caribbean, 2016, p. 47; InvestChile, 2016).

Despite record levels of FDI in Chile, the world's leading copper producer had seen its economic growth decline owing mainly to the fall of metal prices that had hurt investment in its mining industry. The mining industry had a significant effect on the domestic economy and other production sectors. More than one-third of all electric power generation was consumed by mining, and more than 55% of all exports were mineral commodities. The mining industry also had the highest level of earnings of any economic activity of the country and the lowest level of work-related accidents. The extraordinary level of development achieved by the mining industry in recent decades was mainly driven by the private sector (Banco Central de Chile, 2016a; InvestChile, 2016).

Government Policies and Programs

Regulations governing Chile's mineral industry are contained in Decree with Force of Law (DFL) No. 302. The Ministerio de Minería [Ministry of Mining] exercises control of the mineral industry through state-owned companies and regulatory agencies, including the Chilean Copper Commission (COCHILCO), Corporación Nacional del Cobre (CODELCO), Empresa Nacional de Minería (ENAMI), and Empresa Nacional del Petróleo (ENAP) (Ministerio de Minería, 2016).

COCHILCO was created in 1976 by law No. 1349. COCHILCO advises the Government on matters concerning the production of copper, copper byproducts, and other metals, and on industrial mineral mining (Comisión Chilena del Cobre, 2016e).

CODELCO was owned by the Government and was involved in industrial, mining, and trade activities. Decree Law 1350 (1976) created CODELCO, in part to manage the large-scale mines that were nationalized in 1971. The company reports to the Government through the Ministry of Mining. ENAMI, which was the national mining corporation, was founded in 1960 to promote small- and medium-size private sector mining in Chile. It does so by providing incentives aimed at correcting market failures and by supplying technical, financial, metallurgical production, and trading services to help the companies be competitive (Corporación Nacional del Cobre, 2016, p. 26).

ENAP was a publicly owned company whose main line of business was the exploration, production, refining, and marketing of hydrocarbons and their byproducts. It was created by Organic Law No. 9618 of Empresa Nacional del Petróleo, dated June 19, 1950. ENAP participates in the exploration and production of hydrocarbons through its subsidiary Enap Sipetrol S.A., and in the refining, transportation, storage, and marketing of petroleum-based products through Enap Refinerías S.A. (Empresa Nacional del Petróleo, 2016; Empresa Nacional de Minería, 2016; Ministerio de Minería, 2016).

The legal framework for mining in Chile is based on the country's Organic Constitutional Law on Mining Concessions of 1982 and the Chilean Mining Code of 1983. On June 16, 2005, the Government passed law No. 20026 to establish a mining-specific tax (royalty), which modified both the applicable mining code (law No. 18248) and the 1974 foreign investment statute (DL 600). DL 600 is the law that establishes guarantees for foreign investors who sign a contract with the Government of Chile establishing the terms of the investment. The law offers foreign investors the possibility of signing new investment contracts on terms and conditions similar to those negotiated in the past. In addition, DL 600 offers a locked-in maximum tax rate of 44.45% for up to 4 years. DL 600 also created the Foreign Investment Promotion Agency known as InvestChile. This agency is responsible for promoting Chile globally as a destination for FDI, serving as a bridge between the interests of overseas investors and the business opportunities Chile offers, and providing world-class services that are in line with the country's economic development policies (Comisión Chilena del Cobre, 2016d; InvestChile, 2016).

The main environmental law of Chile, law No. 19,300, was approved on March 9, 1994, and was supplemented on December 7, 2002, by Decreto Supremo 95, which requires environmental impact statements for any new investment projects that involve either exploration for or extraction of the country's natural resources (including minerals). In July 2011, the Chilean Congress approved law No. 20,551 to regulate the closure and environmental remediation of mine sites and installations. The law entered into force on November 11, 2012. On June 18, 2012, the Chilean Congress approved law No. 20,600, which established new environmental courts charged with the resolution of any complaints relating to emissions, decontamination plans, environmental damage remediation measures, and environmental disputes (Biblioteca del Congreso Nacional de Chile, 2016).

Production

In 2015, Chile's mine production of copper remained about the same compared with that of 2014, but the country's smelter production of copper increased by about 10% to 1.496 million metric tons (Mt) from 1.356 Mt. Lead production increased by 11% to 2,979 metric tons (t) from 2,678 t; molybdenum production, which was a byproduct of copper production, increased by 8% compared with that of 2014. Gold mine production decreased by 8% to 42,501 kilograms (kg) from 46,031 kg in 2014. Increases in output of industrial minerals were led by bauxitic clay (73%), quartz (61%), feldspar (55%), bentonite clays (32%), lithium chloride (31%), calcined gypsum

(15%), salt (12%), iodine (11.5%), nitrates (10%), and boron (ulexite) (4%). Decreases in output of industrial minerals were led by marble (46%), lithium chloride (31%), travertine (28%), phosphate rock (22%), diatomite (16%), and silica sand (11%). Data on mineral production are in table 1.

Structure of the Mineral Industry

CODELCO was the world's largest copper producer in terms of the number of active projects or operations. In 2015, CODELCO produced about 10% of the world's copper production and about 33% of the country's total copper production. The company also produced about 53% of the country's total molybdenum production and about 10% of the world's molybdenum production. The company's core business was exploring, developing, extracting, and processing mineral resources that are then converted into refined copper and byproducts. Since CODELCO was founded in 1971, it had produced about 20% of all Chile's exports. The Asia and the Pacific region was the company's main market, followed by Europe and South America. Copper was produced mainly in the following northern Regions: Antofagasta, Atacama, Coquimbo, Libertador General Bernardo O'Higgins, Metropolitana, Tarapaca, and Valparaíso. CODELCO had seven operating mining divisions (Andina, Chuquicamata, El Teniente, Gabriela Mistral, Ministro Hales, Radomiro Tomic, and Salvador), and all were located in northern and central Chile. The El Teniente division had the highest output during the year, with Salvador being the least productive in terms of output. A significant storm causing severe floods hit the Region of Atacama in March, resulting in considerable damage to the Salvador division. By the end of 2015, CODELCO directly employed 19,117 people and had hired 23,098 operational contractors and 23,250 investment contractors to achieve its annual production level (Comisión Chilena del Cobre, 2016a, p. 21–23, 147; Corporación Nacional del Cobre, 2016, p. 23, 40, 74).

In 2015, the world's leading individual copper mine, Escondida, accounted for about 20% of Chile's total copper production. Escondida's output in 2015 was down just 1 percent from that of 2014. Escondida was operated by BHP Billiton Ltd. of Australia (57.5%); Rio Tinto plc, which was a British-Australian multinational company (30%); Mitsubishi Corp. of Japan (10%); and the International Finance Corp. of the United States (2.5%). Located in the Antofagasta Region in northern Chile, Escondida employed approximately 12,000 operational employees and contractors. Its two open-cut pits fed three concentrator plants (Laguna Seca, Los Colorados, and the Organic Growth Project)—which used grinding and flotation technologies to produce copper concentrate—as well as two leaching operations (oxide and sulfide). The company's mining concession with the Chilean Government was valid indefinitely, subject to payment of annual fees (table 2; BHP Billiton Ltd., 2016, p. 40, 80, 81; Comisión Chilena del Cobre, 2016a, p. 21).

Freeport-McMoran Inc. of Arizona (United States), which was the world's leading publicly traded copper mining company and which had a production capacity of 225,000 metric tons per year (t/yr), was planning to decrease output at its majority-owned El Abra Mine in Chile by approximately 50% to achieve lower operating and labor costs, defer capital expenditures, and

extend the life of existing operations. El Abra included open pit mining, sulfide ore concentrating, leaching, and solvent extraction and electrowinning operations (Freeport-McMoran Inc., 2016, p. 10, 36).

Antofagasta Minerals S.A. (AMSA), which was a subsidiary of Antofagasta plc of the United Kingdom, was the leading private domestic mining company in Chile and one of the top 10 copper-producing companies in the world in 2015. In December, Antofagasta announced an agreement with Barrick Gold Corp. of Canada to acquire a stake in the Zaldívar copper mine in northern Chile. Antofagasta operated and had equity ownership in four copper mines in Chile, two of which produced a significant number of byproducts. They were the Centinela Mine (in which Antofagasta held a 70% interest), which produced copper concentrates containing gold and silver; the Antucoya Mine (70% interest), which produced copper cathodes; Los Pelambres Mine in Coquimbo (60% interest), which produced copper concentrates containing gold, silver, and molybdenum; and the Zaldívar Mine (50% equity interest), which produced copper cathodes. Los Pelambres was the company's flagship mine, generating more than 57% of the company's overall production, including about 19% of Chile's total annual molybdenum production. Antofagasta's 2015 production performance fell short of expectations, partly owing to delays in the expansion of the Centinela Mine and community action at Los Pelambres Mine (table 2; Antofagasta Minerals plc, 2016, p. 2, 5, 6; Comisión Chilena del Cobre, 2016a, p. 23).

Mineral Trade

The Central Bank of Chile announced that the total value of exports and imports were about the same in 2015. The total value of exports from Chile decreased by about 16% to \$63.4 billion from \$75.7 billion in 2014, and that of imports decreased by about 13% to \$63.0 billion from \$72.2 billion in 2014. China was Chile's principal trading partner, accounting for about 23.5% (\$14.8 billion) of Chile's imports and 26.3% (\$16.7 billion) of Chile's exports. The United States was second, accounting for about 18.7% (\$11.8 billion) of Chile's imports and 12.9% (\$8.2 billion) of Chile's exports. Other major trading partners were, in terms of the value of trade, Brazil, Japan, the Republic of Korea, Argentina, Spain, Germany, Mexico, and Italy (Banco Central de Chile, 2016a, p. 32, 59, 107–108).

According to the Central Bank of Chile, mining led Chile's export sector and accounted for about 54% of the total exports, in terms of value. The value of the country's exports of mineral commodities decreased to \$34.2 billion from \$42.2 billion in 2014, and the value of the country's imports of mineral commodities decreased to \$4.1 billion from \$8.0 billion in 2014. Copper, which was the country's leading mineral commodity export, accounted for about \$30.0 billion, or 47% of total exports, in terms of value. The value of annual exports of refined copper decreased to \$14.4 billion from \$17.0 billion in 2014; that of bulk copper products, including cement, concentrates, and secondary copper decreased to \$12.9 billion from \$16.3 billion. The value of molybdenum exports from Chile decreased by 36% to about \$826 million in 2015 from \$1.3 billion in 2014. The annual value of molybdenum exports had been decreasing steadily since 2005, when the value was \$3.0 billion. Chile's other

mineral commodity exports were gold, iodine, iron ore, lithium carbonate, silver, and zinc, which together accounted for about \$2.5 billion, or 7% of the value of total mineral exports (Banco Central de Chile, 2016a, p. 32, 35, 52, 60; Comisión Chilena del Cobre, 2016b).

In 2015, the Asia and the Pacific region was the leading recipient of exports of copper from Chile, in terms of value. The value of copper exports to the region was about \$22.1 billion in 2015 compared with \$26.2 billion in 2014. China accounted for 59% or about \$13.0 billion of the copper exported to the Asia and the Pacific region, which was slightly less than in 2014 (\$14 billion). The value of refined copper exports to China accounted for 31% or \$6.8 billion of the country's total copper exports in 2015; bulk copper exports accounted for 23%, or \$5 billion; and that of blister copper accounted for 4.5%, or \$1 billion. For the period 2011 through 2015, the total value of copper exports to China from Chile was \$67.5 billion. Japan accounted for 15% or about \$3.2 billion of the copper exported to the Asia and the Pacific region from Chile, which was a decrease of \$1.6 billion from that of 2014. The value of exports of refined copper to Japan accounted for \$142 million of Chile's total in 2015; that of bulk copper imports accounted for \$3 billion; and that of blister copper accounted for \$25 million. For the period 2011 through 2015, the total value of copper exports to Japan from Chile was \$23.8 billion (Comisión Chilena del Cobre, 2016a, p. 41).

In 2015, the value of industrial mineral exports from Chile decreased to about \$1.1 billion from \$1.2 billion in each previous year since 2012. In 2015, the leading exported industrial mineral commodity, by value, was iodine (which was valued at \$507 million and accounted for 46% of the total industrial mineral exports), followed by lithium carbonate (\$245 million, and 22%); rock salt (\$189 million, and 17%); and nitrate (\$105 million, and 10%). The sum value of these four leading industrial mineral commodities accounted for 95% of the total industrial mineral exports in 2015 (Comisión Chilena del Cobre, 2016c, table 15.1).

Commodity Review

Metals

Copper and Molybdenum.—In 2015, mine production from large-scale companies was 5.6 Mt or 96.5% of the total copper production. Private mining companies accounted for about 70% of mined copper output, and CODELCO, for 30% of the total. Production from private companies was composed of copper in concentrates (68%), and cathodes (32%); that from CODELCO was composed of cathodes (55%), concentrates (42%), and blister (3%). Medium-scale mines produced about 205,000 t of copper in 2015, including cathodes (51%) and concentrates (49%). Small-scale mines produced about 58,000 t of copper. The amount of copper that was produced as a byproduct of gold mining was about 2,200 t, of which large-scale operations accounted for 39%; followed by medium-scale operations, 34%; and small-scale operations, 27% (table 1; Servicio Nacional de Geología y Minería, 2016, p. 35–37).

Minera Escondida Ltda.'s Escondida Mine continued to be Chile's leading mine in terms of mined copper production in 2015, with a total production of about 1.2 Mt. Since the mine's first full year of operation in 1991, production from Escondida had accounted for between 16% and 28% of Chile's total annual copper production. Total mined copper production from Escondida since 2006 had averaged about 1.2 Mt. Other prominent private mines included Compañía Minera Doña Inés de Collahuasi Mine, and Anglo American plc of the United Kingdom's majority owned Los Bronces operation, each of which accounted for about 8% of the national mined copper production in 2015 (Comisión Chilena del Cobre, 2016a, p. 21).

In 2015, El Teniente was CODELCO's leading copper-producing mine, accounting for 25% of the company's mined copper and 8% of the national total. El Teniente, which commenced production in 1917, was among Chile's oldest continually operating copper mines. The total amount of mined copper produced from El Teniente between 2006 and 2015 was 4.2 Mt, or 25% of CODELCO's total output, which was about 8% of Chile's total mined copper production. Other leading CODELCO producing mines in 2015 were the Chuquicamata and the Radomiro Tomic Mines. Chuquicamata, which commenced operations in 1915, and Radomiro Tomic, which commenced operations in 1997, each accounted for 5% of the country's and 16% of CODELCO's total mined copper output in 2015 (Comisión Chilena del Cobre, 2016a, p. 21).

Molybdenum production in 2015 increased by about 8% to 52,579 t from 48,770 t in 2014. CODELCO mines accounted for 53% of mined molybdenum production and private mines accounted for 47% of the total. CODELCO's leading producing mines were Chuquicamata and Radomiro Tomic. Los Pelambres Mine was the leading private molybdenum producer in 2015. Los Pelambres (Antofagasta plc, 60%; JX Nippon Mining Metals Corp., 15%; and others, 25%) produced molybdenum concentrate, which was sold to roasters for further processing. The Antofagasta and Coquimbo Regions were Chile's leading producing Regions, accounting for about 59% of the country's total annual molybdenum production (Comisión Chilena del Cobre, 2016a, p. 23).

Gold and Silver.—In 2015, gold production decreased by about 8% to 42,501 kg from 46,031 kg in 2014. Gold production was conducted primarily in the Regions of Antofagasta, Atacama, Coquimbo, and Metropolitana de Santiago, which together accounted for about 93% of the total gold produced in the country. Other gold-producing regions included Aysen del General Carlos Ibañez, Del Maule, Libertador General Bernardo O'Higgins, and Valparaíso. About 23,119 kg, or 54% of the gold produced in Chile in 2015 came from mines where gold was the primary mineral commodity; gold produced from mines where copper was the primary mineral commodity amounted to 18,548 kg, or 44%. Of the 42.5 t of gold produced in Chile in 2015, about 19.5 t (46%) was produced by large-scale gold mining operations, and the rest was from medium- and small-scale operations (table 1; Servicio Nacional de Geología y Minería, 2016, p. 42–44).

In 2015, silver production decreased by 4.4% to 1,504 t from 1,572 t in 2014. Seventy-five percent of the silver produced in Chile was from the Antofagasta, Atacama, and Coquimbo

Regions. About 1,169 t, or 78%, of the silver produced in Chile in 2015, came from mines where copper was the primary commodity; most of the remainder came from mines in which lead and (or) zinc were the primary commodities. Located outside of Calama in northern Chile, CODELCO's Ministro de Hales division was Chile's leading mine in terms of mined silver production in 2015, with a total of 293 t, or about 19% of the country's total. CODELCO accounted for about 44% of silver production in Chile in 2015 (table 1; Corporación Nacional del Cobre, 2016, p. 72; Servicio Nacional de Geología y Minería, 2016, p. 47–48).

Iron Ore and Iron and Steel.—In 2015, production of iron ore decreased by 18% compared with that of 2014, with the Atacama Region producing 93% of the country's total. In 2015, Compañía Minera del Pacífico S.A. (CAP Minería) was the principal producer and exporter of iron ore and pellets in Chile. The gross weight of total production for the year from CAP Minería was about 15.4 Mt. Production included 8.8 Mt from the Huasco Valley plants, 5.5 Mt from the Copiapo Valley plants, and 1.1 Mt from the Elqui Valley plants. As of yearend 2015, CAP Minería held 1,363 active mining concessions that covered 240,298 hectares (ha) in the Antofagasta, Atacama, Biobío, Coquimbo, Maule, and Magallanes Regions and 624 active exploration licenses that covered 327,100 ha in the Antofagasta, Atacama, Aysen, Coquimbo, and Los Lagos Regions. CAP Minería was the sole supplier of iron ore and pellets to the integrated Chilean steelmaker Compañía Siderúrgica Huachipato S.A. (CSH), accounting for 242,000 t of lumps and 895,000 t of pellets. In 2015, the company produced 773,000 t of liquid steel and 713,000 t of finished steel, which was an increase of about 10% and 6%, respectively, compared with production in 2014. In 2015, total delivery of steel products by CSH was 718,846 t; of this amount, 91% was for the domestic market. The company's steel production processes included blast furnace reduction of iron ore to produce liquid steel for flat and rolled products (Compañía Minera del Pacífico S.A., 2016, p. 29, 32, 37, 38).

Industrial Minerals

Boron.—Boron (ulexite) production in Chile increased by about 4% in 2015 to 517,584 t from 496,533 t in 2014. Borates are defined as esters or salts of boric acid, which are compounds containing boric oxide. Many minerals contain boric oxide, but those that are the most commercially important are borax, ulexite and colemanite. Sources of borates in Chile are primarily ulexite associated with Andean salars in the northern part of the country. Borate deposits in Chile include the Salar Aguas Calientes Norte, Salar Aguas Calientes Sur, Salar de Ascotan, Salar de Atacama, Salar Colpitas, Salar Maricunga, Salar Perdanales, Salar Punta Negra, Salar Quisquiro, and Salar de Surire (table 1; Kistler and Helvaci, 2006, p. 171, 178–180).

Iodine, Nitrate, and Potassium Compounds.—Chile's iodine production increased in 2015 by about 11.5% to 21,179 t from 18,989 t in 2014. With the capacity to produce 13,300 t/yr of iodine, SQM Quimicos S.A. was thought to be the world leader in terms of production capacity. The caliche ore deposits in northern Chile are the country's source of iodine and are

the world's largest commercially exploited source of natural nitrates. Caliche ore-derived products are iodine, potassium nitrate, sodium nitrate, and sodium potassium nitrate. The main iodine plants owned by SQM are Maria Elena, Nueva Victoria, and Pedro de Valdivia. In 2015, SQM focused on increasing the efficiency of its operations by suspending mining and nitrate operations at the Pedro de Valdivia plant and increasing the iodine production capacity at Nueva Victoria to approximately 9,000 t/yr. Six Chilean companies accounted for about 56% of the total global sales of iodine in 2015, including SQM, which accounted for approximately 26% of world iodine sales, by volume. The other five companies included ACF Minera S.A.; Algorta Norte S.A.; Atacama Chemical S.A. (Cosayach), which was controlled by the Chilean holding company Inverraz S.A.; Atacama Minerals Chile S.C.M (tables 1, 2; Sociedad Química y Minera de Chile S.A., 2016, p. 5, 20, 22).

In 2015, SQM's Pedro de Valdivia Mine produced sodium nitrate for both agricultural and industrial applications and subsequently processed it at the Coy Sur plants. At Pedro de Valdivia, caliche ore is crushed to create both coarse and fine fractions. The coarse fraction is processed using closed-circuit vat leaching to selectively dissolve the contents into solutions containing iodine and nitrate. The concentrated solution is cooled to produce sodium nitrate crystals, which are separated from the brine using basket centrifuges and sent to the processing plant. The brine is pumped to the iodine facilities, where iodide is separated in a solvent extraction plant, and the remaining brine is returned to the vat leaching process. The fine fraction is leached at ambient temperature with water. After a solvent extraction process, the brine is pumped to solar evaporation ponds in Coya Sur for the concentration of nitrates (Sociedad Química y Minera de Chile S.A., 2016, p. 31–32).

SQM also produced potassium chloride and potassium sulfate from the brines of the Salar de Atacama. Located in the outskirts of Antofagasta, the Salar de Atacama is a salt-encrusted depression in the Atacama Desert, within which lies an underground deposit of brines contained in porous sodium chloride rock fed by an underground inflow from the Andes Mountains. The brines contain commercially exploitable deposits of boron, lithium, potassium, and sulfates. For SQM to produce potassium chloride, brines from the Salar de Atacama are pumped to solar evaporation ponds that produce crystallized salts containing magnesium, potassium, and sodium. Potassium and sodium salts are treated to separate potassium chloride by grinding, flotation, and filtering processes. Potassium salts containing magnesium are treated at cold-leach plants, where magnesium is removed. Potassium chloride is transported to Coya Sur to be used in the production of potassium nitrate, and excess potassium chloride is sold to third parties. Byproducts of the potassium chloride production process include brines remaining after removal of the potassium chloride, which are used to produce lithium carbonate or reinjected into the Salar de Atacama; sodium chloride that is deposited at sites near the production facility; and other salts containing magnesium chloride. SQM's potassium sulfate production capacity in 2015 was 340,000 t/yr, of which 95,000 t/yr was potassium chloride. This capacity was part of the total plant capacity of 2.6 million metric tons per year (Mt/yr). Actual production capacity depends

on the quantity, metallurgical recovery rates, and quality of the mining resources pumped from the Salar de Atacama (Sociedad Química y Minera de Chile S.A., 2016, p. 33–35).

Lithium.—In 2015, Chile's lithium carbonate production decreased by about 8.5% to 50,418 t from 55,074 t in 2014; production of lithium chloride decreased by 31% to 2,069 t; and production of lithium hydroxide decreased by 7% to 3,888 t. With an annual production capacity of 48,000 t/yr, SQM produced lithium carbonate at its Salar del Carmen facilities near Antofagasta. Lithium hydroxide was also produced at the facility, which had a production capacity of 6,000 t/yr, making the facility one of the largest lithium plants in the world. Future production will depend on the actual volumes and quality of the lithium solution sent by the Salar de Atacama operations, as well as a lease agreement that establishes the extraction limits (table 1; Sociedad Química y Minera de Chile S.A., 2016, p. 23–24, 33).

Albemarle Corp. of North Carolina (United States) became a leading global producer of lithium and lithium compounds in Chile. In 2015, the company obtained lithium through solar evaporation of their ponds at the Salar de Atacama and developed and manufactured a broad range of basic lithium compounds, including lithium carbonate, lithium chloride, lithium hydroxide, and value-added lithium specialties and reagents, including butyllithium and lithium aluminum hydride. After obtaining the lithium brine from the Salar de Atacama, it was processed into lithium carbonate and lithium chloride at a plant in nearby La Negra. The company's mineral rights with respect to the Salar de Atacama consisted exclusively of the right to access lithium brine pursuant to a long-term contract with the Government, originally entered into in January 1975 by one of its predecessors. The contract with the Government would remain in effect until the date on which the company had produced and sold 200,000 t of lithium in any of its forms from the Salar de Atacama. As of December 31, the remaining amount of lithium the company was permitted to sell under the contract was approximately 115,000 t (Albemarle Corp., 2016, p. 4).

Mineral Fuels

Coal.—Chile is a minor producer of fossil fuels and is therefore heavily dependent on energy imports; in 2015, the country imported about 90% of its consumption. Coal was produced primarily in the Magallanes y de la Antartica Chilena Region by Minera Isla Riesco. The company has four subbituminous coal deposits on Riesco Island called Adela, Elena, Invierno, and Rio Eduardo, with combined coal resources of more than 500 Mt and reserves of 251 Mt. In 2015, the company's production was down by almost 24% owing to plummeting mineral commodity prices. The company's coal shipments went mainly to domestic and Asia and the Pacific markets (table 1; Empresas Copec, 2016, p. 14, 27, 90).

Reserves and Resources

Table 3 includes the most recently available reported reserves for coal, copper, gold, iodine, iron ore, lithium, molybdenum, nitrates, and silver.

Outlook

Chile's mineral industry is likely to encounter many challenges in 2016 as the country deals with falling metal prices and dwindling ore grades. Despite the economic uncertainties of the mineral industry in Chile, the country will likely continue its dominance in the global copper industry. Mining companies in Chile have benefited from lower fuel and energy costs, and the expected growth in China, India, Japan, and other emerging economies will continue to support the country's copper production rates. BHP Billiton's Escondida Mine will likely remain the world's top producer of copper, as the mine has produced an average of more than 1 Mt/yr in the past decade. Antofagasta Minerals had major investments in two projects: one at Centinela and one at Los Pelambres. The development of a second concentrator at Centinela would increase the throughput capacity to 90,000 metric tons per day (t/d), with annual production of approximately 140,000 t/yr of copper, 4,666 kilograms per year of gold and 3,000 t/yr of molybdenum. The \$1.1 billion expansion at Los Pelambres would increase the throughput capacity to 205,000 t/d. Production was planned to commence in late 2019. Codelco announced operational changes for 2016 that it said would maintain its financial health by reducing investments and saving on operating costs. These changes would include transforming one of the largest open pits in the world, Chuquicamata, into an underground operation in order to gain access to resources under the current pit as well as mining at deeper levels at El Teniente, which was one of the largest underground mines in the world. The changes were expected to add reserves of approximately 2 billion metric tons with average grades of 0.86% copper and 220 parts per million (ppm) molybdenum and could enable El Teniente to continue production for the next 50 years (Antofagasta Minerals plc, 2016, p. 49; Corporación Nacional del Cobre, 2016, p. 57, 62; Comisión Chilena del Cobre, 2016e).

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TABLE 1
CHILE: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015	
METALS						
Copper:						
Mine output, Cu content	thousand metric tons	5,257	5,484	5,851	5,750 ^r	5,764
Metal:						
Smelter, primary	do.	1,522	1,342	1,358	1,356	1,496
Refined:						
Electrowon	do.	2,025	2,029	1,933	1,844	1,778
Primary, other	do.	1,068	873	822	885	910
Total	do.	3,093	2,902	2,755	2,729	2,688
Gold, mine output, Au content	kilograms	45,137	49,936	51,309	46,031	42,501
Iron and steel:						
Pig iron	thousand metric tons	1,072	1,068 ^r	766 ^r	584 ^r	632
Raw steel	do.	1,615	1,671	1,323	1,079 ^r	1,112
Iron ore, mine production:						
Gross weight	do.	12,625	17,330	17,109	18,865	15,448
Fe content	do.	7,747	9,429	9,088	9,428	9,148
Lead, mine output, Pb content		841	410	1,829	2,678	2,979
Molybdenum, mine output, Mo content		40,889	35,090	38,715	48,770	52,579
Of which, oxides		4,821	4,790	397	--	--
Silver:						
Mine output, Ag content		1,291	1,195	1,174	1,572	1,504
Metal, Ag content	kilograms	165,550	165,000 ^c	154,500 ^c	200,000 ^c	200,000 ^c
Zinc, mine output, Zn content		36,602	26,762	29,759	45,094	48,071
INDUSTRIAL MINERALS						
Boron compounds:						
Boric acid (H ₃ BO ₃)		102,323	97,235	91,252	94,986	101,170
Ulexite, natural		488,523	444,487	580,528	496,533	517,584
Cement, hydraulic	thousand metric tons	4,406	4,722	4,800 ^c	5,000 ^c	4,800 ^c
Clay:						
Bauxitic		38,312	4,976	2,145	16,903	29,166
Bentonite		1,255	893	3,313 ^r	1,083	1,434
Kaolin		59,912	60,429	60,000	60,000	60,000
Other, including ball and plastic clays		9,057	1,940	--	--	--
Copper sulfate		11,187	8,814	8,869	10,292	9,496
Diatomite		22,938	23,021	27,092	31,000	26,186
Feldspar		7,563	6,399	3,874	4,233	6,577
Gypsum:						
Crude		917,759	799,064	1,015,158	843,490	860,075
Calcined		185,576	124,154	117,598	197,268 ^r	225,886
Iodine, elemental		16,000	17,494	20,656	18,989	21,179
Lithium compounds, natural:						
Lithium carbonate		59,933	62,002	52,358	55,074	50,418
Lithium chloride		3,864	4,145	4,091	2,985	2,069
Lithium hydroxide		5,800	5,447	4,197	4,194	3,888
Nitrates, crude, natural	thousand metric tons	928	823	760	722	795
Peat, horticultural use		958	346	527	2,276	2,306
Phosphatic materials, natural:						
Phosphate rock (apatite):						
Gross weight		14,304	8,585	12,041	8,727	6,781
P ₂ O ₅ content ^c		4,410	2,650	3,740	3,000	2,090
Phosphorite		--	5,750	--	11,415 ^r	9,360
Guano		1,625	1,266	2,915	2,717 ^r	3,408
Potash, natural:						
Potassium chloride, KCl		1,328,504	1,581,226	1,838,735	1,759,490	1,775,974
Potassium sulfate, K ₂ SO ₄		43,185	105,182	62,480	110,811	113,101
Pumicite		816,565	826,779	800,031	808,879	804,121

See footnotes at end of table.

TABLE 1—Continued
CHILE: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
INDUSTRIAL MINERALS—Continued					
Pyrophyllite	349	730	-- ^r	-- ^r	--
Salt (NaCl) thousand metric tons	9,966	8,057	6,577	10,533	11,831
Siliceous sand and gravel (silica):					
Quartz, unspecified	422,468	359,692	360,293	269,208	433,560
Silica sand	814,375	907,784	997,855	924,059	824,153
Stone:					
Calcium carbonate thousand metric tons	6,270	6,658	6,454	6,850	6,696
Of which:					
Coquina do.	391	375	182	510	506
Ground calcium carbonate, white do.	45	44	26	26	44
Limestone, crude do.	5,834	6,238	6,246	6,314	6,147
Marble	3,201	2,285	3,523	4,453	2,401
Travertine	4,117	4,467	5,599	4,176	2,999
Sulfur, byproduct ³ thousand metric tons	1,723	1,681	1,700 ^e	1,700 ^e	1,700 ^e
Zeolites	94	250	159	92	--
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous and lignite, marketable thousand metric tons	654	712	2,902	4,168	3,162
Methanol do.	554	313	204	200	200 ^e
Natural gas (gross) million cubic meters	2,015	1,626	1,166	907 ^r	1,044
Petroleum:					
Crude and condensate thousand 42-gallon barrels	750	1,072	2,765	2,499 ^r	1,800
Refinery products:					
Liquefied petroleum gas do.	7,529	6,774	3,021 ^r	7,000	6,000 ^e
Gasoline, including for aviation do.	18,957	19,379	22,568 ^r	19,000	21,000 ^e
Kerosene, including for jet fuel do.	4,988	5,548	5,500	5,500	5,000 ^e
Diesel and distillate fuel oil do.	23,694	21,436	22,932 ^r	21,000	22,500 ^e
Residual fuel oil do.	8,737	8,020	8,372 ^r	8,000	8,500 ^e
Other do.	6,277	6,611	6,600	6,600	6,000 ^e
Total do.	70,182	67,768	68,993	67,100	69,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through June 30, 2016.

²In addition to the commodities listed, arsenic trioxide, barite, coke, dolomite, ferroalloys, hydraulic lime, lapiz lazuli, manganese, mercury, pyrite, rhenium, selenium, sodium sulfate, and steel semimanufactures were also produced, but available information was inadequate to make reliable estimates of output.

³Sulfur content of sulfuric acid as a byproduct of metallurgy and processing of mineral fuels, as reported by Comisión Chilena del Cobre (COCHILCO).

TABLE 2
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Barite metric tons	Sociedad Minera Godoy Schwenger y Cía.	Hijuelas, Valparaiso (Region V)	400
Bentonite do.	Sociedad Legal Minera Mabel Dos Primera de Arica	Quarry and plant near Arica, Arica y Parinacota (Region XV)	1,500
Boron compounds, B ₂ O ₃ content	Química Industrial del Bórax Ltda. (private, Chile-based investors, 100%)	Ulexite mine at Salar del Surire, and boric acid and agrochemical plants near Arica, Arica y Parinacota (Region XV)	550
Do.	SQM Salar S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	Mine brines from the Salar de Atacama, and boric acid plant at Antofagasta (Region II)	200
Do.	do.	Plant in Santiago Metropolitan Region	NA
Calcium carbonate, natural	Minera El Way S.A. (Cementos Bío Bío S.A., 100%)	Quarry near Antofagasta (Region II)	NA
Do.	Minera El Jilguero S.A. (Cementos Bío Bío S.A., 100%)	Quarry near Copiapo, Atacama (Region III)	NA
Do.	Minera Río Teno S.A. (Cementos Bío Bío S.A., 100%)	Quarry and plant at Teno, near Curico, Maule (Region VII)	NA
Do.	Minera Río Colorado S.A (Cementos Bío Bío S.A., 51%, and Soprocal Calerías e Industrias S.A., 49%)	La Perla Mine and plant near Melipilla, Santiago Metropolitan Region	NA
Do.	Sociedad Minera Las Abuelitas Ltda. (Soprocal Calerías e Industrias S.A., 100%)	Mine and plant near Melipilla, Santiago Metropolitan Region	NA
Do.	Minera Melón S.A. (Melón S.A., 100%)	Navío Mine near Quillota, Valparaiso (Region V)	NA
Do.	Alfredo Villalobos Román Tarsicio S.A.	Quarry and plant near Illapel, Coquimbo (Region IV)	NA
Do.	César B. Formas Ortiz S.A.	Plant at Chañaral, Atacama (Region III)	NA
Do.	Explotaciones de Minas Tongoy Ltda.	Quarry and plant near Tongoy, Coquimbo (Region IV)	NA
Do.	Imopac Ltda.	Plant at Vallenar, Atacama (Region III)	NA
Do.	Mario Alberto Pizarro A. S.A.	Plant at Los Vilos, Coquimbo (Region IV)	NA
Do.	Minera Trucco Ltda.	Mine and plant, Santiago Metropolitan Region	NA
Do.	Cristalerías Toro S.A.I.C.	Plant at Santiago, Santiago Metropolitan Region	NA
Do.	Sociedad Minera Godoy Schwenger y Cía.	Mine and plant near Quillota, Valparaiso (Region V)	NA
Do.	Compañía Minera Feltre Ltda.	Plant at Santiago, Santiago Metropolitan Region	NA
Do.	Compañía Minera Saturno Ltda.	do.	NA
Do.	Unimin Chile Ltda.	do.	NA
Do.	Sociedad Minera y Comercial Alegría y Cia Ltda.	Mine and plant at Coquimbo (Region IV)	NA
Do.	Sociedad Contractual Minera Pirineos	Quarry and plant at Vallenar, Atacama (Region III)	NA
Do.	Cemento Polpaico S.A. (Holcim Ltd., 54.3%; Compañía de Consumidores de Gas de Santiago, 40.9%; other, 4.8%)	Cerro Blanco plant, Santiago Metropolitan Region; Mejillones plant, Antofagasta (Region II); Coronel plant, Biobío (Region VIII)	NA
Cement	Melón S.A. (Inversiones Brescia S.A., 99.24%, and other private, 0.76%)	La Calera plant, Valparaiso (Region V), and grinding plant at Puerto Montt, Los Lagos (Region X)	1,800
Do.	Cementos Bío Bío S.A. (private, 100%)	Talcahuano plant, Biobío (Region VIII)	750
Do.	do.	Grinding plant at San Antonio, Valparaiso (Region V)	300
Do.	Industria Nacional de Cemento S.A. (INACESA), 100%	Plant near Antofagasta City, Antofagasta (Region II)	500
Do.	do.	Plant near Curico City, Maule (Region VII)	1,700
Clay, unspecified	Sociedad Minera Casablanca S.A.	Quarry and plant in Santiago Metropolitan Region	NA
Do.	Sociedad Minera Godoy Schwenger y Cía.	Quarry and plant near Quillota, Valparaiso (Region V)	NA
Do.	Minera Lealtad Ltda.	Quarry and plant at Til Til, Santiago Metropolitan Region, and at Olmue, Valparaiso (Region V)	NA
Coal	Ingeniería del Sur S.A.	Pecket deposit, Magallanes coal basin, Magallanes y de la Antartica Chilena (Region XII)	600
Do.	Minera Isla Riesco (Empresas Copec S.A., 50%, and Ultramar Shipping Co., 50%)	Mina Invierno, Isla Riesco coal basin, Magallanes y de la Antartica Chilena (Region XII)	4,000
Do.	Carbonifera Cocke Car Ltda.	Don Pedro, Coronel, Biobío (Region VIII)	24
Do.	Pacheco y Burdiles Ltda.	El Sarco, Biobío (Region VIII)	NA
Copper, Cu content	Compañía Minera Cerro Colorado Ltda. (BHP Billiton Ltd., 100%)	Cerro Colorado Mine and SX-EW ² plant, Tarapaca (Region I)	120

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Copper, Cu content—Continued			
Do.	Minera Escondida Ltda. (BHP Billiton Ltd., 57.5%; Rio Tinto plc, 30%; Japan Escondida Corp., 10%; International Finance Corp., 2.5%)	Escondida open pit mine, two concentrator plants, an oxide plant for cathode production (SX-EW ²), and a sulfide-leach plant for cathode production, Antofagasta (Region II)	1,300
Do.	Minera Spence S.A. (BHP Billiton Ltd., 100%)	Spence Mine and SX-EW ² plant, Antofagasta (Region II)	200
Do.	Compañía Minera Doña Inés de Collahuasi SCM (Anglo American plc, 44%; Glencore plc, 44%; companies led by Mitsui & Co. Ltd., 12%)	Collahuasi open pit mine, concentration plant, and SX-EW ² plant, Ujina, Tarapaca (Region I)	400
Do.	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Chuquicamata Division, including Chuquicamata and Mina Sur Mines; Chuquicamata SX-EW ² plant (oxide), smelter, and refinery (oxide and sulfide), Antofagasta (Region II)	450
Do.	do.	Radomiro Tomic Division and Mine, and Radomiro Tomic SX-EW ² plant; Ministro de Hales Mine and SX-EW ² plant Antofagasta (Region II)	480
Do.	do.	El Teniente Division and Mine, and Caletones smelter (anodes) and refinery (fire-refined ingots), Libertador General Bernardo O'Higgins (Region VI)	430
Do.	do.	Ventanas Division, Las Ventanas smelter and refinery (cathodes), Valparaiso (Region V)	402
Do.	do.	Andina Division, including Rio Blanco and Sur Sur Mines (concentrates), Valparaiso (Region V)	270
Do.	do.	El Salvador Division, including Campamento Antiguco and Damiana Norte open pit mines; Inca underground mine; and Potrerillos SX-EW ² plant and refinery, Atacama (Region III)	70
Do.	do.	Potrerillos refinery and smelter Salvador Division Atacama (Region III)	NA
Do.	Minera Gaby S.p.A. [Corporación Nacional del Cobre (CODELCO) (Government, 100%), 100%]	Gabriela Mistral Mine and SX-EW ² plant, Sierra Gorda, Antofagasta (Region II)	170
Do.	Antofagasta plc, 60%; JX Nippon Mining Metals Corp, 15%; Mitsubishi Materials Corp., 10%; Marubeni Corp., 8.75%; Mitsubishi Corp., 5%; Mitsui & Co. Ltd., 1.25%	Los Pelambres open pit mine and concentration plant, Coquimbo (Region IV)	430
Do.	Antofagasta plc, 70%, and Marubeni Corp., 30%	Centinela oxide and sulfide mines and plant, Antofagasta (Region II)	300
Do.	Minera El Tesoro S.A. (Antofagasta plc, 70%, and Marubeni Corp., 30%)	El Tesoro open pit mine and SX-EW ² plant, Antofagasta (Region II)	110
Do.	Minera Michilla S.A. (Antofagasta plc, 100%)	Michilla Mine and SX-EW ² and sulfide-leaching plant, Antofagasta (Region II)	45
Do.	Empresa Nacional de Minería (ENAMI) (Government, 100%)	Hernán Videla Lira smelter (anodes and blister), Paipote, Atacama (Region III)	340
Do.	do.	Concentration plants: Manuel Antonio Matta, Paipote; Osvaldo Martínez, El Salado; and Vallenar, Antacama (Region III); and José Antonio Moreno, Taltal, Antofagasta (Region II)	180
Do.	do.	Chagres smelter (anodes and blister), Valparaiso (Region V)	175
Do.	Anglo American Sur S.A. (Anglo American plc, 50.1%; Mitsubishi Corp., 20.4%; Corporación Nacional del Cobre, 20%; Mitsui & Co., Ltd., 9.5%)	Los Bronces Mine (concentrates) and Tortolas SX-EW ² plant (cathodes), Santiago Metropolitan Region	490
Do.	do.	El Soldado Mine (cathode and concentrates) and SX-EW ² plant Valparaiso (Region V)	50

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²	
Copper, Cu content—Continued				
Do.	Empresa Minera de Mantos Blancos S.A. (Anglo American plc, 99.9%, and other private, 0.1%)	Mantos Blancos open pit mine and SX-EW ² plant, Antofagasta (Region II)	100	
Do.	do.	Mantoverde open pit mine and SX-EW ² plant, Atacama (Region III)	65	
Do.	Glencore Copper Chile S.A.	Altonorte smelter (anodes and blister), La Negra, Antofagasta (Region II)	300	
Do.	Compañía Minera Xstrata Lomas Bayas (Glencore plc, 100%)	Lomas Bayas Mine and SX-EW ² plant, Antofagasta (Region II)	75	
Do.	Sociedad Contractual Minera El Abra [Freeport-McMoRan Copper & Gold Inc., 51%, and Corporación Nacional del Cobre (CODELCO) (Government, 100%), 49%]	El Abra Mine and SX-EW ² plant, near Calama, Antofagasta (Region II)	225	
Do.	Cía. Contractual Minera Candelaria (Lundin Mining Corp., 80%; Sumitomo Metal Mining Co. Ltd., 16%; Sumitomo Corp., 4%)	Candelaria open pit mine, underground mine, and concentration plant, near Copiapo, Antacama (Region III)	150	
Do.	Lundin Mining Corp., 80%; Sumitomo Metal Mining Co. Ltd., 16%; and Sumitomo Corp., 4%	Ojos del Salado Mine and concentration plant, near Copiapo, Atacama (Region III)	35	
Do.	Antofagasta Minerals Plc, 50%, and Barrick Gold Corp., 50%	Zaldívar open pit mine and SX-EW ² plant, Antofagasta (Region II)	150	
Do.	Antofagasta Minerals Plc, 70%, and Marubeni Corp., 30%	Antucoya open pit mine and SX-EW ² plant, Antofagasta (Region II)	85	
Do.	Compañía Minera Quebrada Blanca [Teck Cominco Ltd., 76.5%; Inversiones Mineras S.A., 13.5%; Empresa Nacional de Minería (ENAMI) (Government, 100%), 10%]	Quebrada Blanca open pit mine and SX-EW ² plant, Tarapaca (Region I)	100	
Do.	Minera Valle Central S.A. (Amerigo Resources Ltd., 100%)	Facilities near Rancagua, Libertador General Bernardo O'Higgins (Region VI), to process tailings of the Collahuasi and El Teniente Mines	30	
Do.	Compañía Minera Carmen de Andacollo [Teck Cominco Ltd., 90%, and Empresa Nacional de Minería (ENAMI) (Government, 100%), 10%]	Carmen de Andacollo Mine and SX-EW ² plant, Coquimbo (Region IV)	22	
Do.	EcoMetales Ltd. (Codelco Technologies Ltd., 100%)	Plant to acid-leach fine copper at Chuquicamata Mine, produced by the Antofagasta (Region II) (from residual material Chuquicamata and El Teniente Divisions)	25	
Do.	Haldeman Mining Company S.A. (100%)	Quebrada Sagasca open pit mine and SX-EW ² plant, 110 km east of Iquique, Tarapaca (Region I)	NA	
Do.	Korea Resources Corp., 51%, and Capstone Mining Corp., 49%	Estrellita Mine, 5 km south of Diego de Almagro, Atacama (Region III)	NA	
Do.	Sociedad Punta del Cobre S.A., 100%	Punta del Cobre Mine, 17 km southeast of Copiapo Atacama (Region III)	NA	
Do.	do.	Trinidad Mine, Tierra Amarilla, Atacama (Region III)	NA	
Do.	Antofagasta plc, 60%; JX Nippon Mining Metals Corp, 15%; Mitsubishi Materials Corp., 10%; Marubeni Corp., 8.75%; Mitsubishi Corp., 5%; Mitsui & Co. Ltd., 1.25%	Los Pelambres Mine, 45 km northeast of Salamanca, Coquimbo (Region IV)	90	
Copper sulfate	metric tons	Compañía Minera Cerro Negro	Portales Mine and a plant at Cabildo, Valparaiso (Region V)	200
Do.	do.	Minera Capacho Viejo Ltda.	Mine and plant near Tocopilla, Antofagasta (Region II)	5,000
Do.	do.	Compañía Minera San Gerónimo	Mine and plant near Coquimbo (Region IV)	10,000
Diatomite		Celite Chile Ltda. (IMERYS S.A., 100%)	Plant at Port of Arica, and mining operations nearby in Regions I and XV	30
Dolomite		Minera El Jilguero S.A. (Cementos Bío Bío S.A., 100%)	Quarries and plant near Copiapo, Atacama (Region III)	30

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ^c
Feldspar		Minera Alfa Quintay Ltda.	Quarry and plant, Santiago Metropolitan Region	NA
Do.		J.B. Schiappacase A.	Quarry and plant near Limache, Valparaiso (Region V)	NA
Do.		Minera Pacífico Ltda.	Quarries and plants in Libertador General Bernardo O'Higgins (Region VI), and plant in Santiago Metropolitan Region	NA
Ferromolybdenum		Molibdenos y Metales S.A. (MOLYMET) (private, 100%)	Nos plant 30 km south of Santiago and Molynor Industrial Complex, Antofagasta	25
Gold:				
Mine output	kilograms	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Andina, Chuquicamata, El Teniente, Radomiro Tomic, and Salvador Divisions (byproduct of copper production)	2,000
Do.	do.	Minera Escondida Ltda., 100%	Escondida copper mine and plants, Antofagasta (Region II)	4,500
Do.	do.	Cía. Contractual Minera Candelaria, 100%	Candelaria copper mine and plant, Atacama (Region III)	2,500
Do.	do.	Lundin Mining Corp., 80%; Sumitomo Metal Mining Co. Ltd., 16%; Sumitomo Corp., 4%	Ojos del Salado copper mine and plant, Atacama (Region III)	600
Do.	do.	Antofagasta plc, 60%; JX Nippon Mining Metals Corp., 15%; Mitsubishi Materials Corp., 10%; Marubeni Corp., 8.75%; Mitsubishi Corp., 5%; Mitsui & Co. Ltd., 1.25%	Los Pelambres Mine and plant, Coquimbo (Region IV)	1,700
Do.	do.	Empresa Nacional de Minería (ENAMI) (Government, 100%)	Manuel Antonio Matta plant, Paipote; Osvaldo Martínez plant, El Salado; and Vallenar plant, Atacama (Region III); and José Antonio Moreno plant, Taltal, Antofagasta (Region II)	400
Do.	do.	Compañía Minera Doña Inés de Collahuasi SCM, 100% (Anglo American plc, 44%; Glencore plc, 44%; companies led by Mitsui & Co. Ltd., 12%)	Collahuasi Mine and plants, Tarapaca (Region I)	NA
Do.	do.	Compañía Minera Mantos de Oro (Kinross Gold Corp., 100%)	La Coipa Mine and plant, Atacama (Region III), 140 km north of Copiapo	6,000
Do.	do.	Compañía Minera Maricunga (Kinross Gold Corp., 100%)	Maricunga open pit, heap-leach mine, Atacama (Region III), 100 km east of Copiapo	7,500
Do.	do.	Minera Meridian Ltda. (Yamana Gold Inc., 100%)	El Peñón Mine and concentration plant, Antofagasta (Region II)	10,500
Do.	do.	Minera Esperanza S.A. (Antofagasta plc, 70%, and Marubeni Corp., 30%)	Esperanza sulfides mine and milling/flotation plant, Antofagasta (Region II)	8,000
Do.	do.	Minera Florida S.A. (Yamana Gold Inc., 100%)	Minera Florida Mine and concentration plant, Santiago Metropolitan Region	3,100
Do.	do.	Compañía Minera Cerro Bayo Ltda. (Mandalay Resources Corp., 100%)	Cerro Bayo Mine and concentration plant, Aysen (Region XI)	950
Do.	do.	Sociedad Contractual Minera El Toqui Ltda. (Nyrstar NV, 100%)	El Toqui Mine and Doña Rosa concentration plant, Aysen (Region XI), 120 km north of Coyhaique	1,600
Do.	do.	Atacama Pacific Gold Corp., 100%	El Durazno small tonnage mine, 173 km north of Santiago, Coquimbo (Region IV)	NA
Do.	do.	Lachlan Star Ltd., 100%	CMD Mine, 40 km southeast of Coquimbo, Coquimbo (Region IV)	NA
Do.	do.	Xtract Resources Plc, 100%	Chépica Mine, 19 km northwest of Talca, Maule (Region VII)	NA
Metal ingots	kilograms	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Ventanas refinery, Valparaiso (Region V)	12,000
Gypsum, natural		Compañía Industrial El Volcán S.A. (Saint-Gobain Gypsum S.A., 100%)	El Volcan quarry near Santiago, Santiago Metropolitan Region	100
Do.		Compañía Minera Romeral S.A. (Etex Group S.A., 59.8%, and Melón S.A., 40.2%)	El Romeral quarry near Santiago, Santiago Metropolitan Region	50
Do.		Minera Lo Valdés Ltda.	Santiago Metropolitan Region	NA
Do.		Compañía Minera Polpaico Ltda.	Yeso Norte Mine, Antofagasta (Region II)	NA

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Gypsum, natural— Continued		Industria Nacional de Cemento S.A. (INACESA), 100%	Mantos verdes quarry near Antofagasta City, Antofagasta (Region II)	NA
Do.		Antonio Zotti Rosetti y Cía. Sociedad Minera	La Confianza and San Jose Mines near Los Vilos, Coquimbo (Region IV); Margarita and San Nicolas Mines, and a plant near Renca, Santiago Metropolitan Region	NA
Iodine	metric tons	SQM Químicos S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	Nueva Victoria Mine and plant and Iris plant, Tarapaca (Region I); El Toco Mine and María Elena plant; and Pampa Blanca and Pedro de Valdivia Mines and plants, Antofagasta (Region II)	13,300
Do.	do.	Atacama Chemical S.A. (Cosayach) (Inverraz S.A., 100%)	Mine and plant near Iquique, Tarapaca (Region I)	3,000
Do.	do.	Atacama Minerals Chile S.C.M. (SCM Bullmine and RB Energy)	Mine and plant in Aguas Blancas, Antofagasta (Region II)	2,200
Do.	do.	Algorta Norte S.A. (Inversiones Minerales SA, 74.5%, and Toyota Tsusho Corp., 25.5%)	Baquedano, Sierra Gorda, Antofagasta (Region II)	4,000
Do.	do.	Minera Centinela S.A. (Antofagasta plc, 70%, and Marubeni Corp., 30%)	Esperanza Mine and milling and flotation plant, Antofagasta (Region II)	8,000
Do.		ACF Minera S.A.	Lagunas Mine, Iquique, Tarapaca (Region I)	NA
Iron ore, Fe content		Compañía Minera del Pacífico S.A. (CAP Minería) CAP S.A., 75%, and Mitsubishi Corp., 25%	Cristales, Cerro Negro Norte, and El Algarrobo Mines, El Algarrobito and Huasco concentration plants, Huasco pellets plant, and Los Colorados Mine and concentration plant, Atacama (Region III); El Romeral and El Tofo Mines, and El Romeral concentration and pellet-feed plants, Coquimbo (Region IV); and El Laco concentration plant, Antofagasta (Region II)	13,500
Do.		do.	Magnetite plant to process tailings from the Candelaria Mine and other iron-bearing raw materials from third parties, near Copiapo, Atacama (Region III)	2,000
Do.		Minera Santa Fe SCM, 100%	Carmen Mine, near Copiapo, Atacama (Region III)	2,000
Do.		Santa Fe Mining (JSW Steel Ltd., 70%, and Minera Santa Fe SCM, 30%)	Bellavista Mine, near Copiapo, Atacama (Region III)	1,000
Kaolin		Compañía Minera Polpaico Ltda.	El Guindo Mine and a plant, Santiago Metropolitan Region	NA
Do.		Minera Lealtad Ltda.	Mine and plant at Til Til, Santiago Metropolitan Region	NA
Do.	metric tons	Mario Alberto Pizarro A.S.A.	Plant at Los Vilos, Coquimbo (Region IV)	600
Lapis lazuli	do.	Las Flores de los Andes S.A.	Mine near Ovalle, Coquimbo (Region IV)	400
Lead, mine output	do.	Minera Florida S.A. (Yamana Gold Inc., 100%)	Minera Florida Mine and concentration plant, Santiago Metropolitan Region	NA
Do.	do.	Sociedad Contractual Minera El Toqui Ltda. (Nyrstar NV, 100%)	El Toqui Mine and Doña Rosa concentration plant, Aysen (Region XI), 120 km north of Coyhaique	3,000
Lime, hydraulic		Cales Inacesa S.A. (INACESA) (Cementos Bio Bio S.A., 100%)	Plants near Antofagasta City, Antofagasta (Region II), and near Copiapo City, Atacama (Region III)	1,100
Do.		Soprocal Calerías e Industrias S.A.	Plant at Melipilla, Santiago Metropolitan Region	165
Lithium carbonate	metric tons	Albemarle Corp., 100%	Chemetall Foote plant at La Negra, near Antofagasta City, Antofagasta (Region II)	26,000
Do.	do.	SQM Salar S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	Plant at Salar del Carmen, near Antofagasta City, Antofagasta (Region II)	48,000
Lithium chloride	do.	do.	do.	NA
Do.	do.	Albemarle Corp., 100%	Chemetall Foote plant at La Negra, near Antofagasta City, Antofagasta (Region II)	6,000

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Lithium hydroxide	metric tons	Albemarle Corp., 100%	Chemetall Foote plant at La Negra, near Antofagasta City, Antofagasta (Region II)	6,000
Do.	do.	SQM Salar S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	Mine brines of Atacama Salar, and boric acid plant, Antofagasta (Region II)	6,000
Manganese	do.	Manganesos Atacama S.A. (subsidiary of CAP S.A.)	Plant in Coquimbo City and mines in Coquimbo (Region IV)	10,000
Marble, dimension stone	do.	Pier Luigi Indri S.A.	Quarry at Cerrillos, Atacama (Region III)	250
Do.	do.	Compañía Minera Feltre Ltda.	Quarry and plant, Atacama (Region III)	1,400
Methanol		Methanex Chile S.A. (Methanex Corp., 100%)	Two methanol plants at Cabo Negro, near Punta Arenas City, Magallanes y de la Antartica Chilena (Region XII)	3,800
Molybdenum, mine output	metric tons	Anglo American Sur S.A. (Anglo American plc, 50.1%; Mitsubishi Corp., 20.4%; Corporación Nacional del Cobre (CODELCO), 20%; and Mitsui & Co., Ltd., 9.5%)	Los Bronces Mine and Tortolas molybdenum flotation plant, Santiago Metropolitan Region	3,000
Do.	do.	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Chuquicamata and Radomiro Tomic Divisions, Antofagasta (Region II)	20,000
Do.	do.	do.	El Teniente Mine and plant, Libertador General Bernardo O'Higgins (Region VI)	6,500
Do.	do.	do.	Andina Division, Atacama (Region III)	5,000
Do.	do.	do.	El Salvador Division, Atacama (Region III)	1,500
Do.	do.	Minera los Pelambres S.A. (Antofagasta plc, 60%; JX Nippon Mining Metals Corp, 15%; Mitsubishi Materials Corp., 10%; Marubeni Corp., 8.75%; Mitsubishi Corp., 5%; Mitsui & Co. Ltd., 1.25%)	Los Pelambres Mine and plant, Coquimbo (Region IV)	12,500
Do.	do.	Compañía Minera Doña Inés de Collahuasi SCM, 100% (Anglo American plc, 44%; Glencore plc, 44%; companies led by Mitsui & Co. Ltd., 12%)	Collahuasi Mine and molybdenum plant, Tarapaca (Region I)	6,000
Phosphatic materials, natural:				
Guano		Guano Rojo Punta Gruesa Ltda.	Mine and plant near Iquique, Tarapaca (Region I)	3
Phosphate rock, apatite		César B. Formas Ortiz S.A.	Mine near Chanaral, Antofagasta (Region II)	20
Do.		Compañía Minera El Sauce Ltda.	Mine near La Serena, Coquimbo (Region IV)	5
Phosphorite		Compañía Minera de Fosfatos Naturales Ltda. (Bifox Ltda.) (TEHMCORP S.A., 100%)	Mines at and around Bahía Inglesa; Osorno plant near Bahía Inglesa, Atacama (Region III); and Bahía Inglesa plant at Caldera, Coquimbo (Region IV)	45
Do.		Sociedad Contractual Minera Bahía Inglesa	Selaqueos Mine near Bahía Inglesa, Atacama (Region III)	NA
Pig iron		Cía. Siderúrgica Huachipato S.A. (subsidiary of CAP S.A., 100%)	Plant in Bahía de San Vicente, Biobío (Region VIII), 14 km northeast of Concepcion	1,200
Potash (KCl and K ₂ SO ₄), K ₂ O content		SQM Salar S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	A dual-use plant and three KCl plants at Salar del Carmen, near Antofagasta City, Antofagasta (Region II)	2,600
Do.		Albemarle Corp., 100%	Chemetall Foote plant at La Negra, Antofagasta (Region II) and Salar de Atacama, Atacama (Region III)	50
Potassium chloride (KCl)		Sociedad Contractual Minera Virginia (Inverraz S.A., 100%)	Mine and plant near Iquique, Tarapaca (Region I)	NA
Do.		ACF Minera S.A.	Lagunas Mine and plant near Iquique, Tarapaca (Region I)	95
Potassium sulfate (K ₂ SO ₄)		do.	Lagunas Mine and plant near Iquique, Tarapaca (Region I)	95
Pumicite, including pozzolan		Empresas El Melón S.A.	Quarry at Rinconada Lo Vial near Maipú, and plant, Santiago, Santiago Metropolitan Region	1,200
Do.		Compañía Minera Polpaico Ltda.	Puzolana Norte Mine, Antofagasta (Region II); and Puzolana Pudahuel Mine and a plant, Santiago Metropolitan Region	NA
Do.		Minera Río Teno S.A. (Cementos Bío Bío S.A., 100%)	Quarry and plant near Curico, Libertador General Bernardo O'Higgins (Region VI)	200

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Pumicite, including pozzolan—Continued		Minera El Way S.A. (Cementos Bio Bio S.A., 100%)	Quarries and plant near Antofagasta (Region II)	100
Do.		Harborlite Chile Ltda. (IMERYS S.A., 100%)	Laguna del Maule Mine at Talca, Maule (Region VII), and plant, Santiago, Santiago Metropolitan Region	NA
Pyrophyllite	metric tons	Sociedad Minera Godoy Schwenger y Cia.	Mine and plant near La Calera, Valparaiso (Region V)	1,800
Do.	do.	José Orrego Bugueño S.A.	Mine and plant near Chincolco, Valparaiso (Region V)	1,000
Do.	do.	Mario Alberto Pizarro A. S.A.	Plant at Los Vilos, Coquimbo (Region IV)	1,000
Rhenium, metal	kilograms	Molibdenos y Metales S.A. (MOLYMET) (private, 100%)	Nos plant, San Bernardo, 30 km south of Santiago, Santiago Metropolitan Region	30,000
Salt, NaCl		Sociedad Minera Punta de Lobos S.A. (K+S Aktiengesellschaft, 100%)	Open pit mine in the Salar Grande de Tarapaca, Tarapaca (Region I), and port facilities at Puerto Patillos	8,000
Do.		Benjamín Nuñez Ltda.	Mine near Iquique, Tarapaca (Region I)	NA
Do.		Inversiones Alpina Ltda.	Mine in the Salar Grande Irlanda and plant, Iquique, Tarapaca (Region I)	NA
Do.		Playa Grande Ltda.	Mine in Tarapaca (Region I)	NA
Do.		José Álvarez Jara Ltda.	do.	NA
Do.		Christian Fletcher Ltda.	do.	NA
Do.		Elías Echeverría Ltda.	do.	NA
Do.		Cía. Minera Cordillera Chile S.C.M.	do.	NA
Selenium	metric tons	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Ventanas smelter and refinery, noble metals plants, Valparaiso (Region V) (byproduct of copper production)	95
Silica, quartz		Cedric Fernández y Compañía Ltda.	Mine and plant near Calama, Antofagasta (Region II)	100
Do.		Antonio Zotti Rosetti y Cia. Sociedad Minera	La Confianza and San Jose Mines near Los Vilos, Coquimbo (Region IV); Margarita and San Nicolas Mines, and a plant near Renca, Santiago Metropolitan Region	20
Do.		Minera Granos Industriales Ltda.	El Turco Mine and Migrin plant near Cartagena, Valparaiso (Region V)	250
Do.		Productora Cuarzo El Peral Ltda.	El Peral Mine and plant near Cartagena, Valparaiso (Region V)	250
Do.		Minera Alfa Quintay Ltda.	Quarry and plant, Santiago Metropolitan Region	30
Do.		Minera Pacífico Ltda.	do.	NA
Do.		Sociedad Legal Minera Pedro Luis	Mine and plant near Copiapo, Atacama (Region III)	120
Do.		Minera San Pedro Ltda.	Natacha Mine and El Rulo plant at Til-Til, Santiago Metropolitan Region	30
Do.		SLM Santa Dorila de las Arenitas	Mine and plant at Constitucion, Maule (Region VII)	250
Do.		Cristalerías Toro S.A.	Mine at Rancagua, Libertador General Bernardo O'Higgins (Region VI)	120
Do.		Vidrios Lirquén S.A.	Mine and glass plant at Lirquen, Biobio (Region VIII)	80
Do.		Minera Arsil S.A.	Mine and plant at Concepcion, Biobio (Region VIII)	50
Silver:				
Mine output	kilograms	Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Andina, Chuquicamata, El Teniente, Ministro de Hales, Radomiro Tomic, and Salvador Divisions (byproduct of copper production)	600,000
Metal grains	do.	do.	Ventanas refinery, Valparaiso (Region V)	220,000
Do.	do.	Compañía Minera Mantos de Oro (Kinross Gold Corp., 100%)	La Coipa Mine and plant, Atacama (Region III), 140 km north of Copiapo	150,000
Do.	do.	Minera Meridian Ltds. (Yamana Gold Inc., 100%)	El Peñón Mine and concentration plant, Antofagasta (Region II)	300,000
Do.	do.	Minera Florida Ltda. (Yamana Gold Inc., 100%)	Minera Florida Mine and concentration plant, Santiago Metropolitan Region	31,000
Do.	do.	Minera Escondida Ltda., 100%	Escondida copper mine and plants, Antofagasta (Region II)	180,000

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Silver—Continued:				
Mine output— Continued	kilograms	Empresa Nacional de Minería (ENAMI) (Government, 100%)	Manuel Antonio Matta plant, Paipote; Osvaldo Martínez plant, El Salado; Vallenar plant, Atacama (Region III); and José Antonio Moreno plant, Taltal, Antofagasta (Region II)	6,000
Do.	do.	Compañía Minera Cerro Bayo Ltda. (Mandalay Resources Corp., 100%)	Cerro Bayo Mine and concentration plant, Aysen (Region XI)	110,000
Do.	do.	Compañía Minera Doña Inés de Collahuasi SCM, 100% (Anglo American plc, 44%; Glencore plc, 44%; companies led by Mitsui & Co. Ltd., 12%)	Collahuasi Mine and plants, Tarapaca (Region I)	60,000
Do.	do.	Antofagasta plc, 60%; JX Nippon Mining Metals Corp, 15%; Mitsubishi Materials Corp., 10%; Marubeni Corp., 8.75%; Mitsubishi Corp., 5%; Mitsui & Co. Ltd., 1.25%	Los Pelambres Mine and plant, Coquimbo (Region IV)	42,000
Do.	do.	Anglo American Sur S.A. (Anglo American plc, 50.1%; Mitsubishi Corp., 20.4%; Corporación Nacional del Cobre, 20%; and Mitsui & Co., Ltd., 9.5%)	Los Bronces Mine and plants, Santiago Metropolitan Region	35,000
Do.	do.	Compañía Contractual Minera Candelaria, 100%	Candelaria Mine and concentration plant, Atacama (Region III)	30,000
Do.	do.	Lundin Mining Corp., 80%; Sumitomo Metal Mining Co. Ltd., 16%; Sumitomo Corp., 4%	Ojos del Salado copper mine and plant, Atacama (Region III)	4,500
Do.	do.	Sociedad Contractual Minera El Toqui Ltda. (Nyrstar NV, 100%)	El Toqui Mine and Doña Rosa concentration plant, Aysen (Region XI), 120 km north of Coyhaique	11,000
Sodium sulfate	metric tons	SQM Químicos S.A. [Sociedad Química y Minera de Chile S.A. (SQM), 100%]	Nueva Victoria Mine, Tarapaca (Region I), and Maria Elena Mine and Coya Sur plant, Antofagasta (Region II)	80,000
Do.	do.	Sociedad Legal Minera Santa Inés Uno de Antofagasta	Santa Ines Mine near Antofagasta (Region II)	150
Steel, crude		Compañía Siderúrgica Huachipato S.A. (subsidiary of CAP S.A.) (private, 100%)	Primary plant in Talcahuano and plant, Rengo, Biobio (Region VIII)	1,500
Do.		Gerdau AZA S.A.	Steel plants in Renca and Colina, Santiago Metropolitan Region	520
Sulfuric acid		Xstrata Copper Chile S.A. (Glencore plc, 100%)	Altonorte smelter, Antofagasta (Region II)	900
Do.		Anglo American Sur S.A. (Anglo American plc, 50.1%; Mitsubishi Corp., 20.4%; Corporación Nacional del Cobre, 20%; Mitsui & Co., Ltd., 9.5%)	Chagres smelter, Valparaiso (Region V)	500
Do.		Corporación Nacional del Cobre (CODELCO) (Government, 100%)	Ventanas sulfuric acid plant, Valparaiso (Region V)	380
Do.		do.	Caletones plant, Libertador General Bernardo O'Higgins (Region VI)	1,000
Do.		do.	Chuquicamata plant, Antofagasta (Region II)	500
Do.		do.	Portrerillos plant, Atacama (Region III)	100
Do.		Empresa Nacional de Minería (ENAMI) (Government, 100%)	Hernán Videla Lira smelter, Paipote, Atacama (Region III)	290
Talc	metric tons	Sociedad Talco Eduardo Martín Abejón Ltda.	Mines near Constitucion, Maule (Region VII), and plant at Santiago, Santiago Metropolitan Region	1,000
Do.	do.	Minera Trucco Ltda.	Mine and plant near Santiago, Santiago Metropolitan Region	NA
Travertine, dimension stone	do.	Mármoles San Marino Chile S.A. (Grupo San Marino S.A., 100%)	Quarry near Calama, Antofagasta (Region II), and plant in Til-Til, Santiago Metropolitan Region	7,000
Do.	do.	Andes Travertine & Stones S.A.	Quarry and plant, Antofagasta (Region II)	NA
Do.	do.	Canteras de Atacama S.A.	Quarry and plant, Calama, Antofagasta (Region II)	6,000
Zeolites	do.	Sociedad Legal Minera Serrín Tercera	Serrín Tercera Mine and Remulcao plant, Talca, Maule (Region VII)	300

See footnotes at end of table.

TABLE 2—Continued
CHILE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities ¹	Annual capacity ²
Zinc in concentrate	do. Sociedad Contractual Minera El Toqui Ltda. (Nyrstar NV, 100%)	El Toqui Mine and Doña Rosa concentration Aysen (Region XI), 120 km north of Coyhaique	35,000
Do.	do. Minera Florida S.A. (Yamana Gold Inc., 100%)	Minera Florida Mine and concentration plant, Santiago Metropolitan Region	6,500

²Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

¹Abbreviations used for units of measure in this table include the following: km, kilometer.

²Solvent extraction and electrowinning.

TABLE 3
CHILE: RESERVES OF MAJOR MINERAL COMMODITIES

(Thousand metric tons unless otherwise specified)

Commodity	Reserves
Coal, all types	million metric tons 300 ¹
Copper, metal content	do. 210 ²
Gold, metal content	metric tons 2,642 ³
Iodine	1,800 ²
Iron ore, iron content	million metric tons 7,250 ⁴
Lithium, metal content	7,500 ²
Molybdenum	1,800 ²
Nitrates	88,730 ³
Silver	metric tons 77,000 ²

do. Ditto.

¹Proven reserves at Mina Invierno.

²Reserve data at the end of 2016 as reported in U.S. Geological Survey Mineral Commodity Summaries 2017.

³Source: Servicio Nacional de Geología y Minería (SERNAGEOMIN), Anuario de la Minería de Chile 2013.

⁴Includes the proven and probable reserves of Compañía Minera del Pacífico S.A. (CAP S.A.)

Source: CAP S.A., Memoria Anual, 2015.