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2020–2021 Minerals Yearbook

CHINA [ADVANCE RELEASE]

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

May 2024

The Mineral Industry of China

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Note: In this chapter, information for 2020 is followed by information for 2021.

In 2020, China's economy faced significant challenges, such as the coronavirus disease 2019 (COVID-19) pandemic and complications associated with international trade conflicts, and economic development in the country significantly slowed down during the year. Mineral production decreased sharply following the breakout of the COVID-19 pandemic in the first quarter of 2020 but recovered quickly in later months and achieved moderate increases overall for the year. For example, the production of aluminum and copper metals increased by 5.6% and 2.5%, respectively, in 2020. China maintained its position as the world's leading producer and consumer of numerous mineral commodities. Smelters in China produced a combined total of 61.9 million metric tons (Mt) of 10 commonly used nonferrous metals (aluminum, antimony, copper, lead, magnesium, mercury, nickel, tin, titanium, and zinc), which was an increase of 5.5% compared with the total amount of the same metals produced through smelting in 2019. The total export value of nonferrous metals (excluding gold) decreased by 11.6%, whereas the total value of imports of nonferrous metals increased by 13.2% (Asian Development Bank, 2021, p. 211; China Nonferrous Metals Industry Association, 2021, p. 1, 3, 4, 8, 26; National Bureau of Statistics of China, 2021b; Xinhuanet.com, 2021; Yu and others, 2021).

In 2020, China was the world's leading producer of coal and accounted for 50.7% of world production (exajoule basis). China's production of natural gas ranked fourth, accounting for 5.0% of world production. Production of crude petroleum, including condensate, ranked sixth, accounting for 5.1% of world production. China was the leading producer and consumer of primary energy in the world (table 1; BP p.l.c., 2021, p. 20, 36, 48).

In 2020, the metals for which China's production accounted for 50% or more of total global production were gallium (97% of world production), primary magnesium (89%), mercury (88%), tungsten (84%), refined bismuth (82%, estimated), silicon (69%), pig iron (68%), germanium (68%, estimated), vanadium (67%), refined tellurium (59%, estimated), raw steel (59%), rare earths (58%), smelted aluminum (57%), refined indium (56%, estimated), antimony (55%), and alumina (54%). The industrial minerals for which China's production accounted for 50% or more of world production were graphite (79% of world production), wollastonite (74%), lime (73%), magnesite (70%), fluorspar (57%), cement (54%, estimated), and clinker (52%, estimated). Information on China's production of other nonfuel minerals as a percentage of world production in 2020 can be found in the U.S. Geological Survey Mineral Commodity Summaries 2022 (table 1; Ministry of Natural Resources, 2021, p. 10, 11; Anderson, 2022; Apodaca, 2022; Bray, 2022a–c; Cordier, 2022; Gambogi, 2022; Hatfield, 2022; Jaskula, 2022; Klochko, 2022; McRae, 2022; Merrill, 2022a, b; Olson, 2022; Polyak, 2022; Sangine, 2022; Schnebele, 2022; Sheaffer, 2022; Shedd, 2022; Tolcin, 2022; Tuck, 2022; U.S. Geological Survey, 2022).

Minerals in the National Economy

In 2020, China's real gross domestic product (GDP) increased by 2.3% compared with an increase of 6.0% in 2019. The nominal GDP was $14.7 trillion[1] (based on current prices). In 2020, the mining sector accounted for 2.4% of the GDP, which was unchanged from that in 2019. The manufacturing sector accounted for 27.1% of the GDP compared with 26.8% in 2019. The output of the mining sector increased by 0.5% in 2020 compared with an increase of 4.9% in 2019. The output of the manufacturing sector increased by 3.4% compared with an increase of 3.2% in 2019. In 2020, the number of people employed in the mining and manufacturing sectors was 3.5 million and 38.1 million, respectively, which accounted for 2.1% and 22.3%, respectively, of the country's total employment. In 2020, the total investment in fixed assets (excluding that by rural households) was $7.64 trillion, which was an increase of 2.7% from the total in 2019. In 2020, investment in fixed assets in the mining sector and the manufacturing sector decreased by 14.1% and 2.2%, respectively. The fixed asset investment in mining and beneficiation companies decreased by 4.0% compared with that in 2019, and the fixed asset investment in smelting and further-processing companies decreased by 0.4% (National Bureau of Statistics of China, 2020b; 2021a, sec. 3–1, 3–3, 3–6, 4–5, 10–1, 10–12; 2021b; Asian Development Bank, 2021, p. 212; China Nonferrous Metals Industry Association, 2021, p. 6).

In 2020, the foreign direct investment (FDI) inflow, which refers to the investments in China by companies based in other countries, was $144 billion compared with $138 billion in 2019. Excluding Hong Kong and Macao, Singapore was the leading source of FDI in China and accounted for 5.3% of the total FDI, followed by the Republic of Korea (2.5%), Japan (2.3%), the Netherlands (1.8%), and Germany (0.9%). About 0.46% of the FDI was directed to the mining sector and 21.5% was directed to the manufacturing sector compared with 1.6% and 25.6%, respectively, in 2019. In 2020, outward direct investment (ODI), which refers to the investment of domestic companies in companies or projects in foreign countries, was $154 billion compared with $137 billion in 2019. The ODI towards the mining sector was $6.1 billion compared with $5.1 billion in 2019. As of yearend 2020, the total accumulated

[1]Where necessary, values have been converted from Chinese yuan renminbi (CNY) to U.S. dollars (US$) at the annual average exchange rates of CNY6.452=$1.00 for 2021, CNY6.900=$1.00 for 2020, and CNY6.910=$1.00 for 2019.

value of China's ODI amounted to $2.58 trillion, of which the mining sector accounted for 6.8% of the total. China invested significantly in metal projects, such as cobalt, copper, lithium, nickel, and rare earths for battery and other high-tech industries in other countries, including Argentina, Australia, Chile, the Democratic Republic of the Congo [Congo (Kinshasa)], Indonesia, and Papua New Guinea (National Bureau of Statistics of China, 2020a, sec. 11–16; 2021a, sec. 11–14, 11–15, 11–20; Tivey and Li, 2021; Yao and Holden, 2021).

Government Policies and Programs

The principal law that regulates the mineral industry is the Mineral Resource Law, which was enacted in March 1986 and amended in 1996 and 2009. The mineral industry is administered by complementary rules, regulations, and guidelines issued by the State Council (for example, Measures for the Administration of Transfer of Mineral Exploration Rights and Mining Rights), local congresses (for example, Administration Regulation on Mineral Resources in Beijing), and central-level ministries, commissions, and agencies under the direct supervision of the State Council (for example, Administrative Rules on Shanghai Mining Right Market). All mineral resources belong to the state, and mining rights are assigned by the Government through a public bidding or tender process, except for key construction projects or rare earths and radioactive mineral projects. Mining rights for Government-designated strategical mineral resources, including aluminum, antimony, chrome, coal, cobalt, copper, fluorspar, gold, graphite, iron, lithium, molybdenum, natural gas, nickel, petroleum, phosphorous, potash, rare earths, tin, tungsten, uranium, and zirconium, are assigned by the Ministry of Natural Resources (MNR). Mining rights for other minerals can be registered with provincial governments or lower levels of government (China Internet Information Center, 2021; Hui, 2021; Wu and Li, 2021).

In June 2020, the National Development and Reform Commission and the Ministry of Commerce jointly issued an amendment to the Special Administrative Measures for Foreign Investment Access law. The amendment specifies that foreign investors are prohibited from investing in rare earths, radioactive minerals, and tungsten exploration, mining, and beneficiation projects in China (Zhou, 2021b).

In October, the Standing Committee of the National People's Congress passed the Export Control Law to ban exports of strategic materials, including nuclear, biological, chemical, and military products and advanced technology to certain foreign companies. The Ministry of Commerce began enforcement of the new Export Control Law of the People's Republic of China on December 1, 2020. The new law allows for reciprocal measures to be taken in response to export control measures put in place by other countries and considered by the Chinese Government not to be in China's best interest. Permission to export designated items can be obtained through the submission of detailed information on the importing entity and the intended end use. The end-user control list under the new Export Control Law is separate from the entity list under the Provision on the Unreliable Entity List, which was approved by the Ministry of Commerce in September. Under the "unreliable entity list," punitive measures may be imposed on designated foreign entities for conduct that is deemed contrary to China's national interests (Bao, 2020; Kawate, 2020; Library of Congress, 2020; Shao, 2021).

In November, the Ministry of Ecology and Environment, the Ministry of Commerce, the National Development and Reform Commission, and the General Administration of Customs jointly issued the Notice on Matters Concerning the Total Ban on the Import of Solid Waste. The measures specified in the notice, which became effective on January 1, 2021, prohibits the importation of solid waste in any form into China (Yang and others, 2021a, p. 10).

Production

Metal commodities for which output increased by 10% or more in 2020 compared with that in 2019 included nickel chemicals (Ni content), for which output increased by 55% to 64,000 metric tons (t); germanium (Ge content), 43% to 170 t (estimated); titanium sponge, 40% to 122,958 t; refined cobalt (metal), 31% to 11,500 t; mined cobalt (Co content), 26% to 2,200 t (estimated); ilmenite and leucoxene concentrate (TiO_2 content), 19% to 2.72 Mt; vanadium (V content), 17% to 70,200 t; ferromolybdenum, 15% to 166,000 t; pig iron, 12% to 908 Mt; primary tin (smelter), 12% to 203,000 t; secondary zinc, 11% to 880,000 t; refined cobalt (other, including powder, oxide, and salts), 10% to 94,500 t; and steel products (rolled), 10% to 1.33 billion metric tons (Gt). Metal commodities for which output decreased by 10% or more in 2020 compared with that in 2019 included mined antimony (Sb content), for which output decreased by 24% to 61,000 t; chromium (chromite), 20% to 66,554 t; ferronickel (nickel pig iron), 16% to 12.8 Mt; primary magnesium, 16% to 779,000 t; ferromanganese (electric furnace), 15% to 1.5 Mt (estimated); bauxite, 14% to 62.8 Mt (estimated); ferromanganese (blast furnace), 14% to 250,000 t (estimated); mercury (Hg content), 11% to 1,993 t; copper (solvent extraction and electrowon), 10% to 50,100 t; refined manganese (electrolytic), 10% to 1.37 Mt; and silicomanganese, 10% to 11.4 Mt. Data on mineral production are in table 1.

In 2020, among industrial minerals, production of zeolites compared with that in 2019 increased by 189% to 149,500 t; andalusite, 127% to 348,000 t; diatomite, 94% to 273,700 t; magnesite, 29% to 14.0 Mt; lithium concentrates, 26% to 30,900 t (estimated); wollastonite, 24% to 1.2 Mt (estimated); kaolin, 23% to 8.4 Mt; lithium brine, 20% to 39,700 t (estimated); and vermiculite, 13% to 35,000 t (estimated). Production of boron (B_2O_3 content) compared with that in 2019 decreased by 97% to 12,700 t; garnet (industrial), 80% to 59,500 t; amorphous graphite, 66% to 159,000 t (estimated); diamond (gem), 59% to 21,000 carats; crystalline graphite, 29% to 506,000 t (estimated); barite, 26% to 1.7 Mt; phosphate fertilizer (P_2O_5 content), 19% to 10.6 Mt; talc, 19% to 1.1 Mt; mica, 18% to 80,000 t; bentonite, 16% to 2.09 Mt; and salt, 13% to 58.5 Mt (table 1).

In 2020, among the mineral fuels and related materials, production of fuel oil compared with that in 2019 increased by 44% to 247 million barrels (Mbbl); asphalt, 25% to 381 Mbbl; liquefied natural gas, 14% to 13.3 Mt; naphtha, 13% to 361 Mbbl; and coalbed gas, 12% to 9.94 billion cubic meters. In contrast, the output of kerosene decreased by 23% to 313 Mbbl (table 1).

Structure of the Mineral Industry

In China, most of the mining and mineral-processing activities were conducted by state-owned or state-holding enterprises. The share of state ownership was high in the energy sector and the mining and mineral-processing sectors. Government-owned companies owned a large number of the enterprises or a large fraction of the mineral industry assets, including owning 85% of the enterprises and 99.8% of the assets for the extraction of petroleum and natural gas; 29% and 77% of the enterprises and assets, respectively, for the mining and processing of nonferrous metal ores; 27% and 88% of the enterprises and assets, respectively, for the mining and washing of coal; 15% and 66% of the enterprises and assets, respectively, for the processing of petroleum, coal, and other fuels; 11% and 80% of the enterprises and assets, respectively, for the mining and processing of ferrous metal ores; and 11% and 53% of the enterprises and assets, respectively, for the mining and processing of nonmetal ores. The share of state ownership was relatively smaller in the downstream smelting, rolling, and metal-product-manufacturing sectors. In these sectors, the Government owned 9% of the enterprise units and 58% of the assets for the smelting and rolling of nonferrous metals; 6% and 58%, respectively, for the smelting and rolling of ferrous metals; 6% and 29%, respectively, for the manufacturing of nonmetallic mineral products; and 3% and 22%, respectively, for the manufacturing of metal mineral products (table 2; National Bureau of Statistics of China, 2021a, sec. 13–4, 13–6).

Mineral Trade

In 2020, the total value of China's goods exports was $2.59 trillion compared with $2.50 trillion in 2019. The value of mineral commodity exports accounted for 1.4% of the total goods exports compared with 2.1% in 2019. In 2020, the total value of imported goods was $2.07 trillion compared with $2.08 trillion in 2019. The value of mineral commodity imports accounted for 22.5% of the country's total imports compared with 25.0% in 2019; imports of base metals and the articles thereof accounted for about 5.7% of the total goods imports compared with 4.6% in 2019. Detailed information on mineral trade can be found in tables 3 and 4 and in the Commodity Review section (National Bureau of Statistics of China, 2020a, sec. 11–4; 2021a, sec. 11–2, 11–4).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—In 2020, China's production of bauxite, alumina, and primary aluminum was 62.8 Mt (estimated), 73.8 Mt, and 36.7 Mt, respectively, which was a decrease of 14%, an increase of 2%, and an increase of 5%, respectively, compared with those of 2019. In 2020, secondary aluminum production was 7.3 Mt. China's aluminum industry had major changes in 2020, including a shift in the supply of bauxite from domestic sources to foreign countries, such as Australia, Brazil, Guinea, and Indonesia, and the shift by the primary aluminum industry to the use of clean energy. In 2020, the imports of bauxite increased by 10.9% to 112 Mt; alumina, by 131% to 3.8 Mt; and unwrought aluminum, by 689% to 2.3 Mt. However, the imports of aluminum scrap decreased by 40.8% to 824,648 t (tables 1, 4; China Nonferrous Metals News, 2021b, c).

As of December, China's alumina production capacity was 89.2 million metric tons per year (Mt/yr) with a capacity utilization rate of 83%. In 2020, Guangxi Huasheng Aluminum Co. Ltd. in Fangchenggang, Guangxi, which was a subsidiary of Aluminum Corporation of China Ltd. (Chalco), added a total 2 Mt/yr of alumina production capacity. Chalco produced 14.53 Mt of alumina and 3.69 Mt of chemical alumina products out of its 20.86 Mt/yr production capacity in 2020. Alumina-related projects under construction in 2020 included a 1.3-Mt/yr project by Chifeng Qihui Aluminum Industry Development Co. Ltd. as the first production line of a total 6.5-Mt/yr project in Dongshan Industrial Park, Chifeng, Inner Mongolia; a combined 5-Mt/yr bauxite and 2.4-Mt/yr alumina project of several enterprises in Zhengan, Guizhou; and a 1.7-Mt/yr alumina project by Xinjiang Shihezi Tianshan Aluminum Group Co. Ltd. in Jingxi, Guangxi (Li, 2020; Lu, 2020; SMM News, 2020c, e; Aluminum Corporation of China Ltd., 2021, p. 34; China Nonferrous Metals News, 2021a).

As of December, China's primary aluminum production capacity was 42.9 Mt/yr and it had a capacity utilization rate of 86%. Newly added production capacity of primary aluminum in 2020 included a 2-Mt/yr plant by Yunnan Hongtai New Material Co. Ltd., a few plants with a combined 900,000-metric-ton-per-year (t/yr) capacity by Yunnan Shenhuo Aluminium Co. Ltd., and a 500,000-t/yr plant by Yunnan Wenshan Aluminum Co. Ltd. These plants were all located in Yunnan Province and used hydropower, which was abundant in the area. The country's production capacity for secondary aluminum was approximately 10 Mt/yr (table 1; Mir, 2020; SMM News, 2020d; China Nonferrous Metals News, 2021b).

Cobalt.—In 2020, China's production of mined cobalt (Co content in polymetallic ore) was 2,200 t (estimated) and the cobalt reserves were 800,000 t. China's cobalt-refining capacity was approximately 166,000 t/yr (cobalt metal equivalent) at an operating rate of about 60%. In 2020, China's production of cobalt salt, cobalt metal, and cobalt powder (excluding about 5,000 t of output by Ganzhou Yihao Umicore Industrial Co. Ltd.) was 84,500 t, 11,500 t, and 5,000 t, respectively. Some refinery expansion projects for cobalt were scheduled for 2021, and once completed, were expected to increase the country's total capacity and output in the short term (Industry Information Network, 2021e; Kong and others, 2021a, p. 1, 6; Shedd, 2022).

In 2020, exports of cobalt tetroxide increased by 22% to 5,079 t, of which 74% went to the Republic of Korea. Exports of cobalt metal decreased by 60% to 860 t, of which 51% went to the Netherlands. Imports of cobalt ore and concentrate decreased by 42% to 52,423 t in terms of gross weight and about 3,670 t in terms of cobalt content, of which more than 99% was imported from Congo (Kinshasa). Imports of hydrometallurgical cobalt intermediate products decreased by 2% to about 295,000 t in terms of gross weight and about 77,000 t in terms of cobalt content, of which more than 96% was imported from Congo (Kinshasa). In 2020, imports of cobalt tetroxide increased by 44% to 1,617 t, of which 74.8% was imported from Finland. Imports of cobalt metal increased by 281% to 6,192 t, of which 30% was from Australia and 26% was from Canada (Kong and others, 2021b, p. 4–6).

Copper.—Compared with that in 2019, production of mined copper (including concentrate and solvent extraction, Cu content) increased by 2.4% to 1.72 Mt in 2020. Imports of copper concentrate (Cu content) decreased to 5.44 Mt in 2020 from 5.51 Mt in 2019. Consumption of copper concentrate (Cu content) increased to 7.04 Mt in 2020 from 6.81 Mt in 2019. Production of refined copper increased by 2.5% to 10.03 Mt in 2020 from 9.78 Mt in 2019. The net imports of refined copper were 4.45 Mt in 2020 compared with 3.23 Mt in 2019. Consumption of refined copper was 11.98 Mt in 2020 compared with 11.93 Mt in 2019. The output of manufactured copper increased by 6% to 21.43 Mt from 20.17 Mt in 2019 (table 1; Industry Information Network, 2021j; Yang and others, 2021b, p. 2).

In 2020, Zijin Mining Group Co. Ltd. commenced construction of phase 1 of the 160,000-t/yr Julong copper project (in which it owned a 50.1% share) in Lhasa, Xizang; the project had 10.72 Mt of reserves. The company was also engaged in development of overseas projects. In 2020, Zijin Mining commenced the phase 2 expansion of the Kamoa-Kabula copper mine in Congo (Kinshasa); obtained a license for the Timok copper and gold project (100% share) for the Cukaru Peki copper deposit in Bor, Serbia; and continued to upgrade the Serbia Zijin Copper Doo Bor (63% share) facility, consisting of four mines and one smelter, in Bor, Serbia. As of 2020, Zijin Mining had 46 foreign mining projects in total, including copper mines. In 2020, companies headquartered in China owned or partially owned 88 copper projects among China's total of approximately 430 overseas mineral-related projects (Mining.com, 2021; Yang and others, 2021a, p. 11; Yao and Holden, 2021; Zijin Mining Group Co. Ltd., 2021, p. 22–24).

Gold.—In 2020, China had been the world's leading gold producer for 14 consecutive years and the leading consumer for 8 consecutive years. Production of mined gold decreased by 3.9% to 365.3 t in 2020, of which 301.7 t was from gold mines and 63.6 t was produced from nonferrous metal byproducts. Refined gold production decreased by 4.2% to 479.5 t in 2020, of which production from imported gold concentrates decreased by 5.0% to 114.2 t. Shandong Gold Group Co. Ltd. produced 44.7 t of gold, including 37.7 t in China and 7.0 t from overseas operations, and was the 10th-ranked gold producer in the world in 2020. Zijin Mining produced 40.5 t of gold, including 23.7 t of overseas output, and was the 13th-ranked gold producer in the world. In 2020, China's gold consumption was 821 t, which was a decrease of 18% compared with that in 2019, and included gold jewelry, which accounted for 491 t of gold consumption; gold bars and gold coins, 246 t; and industrial and other uses, 84 t (China Gold Association, 2021; Jin, 2021).

The number of China's gold-prospecting licenses decreased to 1,989 in 2020 from 2,281 in 2019; capital investment in gold mine exploration decreased to $151 million from $170 million; and the total drilling depth decreased to 770 kilometers (km) from 2,070 km. In 2020, there were seven newly discovered gold deposits. In 2020, Zijin Mining obtained a mining license for the Liba gold mine in Li, Gansu, which had 161 t of gold reserves and a projected production capacity of 4 to 5 t/yr of gold. The company also increased the gold reserves at the Yilian-Yixingzhai gold mine in Fanshi, Shanxi, to 54.7 t. As of 2020, Chinese companies had ownership shares in 45 primary gold projects in Australia, Central Asia, and Europe (Industry Information Network, 2021h; Yao and Holden, 2021; Zijin Mining Group Co. Ltd., 2021, p. 20).

Iron and Steel.—China's iron ore (concentrate, Fe content) production increased to 225 Mt in 2020 from 219 Mt in 2019. Imports of iron ore (gross weight, with Fe content of about 62.5%) increased by 9.5% to 1.17 Gt. In 2020, China's investment in iron ore prospecting increased by 10.7% to $35.9 million and the total drilling depth increased by 17.6% to 200,000 meters; however, only one new iron ore deposit was identified. New iron ore reserves added during the year included 26 Mt in Golmud, Qinghai, and 15 Mt in Litun, Yucheng, Shandong (tables 1, 4; Industry Information Network, 2021a).

Production of pig iron increased to 908 Mt in 2020, or by 12% compared with that in 2019. Raw steel production increased by 6.1% to 1.06 Gt, and rolled steel production increased by 10% to 1.33 Gt (although these numbers may reflect double counting because the method for processing the steel may involve multiple steps and companies report their output separately) (table 1).

In 2020, China Baowu Steel Group Corp. Ltd. (formerly Baosteel Group Corp. Ltd.), which had more than 110-Mt/yr of steelmaking production capacity, overtook ArcelorMittal S.A. of Luxembourg and became the world's leading steel producer. China Baowu acquired the 12.9-Mt/yr-capacity Taiyuan Iron and Steel Group Co. (TISCO) and the 8.4-Mt/yr-capacity Chongqing Iron and Steel Co. in 2020. Previously, China Baowu had acquired the 10-Mt/yr-capacity Xinjiang Bayi Iron and Steel Co. Ltd. in 2007, the 4.4-Mt/yr-capacity Wuhan Iron & Steel Group in 2016, and the 20-Mt/yr-capacity Magang Group Holding in 2019. In 2020, approximately 80 Mt/yr of new steelmaking capacity came online in China, which intensified the oversupply and overcapacity situation in the country, particularly with the decrease in consumption caused by the COVID-19 pandemic during the year (Liu, Lindsey, 2020; Liu, Yukun, 2020; Zhang and Li, 2020; Zou and Li, 2020; China Baowu Steel Group Corp. Ltd., 2021).

Lead and Zinc.—Production of mined lead (concentrate, Pb content) decreased by 3% to 1.94 Mt, and that of refined lead increased by 1% to 5.0 Mt (estimated) in 2020. Secondary refined lead production was 2.2 Mt (estimated), which was a 1% decrease from the amount produced in 2019 and accounted for 44.1% of total refined lead production. Net imports of lead concentrate decreased by 5.8% to 893,000 t, and net imports of refined lead decreased by 81% to 17,000 t. In addition, production of zinc concentrate (Zn content) decreased by 3.7% to 4.06 Mt, and production of refined zinc increased by 3% to 6.34 Mt. Net imports of zinc concentrate increased by 16.6% to 1.85 Mt, and those of refined zinc decreased by 7.2% to 583,000 t (table 1; Feng and others, 2021, p. 2, 3, 22).

Compared with that in 2019, China's lead-zinc mine exploration investment in 2020 decreased by 42.1% to $93 million and the total drilling depth decreased by 46.5% to 460,000 meters. In 2020, no new lead-zinc deposits were discovered; however, a completed phased exploration in Zhugongtang, Hezhang, Guizhou, added 516,200 t of lead and zinc reserves. In December, Xinjiang Zijin Nonferrous Metals Co. Ltd. produced the first batch of zinc ingot at the Xinjiang Zijin zinc smelter in Wuqia, Xinjiang. The zinc smelter was expected to produce 100,000 t/yr of zinc ingot and 170,000 t/yr of sulfuric acid (Hu, Hui, 2020; Industry Information Network, 2021b; Yu, 2021).

Rare Earths.—China's rare earth industry continued to be regulated by production quotas jointly determined by the Ministry of Industry and Information Technology and the Ministry of Natural Resources. In 2020, six Government designated companies shared the 2020 total production quotas, including 140,000 t for rare earth mining (rare earth oxide equivalent) and 135,000 t for smelting and separation compared with 132,000 t and 127,000 t, respectively, in 2019. The mining quotas allocated 120,850 t for light rare earths (LREs) and 19,150 t for heavy rare earths (HREs). China Northern Rare Earth (Group) High-Tech Co. Ltd., which was China's leading producer of LREs and had facilities located mainly in the Inner Mongolia region, accounted for 73,550 t of the quota for LREs. China Southern Rare Earth Group Co. Ltd., which was the leading producer of HREs and which had facilities mainly in Jiangxi, accounted for 8,500 t of the HRE quota (Bao, 2020; Daly, 2020; Hu, Tracy, 2020b; Zhou, 2020b; Gambogi, 2022).

China's exports of rare earths in 2020 decreased to 35,448 t from 46,330 t in 2019. China stockpiled rare earths for its own domestic use, and the exports in 2020 were the lowest since 2015. Chinese companies imported rare earth materials mainly from overseas mines they owned or partially owned. Imported HREs from Burma accounted for 74% of China's total HRE imports; Malaysia (by processing ore from Australia) and Vietnam accounted for 17% and 4.4% of the HRE imports, respectively. The Government was seeking to control a larger market share, including by charging higher prices, using the quotas, and incentivizing global battery and magnet companies to produce in China. This strategy was further supplemented by the amendment in 2020 of the Special Administrative Measures for Foreign Investment Access law and the passage of the Export Control Law (Bao, 2020; Rapoza, 2021; Thomson Reuters, 2021; Zhou, 2021b).

Production of magnetic material accounted for more than 70% of the revenue from the rare earth industry in China. In 2020, given the abundant rare earth resources in the area, the Baotou Rare Earth High-Tech Zone in Inner Mongolia was striving to build the leading magnetic material industry cluster for downstream production; it would comprise 115 rare earth companies, 30 research and development centers, and $1.17 billion in investment in 26 rare earth projects for upstream and midstream operations. The Baotou Rare Earth High-Tech Zone's designated production capacity of rare earth permanent magnet materials was 65,000 t in 2020. Production of magnet alloy materials and magnet blank materials from the zone was 12,351 t and 17,127 t, respectively, which was an increase of 34% each compared with production in 2019 (Jia, 2020; Li, 2021).

Silicon.—In 2020, China's production of silicon metal (industrial grade) decreased by 6.6% to 2.1 Mt and accounted for approximately 70% of global silicon metal production. The country's silicon metal production capacity was 4.82 Mt/yr as of 2020, which was 77% of the world's production capacity. Xinjiang Province had the largest silicon metal production capacity (1.7 Mt/yr) and accounted for 35.3% of China's total production capacity; sales from Xinjiang were 880,000 t, accounting for a 41.9% share of China's silicon metal market in 2020. Small- and medium-scale producers, which were characterized by a production capacity of less than 40,000 t/yr, dominated China's silicon industry. These manufacturers accounted for 89% of the total number of silicon production enterprises and 53% of the total silicon production capacity in the country (SMM News, 2019; Industry Information Network, 2021i).

Tin.—In 2020, production of mined tin (Sn content) increased to 94,500 t, or by 4% compared with that in 2019, and production of smelted tin increased to 203,000 t, or by 12%. The domestic consumption of tin was 216,100 t in 2020. Imports of tin ore and concentrate decreased by 11% to 158,000 t from 178,000 t in 2019. In contrast, imports of refined tin increased by 521% to 17,178 t. China's imports of tin ore and concentrates were mainly from Burma, which accounted for 91.7% of the total imports in 2020 compared with 93.9% in 2019, despite strict China-Burma border control during the pandemic and severe rain flooding more than one-half of Burma's mines. Chinese companies were exploring alternate sources of tin, such as Australia, Congo (Kinshasa), Laos, Russia, and Vietnam, mainly because of the uncertainty of Burma's future production plans, including potential reductions in or suspensions of production in the future (tables 1, 4; International Tin Association, 2020a, b; 2021; United Nations, 2022).

Approximately 100 companies were engaged in tin mining, processing, and related businesses in China. Three major enterprises—Guangxi Huaxi Group Co. Ltd., Yunnan Hualian Zinc Indium Co. Ltd., and Yunnan Tin Industry Group Co. Ltd.—had key tin mines and accounted for more than 60% of the market share. In January, Yunnan Tin Industry Group announced the termination of the planned merger between its major shareholder, the Yunnan branch of the State-Owned Assets Supervision and Administration Commission (SASAC), and the state-owned China Minmetals Corp.; the two parties could not reach agreement on specific cooperation matters. The merger was originally proposed as part of the Government's strategy to merge large domestic metal companies to enable them to compete better on the global market (International Tin Association, 2020b; Industry Information Network, 2021f).

Titanium.—In 2020, production of titanium mineral concentrates (TiO_2 content) increased by 19% to 2.72 Mt, and that of titanium sponge increased by 40% to 123,000 t. Since 2019, China had been accelerating the modernization of its defense industry by growing its aerospace and shipbuilding capabilities. The increase in titanium sponge production in 2020 was attributed to the continued high demand by the defense industry. Consumption of titanium sponge increased by 36% to 93,600 t. In April 2020, Baoti Huashen Titanium Industry Co. Ltd. started the construction of a 12,000-t/yr titanium sponge production line, which was expected to have a total capacity of 22,000 t/yr. In 2020, the Pangang Group was in the process of building a high-end titanium and titanium alloy production line that would have the capacity to produce 5,000 t/yr of titanium billet and to recycle 2,000 t/yr of titanium scrap. In 2020, only Baoti Co. Ltd., Western Metal Materials Co. Ltd., and Western Superconducting Technologies Co. Ltd. had the capacity to supply small-particle sponge titanium for the military (table 1; Ruidow Titanium Monthly, 2020; Ge, 2021; Industry Information Network, 2021k).

Tungsten.—Tungsten was one of the two minerals (along with rare earths) subject to production quotas by the Government. In 2020, the total production quota for tungsten concentrate (65% WO_3) was 105,000 t, which was unchanged from that of 2019; of this total, the primary mining production quota was 78,150 t and the byproduct mining production quota was 26,850 t. In 2020, China's production of mined tungsten (W content) increased by 2.9% to 71,000 t (estimated). China had 2.2 Mt of tungsten reserves, which accounted for approximately 59% of the world's total reserves. In 2020, China imported 3,172 t of tungsten ore and concentrate and consumed 141,800 t of tungsten concentrate, which was a decrease of 4.3% compared with that in 2019 (tables 1, 4, 5; Zhou, 2020b; Industry Information Network, 2021d).

Industrial Minerals

Cement.—In 2020, cement production increased to 2.38 Gt, or by 1.6% compared with that in 2019. The country had 3,408 cement plants with a total (combined) cement production capacity of approximately 3.8 billion metric tons per year (Gt/yr). Of these plants, 2,198 were grinding units and 1,210 were clinker production lines. Most of grinding companies were independently established in the late 2000s as dry kilns became predominant (tables 1, 3; CemNet.com, 2021b).

In 2020, exports of cement and clinker totaled 3.13 Mt, which was a decrease of 43% from that of 2019. However, imports of clinker increased by 47% to 33.4 Mt in 2020. The sources of clinker imports were mainly Vietnam (accounting for 59% of total imports), Indonesia and Thailand (10% each), and Japan (8%) (CemNet.com, 2021a; Perilli, 2021; RecordTrend.com, undated).

Graphite.—In 2020, production of natural graphite decreased by 44% to 665,000 t (estimated). Exports of natural graphite decreased by 17.8% to 237,866 t; the leading destinations were Japan (93,664 t) and the Republic of Korea (51,217 t). Imports of natural graphite decreased by 87% to 25,659 t; the leading sources were Madagascar (13,670 t) and Mozambique (4,205 t). Exports of artificial graphite increased by 11.1% to 292,808 t and went mainly to Japan (49,560 t) and the Republic of Korea (42,769 t). Imports of artificial graphite decreased by 13.1% to 22.147 t. The exploration investment for graphite increased by 24% to $22.9 million in 2020 (tables 1, 3; Industry Information Network, 2021c, g; United Nations, 2022).

Lithium.—In 2020, production of lithium carbonate increased by 8% to 171,000 t compared with 159,000 t (revised) in 2019. Production of lithium hydroxide increased by 2% to 92,800 t compared with 91,000 t (revised) in 2019. In May, Yahua Lithium Industry (Yaan) Co. Ltd. commenced its 20,000-t/yr lithium hydroxide production line in addition to its combined production capacity of 43,000 t of lithium carbonate and lithium hydroxide in Yaan Economic Development Zone, Sichuan. In June, as part of the Government's consolidation policy, China Baowu Steel Group acquired a controlling stake in Tibet Mineral Development Co. Ltd., which produced lithium carbonate and lithium hydroxide. In September, Yibin Tianyi Lithium Industry Co. Ltd. launched a 20,000-t/yr lithium hydroxide plant in Yibin, Sichuan. Yibin Lithium also began the construction of an additional 25,000-t/yr lithium hydroxide plant at its Yibin plant site at yearend 2020. In October, Tangshan Xinfeng Lithium Industry Co. Ltd. started production at a 10,000-t/yr lithium hydroxide plant in Hebei. Other companies that were in the process of adding new or expanding capacities of lithium hydroxide were Ganfeng Lithium Co. Ltd. (a 50,000-t/yr-capacity plant in the Xinyu High-Tech Zone, Jiangxi), Guangxi Tianyuan New Energy Materials Co. Ltd. (a 25,000-t/yr-capacity plant near the Port of Qinzhou, Guangxi), Jiangxi Dongpeng New Materials Co. Ltd. (a 15,000-t/yr-capacity plant in the Xinyu High-Tech Economic Development Zone, Jiangxi), and Sichuan Zhiyuan Lithium Industry Co. Ltd. (a 10,000-t/yr-capacity plant in Deyang City, Sichuan). In May, Guangxi Tianyuan also commenced the operation of a 10,000-t/yr lithium carbonate production line in Qinzhou, Guangxi (table 1; Core Lithium Ltd., 2020; Hu, 2020a; SMM News, 2020a, b; Zhou, 2020a, 2021d; Argus, 2021b).

In 2020, exports of lithium carbonate decreased by 33% to 7,490 t compared with those in 2019, and exports of lithium oxide and hydroxide increased by 103% to 56,600 t. In contrast, imports of lithium carbonate increased by 105% to 50,100 t, whereas imports of lithium oxide and hydroxide decreased by 61% to 530 t. The increase in imports of lithium carbonate was attributable to a sharp increase in demand from the lithium-iron-phosphate batteries sector in China. The increase in exports of lithium hydroxide was likely owing to strong demand from high-nickel ternary lithium battery manufacturers outside of China, including those in Japan and the Republic of Korea (tables 4, 5; Argus, 2021a).

Mineral Fuels

Coal.—In 2020, coal production increased by 1.0% to 3.89 Gt compared with that in 2019. Coal consumption increased by 0.6% to approximately 4.1 Gt, of which 2.39 Gt was for electricity generation, 680 Mt was for steel production, 380 Mt was for construction material production, 300 Mt was for the production of chemicals, and 320 Mt was for other uses. Coal consumption accounted for 56.8% of total energy consumption in China. Coal imports in 2020 were 304 Mt, which was an increase of 1.4% compared with coal imports in 2019. China's leading import trade partners (in terms of the energy content of the imported coal) in 2020 included Indonesia, which supplied 35% of China's coal imports; Australia, 32%; Russia, 15%; Mongolia, 12%; and Canada, 2%. China's coal imports accounted for 20.8% of the total world imports of coal in 2020. The revenue of the coal industry in China totaled $290 billion in 2020, which was a decrease of 8.4% from the revenue in 2019, and the coal company profits in China totaled $32.2 billion, which was a decrease of 21% from the profits in 2019. Overall investment in the coal mining and washing industry in China decreased by 0.7%, of which private investment decreased by 15.4% (tables 1, 3, 4; BP p.l.c., 2021, p. 48, 51; China Coal Industry Association, 2021, p. 1, 4; National Bureau of Statistics of China, 2021b).

Petroleum and Natural Gas.—In 2020, the output of crude petroleum increased by 1% to 1.42 billion barrels (Gbbl). Consumption of crude petroleum increased by 5.6% to 5.39 Gbbl, of which 73.5% was imported. Production of natural gas increased by 8% to 190 billion cubic meters. Consumption of natural gas increased by 5.6% to 329 billion cubic meters, of which 42.6% was imported. The operating income and total profit of the petroleum and chemical industries decreased by 8.7% and 13.5%, respectively. The overall value of the output of the petroleum and natural gas extraction industry decreased by 27.4%, and that of the raw chemical materials and chemical manufacturing industry decreased by 5.9% (table 1; China Petroleum and Chemical Industry Federation, 2021, p. 2, 3).

In 2020, several new shale oil and gas deposits were discovered in China. The Jili-1 shale oil well in the Lishu graben in Songliao Bain obtained a flow of 76,000 cubic meters per day. Two testings at the Xinsudy 1 well in the Tarim Basin obtained a gas flow of 16,800 and 12,600 cubic meters per day, respectively. Another large natural gas deposit with potential reserves of 100 billion cubic meters was discovered at the southern Junggar Basin in Xinjiang Uygur Autonomous Region; once developed, the deposit was expected to produce 610,000 cubic meters per day of natural gas and 670 barrels per day of condensate (Xinhuanet.com, 2020; Ministry of Natural Resources, 2021, p. 2).

MINERAL INDUSTRY HIGHLIGHTS IN 2021

Minerals in the National Economy

China's real GDP increased by 8.1% in 2021, and the nominal GDP was about $17.7 trillion. In 2021, the output of the mining and quarrying sector increased by 5.3% compared with that in 2020. In the manufacturing sector, the output of fabricated metal products increased by 16.0%; of nonmetallic mineral products, by 8.0%; of the processing of nonferrous metal products, by 3.9%; and of ferrous metal smelting and processing, by 1.2%. In 2021, the fixed asset investment in mining and beneficiation companies increased by 10.9%, and that in smelting and rolling companies, by 4.6% (China Nonferrous Metals Industry Association, 2022, p. 2; National Bureau of Statistics of China, 2022b, c).

In 2021, the FDI inflow to China was $173 billion, which was an increase of 20% compared with that in 2020. FDI inflow toward the mining sector was $2.58 billion in 2021, which accounted for 1.5% of the total FDI inflow compared with 0.46% in 2020. The Government issued the Revised Special Administrative Measures (Negative List) for Foreign Investment Access (2021 National Negative List) and the Special Administrative Measures (Negative List) for Foreign Investment Access in Pilot Free Trade Zone (2021 FTZ Negative List) in 2021. These measures, which would become effective on January 1, 2022, widened market access for foreign investment by reducing the number of sectors for which foreign investors had limited access. Both measures retained the prohibition on investment by foreign investors in exploration, mining, and beneficiation of rare earths, radioactive materials, and tungsten. Without permission, no person was allowed to enter rare earth mines or to obtain mine geologic information, ore samples, and production technology (National Bureau of Statistics of China, 2021a, sec 11–15; 2022a, sec 11–15; Tianjin Port Free Trade Zone, 2021a, p.3; 2021b, p. 3; Zhou and Zhang, 2021; Zhang, 2022).

In 2021, the value of China's total goods exports was approximately $4 trillion. Mineral commodities for which the export value increased by 10% or more compared with that of 2020 included pig iron and cast iron, the export value of which increased by 87 times; molybdenum ore and concentrates, 14 times; unwrought tin, 437%; coke, 205%; ferroalloys, 182%; unwrought antimony, 144%; unwrought manganese, 122%; steel sheets and plates, 113%; crude petroleum, 110%; tungstate, 109%; unwrought cobalt, 106%; unwrought copper and rare earths ore, metal, and compounds, 90% each; wire of steel or iron and lithium carbonate, 67% each; copper semimanufactures, 66%; fused magnesia, 65%; steel bars and rods, 64%; barite, 59%; aluminum semimanufactures, 45%; steel tube and pipe and lithium oxide and hydroxide, 40% each; fluorspar, 36%; steel shapes and sections, 35%; talc, 28%; petroleum products, 27%; alumina 20%; and coal, 16%. No exports of nickel ore and concentrate were recorded in 2021. The export value of unwrought zinc decreased by 74%; and that of cement and clinker, by 18% (table 3; General Administrator of Customs of the People's Republic of China, 2022).

In 2021, the value of China's total goods imports was approximately $2.94 trillion. Mineral commodities for which the import value increased by 10% or more compared with that of 2020 included urea, the import value of which increased by 17 times; steel scrap, 16 times; lithium oxide and hydroxide, 958%; copper scrap, 177%; tin ore and concentrate, 139%; lithium carbonate, 115%; polycrystalline silicon, 114%; aluminum scrap, 97%; cobalt (matte and unwrought), 92%; liquefied natural gas, 89%; coal, 77%; copper ore and concentrate and diamond, 66% each; zinc ore and concentrate, 57%; iron ore and steel bars and rods, 55% each; nickel ore and concentrates, 51%; crude petroleum, 46%; petroleum refinery products, 42%; copper semimanufactures, 30%; chromite, 28%; steel shapes and sections, 27%; titanium dioxide, 21%; unwrought copper, 18%; aluminum semimanufactures, 17%; natural gas, 16%; and manganese ore and concentrate, 12%. The import value of unwrought aluminum and potassium sulfate decreased by 32% and 19%, respectively (table 4; General Administrator of Customs of the People's Republic of China, 2022).

Production

Among metals, production in 2021 increased most notably for chromite, which increased by 95% compared with that in 2020; bauxite, 37%; nickel (chemicals, Ni content), 31%; refined cobalt (Co content), 25% (estimated); silicon (metal), 24%; rare earths (mineral concentrate, rare-earth-oxide equivalent), 20%; refined copper (secondary) and titanium (sponge), 14% each; copper (mine output, concentrate, Cu content) and refined lead (secondary), 11% each; and ferrosilicon and copper (solvent extraction and electrowon), 10% each. Notable decreases in metal production in 2021 compared with production in 2020 included that of antimony (mine output, Sb content), which decreased by 38%; mercury (Hg content), 36%; refined cobalt, 35%; manganese (mine output, Mn content), 25%; palladium, 23%; ferronickel (nickel pig iron), 15%; ferronickel (Ni content), 14%; tin (smelted, primary), 11%; and gold (mine output, Au content), 10% (table 1).

Notable production increases for industrial minerals included that of boron (B_2O_3 content), which increased by more than 16 times in 2021 compared with that in 2020;

lithium hydroxide, 89%; lithium carbonate, 40%; graphite (amorphous), 26% (estimated); barite, 24%; graphite (crystalline flake), 23% (estimated); and vermiculite, 11%. Production of andalusite decreased by an estimated 71% in 2021 compared with that in 2020. Among mineral fuels, fuel oil production increased by 22%; gasoline, 18%; liquefied natural gas, 15%; and naphtha, 13%. Output of asphalt decreased by 12% (table 1).

Commodity Review

Metals

Cobalt.—In 2021, China produced 2,200 t of mined cobalt (Co content, estimated), accounting for about 1% of world production; however, China produced 133,000 t of refined cobalt in metal and chemical products in 2021, accounting for 92% of world production. China imported 19,000 t of cobalt ore and concentrate from Congo (Kinshasa), which accounted for more than 98% of Congo (Kinshasa)'s total exports in 2021. China imported 305,000 t of cobalt matte and other intermediate products, of which 96% was sourced from Congo (Kinshasa) (table 1; Cobalt Institute, 2022, p. 29; Shedd, 2022; United Nations, 2022; Zen Innovation AG, 2023).

Rare Earths.—In 2021, the rare earth industry continued to be regulated by production quotas, which were 168,000 t/yr for rare earth mining and 162,000 t/yr for smelting and separation; these quotas represented an increase of 20% each compared with those in 2020. The mining quota for LREs increased to 148,850 t, and that for HREs remained at 19,150 t. Of the total quota amount for LRE mining, China Northern Rare Earth accounted for 100,350 t, and of the total quota amount for LRE smelting and separation, the company accounted for 89,634 t. Of the approximately 150,000 t of LRE production in China, separation production of lanthanum and cerium oxides totaled approximately 90,000 t, of which 50,000 t was surplus on the domestic market. In contrast, China relied on imports for its HRE supply; Burma supplied more than one-half of China's domestic consumption of HREs in 2021 (China Nonferrous Metals News, 2021c, d).

In December, the State Council of China approved a major consolidation and reorganization plan for the rare earth industry. Three rare earth companies—Chinalco Rare Earth and Metals Co. Ltd., China Minmetals Rare Earth Co. Ltd., and China Southern Rare Earth Group Co. Ltd.—were merged to form a new company, China Rare Earth Group Co. Ltd. According to the SASAC, the merger was part of the Government's efforts to maintain China's dominance over the global supply chain for rare earths and its pricing power in the sector, secure rare earth resources, advance environmental sustainability, and avoid domestic competition. Based on the 2021 quotas, China Rare Earth would account for 31% of the total quota amount for rare earth mining, 29% for smelting, and 62% for HRE production in China. China Northern Rare Earth agreed to cooperate with China Rare Earth on further restructuring of the rare earths sector in China (Bloomberg News, 2021; Chen, 2021; Zhai, 2021; Zhou and Brooke, 2022).

Lithium.—Lithium hydroxide production continued to increase in China owing to the rapid development of high-nickel ternary lithium batteries. In March, Yongxing Special Materials Technology Co. Ltd. started construction of a 20,000-t/yr lithium carbonate plant. In April, Ganfeng Lithium Co. Ltd., which was the world's leading lithium metal producer, signed a contract to build a 7,000-t/yr lithium metal plant at Yichun Economic Development Zone. In August, Jiangxi Dongpeng New Materials Co. Ltd., which was fully owned by China Mineral Resource Group, started trial production at a plant in Xinyu, Jiangxi, that would have the capacity to produce 25,000-t/yr of battery-grade lithium carbonate and lithium hydroxide (Argus, 2021b, c; Zhou, 2021a, c).

China was the leading producer of refined lithium in the world, and it used raw materials sourced mostly from Argentina, Australia, and Chile. In 2021, several overseas lithium projects were acquired by Chinese companies to ensure further access to raw material supplies. Ganfeng Lithium acquired the Sonora project in Mexico, which had 8.8 Mt of lithium carbonate-equivalent resources, from Bacanora Lithium plc. of the United Kingdom. Ganfeng Lithium also acquired the Zinnwald project in Germany, which had 35.5 Mt of resources grading 0.76% lithium oxide, from Zinnwald Lithium plc. of the United Kingdom. In September, Zijin Mining Group acquired Neo Lithium Corp. of Canada, which owned the Tres Quebradas project in Argentina; this project had measured and indicated resource of 357 million cubic meters of brine grading 923 milligrams per liter lithium. Chengxin Lithium Group acquired a 51% equity in Max Mind Investment Ltd. (headquartered in Hong Kong), which owned the Sabi Start lithium-tantalum project in Zimbabwe. In October, Contemporary Amperex Technology Co. Ltd. (CATL) acquired Millennial Lithium Corp. of Canada, which owned the Cauchari East and Pastos Grandes lithium projects in Argentina. CATL also acquired a 24% stake in the Manono project in Congo (Kinshasa) from AVZ Minerals Ltd. of Australia, through its partially owned subsidiary Suzhou CATH Energy Technologies Co. Ltd. (Ganfeng Lithium Co. Ltd., 2021; Global Times, 2021; Keen and Erickson, 2021; Neo Lithium Corp., 2021; Wei, 2021; Bacanora Lithium plc., 2022; Zinnwald Lithium plc., 2022).

Exploration and Reserves and Resources

In 2021, China's investment in geologic exploration for petroleum and natural gas totaled $12.4 billion, which was an increase of 12.5% compared with the amount invested in 2020. The country's investment in geologic exploration for nonfuel minerals and coal was $2.69 billion, which was an increase of 7.5%. Among nonfuel mineral commodities and coal, the leading commodities, in terms of exploration investment in 2021, were coal, $209 million; gold, $169 million; uranium, $111 million; copper, $102 million; lead-zinc, $92 million; iron ore, $67 million; bauxite, $47 million; graphite, $28 million; tungsten, $24 million; and phosphate rock, $23 million. The investment in rare earths exploration increased by 108% in 2021, followed by iron ore, 75%; potash, 21%; phosphate rock, 19%; graphite, 14%; and coal, 10%. The exploration investment in tin decreased by 51% in 2021; manganese, 48%; and silver, 18%. The number of newly discovered mineral deposits in 2021 was 95. Table 5 shows the China's reserves of major mineral commodities as of 2021 (table 5; Ministry of Natural Resources, 2022a, p. 1, 3, 9, 10; 2022b, p. 10, 15).

Outlook

According to the International Monetary Fund, the global economy is projected to grow by 3.2% in 2022 despite the spread of COVID-19 variants, supply disruptions, and high inflation. China's GDP growth is projected to be 3.2% in 2022 and 4.4% in 2023 despite ongoing retrenchment of China's real estate sector, mobility restrictions related to the country's zero-COVID strategy, and slow recovery of private consumption (International Monetary Fund, 2021, p. 4, 6, 7, 15, 31, 66, 72; 2022a, p. 2, 4; 2022b).

China's output of mineral products is expected to continue to increase in the next few years owing to the continued recovery of global demand following the winding down of the COVID-19 pandemic. In the long term, China is expected to remain dependent on imports of metallic ores for its large metal-processing industry because of the lack of high-quality domestic resources and increasing environmental restrictions on mining operations. The Government is expected to continue to direct the consolidation of mineral enterprises in an effort to improve their efficiency and competitiveness and will likely implement additional resource strategies to ensure a sustainable supply of raw materials. As part of this effort, investments in overseas mineral assets by Chinese companies are expected to continue to increase, particularly for the minerals with critical high-tech applications and limited domestic supplies, such as cobalt and lithium.

References Cited

Aluminum Corporation of China Ltd., 2021, Annual report on Form 20–F for fiscal year 2020: Beijing, China, Aluminum Corporation of China Ltd., 314 p. (Accessed November 24, 2021, at http://www.chalco.com.cn/en/report/2020/202104/P020210422745391850381.pdf.)

Anderson, C.S., 2022, Indium: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 80–81.

Apodaca, L.E., 2022, Lime: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 98–99.

Argus Media, 2021a, China's $LiCO_3$ imports, LiOH exports rise in 2020: London, United Kingdom, Argus Media, January 25. (Accessed September 17, 2023, at https://www.argusmedia.com/en/news/2180085-chinas-lico3-imports-lioh-exports-rise-in-2020.)

Argus Media, 2021b, China's Tianyi Lithium to build more hydroxide plants: London, United Kingdom, Argus Media, September 3. (Accessed December 13, 2021, at https://www.argusmedia.com/en/news/2250600-chinas-tianyi-lithium-to-build-more-hydroxide-plants.)

Argus Media, 2021c, High demand may accelerate new Chinese Li salt projects: London, United Kingdom, Argus Media, March 8. (Accessed December 27, 2022, at https://www.argusmedia.com/en/news/2193694-high-demand-may-accelerate-new-chinese-li-salt-projects.)

Asian Development Bank, 2021, People's Republic of China, *in* Asian development outlook 2021—Financing a green and inclusive recovery: Manila, Philippines, Asian Development Bank, April, 414 p. (Accessed January 14, 2022, at https://www.adb.org/sites/default/files/publication/692111/ado2021.pdf.)

Bacanora Lithium plc., 2022, Sonora lithium project—Overview: London, United Kingdom, Bacanora Lithium plc. (Accessed December 22, 2022, at https://bacanoralithium.com/sonora_lithium_project/default.aspx.)

Bao, Quang, 2020, Rare earths become trade dispute tools: Vietnam Investment Review, October 29. (Accessed December 7, 2021, at https://vir.com.vn/rare-earths-become-trade-dispute-tools-80292.html.)

Bloomberg News, 2021, China rare-earths pact spurs speculation of bigger consolidation: Bloombergquint [New Delhi, India], December 20. (Accessed March 2, 2022, at https://www.bloombergquint.com/china/china-rare-earths-pact-spurs-speculation-of-bigger-consolidation.)

BP p.l.c., 2021, BP statistical review of world energy 2021 (70th ed.): London, United Kingdom, BP p.l.c., July, 72 p. (Accessed January 12, 2022, at https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf.)

Bray, E.L., 2022a, Aluminum: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 22–23.

Bray, E.L., 2022b, Bauxite and alumina: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 32–33.

Bray, E.L., 2022c, Magnesium metal: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 104–105.

CemNet.com, 2021a, China reports 2% rise in cement production for 2020: CemNet.com [Surrey, United Kingdom], January 26. (Accessed December 12, 2021, at https://www.cemnet.com/News/story/170207/china-reports-2-rise-in-cement-production-for-2020.html.)

CemNet.com, 2021b, China's plan to reduce excess capacity: CemNet.com [Surrey, United Kingdom], June 4. (Accessed December 28, 2021, at https://www.cemnet.com/News/story/170890/china-s-plan-to-reduce-excess-capacity.html.)

Chen, Avery, 2021, China creates new state-owned rare earths giant: New York, New York, S&P Global, December 21. (Accessed March 2, 2022, at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/china-creates-new-state-owned-rare-earths-giant-68185761.)

China Baowu Steel Group Corp. Ltd., 2021, Iron and steel industry: Shanghai, China, China Baowu Steel Group Corp. Ltd. (Accessed December 1, 2021, at http://www.baowugroup.com/en/business_perspective/steel_industry.)

China Coal Industry Association, 2021, 2020 China coal industry economic operation report: Beijing, China, National Statistical Network Direct, National Bureau of Statistics, July 23, 12 p. (Accessed January 12, 2022, at http://lwzb.stats.gov.cn/pub/lwzb/zxgg/202107/W020210723348607038720.pdf.) [In Chinese.]

China Gold Association, 2021, In 2020, China's gold production was 365.34 tons and gold consumption was 820.98 tons, down 3.91% and 18.13% year-on-year respectively: Beijing, China, China Gold Association, February 1. (Accessed December 21, 2021, at http://www.cngold.org.cn/statsinfo.aspx?ID=3168.) [In Chinese.]

China Internet Information Center, 2021, Mineral Resources Law of the People's Republic of China: Beijing, China, China Internet Information Center. (Accessed November 29, 2021, at http://www.china.org.cn/english/environment/34342.htm.)

China Nonferrous Metals Industry Association, 2021, 2020 China's non-ferrous metal industry economic operation report: Beijing, China, National Statistical Online Direct, National Bureau of Statistics, July 23, 34 p. (Accessed December 20, 2021, at http://lwzb.stats.gov.cn/pub/lwzb/zxgg/202107/W020210723348607267532.pdf.) [In Chinese.]

China Nonferrous Metals Industry Association, 2022, 2021 China's non-ferrous metal industry economic operation report: Beijing, China, National Statistical Online Direct, National Bureau of Statistics, May, 13 p. (Accessed December 27, 2022, at http://lwzb.stats.gov.cn/pub/lwzb/tzgg/202205//W020220511403032411542.pdf.) [In Chinese.]

China Nonferrous Metals News, 2021a, China's aluminum industry is operating well in 2020: China Nonferrous Metals News, February 10. (Accessed November 24, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=425795.) [In Chinese.]

China Nonferrous Metals News, 2021b, Highlights of China's aluminum industry in 2020—Part 1: China Nonferrous Metals News, January 4. (Accessed November 24, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=424925.) [In Chinese.]

China Nonferrous Metals News, 2021c, How to solve the problem of overcapacity of lanthanum and cerium: China Nonferrous Metals News, May 11. (Accessed March 1, 2022, at https://www.cnmn.com.cn/ShowNews1.aspx?id=427672.) [In Chinese]

China Nonferrous Metals News, 2021d, Two departments—Mining, smelting and separating rare earths without quotas: China Nonferrous Metals News, October 14. (Accessed March 1, 2022, at https://www.cnmn.com.cn/ShowNews1.aspx?id=430945.) [In Chinese.]

China Petroleum and Chemical Industry Federation, 2021, 2020 China petroleum and chemical industry economic operation report: Beijing, China, National Statistical Network Direct, National Bureau of Statistics, July 23, 18 p. (Accessed January 12, 2022, at http://lwzb.stats.gov.cn/pub/lwzb/zxgg/202107/W020210723348607291201.pdf.) [In Chinese.]

Cobalt Institute, 2022, Cobalt market report 2021: Guildford, United Kingdom, Cobalt Institute, May, 46 p. (Accessed December 27, 2022, at https://www.cobaltinstitute.org/wp-content/uploads/2022/05/FINAL_Cobalt-Market-Report-2021_Cobalt-Institute-1.pdf.)

Cordier, D.J., 2022, Rare earths: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 134–135.

Core Lithium Ltd., 2020, New offtake agreement and at-market placement: Adelaide, South Australia, Australia, Core Lithium Ltd., August 19, 3 p. (Accessed December 13, 2021, at https://wcsecure.weblink.com.au/pdf/CXO/02268571.pdf.)

Daly, Tom, 2020, China's rare earth exports at highest since 2014: Mining.com, April 14. (Accessed December 7, 2021, at https://www.mining.com/web/chinas-rare-earth-exports-leap-in-march-after-coronavirus-hit-jan-feb/.)

Feng, J., Xie, X., Yang, J., Zhang, Z., Xia, C., Guo, Y., and Xie, X., 2021, Lead and zinc monthly, February 2021, No. 289: Beijing, China, Antaike Information Development Co. Ltd. [or Antaike], February 24, 36 p.

Gambogi, Joseph, 2022, Titanium and titanium dioxide: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 176–177.

Ganfeng Lithium Co. Ltd., 2021, Voluntary announcement in relation to the status of Argentina Mariana lithium salt lake project: Ganfeng Lithium Co. Ltd., 2 p. (Accessed December 22, 2022, at https://www1.hkexnews.hk/listedco/listconews/sehk/2021/0706/2021070601284.pdf.)

Ge, Jun, 2021, Baoti—The renewal of armaments releases the vitality of titanium materials, accelerates military orders, and has good performance prospects: Minnews, December 1. (Accessed December 3, 2021, at https://min.news/en/economy/03f08ceb5dc92c6de9a7ad74c137b4cb.html.)

General Administrator of Customs of the People's Republic of China, 2022, China's total export and import values (in USD)—December: Beijing, China, General Administrator of Customs of the People's Republic of China. (Accessed January 27, 2023, at http://english.customs.gov.cn/Statics/09772730-2628-4c25-84ff-794d05f1adce.html.)

Global Times, 2021, Chinese EV battery maker CATL expands overseas investment: Beijing, China, Global Times, September 29. (Accessed December 22, 2022, at https://www.globaltimes.cn/page/202109/1235452.shtml.)

Hatfield, A.K., 2022, Cement: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 44–45.

Hu, Hui, 2020, A thick lead-zinc ore body discovered by the Zhejiang Longquan exploration project of the third team of Jiangxi Nonferrous Geological Exploration Team: Beijing, China, China Nonferrous Metals News, December 30. (Accessed December 8, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=424862.)

Hu, Tracy, 2020a, China Baowu to acquire controlling stake in Tibet Mineral Development: New York, New York, S&P Global, June 4. (Accessed January 26, 2022, at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/china-baowu-to-acquire-controlling-stake-in-tibet-mineral-development-58916144.)

Hu, Tracy, 2020b, China's rare earth mining quota for 2020 up 6% YOY: New York, New York, S&P Global, July 16. (Accessed December 6, 2021, at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/china-s-rare-earth-mining-quota-for-2020-up-6-yoy-59452763.)

Hui, Mary, 2021, What are critical minerals?: Quartz [New York, New York], September 13. (Accessed November 29, 2021, at https://qz.com/2056365/what-are-critical-and-strategic-minerals/.)

Industry Information Network, 2021a, Analysis of China's iron ore exploration capital investment, newly discovered iron ore deposits and completion of phased exploration of iron deposits drilling work in 2020: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., September 24. (Accessed December 28, 2021, at https://www.chyxx.com/industry/202109/975854.html.) [In Chinese.]

Industry Information Network, 2021b, Analysis of China's lead-zinc mine exploration capital investment, drilling workload and newly discovered lead-zinc deposits in 2020: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., September 29. (Accessed December 8, 2021, at https://www.chyxx.com/industry/202109/976818.html.) [In Chinese.]

Industry Information Network, 2021c, Analysis of China's natural graphite import and export in 2021—Shandong's natural graphite exports account for 64.3% of the country's total natural graphite exports, ranking first in the country: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., November 29. (Accessed December 14, 2021, at https://www.chyxx.com/industry/202111/987710.html.) [In Chinese.]

Industry Information Network, 2021d, Analysis of China's tungsten concentrate industry market supply and demand in 2020: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., May 18. (Accessed December 29, 2021, at https://www.chyxx.com/industry/202105/951915.html.) [in Chinese.]

Industry Information Network, 2021e, Analysis of global and Chinese cobalt reserves, production, import and export and price trends in 2020: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., March 9. (Accessed December 8, 2021, at https://www.chyxx.com/industry/202103/936666.html.) [In Chinese.]

Industry Information Network, 2021f, Analysis of global and Chinese tin industry output and consumption in 2020—China is the world's largest tin producer, and the output of tin ore and refined tin has both increased: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., June 5. (Accessed December 22, 2021, at https://www.chyxx.com/industry/202106/955352.html.) [In Chinese.]

Industry Information Network, 2021g, Analysis of supply and demand of China's graphite industry in 2020—Demand and capacity increase: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., October 3. (Accessed January 18, 2022, at https://www.chyxx.com/industry/202110/977358.html.) [In Chinese.]

Industry Information Network, 2021h, Analysis of the number of prospecting rights for gold mines in China, the number of newly discovered gold deposits, the investment in gold exploration and the workload of exploration and drilling in 2020: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., October 28. (Accessed December 21, 2021, at https://www.chyxx.com/industry/202110/983480.html.) [In Chinese.]

Industry Information Network, 2021i, Analysis of the status quo of China's metal silicon (industrial silicon) industry in 2020—Low concentration, mostly small production capacity: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., October 16. (Accessed December 24, 2021, at https://www.chyxx.com/industry/202110/981663.html.) [In Chinese.]

Industry Information Network, 2021j, Analysis of the status quo of China's scrap copper recycling, secondary copper and scrap copper smelting in 2020—The amount of scrap copper import is declining year by year: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., November 4. (Accessed December 22, 2021, at https://www.chyxx.com/industry/202111/984549.html.) [In Chinese.]

Industry Information Network, 2021k, Market development analysis of China's titanium industry in 2020—The total consumption of the industry is 93,600 tons, and the consumption of titanium in the chemical industry accounts for more than 50%: Beijing, China, Beijing Zhiyan Kexin Consulting Co. Ltd., May 16. (Accessed December 3, 2021, at https://www.chyxx.com/industry/202105/951551.html.) [In Chinese.]

International Monetary Fund, 2021, World economic outlook—Recovering during a pandemic: Washington, DC, International Monetary Fund, October 12, 172 p. (Accessed January 13, 2022, at https://www.imf.org/-/media/Files/Publications/WEO/2021/October/English/text.ashx.)

International Monetary Fund, 2022a, World economic outlook—Rising caseloads, a disrupted recovery, and higher inflation: Washington, DC, International Monetary Fund, January 25, 16 p. (Accessed January 28, 2023, at https://www.imf.org/en/Publications/WEO/Issues/2022/01/25/world-economic-outlook-update-january-2022.)

International Monetary Fund, 2022b, World economic outlook database—China and world: Washington DC, International Monetary Fund, October. (Accessed January 12, 2023, via https://www.imf.org/en/Publications/WEO/weo-database/2022/October.)

International Tin Association, 2020a, Returning smelters reduce imports—Myanmar flooding to pressure China supply: Hertfordshire, United Kingdom, International Tin Association, September 30. (Accessed December 23, 2021, at https://www.internationaltin.org/china-trade-august-2020/.)

International Tin Association, 2020b, YTC-Minmetals merger falls through: Hertfordshire, United Kingdom, International Tin Association, January 7. (Accessed December 22, 2021, at https://www.internationaltin.org/ytc-minmetals-merger-falls-through/.)

International Tin Association, 2021, China begins search for other sources as Myanmar supply drops again: Hertfordshire, United Kingdom, International Tin Association, January 28. (Accessed December 23, 2021, at https://www.internationaltin.org/china-begins-search-for-other-sources/.)

Jaskula, B.W., 2022, Gallium: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 64–65.

Jia, Tingting, 2020, Baotou Rare Earth High-Tech Zone builds a strong magnetic field for the world's rare earth industry: Beijing, China, China Nonferrous Metals News, November 19. (Accessed December 7, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=424030.)

Jin, Xuan, 2021, China's gold consumption and output have been ranked first in the world for 8 consecutive years and 14 years respectively: Hefei, China, Gold Management Bureau of Anhui Province, August 6. (Accessed December 21, 2021, at http://hjglj.ah.gov.cn/hjzx/cyzx/40456146.html.) [In Chinese.]

Kawate, Iori, 2020, China passes export control law with potential for rare-earths ban: Nikkei Asia [Tokyo, Japan], October 19. (Accessed December 7, 2021, at https://asia.nikkei.com/Politics/International-relations/US-China-tensions/China-passes-export-control-law-with-potential-for-rare-earths-ban.)

Keen, Kip, and Erickson, Camille, 2021, China mining, battery companies sweep up lithium supplies in acquisition blitz: New York, New York, S&P Global, November 1. (Accessed December 22, 2022, at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/china-mining-battery-companies-sweep-up-lithium-supplies-in-acquisition-blitz-67205411.)

Klochko, Kateryna, 2022, Antimony: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 24–25.

Kong, J., Zhou, H., Xu, A., Sun, Y., Liu, L., Li, S., and Chen, G., 2021a, Lithium battery metal materials monthly, January 2021, No. 13: Beijing, China, Antaike Information Development Co. Ltd. [or Antaike], January, 36 p.

Kong, J., Zhou, H., Xu, A., Sun, Y., Liu, L., Li, S., and Chen, G., 2021b, Lithium battery metal materials monthly, February 2021, No. 14: Beijing, China, Antaike Information Development Co. Ltd. [or Antaike], February, 36 p.

Li, Baole, 2021, Baotou Rare Earth High-Tech Zone strives to build the whole rare earth industry chain: SMM News [Shanghai, China], November 23. (Accessed December 8, 2021, at https://news.metal.com/newscontent/101673517/Baotou-rare-Earth-High-tech-Zone-strives-to-build-the-whole-rare-earth-industry-chain/.)

Li, Hui, 2020, Chalco's Huasheng alumina refinery starts second production line—Total capacity hits 2 mln tpy: Metal Bulletin, November 10. (Accessed November 24, 2021, at https://www.metalbulletin.com/Article/3961470/Chalcos-Huasheng-alumina-refinery-starts-second-production-line-total-capacity-hits-2-mln-tpy.html.)

Library of Congress, 2020, China—Government releases Provisions on Unreliable Entity List regime: Washington DC, Library of Congress, October 9. (Accessed December 29, 20221, at https://www.loc.gov/item/global-legal-monitor/2020-10-08/china-government-releases-provisions-on-unreliable-entity-list-regime/.)

Liu, Lindsey, 2020, China blast furnace capacity use dips 4th week: Mysteel Global [Singapore], September 11. (Accessed November 30, 2021, at https://www.mysteel.net/article/full-5018389/WEEKLY--China-blast-furnace-capacity-use-dips-4th-week.html.)

Liu, Yukun, 2020, Oversupply concerns pose hefty problems for steel manufacturers: [Beijing] Chinadaily, August 7. (Accessed November 30, 2021, at https://www.chinadaily.com.cn/a/202008/07/WS5f2cc0e1a31083481725ee51.html.)

Lu, Yu, 2020, Chifeng Qihui Aluminum Industry alumina project is about to be put into production: China Nonferrous Metals News, December 4. (Accessed November 24, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=424355.) [In Chinese.]

McRae, M.E., 2022, Fluorspar: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 62–63.

Merrill, A.M., 2022a, Bismuth: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 36–37.

Merrill, A.M., 2022b, Magnesium compounds: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 102–103.

Mining.com, 2021, Charts—China's overseas copper mining scramble: Mining.com, June 29. (Accessed January 24, 2022, at https://www.mining.com/charts-chinas-overseas-copper-mining-scramble/.)

Ministry of Natural Resources, 2021, 2021 China mineral resources: Beijing, China, Ministry of Natural Resources, October, 52 p. (Accessed August 16, 2023, at https://m.mnr.gov.cn/sj/sjfw/kc_19263/zgkczybg/202111/P020211105382623655125.pdf.)

Ministry of Natural Resources, 2022a, 2020 national geological prospecting results bulletin: Beijing, China, Ministry of Natural Resources, June, 20 p. (Accessed August 15, 2023, at http://search.mnr.gov.cn/axis2/download/P020220621631183985619.pdf.) [In Chinese.]

Ministry of Natural Resources, 2022b, 2022 China mineral resources: Beijing, China, Ministry of Natural Resources, September, 55 p. (Accessed August 15, 2023, at https://www.mnr.gov.cn/sj/sjfw/kc_19263/zgkczybg/202209/P020220921322252399161.pdf.)

Mir, Fawad, 2020, Yunnan Aluminum starts production at 500,000 t/y smelter in China—Reuters: Thomson Reuters, May 18. (Accessed November 27, 2021, at https://www.reuters.com/article/china-aluminium-shenhuo/chinas-henan-shenhuo-to-start-up-yunnan-aluminium-smelter-on-dec-31-idUSL4N2900FH.)

National Bureau of Statistics of China, 2020a, China statistical yearbook 2020: Beijing, China, National Bureau of Statistics of China. (Accessed December 15, 2021, via http://www.stats.gov.cn/sj/ndsj/2020/indexeh.htm.)

National Bureau of Statistics of China, 2020b, Statistical report of the People's Republic of China on the 2019 national economic and social development: Beijing, China, National Bureau of Statistics of China, February 28. (Accessed December 15, 2021, at http://www.stats.gov.cn/tjsj/zxfb/202002/t20200228_1728913.html.)

National Bureau of Statistics of China, 2021a, China statistical yearbook 2021: Beijing, China, National Bureau of Statistics of China. (Accessed December 14, 2021, via http://www.stats.gov.cn/sj/ndsj/2021/indexeh.htm.)

National Bureau of Statistics of China, 2021b, Statistical report of the People's Republic of China on the 2020 national economic and social development: Beijing, China, National Bureau of Statistics of China, February 28. (Accessed December 14, 2021, at http://www.stats.gov.cn/tjsj/zxfb/202102/t20210227_1814154.html.) [In Chinese.]

National Bureau of Statistics of China, 2022a, China statistical yearbook 2022: Beijing, China, National Bureau of Statistics of China. (Accessed August 14, 2023, via http://www.stats.gov.cn/sj/ndsj/2022/indexeh.htm.)

National Bureau of Statistics of China, 2022b, Industrial production operation in December 2021: Beijing, China, National Bureau of Statistics of China, January 18. (Accessed January 27, 2023, at http://www.stats.gov.cn/english/PressRelease/202201/t20220118_1826495.html.)

National Bureau of Statistics of China, 2022c, Preliminary accounting results of GDP for the fourth quarter and the whole year of 2021: Beijing, China, National Bureau of Statistics of China, January 19. (Accessed January 27, 2023, at http://www.stats.gov.cn/english/PressRelease/202201/t20220119_1826672.html.)

Neo Lithium Corp., 2021, Feasibility study (FS)—3Q project: Toronto, Ontario, Canada, Neo Lithium Corp., November 25, 368 p. (Accessed December 22, 2022, at http://www.neolithium.ca/pdf/Feasibility-Study-3Q-Project-Nov-25-2021.pdf.)

Olson, D.W., 2022, Graphite (natural): U.S. Geological Survey Mineral Commodity Summaries 2022, p. 74–75.

Perilli, David, 2021, Update on China—March 2021: Global Cement [Surrey, United Kingdom], March 31. (Accessed December 28, 2021, at https://www.globalcement.com/news/item/12211-update-on-china-march-2021.)

Polyak, D.E., 2022, Vanadium: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 182–183.

Rapoza, Kenneth, 2021, China's rare earth 'slump' a sign of domestic 'hoarding' for EV batteries, and more: Jersey City, New Jersey, Forbes, January 17. (Accessed December 7, 2021, at https://www.forbes.com/sites/kenrapoza/2021/01/17/chinas-rare-earths-slump-a-sign-of-domestic-hoarding-for-ev-batteries-and-more/?sh=3d81758979a8.)

RecordTrend.com, undated, 2020 economic operation report of China's cement industry from China Cement Association: RecordTrend.com. (Accessed December 12, 2021, at https://recordtrend.com/research-report/2020-economic-operation-report-of-chinas-cement-industry-from-china-cement-association/.)

Thomson Reuters, 2021, Corrected—China's annual rare earth exports slump to 5-yr low: Thomson Reuters, January 13. (Accessed December 7, 2021, at https://www.reuters.com/article/china-economy-trade-rareearths/chinas-annual-rare-earth-exports-slump-to-at-least-7-yr-low-idUSB9N2FZ07K.)

Ruidow Titanium Monthly, 2020, Pangang Group rapidly advancing the construction of high-end titanium and titanium alloy production line: Ruidow Titanium Monthly, December, 15 p. (Accessed December 3, 2021, via https://en.ruidow.com/publications/detail?id=16188853515541.)

Sangine, E.S., 2022, Wollastonite: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 186–187.

Schnebele, E.K., 2022, Silicon: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 150–151.

Shao, Huijie, 2021, China enacted the Export Control Law: Sausalito, California, JD Supra LLC, February 25. (Accessed December 29, 2021, at https://www.jdsupra.com/legalnews/china-enacted-the-export-control-law-4656985/.)

Sheaffer, K.N., 2022, Mercury: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 108–109.

Shedd, K.B., 2022, Tungsten: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 180–181.

SMM News, 2019, Hoshine Silicon to add 800,000 Mt/year silicon metal capacity in Yunnan: SMM News [Shanghai, China], December 19. (Accessed December 28, 2021, at https://news.metal.com/newscontent/101004671/Hoshine-Silicon-to-add-800,000-mtyear-silicon-metal-capacity-in-Yunnan/.)

SMM News, 2020a, China lithium hydroxide production to rise 31% in 2020: SMM News [Shanghai, China], February 17. (Accessed December 13, 2021, at https://news.metal.com/newscontent/101028289/china-lithium-hydroxide-production-to-rise-31-in-2020.)

SMM News, 2020b, Guangxi Tianyuan New Energy Material to see first batch of lithium carbonate output in late May: SMM News [Shanghai, China], April 30. (Accessed December 14, 2021, at https://news.metal.com/newscontent/101103015/guangxi-tianyuan-new-energy-material-to-see-first-batch-of-lithium-carbonate-output-in-late-may/.)

SMM News, 2020c, Tianshan Aluminum Industry has been reorganized and renamed and listed on the stock market today!: SMM News [Shanghai, China], October 28. (Accessed November 25, 2021, at https://news.metal.com/newscontent/101300214/tianshan-aluminum-industry-has-been-reorganized-and-renamed-and-listed-on-the-stock-market-today.)

SMM News, 2020d, Yunnan Green Aluminum Innovation Industrial Park and 2.03 million tons of Green Aluminum Project put into production: SMM News [Shanghai, China], September 16. (Accessed November 26, 2021, at https://news.metal.com/newscontent/101270478/yunnan-green-aluminum-innovation-industrial-park-and-203-million-tons-of-green-aluminum-project-put-into-production.)

SMM News, 2020e, Zhengan County, Guizhou Province, speeding up the construction of 2.4 million tons of alumina project is scheduled to be put into production in 2025: SMM News [Shanghai, China], September 7. (Accessed November 24, 2021, at https://news.metal.com/newscontent/101259304/Zhengan-County-Guizhou-Province-speeding-up-the-construction-of-24-million-tons-of-alumina-project-is-scheduled-to-be-put-into-production-in-2025/.)

Tianjin Port Free Trade Zone, 2021a, The Special Administrative Measures (Negative list) for Foreign Investment Access (2021 edition): Binhai, Tianjin, Tianjin Port Free Trade Zone, 6 p. (Accessed September 18, 2023, at https://www.tjftz.gov.cn/tisip/upload/files/2022/4/TheSpecialAdministrativeMeasures(NegativeList)forForeignInvestmentAccess(2021Edition).pdf.)

Tianjin Port Free Trade Zone, 2021b, The Special Administrative Measures (Negative List) for Foreign Investment Access in Pilot Free Trade Zones (2021 edition): Binhai, Tianjin, Tianjin Port Free Trade Zone, 6 p. (Accessed September 18, 2023, at https://www.tjftz.gov.cn/tisip/upload/files/2022/4/20152548566.pdf.)

Tivey, John, and Li, David, 2021, China's pursuit of mining and metals industry transition: New York, New York, White & Case LLP, September 15. (Accessed January 14, 2022, at https://www.whitecase.com/publications/insight/mining-metals-2021/china-pursuit-mining-metals#.)

Tolcin, A.C., 2022, Germanium: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 70–71.

Tuck, C.C., 2022, Iron and steel: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 88–89.

United Nations, 2022, United Nations Comtrade database 2022: New York, New York, United Nations, Department of Economic and Social Affairs. (Accessed December 22, 2022, via http://comtrade.un.org/data/.)

U.S. Geological Survey, 2022, Mineral commodity summaries 2022: U.S. Geological Survey, 202 p.

Wei, Xu, 2021, Chengxin Lithium drops after battery materials supplier plans to buy stake in mostly unexplored mining project: Yicai [Shanghai, China], November 4. (Accessed December 22, 2022, at https://www.yicaiglobal.com/news/chengxin-lithium-drops-after-battery-materials-supplier-plans-to-buy-stake-in-mostly-unexplored-mining-project#:~:text=(Yicai%20Global)%20Nov.,whose%20resources%20are%20largely%20unexplored.)

Wu, Guohua, and Li, Yingnan, 2021, China—Mining law and regulations 2022: International Comparative Legal Guides. (Accessed November 29, 2021, at https://iclg.com/practice-areas/mining-laws-and-regulations/china.)

Xinhuanet.com, 2020, Huge gas reserve found in NW China's Xinjiang: Beijing, China, Xinhuanet.com, December 20. (Accessed January 13, 2022, at http://www.xinhuanet.com/english/2020-12/20/c_139603726.htm.)

Xinhuanet.com, 2021, China's non-ferrous metal industry reports steady output growth: Beijing, China, Xinhuanet.com, February 12. (Accessed January 14, 2022, at http://www.xinhuanet.com/english/2021-02/12/c_139739402.htm.)

Yang, C., Ding, C., He, X., and Che, G., 2021a, Copper & copper fabrication monthly, February 2021, No. 288: Beijing, China, Antaike Information Development Co. Ltd. [or Antaike], February, 16 p.

Yang, C., Ding, C., He, X., and Che, G., 2021b, Copper & copper fabrication monthly, February 2021, No. 289: Beijing, China, Antaike Information Development Co. Ltd. [or Antaike], February, 15 p.

Yao, Shunyu, and Holden, Jason, 2021, Chinese foreign mining investment—China's private sector eyes low-cost regions: New York, New York, S&P Global Corp., March 12. (Accessed January 24, 2021, at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/chinese-foreign-mining-investment-8212-china-s-private-sector-eyes-low-cost-regions-63066809.)

Yu, A., Sappor, J., Nickels, L., and Cecil, R., 2021, Impact of COVID-19 pandemic on industrial metals markets—One year on: New York, New York, S&P Global Corp., June 24. (Accessed July 31, 2023, at https://www.spglobal.com/marketintelligence/en/news-insights/research/impact-of-covid-19-pandemic-on-industrial-metals-markets-one-year-on.)

Yu, Fu, 2021, Record-breaking production of multiple key projects of Zijin Mining continues to release production capacity: Beijing, China, China Nonferrous Metals News, January 4. (Accessed December 8, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=424937.)

Zen Innovation AG, 2023, Global trade tracker: Bern-Kehrsatz, Switzerland, Zen Innovations AG database. (Accessed September 18, 2023, https://www.globatradetracker.com.)

Zhai, Keith, 2021, China set to create new state-owned rare-earths giant: The Wall Street Journal [New York, New York], December 3. (Accessed March 2, 2022, at https://www.wsj.com/articles/china-set-to-create-new-state-owned-rare-earths-giant-11638545586.)

Zhang, Olivia, and Li, Hongmei, 2020, M&As embedded in China's Baowu's next 5-year strategy: Mysteel Global [Singapore], September 21. (Accessed December 1, 2021, at https://www.mysteel.net/article/5018572-0504/M-and-As-embedded-in-Chinas-Baowus-next-5-year-strategy.html.)

Zhang, Zoey, 2022, China's FDI hit record high, global FDI rebounds in 2022: China Briefing, Dezan Shira & Associates, February 1. (Accessed January 27, 2023, at https://www.china-briefing.com/news/chinas-fdi-record-high-2021-global-fdi-rebound-services-high-tech-industry/.)

Zhou, Dawei, 2020a, Ganfeng's 50,000-ton lithium hydroxide project was put into production in Q4: China Nonferrous Metals Newspaper [Beijing, China], June 5. (Accessed December 13, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=420620.)

Zhou, Dawei, 2020b, The two departments issued 2020 total control quotas for rare earth mines and tungsten ore mining: China Nonferrous Metals Newspaper [Beijing, China], July 20. (Accessed December 7, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=421514.) [In Chinese.]

Zhou, Dawei, 2021a, Ganfeng Lithium's annual production of 7000 tons of lithium metal project settled in Yichun Economic Development Zone: China Nonferrous Metals Newspaper [Beijing, China], April 16. (Accessed December 27, 2022, at https://www.cnmn.com.cn/ShowNews1.aspx?id=427244.) [In Chinese.]

Zhou, Dawei, 2021b, Ten major events of China's rare earth industry in 2020: China Nonferrous Metals Newspaper [Beijing, China], January 13. (Accessed December 6, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=425167.) [In Chinese.]

Zhou, Dawei, 2021c, Trial production of China Mining Resources battery-grade lithium raw material production line: China Nonferrous Metals Newspaper [Beijing, China], August 26. (Accessed December 27, 2022, at https://www.cnmn.com.cn/ShowNews1.aspx?id=430017.) [In Chinese.]

Zhou, Dawei, 2021d, Yahua Lithium Industry (Ya'an) Co. Ltd. officially puts into operation the production line with an annual output of 20,000 tons of lithium hydroxide: China Nonferrous Metals Newspaper [Beijing, China], May 20. (Accessed December 12, 2021, at https://www.cnmn.com.cn/ShowNews1.aspx?id=420116.) [In Chinese.]

Zhou, Qian, and Zhang, Zoey, 2021, China's 2021 Negative Lists widen market access for foreign investment: China Briefing, Dezan Shira & Associates, December 27. (Accessed January 27, 2023, at https://www.china-briefing.com/news/2021-china-negative-lists-update-widen-market-access-for-foreign-investment/.)

Zhou, Qian, and Brooke, Sofia, 2022, China merges three rare earths state-owned entities to increase pricing power and efficiency: China Briefing, Dezan Shira & Associates, January 12. (Accessed March 2, 2022, at https://www.china-briefing.com/news/china-merges-three-rare-earths-state-owned-entities-to-increase-pricing-power-and-efficiency/#:~:text=China's%20newly%20established%20megafirm%20will,global%20rare%20earths%20supply%20chain.)

Zijin Mining Group Co. Ltd., 2021, Annual report 2020: Fujian, China, Zijin Mining Group Co. Ltd., June 9, 395 p. (Accessed December 21, 2021, at https://www.zijinmining.com/upload/pdfjs/web/viewer.html?file=/upload/file/2021/06/09/538a46cc4831452e97b30cae55c9cf97.pdf.)

Zinnwald Lithium plc., 2022, Zinnwald-lithium-project: Buckinghamshire, United Kingdom, Zinnwald Lithium plc. (Accessed December 22, 2022, at https://www.zinnwaldlithium.com/projects/zinnwald-lithium-project/.)

Zou, Victoria, and Li, Hongmei, 2020, Baowu on steel capacity concentration in northwest China: Mysteel Global [Singapore], November 26. (Accessed December 1, 2021, at https://www.mysteel.net/article/5019845-05/Baowu-on-steel-capacity-concentration-in-Northwest-China.html.)

TABLE 1

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
METALS						
Aluminum:						
Bauxite	thousand metric tons	68,390	77,170	73,320 [r]	62,800 [e]	86,000 [e]
Alumina	do.	69,017	72,531	72,474	73,786	77,475
Metal:						
Primary	do.	32,273	35,802	35,044	36,740	38,503
Secondary	do.	6,900	6,950	7,250	7,250	7,250 [e]
Total	do.	39,200	42,800	42,300	44,000	45,800 [e]
Metal products	do.	58,324	51,756	52,522	56,845	61,052
Antimony:						
Mine, Sb content		97,700	95,300	79,900 [r]	61,000	38,100 [e]
Refinery, metal		203,400	191,600	222,609 [r]	218,400	220,000 [e]
Beryllium, mine, beryl:						
Gross weight		1,300	1,725	1,750	1,750 [e]	1,750 [e]
Be content		52	69	69	69 [e]	69 [e]
Bismuth:						
Mine, Bi content		1,748	1,804	1,800 [r]	1,800	1,800
Refinery		14,813	15,537	15,450 [r]	15,500 [e]	16,000 [e]
Cadmium, refinery, primary		8,411	10,349	8,689 [r]	8,700 [e]	8,700 [e]
Chromium, mine, chromite		71,300	71,100	84,400	66,554	130,000 [e]
Cobalt, Co content:						
Mine, concentrate, byproduct from polymetallic ore		2,500 [e]	2,241 [r]	1,742 [r]	2,200 [e]	2,200 [e]
Refinery:						
Metal		8,357	8,180	8,752 [r]	11,500	7,480
Other, including powder, oxide, salts[e]		66,600	74,900	86,200 [r]	94,500	126,000
Total[e]		75,000	83,100	95,000	106,000	133,000
Copper:						
Mine, Cu content:						
Concentrates		1,656,400	1,569,900	1,628,000	1,673,000	1,855,000
Solvent extraction[3]		50,000	55,000	55,700	50,100	55,000
Total		1,710,000	1,620,000	1,680,000	1,720,000	1,910,000
Smelter:						
Primary		6,600,000	7,035,600	7,400,000 [r]	7,907,000	8,200,000
Secondary		1,380,500	1,561,800	1,688,400	1,749,800	1,850,000
Total		7,980,000	8,600,000	9,090,000 [r]	9,660,000	10,100,000
Refinery:						
Primary:						
Leaching, electrowon		50,000	55,000	55,700	50,100	55,000
Other		6,564,300	7,001,800	7,556,400 [r]	7,999,800	8,175,000
Total		6,610,000	7,060,000	7,610,000	8,050,000	8,230,000
Secondary		2,300,800	2,234,600	2,170,800	1,975,500	2,257,000
Grand total		8,920,000	9,290,000	9,780,000	10,000,000	10,500,000
Products, manufactured copper		18,617,000	17,155,000	20,172,000	21,433,000	21,240,000
Ferroalloys:						
Ferrochromium		4,940,000	5,280,000	6,030,000	5,700,000 [e]	5,900,000 [e]
Ferromanganese:[e]						
Blast furnace		220,000	270,000	290,000	250,000	240,000
Electric furnace		1,560,000	1,660,000	1,770,000	1,500,000	1,450,000
Ferromolybdenum		138,000	144,000	144,000	166,000	170,000 [e]
Ferronickel, nickel pig iron		10,500,000	12,100,000 [e]	15,300,000 [e]	12,800,000 [e]	10,900,000 [e]
Ferrosilicon		3,650,000	5,450,000	5,490,000	5,320,000	5,860,000 [e]
Ferrovanadium		38,400	40,500	43,600	40,900	41,000 [e]
Silicomanganese		6,610,000	9,450,000	12,600,000	11,380,000	10,650,000
Gallium		319	404	338	336	423
Germanium, Ge content		79	95	119 [r]	170 [e]	170 [e]

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
METALS—Continued						
Gold:						
Mine, Au content	kilograms	426,142	401,119	380,230	365,340	328,980
Refinery, primary	do.	517,490	513,902	500,420	479,500	443,600
Indium, refinery, primary, In content	do.	478,000	483,000	534,000 e	540,000 e	540,000 e
Iron ore, mine:						
Crude ore	thousand metric tons	830,000 e	763,000	844,000	898,000	981,000
Usable ore:						
Gross weight	do.	345,472	334,790	351,000	360,000	394,000
Fe content	do.	215,989	209,311	219,000	225,000	246,000
Iron and steel:						
Pig iron	do.	713,620	779,880	808,494 r	907,597	868,568
Steel:						
Raw steel	do.	870,740	920,027	995,419 r	1,064,730	1,032,788
Products, rolled	do.	1,048,180	1,132,870	1,204,569 r	1,328,716	1,336,668
Lead:						
Mine, Pb content	do.	2,032	1,976	2,006 r	1,942	1,964
Smelter, primary	do.	2,663	2,695	2,882 r	3,010	2,835
Refinery:						
Primary	do.	2,649	2,691	2,734 r	2,800 e	2,750
Secondary	do.	2,077 r	2,252	2,225 r	2,200 e	2,450
Total	do.	4,730 r	4,940	4,960	5,000 e	5,200
Magnesium, primary, metal and alloy		904,600	848,100 r	930,600 r	779,000	828,700
Manganese:						
Mine, ore:						
Gross weight	thousand metric tons	19,032 r	10,403 r	10,325 r	10,394	7,799
Mn content	do.	2,855 r	1,560 r	1,311 r	1,320	991
Refinery, metal, electrolytic	do.	1,510	1,390	1,530	1,370	1,400 e
Mercury, Hg content		3,573	2,317	2,232 r	1,993	1,280
Molybdenum, mine, Mo content		117,000	113,000	116,000 r	107,000 e	106,000 e
Nickel, Ni content:						
Mine, concentrate		102,300	108,200	108,700 r	109,000 e	109,000 e
Intermediate, matte		149,400	159,300	159,300 r	149,000 e	136,000 e
Chemicals		39,900	45,200	41,300	64,000	84,000
Ferronickel, nickel pig iron		411,462	476,040	600,340	504,000	431,000
Refinery, metal, electrolytic		202,900	191,100	188,600 r	176,000	160,000
Niobium, mine, mineral concentrate, Nb content		45	45	45 e	44	45 e
Platinum-group metals, mine:						
Palladium, Pd content	kilograms	1,400	1,300	1,300	1,300 e	1,000 e
Platinum, Pt content	do.	2,500	2,500	2,500	2,500 e	2,300 e
Rare earths, mineral concentrate, rare-earth oxide equivalent		105,000	120,000	132,000	140,000	168,000
Rhenium, Re content, in NH_4ReO_5 e	kilograms	2,500	2,500	2,500	2,500	2,500
Selenium, Se content		930	1,050 e	1,100 e	1,200 e	1,260 e
Silicon, metal	thousand metric tons	2,205	2,405	2,249 r	2,100	2,610
Silver, mine, Ag content		3,601	3,422	3,443	3,405	3,511
Tantalum, mine, mineral concentrate, Ta content		75	90	76 e	74 e	76 e
Tellurium, refinery		291	307 e	325 e	330 e	330 e
Tin:						
Mine, Sn content		95,500	94,800	91,100 r	94,500	90,000 e
Smelter, primary		178,400	177,400 r	181,200 r	203,000	180,000 e
Titanium:						
Ilmenite and leucoxene, concentrate:						
Gross weight		3,830,000	4,200,000	4,600,000	5,442,000	5,714,000
TiO_2 content		1,905,000	2,090,000	2,290,000	2,721,000	2,857,000
Sponge		69,641	71,119	88,101 r	122,958	139,929
Tungsten, mine, concentrate, W content		67,000	65,000	69,000 e	71,000 e	71,000 e

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
METALS—Continued						
Vanadium, V content		55,900 r	59,500 r	60,000 r	70,200	70,300
Zinc:						
Mine, Zn content	thousand metric tons	4,300	4,172	4,213	4,058	4,136
Smelter:						
Primary	do.	5,674	5,057	5,372	5,462	5,558
Secondary, remelt	do.	470	550	790	880	850
Total	do.	6,140	5,610	6,160	6,340	6,410
Zirconium, mine, zircon[e]		140,000	140,000	140,000	133,000	140,000
INDUSTRIAL MINERALS						
Arsenic trioxide[e]		24,000	24,000	24,000	24,000	24,000
Asbestos		124,723	120,000 r, e	140,000 r, e	130,000 e	130,000 e
Barite[e]		3,200,000 r	2,400,000 r	2,300,000 r	1,700,000	2,100,000
Boron, B_2O_3 content		255,000	168,000	383,000	12,700	205,000 e
Bromine		76,000	68,300	69,600	70,000 e	70,000 e
Celestite		53,700	61,600	83,600	83,500	80,000 e
Cement, hydraulic	thousand metric tons	2,331,000	2,236,000	2,340,000 r	2,377,000	2,363,000
Clay:						
Bentonite	do.	2,014	1,909	2,475	2,086	2,100 e
Kaolin	do.	5,215	4,507	6,867	8,427	8,400 e
Diamond:						
Gem, unspecified	thousand carats	230	99	51	21	--
Synthetic, industrial	do.	14,300,000	14,200,000 r, e	15,400,000 r	15,000,000 e	15,000,000 e
Diatomite		147,000	144,100	141,400	273,700	270,000 e
Dolomite	thousand metric tons	12,670	13,450	15,000 e	15,000 e	15,000 e
Feldspar	do.	1,618	2,386	2,626	2,386	2,500 e
Fluorspar	do.	4,380	4,980	5,447	5,651	5,700 e
Garnet, industrial		260,100	309,600	300,000 e	59,500	60,000
Graphite:						
Amorphous, aphanitic		333,400	469,600	473,600	159,000 e	200,000 e
Crystalline flake		748,600	694,400	711,400	506,000 e	620,000 e
Total		1,080,000	1,160,000	1,190,000	665,000 e	820,000 e
Gypsum:						
Mine	thousand metric tons	11,740	11,900	12,640	11,839	12,000 e
Synthetic, industrial byproduct	do.	196,000	199,000	196,000	196,000 e	196,000 e
Kyanite and related materials, andalusite		25,600	56,600	153,000	348,000	100,000 e
Lime[e]	thousand metric tons	290,000	300,000	310,000	310,000	310,000
Lithium:						
Mine, lithium carbonate equivalent:						
Ore and concentrate[e]		14,300	14,800	24,500	30,900	33,000
Brine[e]		23,000	23,000	33,000	39,700	42,000
Total		37,300	37,800	57,500	70,600	75,000
Refinery:						
Compounds:						
Lithium carbonate		83,000	109,000	159,000 r	171,000	240,000
Lithium chloride		13,000	18,000	28,000	28,000 e	28,000 e
Lithium hydroxide		35,000	42,000	91,000 r	92,800	175,000
Metal		2,500	3,200	2,903	3,000 e	3,000 e
Magnesite	thousand metric tons	19,000 e	18,500 e	10,917 r	14,044	14,000 e
Mica		80,300	86,400	98,000	80,000	84,000 e
Nitrogen, N content:						
Ammonia	thousand metric tons	40,656	37,907	38,922	42,063	44,000
Urea	do.	24,540	23,940	24,660	25,900	25,300
Perlite		1,219,000	935,600	1,472,100	1,422,200	1,500,000 e

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
INDUSTRIAL MINERALS—Continued						
Phosphate:						
Mine, phosphate rock:						
Gross weight	thousand metric tons	123,100	96,310	93,320	90,900	90,000 e
P_2O_5 content	do.	36,900	28,900	28,000	27,300	27,000 e
Fertilizers, P_2O_5 content	do.	15,010	12,960	13,080	10,570	10,600 e
Potash, K_2O content, marketable	do.	5,510	5,450	5,900	5,570 e	6,000 e
Salt	do.	66,542	63,640	67,014 r	58,527	60,000 e
Sand and gravel, industrial	do.	77,860	82,550	85,240	87,650	87,700 e
Sodium, compounds:						
Caustic soda	do.	33,290	34,760	34,579 r	36,890	38,913
Mirabilite	do.	5,990	4,850	4,430	4,020	4,000 e
Soda ash, natural and synthetic	do.	27,670	26,480	29,865 r	28,124	29,133
Sulfur, S content:						
Byproduct:						
Metallurgy[e]	do.	5,650	5,700	5,700	5,700	5,700
Natural gas and petroleum	do.	5,940	6,380 r	7,660 r	7,910	7,900 e
Pyrites	do.	5,850	5,610	5,700	5,240	5,200 e
Total[e]	do.	17,400	17,700 r	19,100 r	18,900	18,800
Sulfur, compounds, sulfuric acid	do.	86,942	86,364	91,192 r	92,382	92,000 e
Talc	do.	1,276	1,503	1,357	1,100	1,100 e
Vermiculite[e]		33,000	33,000	31,000	35,000	39,000
Wollastonite[e]	thousand metric tons	840	1,100	970	1,200	1,200
Zeolites		318,900	106,200	51,800	149,500	150,000 e
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite[e]	thousand metric tons	377,000	394,000	411,000	423,000	448,000
Bituminous[e]	do.	2,330,000	2,430,000	2,540,000	2,540,000	2,650,000
Lignite[e]	do.	237,000	248,000	259,000	269,000	285,000
Metallurgical[e]	do.	583,000	611,000	637,000	653,000	692,000
Total	do.	3,530,000	3,680,000	3,850,000	3,890,000	4,080,000
Coke, metallurgical	do.	431,426	448,300	471,300	471,160	464,458
Liquefied natural gas	do.	8,290	9,002	11,650	13,329	15,300
Natural gas:						
All forms	million cubic meters	148,000	160,000	176,000	190,000	205,000
Coalbed gas, only	do.	7,020	7,260	8,880	9,940	10,500
Petroleum:						
Crude, including from oil shale	million 42-gallon barrels	1,400	1,390	1,400	1,420	1,460
Refinery:						
Throughput	do.	4,280	4,540	4,910	5,080	5,300
Products:						
Asphalt	do.	241	244	305	381	336
Diesel	do.	1,370	1,300	1,240	1,190	1,220
Fuel oil	do.	186	140	171	247	301
Gasoline	do.	1,130	1,190	1,200	1,120	1,320
Kerosene	do.	327	369	408	313	305
Liquefied petroleum gas	do.	427	441	480	521	552
Naphtha	do.	280	294	320	361	407
Petroleum coke	do.	150	145	154	161	167
Uranium, mine, U content		1,692 r	1,890 e	1,890 e	1,890 e	1,890 e

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

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

[1]Table includes data available through January 9, 2022. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, iodine and a variety of construction stone and sand and gravel may have been produced, but available information was inadequate to make reliable estimates of output.

[3]The copper content of solvent extraction output at the mine level is the same as electrowon refinery output because copper produced in the solvent extraction and electrowinning process is typically reported only at the refinery level.

TABLE 2
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Aluminum:			
Bauxite	Aluminum Corporation of China (Chinalco) (Government, 100%)	Mines in multiple provinces	26,300
Do.	Huayang New Material Technology Group Co. Ltd.	Shanxi, Yangquan	2,200
Do.	Yunnan Wenshan Aluminum Co. Ltd.	Yunnan, Wenshan	3,000
Alumina	Aluminum Corporation of China (Chinalco) (Government, 100%)	Plants in multiple provinces	20,900
Do.	East Hope Group Co. Ltd., of which—		
	Oriental Hope Aluminum Co. Ltd.	Shanxi, Jinzhong, Zuoquan	2,400
Do.	Oriental Hope (Sanmenxia) Aluminum Co. Ltd.	Henan, Sanmenxia, Mianchi	2,200
Do.	Guangxi Huayin Aluminium Industry Co. Ltd.	Guangxi, Baise, Debao	2,200
Do.	Guangxi Tiandong Jinsheng Chemical Co. Ltd. (Hangzhou Jinjiang Group Co. Ltd., 100%)	Guangxi, Baise, Tiandong	1,000
Do.	Huayang New Material Technology Group Co. Ltd.	Shanxi, Yangquan	1,100
Do.	Jingxi Tiangui Aluminum Co. Ltd. (Tianshan Aluminum Co. Ltd., 100%)	Guangxi, Baise, Jingxi	800
Do.	Longkou Donghai Alumina Co. Ltd. (Shandong Nanshan Group Co. Ltd., 100%)	Shandong,Yantai, Longkou	1,400
Do.	Luoyang Xiangjiang Wanji Aluminium Industry Co. Ltd.	Henan, Luoyang, Xin'an	1,400
Do.	Nanchuan Pioneer Alumina Refinery Co. Ltd. (Bosai Minerals Group Co. Ltd., 100%)	Chongqing, Nanchuan, Wenfeng	800
Do.	Shandong Weiqiao Aluminum and Power Co. Ltd. (China Hongqiao Group, 100%)	Shandong, Binzhou, Zouping	15,000
Do.	SPIC Shanxi Aluminum Co. Ltd.	Shanxi, Xinzhou, Yuaping	2,900
Do.	Yunnan Wenshan Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco), 100%]	Yunnan, Wenshan	1,400
Metal	Aluminum Corporation of China (Chinalco) (Government, 100%)	Plants in multiple provinces	4,500
Do.	Bosai Minerals Group Co. Ltd.	Sichuan, Xuankou, Wenchuan	200
Do.	China Hongqiao Group Ltd., of which—		
	Shandong Weiqiao Aluminum and Power Co. Ltd.	Shandong, Binzhou, Zouping	6,500
Do.	Yunnan Hongtai New Material Co. Ltd.	Yunnan, Wenshan	1,000
Do.	East Hope Group Co. Ltd., of which—		
	Baotou Rare Earth Aluminum Industry Co. Ltd.	Nei Mongol, Baotou	860
Do.	Baotou Xinhengfeng Energy Co. Ltd.	do.	500
Do.	Oriental Hope Aluminum Co. Ltd.	Xinjiang, Urumchi	800
Do.	Gansu Dongxing Aluminum Co. Ltd. [Jiuquan Iron and Steel (Group) Co. Ltd., 100%]	Gansu, Lanzhou, Anning	1,350
Do.	Guangxi Xinfa Aluminum Co. Ltd. (Xinfa Aluminium Group Co. Ltd., 100%)	Guangxi, Baise, Jingxi, Dadao	560
Do.	Jiaozuo Wanfang Aluminum Co. Ltd.	Henan, Jiaozuo, Macun	420
Do.	Henan Yugang Longquan Aluminium Co. Ltd.	Henan, Luoyang, Yichuan	600
Do.	Henan Zhongfu Industry Co. Ltd. [Vimetco N.V., 100%]	Henan, Zhengzhou, Gongyi	490
Do.	do.	Henan, Anyang, Linzhou	250
Do.	Huayang New Material Technology Group Co. Ltd.	Shanxi, Yangquan	230
Do.	Jiaozuo Wanfang Aluminum Co. Ltd.	Henan, Jiaozuo, Macun	420
Do.	Luoyang Xiangjiang Wanji Aluminum Industry Co. Ltd.	Henan, Luoyang, Xin'an	580
Do.	Ningxia Power Investment Corp.	Ningxia, Wuzhong, Qingtongxia	990
Do.	Shandong Nanshan Aluminum Co. Ltd.	Shandong, Yantai, Longkou	820
Do.	State Power Investment Corp. Ltd.	Nei Mongol, Tongliao, Holingol	1,050
Do.	do.	Ningxia, Yinchuan, Lingwu	1,050
Do.	do.	Qinghai, Xining, Huangzhong	1,050
Do.	Tianshan Aluminum Co. Ltd.	Xinjiang, Shihezi	1,200
Do.	Yidian Holding Group Co. Ltd.	Henan, Luoyang, Yichuan	840
Do.	Yunnan Hongtai New Material Co. Ltd.	Yunnan, Wenshan, Yanshan	2,030
Do.	Yunnan Shenhuo Aluminium Co. Ltd.	Yunnan, Wenshan	900
Do.	Yunnan Wenshan Aluminium Co. Ltd.	Yunnan, Wenshan	500

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Antimony:				
Mine:				
Ore		Hsikwangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Corp., 100%)	Hunan, Lengshuijiang	600
Concentrate		Hunan Gold Corp. Ltd.	Hunan, Yuanling	8
Metal, including intermediate		Hsikwangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Corp., 100%)	Hunan, Lengshuijiang	40
Do.		Huaxi Group Industrial Co. Ltd.	Guangxi, Hechi	40
Do.		Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Yuanling	20
Do.		Hunan Yuteng Nonferrous Metals Co. Ltd.	Hunan, Chenzhou	5
Do.		Jiyuan Wangyang Smeltery Group Co. Ltd.	Henan, Jiaozuo	10
Arsenic		Chenzhou Chenxi Metal Co. Ltd.	Hunan, Chenzhou	6
Do.		China Arsenic Industries Co. Ltd.	Guangdong, Zhuhai	NA
Do.		Jianghua Jinhui Arsenic Co. Ltd.	Hunan, Chenzhou	3
Do.		Shandong Humon Smelting Co. Ltd.	Shandong, Yantai	NA
Do.		Yangtao Chemical Industry Co. Ltd.	Hunan, Chenzhou	3
Asbestos		China National Nonmetallic Industry Corp.	Nei Mongol, Baotou; Shanxi, Lai Yuan, and Lu Liang	130
Barite		9X Minerals LLC	Guizhou, Dejiang	60
Do.		China National Nonmetallic Industry Corp.	Guizhou, Xiangshou	NA
Do.		Guizhou Saboman Import & Export Co. Ltd.	Guizhou, Guiding	1,000
Beryllium:				
Metal	metric tons	Fuyun Hengsheng Beryllium Industry Co. Ltd. [Xinjiang Nonferrous Metal Industry (Group) Co. Ltd.]	Xinjiang, Fuyun	2
Do.	do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd.	Hunan, Hengyang, Changning	5
Oxide	do.	Fuyun Hengsheng Beryllium Industry Co. Ltd. [Xinjiang Nonferrous Metal Industry (Group) Co. Ltd.]	Xinjiang, Fuyun	100
Do.	do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd.	Hunan, Hengyang, Changning	150
Do.	do.	Northwest Institute of Rare Metal Materials Ningxia Co. Ltd. [CNMC (Ningxia) Oriental Group Co. Ltd.]	Ningxia, Shizuishan, Dawukou	NA
Bismuth, metal	do.	Chinalco Yunnan Copper Group Co. Ltd.	Nei Mongol, Chifeng	300
Do.	do.	Guangzhou Smelter Co. Ltd. (China Great Wall Aluminium Industry Co. Ltd.)	Guangdong, Guangzhou	300
Do.	do.	Hunan Bismuth Industry Co. Ltd.	Hunan, Chouzhou	3,500
Do.	do.	Hunan Jinwang Bismuth Industry Co. Ltd.	do.	8,000
Do.	do.	Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	do.	Shizhuyuan Nonferrous Metals Co. Ltd.	Hunan, Shizhuyuan	1,200
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	350
Boron, ore		Liaoning Dashiqiao Maolong Boron Industry Co. Ltd.	Liaoning, Dashiqiao	70
Do.		Liaoning Jinma (Kuandian) Boron Mine Co. Ltd.	Liaoning, Dandong	40
Do.		Qinghai Zhongtian Boron-Lithium Mining Co. Ltd.	Qinghai, Haixi	300
Cadmium, refinery, primary	metric tons	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	800
Do.	do.	Zhuye Torch Metals Co. Ltd.	Hunan, Zhuzhou	1,000
Cement		Anhui Conch Cement Co. Ltd.	Auhui, Wuhu	369,000
Do.		Asia Cement (China) Holding Corp.	Jiangxi, Ruichang	37,200
Do.		BBMG Corp.	Beijing	170,000
Do.		China Building Materials Group Co. Ltd.	do.	514,000
Do.		China Resources Cement Holdings Ltd.	Southern China	85,300
Do.		China Shanshui Cement Group Ltd. (Sunnsy Group)	Shandong, Jinan, Changqing	103,000
Do.		Gezhouba Group Cement Co. Ltd. (GGCC)	Hubei, Wuhan	17,500
Do.		Henan Tongli Cement Co. Ltd.	Henan, Zhengzhou	12,000
Do.		Hongshi Holding Group Co. Ltd.	Zhejiang, Jinhua	100,000

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Cement—Continued		Huaxin Cement Co. Ltd. (Holcim Group, 41.8%, and others, 58.2%)	Hubei, Huangshi	115,000
Do.		Jiangsu Jinfeng Cement Group Co. Ltd.	Jiangsu, Changzhou, Liyang	31,000
Do.		Jiangxi Wannianqing Cement Co. Ltd.	Jiangxi, Shangra, Wannin	26,000
Do.		Jilin Yatai Group Co. Ltd.	Jilin, Changchun	20,000
Do.		Shandong Shanshui Cement Group Co. Ltd.	Shandong, Jinan	50,300
Do.		Sichuan Esheng Cement Co. Ltd.	Sichuan, Emeishan, Jiuli	25,000
Do.		Taiwan Cement Corp.	Zhejiang, Hangzhou	75,000
Do.		Tangshan Jidong Cement Co. Ltd.	Hebei, Tangshan	105,000
Do.		Tianrui Group Cement Co. Ltd.	Henan, Ruzhou	56,400
Do.		Xinjiang Qingsong Building Material Chemical Co. Ltd.	Xinjiang, Aksu	16,000
Do.		Yaobai Special Cement Group Co. Ltd.	Shaanxi, Xi'an	20,000
Do.		Yunnan Cement Building Materials Group Co. Ltd.	Yunnan, Kunming	16,000
Do.		West China Cement Ltd.	Shaanxi, Xi'an, Changan	19,600
Chromium, chromite		Tibet Mineral Devevelopment Co. Ltd. (Baowu Group, 100%)	Xizang, Qusong	130
Clay, kaolin		Longyan Kaolin Co. Ltd.	Fujian, Longyan	600
Do.		Shaoguan Junyu Kaolin Co. Ltd.	Guangdong, Shaoguan	50
Do.		Yankuang Beihai Kaolin Co. Ltd.	Guangxi, Beihai	300
Do.		Yunnan Xishuangbanna Wanxiang Mining Co. Ltd.	Yunnan, Jinghong	50
Coal		China Coal Energy Co. Ltd. (China National Coal Group)	Mines in Nei Mongol, Shanxi, Jiangsu and other provinces	115,000
Do.		Datong Coal Mine Group Co. Ltd.	Shanxi, Datong	180,000
Do.		Henan Energy and Chemical Industry Group Co. Ltd.	Henan, Zhengzhou	80,700
Do.		Jinneng Group Co. Ltd.	Shanxi, Datong	92,200
Do.		Jizhong Energy Group Co. Ltd.	Hebei, Handan	75,400
Do.		Kailuan (Group) Co. Ltd.	Hebei, Tangshan	24,800
Do.		National Energy Investment Group Co. Ltd.	Mines in Nei Mongol, Xinjiang, and other provinces	515,000
Do.		Shaanxi Coal and Chemical Industry Group Co. Ltd.	Shaanxi, Chengcheng	178,000
Do.		Shandong Energy Group Co. Ltd.	Shandong, Jinan	111,000
Do.		Shanxi Coking Coal Energy Group Co. Ltd.	Shanxi, Taiyuan	105,000
Do.		Shanxi Lu'an Mining Group Co. Ltd.	Shanxi, Changzhi	83,500
Do.		Yangquan Coal Industry Group Co. Ltd.	Shanxi, Yangquan	83,800
Do.		Yanzhou Coal Mining Co. Ltd.	Shandong, Jining	166,000
Cobalt, Co content:				
Mine	metric tons	Hainan Mining Co. Ltd.	Hainan, Changjiang	110
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang, Jinchuan	2,300
Do.	do.	Shandong Jinling Mining Co. Ltd.	Shandong, Yantai, Zhaoyuan	110
Do.	do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	100
Refined	do.	Anhui Hanrui New Materials Co. Ltd. (Nanjing Hanrui Cobalt Co. Ltd., 100%)	Anhui, Chuzhou, Langya	3,000
Do.	do.	CNGR Advanced Materials Co. Ltd.	Guizhou, Tongren	17,000
Do.	do.	Ganzhou Tengyuan Cobalt New Material Co. Ltd.	Jiangxi, Ganzhou, Ganxian	6,500
Do.	do.	Ganzhou YiHao Umicore Industries Co. Ltd.	Jiangxi, Ganzhou, Zhanggong	6,000
Do.	do.	GEM (Jiangsu) Cobalt Industry Co. Ltd. (GEM Co. Ltd., 100%)	Jiangsu, Taizhou, Taixing	15,000
Do.	do.	GEM (Wuxi) Energy Materials Co. Ltd. (GEM Co. Ltd., 100%)	Jiangsu, Wuxi, Xinwu	15,000
Do.	do.	Greatpower Nickel and Cobalt Materials Co. Ltd. (Greatpower Jinchuan Advanced Battery Materials Corp.)	Zhejiang, Shaoxing, Shangyu	7,000
Do.	do.	Guangdong Jiana Energy Technology Co. Ltd.	Guangdong, Qingyuan, Yingde	10,000
Do.	do.	Hefei Rongjie Metal Technology Co. Ltd.	Anhui, Hefei	4,500
Do.	do.	Hunan Jinyuan New Material Ltd.	Hunan, Yiyang, Anhua	4,000
Do.	do.	Jiangsu Huayou Energy Technology Co.	Jiangsu, Nanjing, Jiangning	38,000
Do.	do.	Lanzhou Jinchuan Advanced Materials Technology Co. Ltd. (Jinchuan Group Co. Ltd., 100%)	Gansu, Lanzhou, Heping	12,000

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Cobalt, Co content:—Continued				
Refined—Continued	metric tons	Nantong Xinwei Nickel and Cobalt Hightech Development Co. Ltd.	Jiangsu, Nantong, Haimen	2,000
Do.	do.	Quzhou Huayou Cobalt New Material Co. Ltd.	Zhejiang, Quzhou, Kecheng	39,000
Do.	do.	Tianjin Maolian Technology Co. Ltd. (Beijing Hezong Science & Technology Co. Ltd., 100%)	Tianjin, Binhai, Nangang	4,800
Do.	do.	Yantai Kaishi Industrial Co. Ltd.	Shandong, Yantai, Zhifu	4,000
Do.	do.	Zhejiang New Era Zhongneng Recycling Technology Co. Ltd.	Zhejiang, Shaoxing, Shangyu	10,000
Do.	do.	Zhongwei New Materials Co. Ltd.	Hunan, Changsha, Ningxiang	6,000
Do.	do.	Zhuhai Kelixin Metal Material Co. Ltd. (Chengtun Mining Group Co. Ltd., 100%)	Guangdong, Zhuhai, Jinwan	4,000
Coke, metallurgical		China Risun Coal Chemicals Group Ltd.	Beijing	5,680
Do.		Hebei Kailuan Energy Chemical Co. Ltd.	Hebei, Tangshan	4,270
Do.		Heilongjiang Baotailong New Material Co. Ltd.	Heilongjiang, Qitaihe	1,580
Do.		Shaanxi Heimao Coking Co. Ltd.	Shaanxi, Hancheng	3,240
Do.		Shandong Jinneng Technology Co. Ltd.	Shandong, Qihe	2,300
Do.		Shanxi Antai Group Co. Ltd.	Shanxi, Jinzhong	1,800
Do.		Shanxi Coking Co. Ltd.	Shanxi, Taiyuan	3,600
Do.		Shanxi Meijin Energy Co. Ltd.	do.	5,040
Do.		Yunnan Coal Energy Co. Ltd.	Yunnan, Kunming	1,980
Copper:				
Mine, Cu content		Anhui Tongling Nonferrous Metals Group Co. Ltd.	Anhui, Anqing	47
Do.		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	30
Do.		China Daye Non-Ferrous Metals Mining Ltd.	Hubei, Huangshi	26
Do.		China Gold International Resources Corp. Ltd.	Central Xizang	80
Do.		China National Gold Group Corp.	Xinjiang, Wunuketushan	61
Do.		China Nonferrous Metal Mining (Group) Co. Ltd.	Liaoning, Manchu	10
Do.		Chinalco Yunnan Copper Group Co. Ltd.	Yunnan, Kunming	113
Do.		Gansu Yangba Copper Industry Co. Ltd.	Gansu, Yangba	20
Do.		Guangdong Rising Assets Management Co. Ltd.	Guangdong, Shaoguang	10
Do.		Heilongjiang Liujiu Mining Co. Ltd.	Heilongjiang, Longjiang	22
Do.		Hubei Jiuzhou Mining Co. Ltd.	Hubei, Daye	10
Do.		Hubei Sanxin Gold and Copper Co. Ltd.	do.	14
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Dexing	255
Do.		Jinchuan Group Co. Ltd.	Gansu, Jinchang	10
Do.		Shanxi Zhongtiaoshan Nonferrous Metal Group Co. Ltd.	Shanxi, Zhongtiaoshan	30
Do.		Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling	16
Do.		Western Mining Co. Ltd.	Jiangxi, Changdu	125
Do.		do.	Qinghai, Xining	13
Do.		Western Mining Co. Ltd., 58%, and Zijin Copper Co. Ltd., 22%	Xizang, Changdu, Jiangda	130
Do.		Xinjiang Ashele Copper Co. Ltd.	Xinjiang, Habahe	50
Do.		Yunnan Copper Co. Ltd.	Xinjiang, Yizhou, Hami	16
Do.		Yunnan Diqing Nonferrous Metals Co. Ltd.	Yunnan, Diqing	20
Do.		Yuxi Resources Corp.	Yunnan, Yuxi	10
Do.		Zijin Mining Group Co. Ltd.	Jilin, Hunchun	10
Refined		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	400
Do.		Chifeng Jinfeng Copper Co. Ltd.	Yunnan, Kunming, Wuhua	400
Do.		Chifeng Yunnan Copper Nonferrous Metals Co. Ltd.	Nei Mongol, Chifeng, Harqin	400
Do.		Chinalco Luoyang Copper Processing Co. Ltd.	Henan, Luoyang, Jianxi	400
Do.		Daye Nonferrous Metals Co. Ltd.	Hubei, Huangshi, Xialu	600
Do.		Guangxi Nanguo Copper Industry Co. Ltd.	Guangxi, Chongzuo, Fusui	700
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Yingtan, Guixi	1,100
Do.		Jinchuan Group Co. Ltd.	Gansu, Jinchang, Jinchuan	600
Do.		do.	Guangxi, Fangchenggang	400
Do.		Shandong Dongying Fangyuan Nonferrous Metals Co. Ltd.	Shandong, Dongying, Dongying	700

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Copper:—Continued			
Refined—Continued	Tianjin Datong Copper Co. Ltd.	Tianjin	200
Do.	Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling, Yi'an	200
Do.	do.	Anhui, Tongling, Tongguang	450
Do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group Co. Ltd.)	Shandong, Liaocheng, Yanggu	400
Do.	Zhangjiagang United Copper Co. (Tongling Nonferrous Metals Group Holding Co. Ltd.)	Jiangsu, Zhangjiagang	300
Do.	Zhongjin Gold Corp. Ltd. (China National Gold Group Co. Ltd.)	Henan, Sanmenxia, Hubin	350
Do.	Zijin Copper Co. Ltd. (Zijin Mining Group Co. Ltd.)	Fujian, Shanghang	300
Ferroalloys:			
Ferrochromium	Anyang Hongyan Ferroalloys Co. Ltd.	Henan, Anyang, Long'an	100
Do.	Fengzhen Xintai New Material Technology Co. Ltd. (Xinganglian Metallurgical Co. Ltd.)	Nei Mongol, Ulanqab, Fengzhen	500
Do.	Hebei Taiheng Special Steel Co. Ltd.	Hebei, Cangzhou	430
Do.	Huade County Zhongtai Ferronickel Co. Ltd.	Nei Mongol, Huade	600
Do	Inner Mongolia Kehan Metallurgy Co. Ltd.	Nei Mongol, Ulanqab, Fengzhen	120
Do.	Inner Mongolia Ulanqab Xufeng Xinchuang Industrial Co. Ltd. (Henan Xibao Metallurgical Materials Group Co. Ltd.)	Nei Mongol, Ulanqab	550
Do	Inner Mongolia Xintaiyuan New Material Co. Ltd.	Nei Mongol, Fengzhen	500
Do.	Jiangxian Mingmaite Co. Ltd.	Shanxi, Yuncheng, Jiang	170
Do.	Mintal Group Cleantech Decelopment Co. Ltd.	Nei Mongol, Baotou	650
Do.	Ningxia Tianjing Manganese Industry Group Co. Ltd.	Ningxia, Zhongwei, Zhongning	360
Do.	Qinghai Tianyi Metallurgy Co. Ltd.	Qinghai, Xining, Huangzhong	290
Do.	Shanxi Jiang County Minmetal Co. Ltd	Shanxi, Yuncheng, Jiang	350
Do.	Shanxi Taigang Wanbang Furnace Charge Co. Ltd.	Shanxi, Jinzhong, Yuci	300
Do.	Sichuan Ehui Group	Nei Mongol, Fengzhen	170
Do.	Sichuan Leshan Xinhe Electric Power Comprehensive Development Co. Ltd.	Sichuan, Leshan, Jinkouhe	150
Do.	Sichuan Mingda Ebian Alloy Co. Ltd.	Sichuan, Leshan, Ebian	110
Do.	Sichuan Yingjing Yiming Special Alloy Co. Ltd.	Sichuan, Ya'an, Yingjing	100
Do.	Sichuan Yuanda Juhua Industrial Co. Ltd.	Sichuan, Chengdu	230
Do.	Ulanqab Xiongwei Guangda New Material Co. Ltd.	Nei Mongol, Ulanqab, Huade	200
Do.	Yihui Group Co. Ltd.	Sichuan, Chengdu	220
Ferromanganese	CITIC Dameng Mining Co. Ltd.	Guangxi, Chongzuo, Daxin	300
Do.	CITIC Jinzhou Metal Co. Ltd. (CITIC United Asia Investments Ltd., 82.82%)	Liaoning, Jinzhou, Taihe	150
Do.	Guangxi Ferroalloy Co. Ltd.	Guangxi, Laibin	60
Do.	Guangxi Guikang New Materials Co. Ltd.	Guangxi, Guilin, Lingchuan	120
Do.	Guangxi Qinzhou Hengxing Manganese Industry Co. Ltd.	Guangxi, Qinzhou	70
Do.	Henan Xibao Metallurgical Materials Group Co. Ltd.	Henan, Nanyang, Xixia	150
Do.	Inner Mongolia Chayouqianqi Mengfa Ferroalloy Co. Ltd.	Nei Mongol, Ulanqab	310
Do.	Inner Mongolia Ulanqab Xufeng Xinchuang Industrial Co. Ltd. (Henan Xibao Metallurgical Materials Group Co. Ltd.)	Nei Mongol, Ulanqab	240
Do.	Jiaocheng Yiwang Ferroalloy Co. Ltd.	Shanxi, Jiaocheng	220
Do.	Lingqiu County Jinyu Ferroalloy Co. Ltd.	Shanxi, Lingqiu	80
Do.	Minmetal Hunan Ferroalloy Co. Ltd.	Nei Mongol	110
Do.	Ningxia Shengyan Industrial Group Fuhua Metallurgical Co. Ltd.	Ningxia, Yinchuan	240
Do.	Qinzhou City Jincheng Manganese Industry Co. Ltd.	Guangxi, Qinzhou	50
Do.	Shandong Shengrong New Material Co. Ltd.	Shandong, Heze	80
Do.	Sichuan Chuantou Emei Ferroalloy (Group) Co. Ltd.	Sichuan, Leshan, Emeishan	240
Do.	Shanxi Dongfang Resources Development Co. Ltd.	Shanxi, Yuncheng, Jishan	600
Do.	Ulanqab Xiongwei Guangda New Materials Co. Ltd.	Nei Mongol, Ulanqab	120
Do.	Yunnan Wenshan Dounan Manganese Industry Co. Ltd.	Yunnan, Yanshan	210

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Ferroalloys:—Continued			
Ferromolybdenum	Beipiao Wanhong Molybdenum Industry Co. Ltd.	Liaoning, Chaoyang, Beipiao	15
Do.	Chaoyang Jinda Molybdenum Industry Co. Ltd.	Liaoning, Chaoyang	20
Do.	China Molybdenum Co. Ltd.	Henan, Luoyang, Luanchuan	25
Do.	Deyang Yuanjian Ferroalloy Co. Ltd.	Sichuan, Deyang	19
Do.	Huludao Wanfeng Metal Co. Ltd.	do.	12
Do.	Jinduicheng Molybdenum Industry Co. Ltd.	Shaanxi, Weinan, Huazhou	32
Do.	Jinzhou Xinghe Metal Co. Ltd.	Liaoning, Jinzhou	9
Do.	Liaoning Xinhualong Dayou Molybdenum Industry Co. Ltd.	Liaoning, Jinzhou, Linghai	15
Do.	Liaoning Xintai Molybdenum Industry Co. Ltd.	Liaoning, Jinzhou, Yixian	20
Do.	Linghai Hengtai Molybdenum Industry Co. Ltd.	Liaoning, Linghai, Shuangyang	15
Ferronickel, nickel pig iron, average 9.2% Ni content	Baosteel Desheng Stainless Steel Co. Ltd. (Baowu Group)	Fujian, Fuzhou, Luoyuan	1,200
Do.	Fujian Dingxin Nickel Industry Co. Ltd.	Fujian, Fu'an,Wuwan	1,120
Do.	Guangdong Century Qingshan Nickel Industry Co. Ltd.	Guangdong, Yangjiang	210
Do.	Guangdong Guangqing Metal Technology Co. Ltd.	do.	2,300
Do.	Guangxi Beigang New Material Co. Ltd. (Guangxi Chengde Group Co. Ltd.)	Guangxi, Beihai, Tieshangang	1,500
Do.	Huaxiao Stainless Steel Corporation Ltd., of which—		
	Fujian Dingxin Nickel Industry Co. Ltd.	Fujian, Fu'an	1,120
Do.	Henan Jinhui Stainless Steel Co. Ltd.	Henan, Xuchang,Changge	570
Do.	Inner Mongolia Heyi Nickel-Chrome Composite Co. Ltd.	Nei Mongol, Tongliao, Naiman	210
Do.	Inner Mongolia Huade Wuzhou Steel Co. Ltd.	Nei Mongol, Wulanqab, Huade	120
Do.	Inner Mongolia Shuofeng Industry Co. Ltd.	Nei Mongol, Fengzhen, Fuhua	120
Do.	Jiangsu Delong Nickel Industry Co. Ltd.	Jiangsu, Yangcheng, Xiangshui	1,050
Do.	Jiangsu Suqian Huiran Industrial Co. Ltd. (Ningbo Lygend Group)	Jiangsu, Suqian	180
Do.	Liaoning Guorun Metal Group Co. Ltd.	Liaoning, Yingkou, Shagang	140
Do.	Liaoning Shengyun Industry Development Co. Ltd.	Liaoning, Yingkou, Dashiqiao	150
Do.	Liaoning Treasure Platinum Technology Co. Ltd.	Liaoning, Liaoyang, Liuerbao	140
Do.	Shandong Xinhai Technology Co. Ltd.	Shandong, Linyi	1,900
Do.	Suqian Xiangxiang Industryal Co. Ltd. (Ningbo Lygend Group)	do.	120
Do.	Yangjiang Yichuan Metal Science and Technology Co. Ltd.	Guangdong, Yangjiang, Gangkou	150
Do.	Yangzhou Yichuan Nickel Indsutry Co. Ltd.	Jiangsu, Yangzhou, Lidian	210
Ferrosilicon	Blue Star Silicon Materials Co. Ltd. [China National Chemical Corp. Ltd. (ChemChina), 79.5%]	Gansu, Lanzhou, Zhongbao	NA
Do.	Gansu Hongyu Ferroalloy Co. Ltd.	Gansu, Baiyin, Jingtai	100
Do.	Inner Mongolia Erdos Resources Co. Ltd.	Nei Mongol, Erdos, Otog	1,600
Do.	Inner Mongolia Junzheng Energy & Chemical Co. Ltd.	Nei Mongol, Wuhai	300
Do.	Ningxia Sanyuan Zhongtai Metallurgical Co. Ltd.	Ningxia, Zhongwei, Shapotou	214
Do.	Ningxia Tianjing Manganese Industry Group Co. Ltd.	Ningxia, Zhongwei, Zhongning	440
Do.	Ningxia Xinhua Industrial Group Co. Ltd.	Ningxia, Zhongwei	110
Do.	Ningxia Zhongwei Maoye Metallurgical Co. Ltd.	Ningxia, Zhongwei, Shapotou	113
Do.	Ningxia Zhongwei Yinhe Smelting Co. Ltd.	do.	117
Do.	Qinghai Belden High Purity Materials Development Co. Ltd.	Qinghai, Xining	150
Do.	Qinghai Huadian Ferroalloy Co. Ltd.	Qinghai, Xining, Huangyuan	310
Do.	Qinghai Kaiyuan Metal Materials Co. Ltd.	Qinghai, Xining	96
Do.	Qinghai Tongli Ferroalloys Co. Ltd.	Qinghai, Haidong, Lebu	100
Do.	Qinghai Wutong (Group) Industry Co. Ltd.	Qinghai, Xining, Chengbei	300
Do.	Qinzhou City Jincheng Manganese Industry Co. Ltd.	Guangxi, Qinzhou	50
Do.	Sichuan Chuantou Emei Ferroalloy (Group) Co. Ltd.	Sichuan, Emei	100
Do.	Sichuan Leshan Xinhe Electric Power Comprehensive Development Co. Ltd.	Sichuan, Leshan, Jinhe	65
Do.	Tengda Xibei Ferroalloy Co. Ltd.	Gansu, Lanzhou, Yongdeng	250

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Ferroalloys:—Continued			
Ferrotitanium	Hebei Jindu Ferroalloy Group Co. Ltd.	Hebei, Xingtai, Qinghe	3
Do.	Jinzhou Hengli Ferroalloy Co. Ltd.	Liaoning, Jinzhou, Guta	4
Do.	Jinzhou Hengtai Special Alloy Co. Ltd.	Liaoning, Jinzhou, Taihe	6
Ferrotungsten	Fujian Ganman Rare Metals Co. Ltd.	Fujian, Longyan	5
Do.	Ganzhou Jiangwu Ferrotungsten Co. Ltd. [Jiangxi Tungsten Industry Group Co. Ltd. (JWYX)]	Jiangxi, Ganzhou	6
Do.	Hunan Chuangda Vanadium Tungsten Co. Ltd. (HCVT)	Hunan, Hengyang, Hengdong	14
Do.	Hunan Litian High-tech Materials Co. Ltd.	Hunan, Yiyang	2
Ferrovanadium	Chaoyang Boyuan Metal Industry Co. Ltd.	Liaoning, Chaoyang	3
Do.	HBIS Chengde Iron & Steel Co. (HBIS Chengsteel)	Hebei, Chengde	6
Do.	Jiangxi Yonsheng Mining and Metallurgy Co. Ltd.	Jiangxi, Xinyu	2
Do.	Jinzhou Guangda Ferroalloy Co. Ltd.	Liaoning, Jinzhou, Guta	3
Do.	Jinzhou Xinrong Vanadium Industry Co. Ltd.	do.	2
Do.	Jinzhou Xinwanbo Metal Materials Co. Ltd.	Liaoning, Jinzhou	4
Do.	Liaoning Huatai Metal Industry Co. Ltd.	Liaoning, Chaoyang	2
Do.	Pangang Group Vanadium and Titanium Resources Co. Ltd.	Sichuan, Panzhihua	6
Do.	Pangang Group Xichang Steel & Vanadium Co. Ltd.	Sichuan, Xichang, Jingjiu	16
Do.	Yingkou Shengdong Refractories Co. Ltd.	Liaoning, Yingkou	2
Silicomanganese	Chahar Right Front Banner Tengfei FerroAlloy Co. Ltd.	Nei Mongol, Uulanqab	230
Do.	Chongqing Dalang Metallurgical New Materials Co. Ltd. (Bosai Group, 78%, and Fuling Nengyuan Shiye Group, 22%)	Chongqing, Fuling, Qingxi	500
Do.	CITIC Dameng Mining Co. Ltd.	Guangxi, Chongzuo, Daxin	300
Do.	CITIC Jinzhou Metal Co. Ltd. (CITIC United Asia Investments Ltd., 82.82%)	Liaoning, Jinzhou, Taihe	100
Do.	Dushan Hengxing Ferroalloy Co. Ltd	Guizhou, Qiannan, Dushan	120
Do.	Guangxi Baise Bisheng Mining. Co. Ltd.	Guangxi, Baise	200
Do.	Guangxi Ferroalloy Co. Ltd.	Guangxi, Laibin	300
Do.	Guangxi Guikang New Materials Co. Ltd.	Guangxi, Guilin, Lingchuan	80
Do.	Guangxi Jinmeng Manganese Industry Co. Ltd., of which—		
	Cengong Jinmeng Manganese Industry Co. Ltd.	Guizhou, Cengong	130
Do.	Dushan Jinmeng Manganese Industry Co. Ltd.	Guizhou, Dushan, Mawei	500
Do.	Guangxi Yizhou Jinmeng Manganese Industry Co. Ltd.	Guangxi, Hechi, Yizhou	135
Do.	Qinzhou City Jincheng Manganese Industry Co. Ltd.	Guangxi, Qinzhou	150
Do.	Guikang New Materials Co. Ltd.	Guangxi, Guilin, Lingchuan	NA
Do.	Guangxi Tiandong Shengjin New Materials Co. Ltd.	Guangxi, Tiandong	340
Do.	Guizhou Jinyuan Suiyang Industry Co. Ltd.	Guizhou, Zunyi	280
Do.	Huade Tiancheng Ferroalloys Co. Ltd.	Nei Mongol, Ulanqab, Huade	200
Do.	Inner Mongolia Chayouqianqi Mengfa Ferroalloy Co. Ltd.	Nei Mongol, Ulanqab	85
Do.	Inner Mongolia Erdos Resources Co. Ltd.	Nei Mongol, Erdos, Dongsheng	500
Do.	Inner Mongolia Puyuan Ferroalloys Co. Ltd.	Nei Mongol, Ulanqab, Fengzhen	255
Do.	Inner Mongolia Ruihao New Material Technology Co. Ltd.	Nei Mongol, Xilingol, Zhurihe	300
Do.	Inner Mongolia Ulanqab Xufeng Xinchuang Industrial Co. Ltd.	Nei Mongol, Ulanqab	240
Do.	Inner Mongolia Xinchuang Metallurgical Co. Ltd.	do.	550
Do.	Jilin Ferroalloy Co. Ltd.	Jilin, Jilin, Changyi	350
Do.	Minmetal Hunan Ferroalloy Co. Ltd.	Nei Mongol	180
Do.	Ningxia Jiacheng Metallurgy & Chemical Co. Ltd.	Ningxia, Yinchuan	120
Do.	Ningxia Jiyuan Metallurgical Group Co. Ltd.	Ningxia, Shizuishan	380
Do.	Ningxia Pingluo Wanshun Metal and Chemical Co. Ltd.	Ningxia, Shizuishan, Pingluo	300
Do.	Ningxia Shengyan Industrial Group Fuhua Metallurgical Co. Ltd.	Ningxia, Yinchuan	650
Do.	Shizuishan Huiyi Metallurgical Industry and Trade Co. Ltd.	Ningxia, Shizuishan	350
Do.	Sichuan Chuantou Emei Ferroalloy (Group) Co. Ltd.	Sichuan, Leshan, Emeishan	100
Do.	Ulanqab Xiongwei Guangda New Materials Co. Ltd.	Nei Mongol, Ulanqab	120
Do.	Zhuhai SEZ Fangyuan Inc.	6 plants in Guangxi, Jingxi	130

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Gas, natural	million cubic meters	China National Offshore Oil Corp. (CNOOC)	Offshore fields at Bohai, East China Sea, and South China Sea	9,000
Do.	do.	China National Petroleum Corp. (CNPC) (aka, PetroChina Ltd.)	Nei Mongol, Qinghai, Sichuan, and Xinjiang	110,000
Do.	do.	China Petroleum & Chemical Corp. (Sinopec Corp.)	Nei Mongol, Sichuan, and other provinces	28,000
Gas, liquefied natural gas		Inner Mongolia Xingsheng Natural Gas Co. Ltd.	Nei Mongol, Erdos	500
Do.		Shaanxi Zhongyuan Green Energy Natural Gas Co. Ltd.	Shaanxi, Yulin	810
Do.		Xinjiang Guanghui New Energy Co. Ltd.	Xinjiang, Hami	550
Germanium	metric tons	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	30
Do.	do.	Nei Mongol Xilingol Tongli Germanium Industry Co. Ltd.	Nei Mongol, Xilinhot	20
Do.	do.	Shanghai Lontai Copper Co. Ltd.	Shanghai	10
Do.	do.	Shenzhen Nonfemet Co. Ltd.	Guangdong, Shaoguan	30
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	60
Do.	do.	Yunnan Lincang Xinyuan Germanium Industrial Co. Ltd.	Yunnan, Lincang	50
Gold:				
Mine, Au content	kilograms	China National Gold Group Co. Ltd.	Henan, Lingbao	20,200
Do.	do.	Hunan Gold Corp. Ltd.	Hunan, Huaihua, Yuanling	36,000
Do.	do.	Jiangxi Copper Corp. Ltd.	Jiangxi, Dexing	6,000
Do.	do.	Lingbao Gold Group Co. Ltd.	Xinjiang, Altay, Habahe	1,600
Do.	do.	do.	Henan, Nanyang, Tongbai	1,900
Do.	do.	Shandong Gold Mining Co. Ltd.	Shandong, Jinan	29,700
Do.	do.	Shandong Zhongkuang Group Co. Ltd.	Shandong, Yantai	5,000
Do.	do.	Western Region Gold Co. Ltd. [Xinjiang Nonferrous Metal Industry (Group) Co. Ltd., 56.5%, and others 43.5%]	Xinjiang, Hami, Yizhou;	700
Do.	do.	do.	Xinjiang, Yili, Ghulja	2,700
Do.	do.	Xinjiang Nonferrous Metal Industry (Group) Co. Ltd.	Xinjiang, Yili, Ghulja	2,000
Do.	do.	Yintai Gold Co. Ltd.	Nei Mongol, Xilingol	5,300
Do.	do.	Zhaojin Mining Industry Co. Ltd.	Shandong, Yantai, Zhaoyuan	10,400
Do.	do.	Zhongjin Gold Corp. Ltd.	Beijing	15,300
Do.	do.	Zijin Mining Group Co. Ltd.	Fujian, Shanghang	15,200
Refined	metric tons	China National Gold Group Jiapigou Mining Co. Ltd.	Jilin, Huadian	NA
Do.	do.	Daye Nonferrous Metals Co. Ltd.	Hubei, Huangshi	20
Do.	do.	Dongwu Gold Group Co. Ltd.	Jiangsu, Suzhou	50
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu	100
Do.	do.	Guangdong Jinding Gold Co. Ltd.	Guangdong, Gaoyao	5
Do.	do.	Henan Yuguang Gold & Lead Co. Ltd.	Henan, Jiyuan	7
Do.	do.	Henan Zhongyuan Gold Smelter LLC	Henan, Sanmenxia	36
Do.	do.	Heraeus Precious Metal Technology (China) Co. Ltd.	Jiangsu, Nanjing	NA
Do.	do.	Huadian Gold Co. Ltd.	Jilin, Huadian	NA
Do.	do.	Hunan Chenzhou Mining Co. Ltd.	Hunan, Huaihua	50
Do.	do.	Inner Mongolia Qiankun Gold and Silver Refining Co. Ltd.	Nei Mongol, Hohhot	NA
Do.	do.	Jiangxi Copper Corp. Ltd.	Jiangxi, Yintan, Guixi	40
Do.	do.	Lingbao Gold Group Co. Ltd.	Henan, Luoyang	14
Do.	do.	Lingbao Jinyuan Tonghui Refinery Co. Ltd.	Henan, Lingbao	36
Do.	do.	Luoyang Zijin Yinhui Gold Refinery Co. Ltd. (Zijin Mining Group Co. Ltd.)	Henan, Luoyang	57
Do.	do.	Metalor Precious Metals (Suzhou) Co. Ltd.	Jiangsu, Suzhou	NA
Do.	do.	Shaanxi Gold Group Xi'an Qinjin Co. Ltd.	Shaanxi, Xi'an	NA
Do.	do.	Shandong Gold Smelting Co. Ltd.	Shandong, Yantai	NA
Do.	do.	Shandong Humon Smelting Co. Ltd.	do.	50
Do.	do.	Shandong Zhaojin Gold & Silver Refining Co. Ltd.	Shandong, Zhaoyuan	200
Do.	do.	Shenzhen Cuilu Gold Refinery Co. Ltd.	Guangdong, Shenzhen	NA

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Gold:—Continued				
Refined—Continued	metric tons	Shenzhen Dianjin Precious Metal Refining Co. Ltd.	do.	NA
Do.	do.	Shenzhen Zhonghenglong Industrial Co. Ltd.	Guangdong, Shenzhen	150
Do.	do.	Sichuan Tianze Precious Metals Co. Ltd.	Sichuan, Chengdu	150
Do.	do.	Soochow Gold Group Co. Ltd.	Jiangsu, Suzhou	NA
Do.	do.	Tongling Nonferrous Metals Group Co. Ltd.	Anhui, Tongling	NA
Do.	do.	Urumqi Tianshan Star Precious Metal Smelting Co. Ltd. (Xinjiang Xinxin Mining Industry Co. Ltd.)	Xinjiang, Urumqi	NA
Do.	do.	Yanggu Xiangguang Copper Industry Co. Ltd.	Shandong, Yanggu, Shifo	NA
Do.	do.	Yantai Guoda Precious Metal Smelting Co. Ltd.	Shandong, Zhaoyuan	10
Do.	do.	Yantai Penggang Gold Industry Co. Ltd.	Shandong, Penglai	NA
Do.	do.	Yuguang Gold & Lead Co. Ltd.	Henan, Jiyuan, Tiantan	9
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	130
Do.	do.	Yunnan Copper Industry Co. Ltd.	Yunnan, Kunming	NA
Do.	do.	Yunnan Gold and Mining Group Co. Ltd.	Yunnan, Qujing	NA
Do.	do.	Zhaoyuan Gold Smelter Co. Ltd. (Shandong Zhaojin Group)	Shandong, Zhaoyuan	15
Do.	do.	Zhejiang Fuye Group Co. Ltd.	Zhejiang, Fuye	12
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	NA
Do.	do.	Zijin Mining Group Gold Smelting Co. Ltd.	Fujian, Longyan, Shanghang	154
Graphite		Hensen Graphite Co. Ltd.	Heilongjiang, Jiangsu and Nei Mongol	30
Do.		Jixi Aoyu Graphite Co. Ltd.	Heilongjiang, Jixi	100
Do.		Jixi Liumao Graphite Resources Co. Ltd.	do.	80
Do.		Luobei Haida Graphite Co. Ltd.	Heilongjiang, Hegang	NA
Do.		Nei Mongol Xinghe Jingxin Graphite Co. Ltd.	Nei Mongol, Xinghe	10
Do.		Qingdao Haida Graphite Co. Ltd.	Shandong, Qingdao, Pingdu	60
Do.		Qingdao Yanxin Graphite Products Co. Ltd.	Shandong, Qingdao	28
Do.		Yichang Xincheng Graphite Co. Ltd.	Hubei, Yichang, Dangyang	30
Gypsum, mine		Hebei Xingtai Shuanghua Gypsum Products Co. Ltd.	Hebei, Xingtai	NA
Do.		Henan Yongtai Gypsum Co. Ltd	Henan, Sanmenxia	850
Do.		Hubei Jingmen Yulian Gypsum Co. Ltd.	Hubei, Jingmeng	500
Do.		Hubei Shuangxing Gypsum Co. Ltd.	do.	NA
Do.		Ningxia Jinruiyuan Industry and Trade Co. Ltd.	Ningxia, Yanchi	NA
Do.		Ningxia Qingshan Sanyuan Mining Co. Ltd.	do.	NA
Do.		Ningxia Yanchi Qianyuan Gypsum Mining Co. Ltd.	do.	200
Do.		Ningxia Yanchi Yulian Gypsum Co. Ltd.	do.	NA
Do.		Pizhou Huanyu Gypsum Co. Ltd.	Jiangsu, Pizhou	NA
Do.		Shanxi Taiyuan Xishan Gypsum Mine Co. Ltd.	Shanxi, Taiyuan	NA
Indium, refinery	metric tons	Guangxi Debang Technology Co. Ltd.	Guangxi, Liuzhou	120
Do.	do.	Guangxi Tanghan Zinc & Indium Co. Ltd.	Guangxi, Hechi	30
Do.	do.	Hsikwangshan Twinkling Star Antimony Co. Ltd.	Hunan, Lengshuijiang	7
Do.	do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	50
Do.	do.	Jinshan Indium and Germanium Metallurgical Chemical Co.	Guangxi, Hechi, Nandan	NA
Do.	do.	Laibin smelter (Liuzhou Huaxi Group Co.)	Guangxi, Laibin	60
Do.	do.	Liuzhou Zinc Products Co. Ltd.	Guangxi, Liuzhou	20
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	150
Do.	do.	Nanjing Sanyou Electronic Material Co. Ltd.	do.	50
Do.	do.	Shenzhen Nonfemet Co. Ltd.	Guangdong, Shaoguan	25
Do.	do.	Xiangtan Zhengtan Nonferrous Metal Co. Ltd.	Hunan, Xiangtan	75
Do.	do.	Yintai Technology Co. Ltd.	Guangxi, Liuzhou	40
Do.	do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	10
Do.	do.	Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	10
Do.	do.	Yunnan Mengzi Mining and Smelting Co. Ltd.	Yunnan, Honghe	30
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	60

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Iron ore, mine, concentrate	Add New Energy Investment Holdings Group Ltd.	Shandong, Yangzhuang	2,300
Do.	Anshan Mining Co. Ltd.	Liaoning, Anshan	30,000
Do.	Aowei Holding Ltd.	Hebei, Laiyuan	15,800
Do.	Banshigou Iron Mine Mining Co. Ltd.	Jilin, Hunjiang	1,400
Do.	Baotou Iron and Steel and Rare Earth Co. Ltd.	Nei Mongol, Baotou	10,000
Do.	Baowu Maanshan Iron and Steel Group	Anhui, Maanshan	5,000
Do.	Benxi Iron and Steel Co. Ltd.	Liaoning, Benxi	8,000
Do.	China Baowu Steel Group Corp. Ltd.	Shanghai	6,350
Do.	China Hanking Holdings Ltd.	Hubei, Wuhan	4,000
Do.	China Minmetals Corp.	Mines in multiple provinces	8,730
Do.	China Vanadium Titano-Magnetite Mining Co. Ltd.	Sichuan, Huili	1,890
Do.	Dabaoshan Mining Co. Ltd.	Guangdong, Qujiang	1,670
Do.	Hainan Mining Co. Ltd.	Hainan, Changjiang	4,600
Do.	Hebei Iron and Steel Group Co. Ltd.	Hebei, Tangshan	50,000
Do.	Huaxia Jianlong Mining Technology Co. Ltd.	Mines in multiple provinces	5,500
Do.	Jiuquan Iron and Steel Co. Ltd.	Gansu, Zhangye, Sunan Yugur	4,400
Do.	Kunming Iron and Steel Co. Ltd.	Yunnan, Kunming	2,500
Do.	Meishan Metallurgical Co. Ltd.	Jiangsu, Nanjing	2,000
Do.	Metallurgical Corporation of China Ltd.	Mines in multiple provinces	591
Do.	Nanjing Iron & Steel Co. Ltd.	Jiangsu, Nanjing	2,500
Do.	Panzhihua Mining Co. Ltd. [Panzhihua Iron and Steel Group Co. Ltd. (Pangang)]	Sichuan, Panzhihua	13,000
Do.	Shandong Iron and Steel Group Co. Ltd.	Shandong, Jinan	3,000
Do.	Shandong Jinling Mining Co. Ltd.	Shandong, Zibo	650
Do.	Shandong Taishan Sunlight Group Co. Ltd.	Shandong, Laiwu	2,000
Do.	Shoudu (Capital) Mining Co. Ltd.	Mines in multiple provinces	5,000
Do.	Taiyuan Iron and Steel Co. Ltd.	Shanxi, Taiyuan	12,000
Do.	Tonghua Iron & Steel Group Co. Ltd.	Jilin, Changchun	782
Do.	Xinjiang Yaxing Mining Co. Ltd.	Xinjiang, Akto	2,000
Do.	Yingliu Mining Co. Ltd.	Aihui, Hefei	1,250
Do.	Zijin Mining Group Co. Ltd.	Xinjiang, Altay, Fuyun	3,100
Iron and steel, raw steel	Ansteel Group Corp. Ltd.	Liaoning, Anshan	25,000
Do.	Baotou Iron and Steel Group Co. Ltd.	Nei Mongol, Baotou	1,800
Do.	Beijing Jianlong Heavy Industry Group Co. Ltd.	Beijing	34,000
Do.	Benxi Beiying Iron and Steel (Group) Co. Ltd.	Liaoning, Benxi	9,000
Do.	Benxi Steel Plates Co. Ltd.	Liaoning, Benxi, Xihu	10,000
Do.	Chengyu Vanadium and Titanium Technology Co. Ltd.	Sichuan, Neijiang, Weiyuan	5,200
Do.	China Baowu Steel Group Corp. Ltd., of which—		
	Baoshan Iron & Steel Co. Ltd.	Shanghai	23,000
Do.	Chongqing Iron and Steel Group Co. Ltd.	Chongqing	8,400
Do.	Magang Group	Anhui, Maanshan	20,000
Do.	Taiyuan Iron and Steel (Group) Co. Ltd. (TISCO)	Shanxi, Taiyuan, Jiancaoping	12,900
Do.	Wuhan Iron & Steel Group	Hubei, Wuhan	4,400
Do.	Xinjiang Bayi Iron and Steel Co. Ltd.	Xinjiang, Urumqi	15,000
Do.	Xinjiang Tianshan Iron & Steel	Xinjiang, Bayingolin	2,000
Do.	CITIC Pacific Special Steel Holdings Ltd.	Hubei, Huangshi	16,800
Do.	Fujian Dadonghai Industrial Group Co. Ltd.	Fujian, Fuzhou, Changle	20,000
Do.	Fangchenggang Jinxi Section Steel Technology Co. Ltd.	Guangxi, Fangchenggang	10,000
Do.	Guangxi Liuzhou Iron and Steel Group Co. Ltd.	Guangxi, Liuzhou	15,000
Do.	Hebei Iron and Steel Group Co. Ltd. (HBIS)	Hebei, Handan	57,500
Do.	Hunan Valin Iron & Steel Group Co. Ltd.	Hunan, Changsha	25,000
Do.	Inner Mongolia Baotou Steel Union Co. Ltd.	Nei Mongol, Baotou, Hexi	17,500
Do.	Jiangsu Shagang Group Co. Ltd.	Jiangsu, Suzhou, Zhangjiagang	42,000
Do.	Nanjing Iron & Steel Co. Ltd. (NISCO)	Jiangsu, Nanjing, Luhe	10,000

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Iron and steel, raw steel—Continued	Rizhao Steel Holding Group Co. Ltd.	Shandong, Rizhao	15,000
Do.	Shandong Dexing Group Co. Ltd.	Shandong, Dezhou	15,000
Do.	Shandong Iron and Steel Group Co. Ltd.	Shandong, Jinan	31,000
Do.	Shougang Iron and Steel Co. Ltd.	Beijing	34,000
Do.	Tangshan Donghai Iron and Steel Group Co. Ltd.	Hebei, Tangshan, Luan	10,000
Do.	Tangshan Yanshan Iron and Steel Co. Ltd.	Hebei, Tangshan, Qian'an	10,000
Do.	Xinyu Iron and Steel Group Co. Ltd. (XinSteel)	Jiangxi, Xinyu, Yushui	10,000
Do.	Zhongtian Iron and Steel Group Co. Ltd.	Jiangsu, Changzhou, Wujin	12,000
Do.	do.	Jiangsu, Nantong, Haimen	8,000
Lead:			
Mine, Pb content	Baiyin Nonferrous Metal Co.	Gansu, Baiyin	15
Do.	do.	Gansu, Changba	30
Do.	do.	Gansu, Lijiagou	5
Do.	China Gold International Resources Corp. Ltd.	Xizang, Maizhokunggar	72
Do.	China Tin Group Co. Ltd. (Guangxi Huaxi Group Co. Ltd.)	Guangxi, Dachang	30
Do.	Dongshengmiao Mining Co. Ltd. (Guocheng Mining Co. Ltd.)	Nei Mongol, Urad Houqi	6
Do.	Greenway Mining Group Ltd.	Yunnan, Dehong	1
Do.	do.	Yunnan, Yingjiang	1
Do.	Guangxi Cenxi Longwan Mining Co. Ltd. (Guangxi Nonferrous Metals Group Co. Ltd.)	Guangxi, Cenxi, Hesan	5
Do.	Guangxi Zhongjin Lingnan Mining Co. Ltd.	Guangxi, Laibin, Wuxuan	NA
Do.	Hunan Baoshan Nonferrous Metals and Mining Co. Ltd.	Hunan, Baoshan	10
Do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd. (China Minmetal Corp.)	Hunan, Kangjiawan	17
Do.	do.	Hunan, Chaling, Shuikoushan	19
Do.	Jiangxi Dean Tianbao Mining Group Co. Ltd.	Jiangxi, De'an, Zhangshiba	10
Do.	Jinhui Mining Co. Ltd.	Gansu, Longnan, Hui	25
Do.	Shandong Gold Non-Ferrous Metal Mining Group Co. Ltd.	Nei Mongol, Xilingol, East Ujimqin	12
Do.	Shenzhen Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shaoguan	50
Do.	Sichuan Xinyuan Mining Industry Co. Ltd.	Sichuan, Xiacun	25
Do.	Tibet Huaxia Mineral Co. Ltd.	Xizang, Nagqu, Lhari	24
Do.	Tibet Huayu Mining Co. Ltd.	Xizang, Lhasa	14
Do.	Western Mining Co. Ltd.	Qinghai, Xitieshan	50
Do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	15
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Huize, Rongda	50
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group Co. Ltd.)	Yunnan, Lanping	5
Do.	Zijin Mining Group Co. Ltd.	Nei Mongol, Bayannur	10
Do.	do.	Xinjiang, Wuqia	16
Refinery:			
Primary	Anhui Tongguan Chizhou Nonferrous Metals Co. Ltd.	Anhui, Chizhou	100
Do.	Anyang Minshan Nonferrous Metals Co. Ltd. (Yubei Metal Co. Ltd.)	Henan, Anyang	160
Do.	Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	80
Do.	Bayannur Zijin Nonferrous Metals Co. Ltd.	Nei Mongol, Bayannur	100
Do.	Chenzhou Jingui Silver Industry Co. Ltd.	Hunan, Chenzhou	100
Do.	Chifeng Shanjin Silver and Lead Co. Ltd.	Nei Mongol, Chifeng	100
Do.	Guangxi Nandan Nanfang Nonferrous Metal Smelting Co. Ltd.	Guangxi, Hechi	200
Do.	Haicheng Chengxin Nonferrous Metals Co. Ltd.	Liaoning, Chengxin	100
Do.	Hanzhong Zinc Industry Co. Ltd. (Youser Group)	Shaanxi, Mainxian	80
Do.	Henan Jinli Gold and Lead Group Co. Ltd.	Henan, Jiyuan	300
Do.	Henan Yuguang Gold and Lead Co. Ltd.	do.	400
Do.	Hengyang Shuikoushan Sanli Industry & Trade Co.	Hunan, Changning	50
Do.	Hulunbuir Chihong Mining Co. Ltd. (Yunnan Chihong Zinc and Germanium Co. Ltd.)	Nei Mongol, Hulunbuir	80

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Lead:—Continued			
Refinery:—Continued			
Primary—Continued	Hunan Huaxin Rare Technology Co. Ltd.	Hunan, Chenzhou	100
Do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd.	Hunan, Changning	150
Do.	Hunan Yuteng Nonferrous Metals Co. Ltd.	Hunan, Chenzhou	180
Do.	Jiangxi Copper Corp. Ltd.	Jiangxi, Jiujiang, Hukou	200
Do.	Jiangxi Jinde Lead Industry Co. Ltd.	Jiangxi, Shangrao, Dexing	80
Do.	Jinchengjiang Chengyuan Mining & Smelting Co. Ltd.	Guangxi, Hechi, Jinchengjiang	60
Do.	Jiquan Wangyang Smeltery Group Co. Ltd.	Henan, Jiaozuo	270
Do.	Mengzi Mining and Metallurgical Industry Co. Ltd.	Yunnan, Gejiu	60
Do.	Lingbao Xinling Refining Co. Ltd	Henan, Lingbao	100
Do.	Lingbao Zhicheng Lead Co. Ltd.	do.	100
Do.	Luoyang Yongning Nonferrous Technology Co. Ltd.	Henan, Luoyang	80
Do.	Nanfang Nonferrous Metal Smelting Co. Ltd.	Guangxi, Hechi	80
Do.	Qinghai Xiyu Nonferrous Metal Co. Ltd.	Qinghai, Golmud	100
Do.	Shaanxi Dongling Group Co. Ltd.	Shaaxi, Baoji, Fengxiang	100
Do.	Shandong Humon Smelting Co. Ltd.	Shandong, Yantai, Mouping	100
Do.	Shenzhen Zhongjin Lingnan Nonfemet Co. Ltd.	Guangdong, Shaoguan	100
Do.	Western Mining Co. Ltd.	Qinghai, Xining	100
Do.	Xingan Silver and Lead Smleting Co. Ltd.	Nei Mongol, Hexigten	100
Do.	Xuzhou Chunxing Alloy Co. Ltd.	Jiangsu, Xuzhou	150
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300
Do.	Yunnan Shadian Lead Industry Co. Ltd.	Yunnan, Honghe	100
Do.	Yunnan Xinli Nonferrous Metals Co. Ltd.	Yunnan, Kunming	100
Do.	Yunnan Zhengxing Industrial Group Co. Ltd.	Yunnan, Honghe	60
Do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	120
Secondary	Anhui Huaxin Lead Industry Group Co. Ltd.	Hunan, Chenzhou	120
Do.	Anyang Jinpeng Lead Industry Co. Ltd.	Henan, Anyang	250
Do.	Anyang Yubei Gold and Lead Co. Ltd.	do.	250
Do.	Baoding Gangan Nonferrous Metals Co.	Hebei, Baoding	250
Do.	Guangling Juyuan Silver Ltd.	Jiangsu, Yangzhou	60
Do.	Hebei Chukai Metallurgy Co. Ltd.	Hubei, Xiangyang	60
Do.	Hebei Jinyu Sheng Renewable Resources Utilization Co.	Hebei, Baoding, Xiongxian	100
Do.	Hebei Songhe Renewable Resources Co. Ltd.	Hebei, Anxin	250
Do.	Henan Asia Metal Recycling Co. Ltd.	Henan, Xinxiang	90
Do.	Henan Jinli Gold and Lead Group Co. Ltd.	Henan, Jiyuan	440
Do.	Henan Yuguang Gold and Lead Co. Ltd.	do.	200
Do.	Jiangsu New Chunxing Resource Recycling Co. Ltd.	Jiangsu, Xuzhou, Pizhou	100
Do.	Yunnan Xiangyun Feilong Recycling Technology Co. Ltd.	Nei Mongol, Ximeng	80
Lithium, Li_2CO_3 equivalent:			
Mine	Antai Mining Co. Ltd.	Chongqing	3
Do.	Fujian Zhonghe Co. Ltd.	Sichuan, Maerkang	6
Do.	Ganfeng Lithium Co. Ltd.	Jiangxi, Ganzhou, Ningdu	3
Do.	Ganzizhou Rongda Lithium Co. Ltd. (Youngy Co. Ltd.)	Sichuan, Tagong	8
Do.	Jinchuan Aoyinuo Mining Co. Ltd. (Chengxin Lithium Group)	Sichuan, Jinchuan, Yelonggou	13
Do.	Ningxia Non-Ferrous Metals Import and Export Corp. (operator), and Yichun Tantalum Co. Ltd. (owner)	Jiangxi, Yichun, Yifeng	30
Do.	Sichuan Yahua Industrial Group Co. Ltd.	Sichuan, Ya'an	8
Do.	Yichun Yinli New Energy Co. Ltd.	Jiangxi, Yichun, Yifeng	NA
Do.	Youngy Investment Holding Group Co. Ltd.	Sichuan, Kangding	9
Brine	Golmud Zangge Mining Co. Ltd. (Zangge Potash Fertilizer Co. Ltd.)	Qinghai, Golmud, Qarhan Lake	10
Do.	Minmetals Salt Lake Co. Ltd. (China Minmetals Corp., 51%, and Qinghai Liangcheng Mining Co. Ltd., 49%)	Qinghai, Mangya, Yiliping Lake	10
Do.	Qinghai CITIC Guoan Lithium Industry Development Co. Ltd.	Qinghai, Xitai Ginel Salt Lake	30

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Lithium, Li_2CO_3 equivalent:—Continued			
Brine—Continued	Qinghai Dongtai Ginel Lithium Resources Co. Ltd. (Western Mining Group Co. Ltd.)	Qinghai, Dongtai Ginel Salt Lake	10
Do.	Qinghai Hengxinrong Lithium Technology Co. Ltd.	Qinghai, Xitai Ginel Salt Lake	20
Do.	Qinghai Jintai Lithium Industry Co. Ltd. (Jintai Potash Fertilizer)	Qinghai, Balun Mahai Lake	7
Do.	Qinghai Qaidam Xinghua Lithium Salt Co. Ltd.	Qinghai, Da Qaidam Salt Lake	10
Do.	Qinghai Salt Lake Industry Co. Ltd.	Qinghai, Golmud, Qarhan Lake	24
Do.	Tibet Guoneng Mining Development Co. Ltd. (Tibet City Development Investment Co. Ltd.)	Xizang, Lungmu Tso Salt Lake	5
Do.	Tibet Mineral Devevelopment Co. Ltd. (Baowu Steel Group Corp. Ltd.)	Xizang, Zhabuye Salt Lake	10
Refinery	Guangxi Tianyuan New Energy Materials Co. Ltd. (Albemarle Lithium UK Ltd., 100%)	Guangxi, Qinzhou, Qinnan	25
Do.	H-Zone Lithium Technology Co. Ltd.	Jiangxi, Yichun	10
Do.	Huludao Hongjing Technology Co. Ltd. (Liaoning Hongjing Group)	Liaoning, Hongjing, Lianshan	20
Do.	Jiangsu Ronghui General Lithium Co. Ltd.	Jiangsu, Nantong, Haimen	26
Do.	Jiangxi Dongpeng New Materials Co. Ltd. (China Mining Resources Group Co. Ltd., 100%)	Jiangxi, Xinyu	33
Do.	Jiangxi Ganfeng Lithium Co. Ltd.	Jiangxi, Xinyu, Yushui	90
Do.	do.	Jiangxi, Ganzhou, Ningdu	90
Do.	Jiangxi Jinhui Lithium Industry Co. Ltd.	Jiangxi, Yichun	20
Do.	Jiangxi Nanshi Lithium New Materials Co. Ltd.	do.	60
Do.	Jiujiang Ronghui Lithium Industry Technology Co. Ltd. [General Lithium (Jiujiang) Tech Corp.]	Jiangxi, Jiujiang, Hukou	15
Do.	Qinghai CITIC Guoan Lithium Industry Development Co. Ltd.	Qinghai, Golmud	5
Do.	Qinghai Hengxinrong Lithium Technology Co. Ltd.	Qinghai, Haixi	20
Do.	Qinghai Lithium Co. Ltd. (Western Mining Group Co. Ltd., 74.54%, and others, 25.46%)	Qinghai, Xining	10
Do.	Qinghai Yanhu Fozhao Lanke Lithium Co. Ltd. (Qinghai Salt Lake Industry Co. Ltd., 51.42%, and Kodak Manufacturing, 43.58%)	Qinghai, Golmud	30
Do.	Shandong Ruifu Lithium Industry Co. Ltd.	Shandong, Feicheng	34
Do.	Sichuan Changhehua Lithium Technology Co. Ltd. (Rongjie Group)	Sichuan, Chengdu	6
Do.	Sichuan Energy Investment Dingsheng Lithium Technology Co. Ltd.	Sichuan, Meishan	10
Do.	Sichuan Tianqi Lithium Industry Co. Ltd. (Chengdu Tianqi Group Co. Ltd.)	Shehong plant in Sichuan	26
Do.	do.	Zhangjiagang plant in Jiangsu	20
Do.	Sichuan Tianyi Lithium Industry Co. Ltd.	Sichuan, Yibin	45
Do.	do.	Sichuan, Meishan	53
Do.	Sichuan Yahua Lithium Industrial (Ya'an) Co. Ltd.	Sichuan, Ya'an	35
Do.	Sichuan Zhiyuan Lithium Industry Co. Ltd.	Sichuan, Deyang, Mianzhu	38
Do.	Tangshan Xinfeng Lithium Industry Co. Ltd.	Hebei, Tangshan	19
Do.	Tibet Mineral Devevelopment Co. Ltd.	Xizang, Lhasa	5
Do.	Wudi Jinhaiwan Lithium Technology Co. Ltd.	Shandong, Binzhou	26
Do.	Xinjiang Haoxin Lithium Salt Development Co. Ltd.	Xinjiang, Urumqi	5
Do.	Yichun Yinli New Energy Co. Ltd. (Jiangxi Special Electric Motor Co. Ltd.)	Jiangxi, Yichun	25
Do.	Yongxing Special Material Technology Co. Ltd.	do.	10
Magnesium:			
Mine, ore	Liaoning Magnesite Mining Co. (Provincial government, 51%)	Liaoning, Haicheng	NA
Do.	Nanjing Yunhai Special Metal Co. Ltd.	Jiangsu, Nanjing	1,600
Magnesia	Puyang Refractory Group Co. Ltd.	Qinghai, Haidong	520

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Magnesium:—Continued			
Metal, primary	Century Sunshine Group Holding Ltd.	Xinjiang, Hami	45
Do.	do.	Jilin, Baishan	75
Do.	Fugo Xintian Magnesium Alloy Co. Ltd.	Shaanxi, Yulin, Fugu, Xintian	30
Do.	Fugu County Jinwantong Magnesium Industry Co. Ltd.	do.	42
Do.	Fugu Yihe Magnesium Co. Ltd.	Shaanxi, Yulin, Fugu, Yihe	30
Do.	Huayu Enterprises (Group) Ltd.	Shanxi, Jishan	35
Do.	Nanjing Yunhai Special Metal Co. Ltd.	Jiangsu, Nanjing	100
Do.	Shaanxi Fugu Yufeng Magnesium Industry Co. Ltd.	Shaanxi, Yulin, Fugu, Yufeng	25
Do.	Shaanxi Haotian Group Coal Power Metallurgical and Chemical Co. Ltd.	Shaanxi, Yulin, Fugu, Haotin	30
Do.	Shaanxi Sanxin Group Co. Ltd.	Shaanxi, Yulin, Fugu, Sanxin	30
Do.	Shaanxi Tianyu Magnesium Industry Group Co. Ltd.	Jiangsu, Nanjing	50
Do.	Shanxi Bada Magnesium Industry Co. Ltd.	Shanxi, Wenxi	50
Do.	Shanxi Wenxi Regal Magnesium Industry Co. Ltd.	do.	55
Do.	Shanxi Wenxi Yinguang Magnesium Industry Group Co. Ltd.	do.	40
Do.	Shanxi Wulong Investment Group Co. Ltd.	Shanxi, Yuncheng, Yuanqu	25
Do.	Shanxi Yinguang Huasheng Magnesium Industry Co. Ltd.	do.	65
Do.	Shenmu Xinqing Co. Ltd.	Shaanxi, Shenmu	25
Do.	Taiyuan Tongxiang Magnesium Metal Co. Ltd.	Shanxi, Taiyuan	45
Do.	Wenxi Biyun Magnesium Co. Ltd.	Shanxi, Wenxi	30
Do.	Yulin Tianlong Magnesium Industry Co. Ltd.	Shaanxi, Yulin, Fugu, Tianlong	25
Do.	Zunyi Titanium Co. Ltd.	Guizhou, Zunyi	24
Alloy	Magontec Xi'an Co. Ltd.	Shaanxi, Xi'an	40
Do.	Nanjing Yunhai Special Metal Co. Ltd.	Jiangsu, Nanjing	100
Do.	Shanxi Bada Magnesium Industry Co. Ltd.	Shanxi, Wenxi	50
Do.	Shanxi Wenxi Regal Magnesium Industry Co. Ltd.	do.	100
Do.	Shanxi Wenxi Zhenxin Magnesium Industry Co. Ltd.	do.	40
Manganese:			
Mine, ore, gross weight	Akto Baiyuanfeng Mining Industry Co. Ltd. (Western Gold)	Xingjiang, Kashgar	1,200
Do.	Changyang Gucheng Manganese Industry Co. Ltd.	Hubei, Yichang, Changyang	450
Do.	Guikang New Materials Co. Ltd.	Guangxi, Guilin, Lingchuan	200
Do.	Guizhou Wuling Manganese Industry Co. Ltd. (Chongqing Wujiang Industry Group Co. Ltd.)	Guizhou, Songtao, Wuluo	6,000
Do.	Hubei Changyang Hongxin Industry Group Co. Ltd.	Hubei, Yichang	450
Do.	Huayuan (Huayuan County) Yufeng Manganese Industry Co. Ltd.	Hunan, Huayuan	310
Do.	Hunan Dongfang Mining Co. Ltd.	Hunan, Xiangxi	200
Do.	Jingxi Xinyuan Manganese Industry Co. Ltd.	Guangxi, Baise, Hurun	500
Do.	Linze Hongxin Mineral Industry Co.	Gansu, Zhangye, Linze	600
Do.	Ningxia Shengyan Industrial Group Fuhua Metallurgical Co. Ltd.	Ningxia, Shizhuishan, Pingluo	1,000
Do.	Songtao Sanhe Manganese Industry Group Co. Ltd.	Guizhou, Tongren, Sontao	320
Do.	Nanfang Manganese Group Ltd.	Guangxi, Nanning	2,700
Do.	Yunnan Wenshan Dounan Manganese Industry Co. Ltd.	Yunnan, Wenshan, Yanshan	300
Do.	Zunyi Tianci Manganese Industry Group Co. Ltd.	Guizhou, Zunyi, Honghuagang	290
Metal	Akto Kebang Manganese Industry Co. Ltd. (Xinjiang Xinxin Mining Industry Co. Ltd.)	Xingjiang, Kashgar	75
Do.	China Manganese (Hubei) Technology Development Co. Ltd.	Hubei, Changyang, Longzhouping	63
Do.	Chongqing Dalang Metallurgical New Materials Co. Ltd. [Chongqing Bosai Mining (Group) Co. Ltd.]	Chongqing, Fuling	660
Do.	Chongqing Tycoon Manganese Industry Co. Ltd.	Chongqing, Longtan, Wuyu	50
Do.	Chongqing Wujiang Industry Group Co. Ltd., of which—		
	Chongqing Xiushan Wuling Manganese Industry Corp.	Chongqing	30
	Guizhou Wuling Manganese Industru Co. Ltd.	Guizhou, Tongren, Songtao	80
Do.	Chongqing Xishuan Sanrun Mining Co. Ltd.	Chongqing, Xiushan	30

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Manganese:—Continued				
Metal—Continued		CITIC Dameng Mining Co. Ltd.	Guangxi, Chongzuo, Daxin	130
Do.		Dushan Jinmeng Manganese Industry Co. Ltd.	Guizhou, Dushan, Mawei	30
Do.		Guangxi Xinzhen Manganese Industry Group Co. Ltd.	Guangxi, Chongzuo, Daxin	60
Do.		Guizhou Tongren Jinrui Manganese Industry Co. Ltd.	Guizhou, Tongren, Songtao	30
Do.		Guizhou Wuling Manganese Industry Co. Ltd. (Chongqing Wujiang Industry Group Co. Ltd.)	Guizhou, Tongren, Songtao, Wuluo	81
Do.		Hubei Changyang Hongxin Industry Group Co. Ltd.	Hubei, Yichang, Changyang	50
Do.		Hunan Dongfang Mining Co. Ltd.	Hunan, Xiangxi, Baojing	70
Do.		Jingxi Baikuang Manganese Industry Co. Ltd.	Guangxi, Jingxi	25
Do.		Jingxi Xinyuan Manganese Industry Co. Ltd.	Guangxi, Baise, Hurun	40
Do.		Ningxia Tianjing Manganese Industry Co. Ltd.	Ningxia, Zhongwei, Zhongning	800
Do.		Songtao Sanhe Manganese Industry Group Co. Ltd.	Guizhou, Tongren, Songtao	60
Do.		South Manganese Group Ltd.	Guangxi, Chongzuo, Daxin	200
Do.		Xiushan County Jiayuan Mining Co. Ltd.	Chongqing, Xiushan, Longchi	50
Do.		Yongzhou Xincheng Manganese Industry Co. Ltd.	Hunan, Yongzhou, Lingling	30
Do.		Yunnan Wenshan Dounan Manganese Industry Co. Ltd.	Yunnan, Wenshan, Yanshan	20
Do.		Zhongmeng (Hubei) Technology Development Co. Ltd.	Hubei, Suizhou, Guangshui	40
Do.		Zunyi Tianci Manganese Industry (Group) Jinfeng Co. Ltd.	Guizhou, Zunyi	50
Mercury:				
Mine, ore		Guizhou Dalong Yinxing Mercury Co. Ltd.	Guizhou, Tongren	NA
Do.		Guizhou Hongling Mercury Co. Ltd.	do.	NA
Do.		Shaanxi Mercury and Antimony Technology Co. Ltd.	Shaanxi, Xi'an	NA
Smelter	metric tons	Guizhou Hongling Mercury Co. Ltd.	Guizhou, Tongren	NA
Do.	do.	Guizhou Tongren Wanshan Hongjing Mercury Tndustry Co. Ltd.	do.	350
Do.	do.	Shaanxi Mercury and Antimony Technology Co. Ltd.	Shaanxi, Xi'an	NA
Chemical products	do.	Guizhou Tongren Wanshan Hongjing Mercury Tndustry Co. Ltd.	Guizhou, Tongren	7,000
Do.	do.	Guizhou Wanshan Minerals Co. Ltd.	do.	20,000
Molybdenum, mine, concentrate		Chifeng Aolunhua Mining Co. Ltd.	Nei Mongol, Chifeng	6
Do.		China Gold Inner Mongolia Mining Co. Ltd.	Nei Mongol, Hulunbuir, Manzhouli	14
Do.		China Molybdenum Co. Ltd.	Henan, Luoyang, Luanchuan	33
Do.		Fengning Xinyuan Mining Co. Ltd. (Jianlong Group)	Hebei, Chengde	12
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Shangrao, Dexing	8
Do.		Jilin Daheishan Molybdenum Industry Co. Ltd. (Zhongze Group)	Jilin, Jilin, Yongji	6
Do.		Jinduicheng Molybdenum Industry Co. Ltd. (Shaanxi Non-ferrous Metals Holding Group Co. Ltd.)	Shaanxi, Weinan, Hua, and Henan, Luoyang, Ruyang	39
Do.		Luanchuan County Jinding Mining Co. Ltd.	Henan, Luanchuan	6
Do.		Luanchuan Longyu Molybdenum Industry Co. Ltd.	do.	14
Do.		Luoyang Fuchuan Co. Ltd. (China Molybdenum Co. Ltd.)	do.	14
Do.		Yichun Luming Mining Co. Ltd. (China Railway Group Ltd.)	Heilongjiang, Yichun	23
Nickel:				
Mine		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Pangshi	6
Do.		Jinchuan Group Co. Ltd.	Baijiazuizi Mine, Gansu, Jinchuan	65
Do.		Shaanxi Hua'ao Mining Industry Co. Ltd.	Shaanxi, Lueyang	6
Do.		Xinjiang Xinxin Mining Industry Co. Ltd., of which— Xinjiang Yakesi Resources Ltd.	Xiangshan Mine, Xinjiang, Hami	15
Do.		Xinjiang Hami Tianlong Nickel Industry Ltd.	Huangshandong Mine, Xinjiang, Han	1
Do.		Yunnan Henghao Nickel Industry Group Co. Ltd.	Yunan, Kunming	2
Do.		Yunxi Group Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5
Smelter, nickel pig iron		Baosteel Desheng Stainless Steel Co. Ltd. (Baowu Group)	Fujian, Fuzhou, Luoyuan	15
Do.		Fujian Dingxin Nickel Industry Co. Ltd.	Fujian, Fu'an	40
Do.		Guangdong Centry Nickel Co. Ltd.	Guangdong, Yangjiang	20
Do.		Guangdong Guangxin Suntec Metal Holdings Co. Ltd.	do.	20
Do.		Guangxi Chengde Group Co. Ltd.	Guangxi, Beihai	30

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Nickel:—Continued				
Smelter, nickel pig iron—Continued		Henan Jinhui Stainless Steel Co. Ltd.	Henan, Chengge	10
Do.		Inner Mongolia Heyi Nickel Materials Co. Ltd.	Nei Mongol, Tongliao, Naiman	20
Do.		Inner Mongolia Huade Wuzhou Steel Co. Ltd.	Nei Mongol, Wulanchabu, Huade	11
Do.		Inner Mongolia Jinma Group Corp.	Nei Mongol, Hohhot, Xincheng	8
Do.		Inner Mongolia Shuofeng Industry Co. Ltd.	Nei Mongol, Fengzhen, Fuhua	11
Do.		Inner Mongolia Xinyang Metallurgy Chemical Co. Ltd.	Nei Mongol, Ulanqab, Tugui	6
Do.		Jiangsu Delong Nickel Industry Co. Ltd.	Jiangsu, Yangcheng, Xiangshui	100
Do.		Liaoning Guorun Metal Group Co. Ltd.	Liaoning, Yingkou, Shagang	13
Do.		Liaoning Shengyun Industry Development Co. Ltd.	Liaoning, Yingkou, Dashiqiao	11
Do.		Liaoning Treasure Platinum Technology Co. Ltd.	Liaoning, Liaoyang, Liuerbao	13
Do.		Ningfen Group	Liaoning, Yingkou, Dashiqiao	12
Do.		Shandong Xinhai Technology Co. Ltd.	Shandong, Linyi	120
Do.		Suqian Xiangxiang Industryal Co. Ltd. (Lygend Group)	Jiangsu, Suqian	18
Do.		Yangjiang Yichuan Metal Science and Technology Co. Ltd.	Guangdong, Yangjiang, Gangkou	12
Do.		Yangzhou Yichuan Nickel Indsutry Co. Ltd.	Jiangsu, Yangzhou, Lidian	10
Do.		Zhanhua Weiye Nickel Industrial Co. Ltd.	Shandong, Binshou, Zhanhua	27
Refined:				
Primary		Chengdu Electrometallurgical Co. Ltd.	Sichuan, Chengdu	5
Do.		China Metallurgical Ramu New Energy Technology Co. Ltd.	Hebei, Tangshan, Caofeidian	9
Do.		Jiangxi Jiangli Science and Technology Co. Ltd.	Jiangxi, Fenyi	50
Do.		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Panshi	10
Do.		Jinchuan Nonferrous Metals Co. Ltd.	Gansu, Jinchang, Jinchuan	150
Do.		Tianjiang Maolian Technology Co. Ltd.	Guangxi, Bohai, Longtan	7
Do.		Vale New Nickel Materials (Dalian) Co. Ltd. (Vale S.A.)	Liaoning, Dalian	30
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fukang, Fuyun	13
Secondary		Chizhou CN New Materials Technology Co. Ltd.	Anhui, Chizhou	5
Do.		GEM Cobalt Industry Co. Ltd.	Hubei, Jingman	44
Do.		Hunan Brunp Recycling Technology Co. Ltd.	Hunan, Changsha, Jinzhou	11
Niobium and tantalum, concentrate, gross weight	metric tons	Jiangxi Jiangte Mining Development Co. Ltd.	Mine in Jiangxi, Yichun	35
Do.	do.	Jiangxi Jinhui Renewable Resources Co. Ltd.	Plant in Jiangxi, Yichun	20
Do.	do.	Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Corp.)	do.	500
Palladium, mine, Pd content	kilograms	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	130
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	1,170
Petroleum:				
Crude	thousand 42-gallon barrels	China National Offshore Oil Corp. (CNOOC), of which—Bohai Offshore Oil Corp.	Bohai, offshore	29,300
Do.	do.	Nanhai East Corp.	South China Sea, offshore	36,700
Do.	do.	Daqing Petroleum Administration Bureau Co. Ltd. [China National Petroleum Corp. (CNPC)]	Heilongjiang, Daqing	403,000
Do.	do.	Liaohe Petroleum Administration Bureau Co. Ltd. [China National Petroleum Corp. (CNPC)]	Liaoning, Liaohe	110,000
Do.	do.	Shengli Petroleum Administration Co. Ltd. [China Petroleum & Chemical Corp. (Sinopec Corp.)]	Hebei, Shengli	246,000
Refinery	million 42-gallon barrels	China National Offshore Oil Corp. (CNOOC)	Plants in multiple provinces	400
Do.	do.	China National Petroleum Corp. (CNPC)	do.	1,500
Do.	do.	China Petroleum & Chemical Corp. (Sinopec Corp.)	do.	2,200
Do.	do.	Hengli Petrochemical Co. Ltd.	Liaoning, Dalian	155
Do.	do.	Zhejiang Petrochemical Co. Ltd.	Zhejiang, Zhoushan	155
Do.	do.	Other Government-owned refinery facilities	Plants in multiple provinces	530
Do.	do.	Other non-Government-owned refinery facilities	do.	1,760

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Phosphate rock		Deyang Haohua Qingping Phosphate Co. Ltd.	Sichuan, Deyang	1,000
Do.		Guizhou Kailin (Group) Co. Ltd.	Guizhou, Guiyang	10,000
Do.		Guzhou Wengfu (Group) Co. Ltd.	do.	8,500
Do.		Sichuan Jinhe Phosphorus Mining Co. Ltd.	Sichuan, Shifang	1,000
Do.		Yunnan Phosphate Chemical Group Co. Ltd.	Yunnan, Kunming	11,500
Do.		Yunnan Tianning Mining Co. Ltd.	Yunnan, Anning	12,000
Platinum, mine, Pt content	kilograms	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	300
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	2,700
Potash		Qinghai Salt Lake Industry Group Co. Ltd.	Qinghai, Charhan	5,000
Do.		Xinjiang Lop Nur Potassic Salt Scientific and Technology Development Co. Ltd.	Xinjiang, Ruoqiang	1,200
Rare earths:				
Mine, rare-earth oxide equivalent	metric tons	China Northern Rare Earth (Group) High Tech Co. Ltd. [Baotou Iron and Steel (Group) Co. Ltd.]	Nei Mongol, Baotou	100,000
Do.	do.	China Rare Earth Group Co. Ltd. (State-owned Assets Supervision Administration Commission of the State Council, 31.2%; China Minmetals Rare Earth Co. Ltd., 20.3%; China Southern Rare Earth Group Co. Ltd., 20.3%; Chinalco Rare Earth and Metals Co. Ltd., 20.3%; and others, 7.8%), which include— Chinalco Rare Earth and Metals Co. Ltd., of which— Shandong Weishanhu Rare Earth Co. Ltd.	Shandong, Weishan	6,600
Do.	do.	Mianning Mianly Rare Earth Mining Co. Ltd.	Sichuan, Liangshan, Mianning	300
Do.	do.	Xichang He Geo Mining Development Co. Ltd.	Sichuan, Liangshan, Dechang	5,400
Do.	do.	Xichang Zhineng Industry Co. Ltd.	do.	500
Do.	do.	China Minmetals Rare Earth Co. Ltd., of which— Fujian Sanming Rare Earth Materials Co. Ltd.; Longchuan Yunlong Rare Earth Development Co. Ltd.; Minmetal Rare Earth Jianghua Co. Ltd.	Fujian, Sanming; Jiangxi, Ganzhou, Longnan; Hunan, Yongzhou, Jianghua	2,000
Do.	do.	China Southern Rare Earth Group Co. Ltd., of which— China Iron and Steel Research Institute Group Co. Ltd.	NA	4,300
Do.	do.	Ganzhou Rare Earth Mining Co. Ltd.	Jiangxi, Ganzhou	8,500
Do.	do.	Mianning Wankaifeng Rare Earth Mining Co. Ltd.	Sichuan, Liangshan, Mianning	600
Do.	do.	Sichuan JCC Rare Earth Co. Ltd.	Sichuan, Mianning	29,000
Do.	do.	Longyan Rare Earth Development Co. Ltd. (Xiamen Tungsten Industry Co. Ltd.)	Fujian, Longyan, Xinluo	3,400
Do.	do.	Pingyuan Huaqi Rare Earth Industry Co. Ltd. (Guangdong Rare Earth Industry Group Co. Ltd.)	Guangdong, Meizhou, Pingyuan	2,700
Smelter, rare-earth oxide equivalent	do.	China Northern Rare Earth (Group) High Tech Co. Ltd., of which— Baotou Huamei Rare Earth High Tech Co. Ltd.	Nei Mongol, Baotou	17,000
Do.	do.	Gansu Rare Earth New Material LLC	Gansu, Baiyin	28,000
Do.	do.	Inner Mongolia Baotou Steel Hefa Rare Earth Co. Ltd.	Nei Mongol, Baotou	18,000
Do.	do.	Zibo Baotou Steel Ganodema Rare Earth High Tech Co. Ltd.	Shandong, Zibo	20,000
Do.	do.	China Rare Earth Group Co. Ltd., which includes— Chinalco Rare Earth and Metals Co. Ltd., of which— China Iron and Steel Research Institute Group Co. Ltd.; Hunan Rare Earth Metal Material Research Insitute Co. Ltd.; Shandong Zhongkai Rare Earth Materials Co. Ltd.; Zibo Jiahua New Material Resources Co. Ltd.	Beijing; Hunan, Changsha, Zhanggongling; Shandong, Zibo; Shandong, Zibo, Linzi	23,900
Do.	do.	China Minmetals Rare Earth Co. Ltd., of which— Dingnan Dahua New Material Resources Co. Ltd.; Guangzhou Jianfeng Minmetals Rare Earth Co. Ltd.; Minmetals Rare Earth Jianghua Co.	Jiangxi, Ganzhou, Dingnan; Guangdong, Conghua, Aotou; Hunan, Yongzhou, Jianghua	5,700
Do.	do.	Ganzhou Rare Earth (Longnan) Nonferrous Metals Co. Ltd. [China Southern Rare Earth Group Co. Ltd.]	Plants in Jiangxi, Ganzhou	28,300

See footnotes at end of table.

CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Rare earths:—Continued				
Smelter, rare-earth oxide equivalent—Continued	metric tons	Fujian Changting Jinlong Rare Earth Co. Ltd. (Xiamen Tungsten Industry Co. Ltd.)	Fujian, Longyan, Changting	4,000
Do.	do.	Guangdong Rare Earth Industry Group Co. Ltd., of which—China Nonferrous Metal Industry's Foreign Engineering and Construction Co. Ltd. (NFC)	Guangdong, Guangzhou	3,600
Do.	do.	Guangdong Fuyuan Rare Earth New Material Co. Ltd.	Guangdong, Meizhou, Pingyuan	7,000
Rhenium, rhenate	kilograms	China Molybdenum Co. Ltd.	Henan, Luanchuan	200
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	3,000
Do.	do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	1,000
Do.	do.	Ligeance Aerospace Technology Co. Ltd.	Shaanxi, Xianyang	NA
Do.	do.	Western Xinxing Metal Materials Co. Ltd.	Shaanxi, Luonan	200
Salt		Hubei Changzhou Salt Chemical Co. Ltd.	Hubei, Changzhou	1,400
Do.		Jiangsu Suyan Jingshen Co. Ltd.	Jiangsu, Huai'an	5,000
Do.		Jiangxi Jinghao Salt Chemical Co. Ltd.	Jiangxi, Zhangshu	1,200
Do.		Laizhou Chengyuan Salt Chemical Co. Ltd.	Shandong, Laizhou	2,000
Do.		Lianyungang City Industrial Investment Group Co. Ltd.	Jiangsu, Lianyungang	700
Do.		Shandong Dadi Salt Chemical Group Co. Ltd.	Shandong, Weifang	800
Do.		Shandong Haihua Group Co. Ltd.	do.	1,400
Do.		Sichuan Jiuda Salt Manufacturing Co. Ltd.	Sichuan, Zigong	4,000
Do.		Sichuan Zigong Chiyu Salt Products Co. Ltd.	do.	300
Do.		Tianjin Changlu Hangu Saltworks Co. Ltd.	Tianjin	3,000
Do.		Zhongyan Dongxing Salt Chemical Co. Ltd.	Anhui, Dingyuan	1,500
Sand and gravel, machine-made, for construction		Anhui Conch Cement Co. Ltd.	Anhui, Wuhu	56,000
Do.		Beijing BBMG Group Co. Ltd.	Beijing	38,000
Do.		China Building Materials Group Co. Ltd.	do.	60,000
Do.		China Power Construction Anhui Changjiu New Materials Co. Ltd.	Anhui, Chizhou	70,000
Do.		China Resources Cement Holdings Ltd.	Southern China	20,000
Do.		Huaxin Cement Co. Ltd.	Hubei, Huangshi	39,000
Do.		Richangsheng Group Co. Ltd.	Zhejiang, Hangzhou	30,000
Do.		Zhejiang Transportation Investment Group Co. Ltd.	do.	24,000
Do.		Zhoushan Jinxin Mining Investment Co. Ltd.	Zhejiang, Zhoushan	20,000
Do.		Zhoushan Seaport Development Co. Ltd.	do.	22,000
Scandium, scandium oxide		Hunan Oriental Scandium Co. Ltd. (LB Group)	Hunan, Changsha	10
Selenium:				
Primary	metric tons	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	300
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	50
Secondary	do.	Vital Materials Co. Ltd. (Guangdong Xiandao Co. Ltd.)	Guangdong, Qingyuan	1,000
Silica (quartz)		Gansu Sanyuan Silicon Materials Co. Ltd.	Ningxia, Nei Mongol, and Gansu	100
Do.		Jiangsu Pacific Quartz Co. Ltd.	Jiangsu, Lianyungang, Donghai	20
Silicon, metal		Aba Xilong Industrial Silicon Co. Ltd. (Zhejiang Xinan Chemical Group Co. Ltd.)	Sichuan, Wenchuan	25
Do.		Beijing Dadi Zelin Silicon Co. Ltd.	Beijing	20
Do.		Blue Star Silicon Materials Co. Ltd.. [China National Chemical Corp. Ltd. (ChemChina), 79.5%]	Gansu, Lanzhou, Zhongbao	80
Do.		Changji Jisheng New Building Materials Co. Ltd. (Xinjiang East Hope Group)	Xinjiang, Changji	370
Do.		Gansu Lanxing Silicon Materials Co. Ltd.	Gansu, Lanzhou	50
Do.		Inner Mongolia Erdos Power and Metallurgy Group Co. Ltd.	Nei Mongol, Erdos, Qipanjing	800
Do.		Sichuan Jingyuan Silicon Industry Co. Ltd. (Sichuan Leshan Xinhe Electric Power Comprehensive Development Co. Ltd.)	Sichuan, Leshan, Jinkouhe	35
Do.		Sichuan Maoxian Pandal Silicon Industry Co. Ltd.	Sichuan, Aba, Maoxian	60

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Silicon, metal—Continued		Xinjiang China Silicon Technology Co. Ltd.	Xinjiang, Yili	46
Do.		Xinjiang Guopeng Technology Co. Ltd.	do.	NA
Do.		Xinjiang Hoshine Silicon Industry Co. Ltd. (Ningbo Hoshine Group), of which—		1,400
		Hoshine Jinsong Silicon Industry Co. Ltd.	Xinjiang, Karamay	
		Xinjiang Eastern Hoshine Silicon Industry Co. Ltd.	Xinjiang, Turpan, Shanshan	
		Xinjiang Western Hoshine Silicon Industry Co. Ltd.	Xinjiang, Shihezi	
Do.		Xinjiang Jiagesen New Energy Materials Co. Ltd.	Xinjiang, Yili	30
Do.		Xinjiang Jierong Silicon Industry Co. Ltd.	Xinjiang, Shihezi	25
Do.		Xinjiang Jingweike New Energy Development Co. Ltd.	Xinjiang, Yili, Gongliu	50
Do.		Xinjiang Jingxin Silicon Industry Co. Ltd.	Xinjiang, Changji, Manas	100
Do.		Xinjiang Sokesi New Material Co.	Xinjiang, Changji	NA
Do.		Xinjiang West Hesheng Silicon Industry Co. Ltd.	Xinjiang, Shihezi	560
Do.		Xinjiang Xintao Silicon Industry Co. Ltd.	Xinjiang, Hami	20
Do.		Xinjiang Yusi Technology Co.	Xinjiang, Yili	31
Do.		Yili Jinjing Silicon Industry Co. Ltd.	Xinjiang, Yining	16
Do.		Yunnan Lushui Jinzhi Silicon Co. Ltd.	Yunnan, Lushui	60
Do.		Yunnan Lushui Kanghua Silicon Industry Co. Ltd.	do.	40
Do.		Yunnan Yongchang Silicon Industry Co. Ltd. (Yunnan Metallurgical Group Co. Ltd.)	Yunnan, Baoshan, Longling	100
Do.		Zhejiang Zhongcheng Silicon Co. Ltd.	Yunnan, Yingjiang	50
Silver:				
Mine, Ag content	metric tons	Baojin Mining Group Co. Ltd.	Nei Mongol, Hulubuir, Ergun	11
Do.	do.	Chifeng Yubang Mining Co. Ltd.	Nei Mongol, Xilingol, Sonid	38
Do.	do.	China Gold International Resources Corp.	Xizang, Lhasa, Maizhokunggar	226
Do.	do.	Government of Gansu, 69.37%, and China Nonferrous Metal Mining (Group) Co. Ltd., 30.53%	Nei Mongol, Chifeng, Bairin	36
Do.	do.	Griffin Mining Ltd., 88.8%, and Zhangjiakou Caijiaying Lead Zinc Mining Co. Ltd., 11.2%	Hebei, Zhangjiakou, Zhangbei	9
Do.	do.	Guocheng Mining Co. Ltd.	Nei Mongol, Chifeng, Bairin	42
Do.	do.	Inner Mongolia Xingye Group Co.	Nei Mongol, Xilingol	313
Do.	do.	Inner Mongolia Yulong Mining Industry Co. Ltd. (Yintai Gold Group Co. Ltd.)	Xizang, Chamdo, Jomda	150
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	700
Do.	do.	Jianxin Group	Nei Mongol, Chifeng, Bairin	42
Do.	do.	do.	Nei Mongol, Xilingol, Sonid	38
Do.	do.	Jinchuan Group Co. Ltd., 55%, and Zijin Mining Group Co. Ltd., 45%	Xizang, Shigatse, Xietongment	13
Do.	do.	Jinhui Mining Co. Ltd.	Gansu, Baiyin, Huining	21
Do.	do.	Nanjing Yinmao Lead-Zinc Mine Co. Ltd.	Jiangsu, Nanjing, Qixia	12
Do.	do.	Shandong Gold Mining Co. Ltd.	Shandong, Jinan	20
Do.	do.	Shandong Gold Nonferrous Mining Group Co. Ltd.	Nei Mongol, Chifeng, Ujimqin	18
Do.	do.	Shanxi Diaoquan Silver & Copper Mining Co. Ltd., 54%, and Jiangxi Copper Co. Ltd., 46%	Shanxi, Datong, Lingqiu	20
Do.	do.	Shengda Resources Co. Ltd.	Nei Mongol, Chifeng, Hexigten	73
Do.	do.	Shezhen Zhongjin Lingnan Nonfemet. Co. Ltd.	Guangdong, Shaoguan, Renhua	41
Do.	do.	Silver Metals Inc., 77.5%, and Henan Non-ferrous Geology Bureaus, 22.5%	Henan, Luoyang, Luoning	240
Do.	do.	Silvercorp Metals Inc.	Guangdong, Yunfu, Yun'an	21
Do.	do.	SilverCorp Metals Inc., 80%, and Henan Xinhui Mining Co. Ltd., 20%	Henan, Luoyang, Luoning	163
Do.	do.	Tibet Baoxiang Mines Ltd.	Xizang, Shigatse, Samzhubze	10
Do.	do.	Tibet Huaxia Mineral Co. Ltd.	Xizang, Nagqu, Lhari	18
Do.	do.	Tibet Huayu Mining Co. Ltd.	Xizang, Lhasa	58
Do.	do.	Tibet Zhongkai Mining Industry Co. Ltd.	Xizang, Lhasa, Lhunzhub	11

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Silver:—Continued				
Mine, Ag content—Continued	metric tons	Tongling Chemical Industry Group Co. Ltd.	Anhui, Tongling, Tongguan	24
Do.		Tongling Nonferrous Metal Group	do.	11
Do.	do.	Wancheng Commercial Dongshengmiao Co. Ltd.	Nei Mongol, Bayannur, Urad	12
Do.	do.	Western Region Gold Co. Ltd.	Sichuan, Liangshan, Huidong	20
Do.	do.	do.	Sichuan, Garze, Baiyu	124
Do.	do.	Xingye Mining Co. Ltd. (Inner Mongolia Xingye Group Co. Ltd.)	Nei Mongol, Xilingol, West Ujimqin	437
Do.	do.	Yunnan Copper Co. Ltd.	Yunnan, Diqing, Deqen	10
Do.	do.	Yuxi Resources Corp.	Yunnan, Puer, Simao	11
Do.	do.	Zijin Mining Group Co. Ltd.	Fujian, Shanghang	280
Do.	do.	Zhongjin Gold Corp.	Nei Mongol, Hulunbuir	46
Metal	do.	Chenzhou Jingui Silver Industry Co. Ltd.	Hunan, Chenzhou, Suxian	550
Do.	do.	Daye Nonferrous Metals Group Holding Co. Ltd. [China Nonferrous Metal Mining (Group) Co. Ltd., 58%]	Hubei, Huangshi, Xialu	300
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu, Qingyang	230
Do.	do.	Henan Jinli Gold and Lead Group Co. Ltd.	Henan, Jiyuan, Tiantan	2,000
Do.	do.	Henan Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan, Kejing	730
Do.	do.	do.	Henan, Jiyuan, Tiantan	1,000
Do.	do.	Henan Zhongyuan Gold Smelter LLC (Zhongjin Gold Corp. Ltd.)	Henan, Sanmenxia, Hubin	350
Do.	do.	Huludao Nonferrous Metals Group Co. Ltd. (Huludao Hongyue Group Co. Ltd.)	Liaoning, Huludao, Longgang	80
Do.	do.	Hunan Yuteng Nonferrous Metals Co. Ltd.	Hunan, Chenzhou, Beihu	500
Do.	do.	Henan Jinli Gold and Lead Group Co. Ltd.	Henan, Jiyuan, Tiantan	2,000
Do.	do.	Henan Jinli Smelting Co. Ltd.	Henan, Jiyuan, Chengliu	800
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Yingtan, Guixi	332
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang, Jinchuan	600
Do.	do.	Jiquan Wanyang Smelting (Group) Co. Ltd.	Henan, Jinyuan, Sili	1,600
Do.	do.	Shandong Zhaojin Gold and Silver Refinery Co. Ltd.	Shandong, Yantai, Zhaoyuan	1,000
Do.	do.	Tongling Nonferrous Metals Group Co. Ltd.	Anhui, Bengbu, Huayuan	400
Do.	do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group Co. Ltd.)	Shandong, Liaocheng, Yanggu	600
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing, Qilin	150
Do.	do.	Zijin Copper Co. Ltd.	Fujian, Longyan, Shanghang	125
Do.	do.	Zijin Mining Group Gold Smelting Co. Ltd.	Fujian, Longyan, Xinluo	300
Strontium, carbonate		Chongqing Chonglong Strontium Co. Ltd.	Chongqing	20
Do.		Chongqing Tongliang Red Butterfly Strontium Co.	do.	40
Do.		Hebei Xinji Chemical Group	Hebei, Xinji	2
Do.		Nanjing Jinyan Strontium Co. Ltd.	Jiangsu, Lishui	2
Do.		Shijiazhuang Zhengding Xian Jinshi Chemical Co. Ltd.	Hebei, Shijiazhuang	3
Do.		Wutai Yunhai Magnesium Co. Ltd.	Shanxi, Wutai	3
Talc		China National Nonmetallic Industry Corp.	Guangxi, Longshen	130
Do.		do.	Liaoning, Haicheng	50
Tantalum, products	metric tons	Changsha Nanfang Tantalum and Niobium Co. Ltd.	Hunan, Changsha	NA
Do.	do.	Duoluoshan Sapphire Rare Metal Co. Ltd.	Guangdong, Zhaoqing	NA
Do.	do.	FIR Metals & Resource Ltd.	Hunan, Zhuzhou	NA
Do.	do.	F&X Electro-Materials Ltd. (Uniton Industries Ltd.)	Guangdong, Jiangmen, Xinhui	NA
Do.	do.	Hengyang King Xing Lifeng New Materials Co. Ltd.	Hunan, Hengyang	NA
Do.	do.	Jiangxi Ding Hai Tantalum & Niobium Co. Ltd.	Jiangxi, Fengxin	NA
Do.	do.	Jiangxi King-Tan Tantalum Industry Co. Ltd.	Jiangxi, Fengcheng	500
Do.	do.	Jiangxi Tuohong New Material Co. Ltd.	Jiangxi, Yichun	NA
Do.	do.	Jiujiang Janny New Material Co. Ltd.	Jiangxi, JiuJiang	NA
Do.	do.	Jiujiang Jinxin Nonferrous Metals Co. Ltd.	do.	NA

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Tantalum, products —Continued	metric tons	Jiujiang Tanbre Co. Ltd. [Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Corp.)]	Jiangxi, Jiujiang	250
Do.	do.	Jiujiang Zhongao Tantalum & Niobium Co. Ltd. (joint venture between Jiangxi Jiujiang Yizhong Nonferrous Metals Co. Ltd. and others)	do.	NA
Do.	do.	Metalink International Co. Ltd.	Jiangsu, Nanjing	NA
Do.	do.	Ningxia Orient Tantalum Industry Co. Ltd. (OTIC)	Ningxia, Shizuishan	NA
Do.	do.	Taike Technology (Suzhou) Co. Ltd.	Jiangsu, Suzhou	NA
Do.	do.	Ximei Resources (Guangdong) Ltd. (Ximei Resources Holding Ltd.)	Guangdong, Yingde	NA
Do.	do.	Xinxing Haorong Electronic Material Co. Ltd.	Guangdong, Yunfu	NA
Do.	do.	Yanling Jincheng Tantalum & Niobium Co. Ltd.	do.	NA
Tellurium, refined:				
Primary	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	70
Secondary	do.	Hunan Jinrun Tellurium Industry Co. Ltd.	Hunan, Chenzhou	200
Do.	do.	Vital Materials Co. Ltd. (Guangdong Xiandao Co. Ltd.)	Guangdong, Qingyuan	280
Tin:				
Mine, Sn content		Guangxi Pinggui PGMA Co. Ltd.	Guangxi, Hezhou	4
Do.		Guanxi Huaxi Group Co. Ltd.	Guangxi, Nandan	NA
Do.		Inner Mongolia Xingye Mining Co. Ltd. (Xiwuzhumuqin Yinman Mining Co. Ltd.)	Nei Mongol, Xilingol	8
Do.		Liuzhou Huaxi Group Co.	Guangxi, Laibin	11
Do.		Southern Mining Co. Ltd.	Hunan, Chenzhou	3
Do.		Yunnan Hualian Zinc Indium Co. Ltd.	Yunnan, Maguan	NA
Do.		Yunnan Tin Industry Group Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	33
Smelter		Chenzhou Yunxiang Mining and Metallurgy Co. Ltd. (Yunnan Tin Co. Ltd.)	Hunan, Chenzhou	20
Do.		Chifeng Dajingzi Tin Industry Co. Ltd.	Nei Mongol, Chifeng	NA
Do.		China Nonferrous Metals Group (Guangxi) Pinggui UFO Co. Ltd. [China Nonferrous Metal Mining (Group) Co. Ltd.]	Guangxi, Hezhou, Pinggui	8
Do.		China Tin Smelter Co. Ltd.	Guangxi, Laibin	25
Do.		Gejiu Fengming Metallurgy Chemical Plant	Yunnan, Gejiu	NA
Do.		Gejiu Jinye Renewable Technology Co. Ltd.	do.	3
Do.		Gejiu Kai Meng Industry and Trade LLC	do.	8
Do.		Gejiu Non-Ferrous Metal Processing Co. Ltd.	do.	NA
Do.		Gejiu Yunxin Nonferrous Electrolysis Co. Ltd.	do.	NA
Do.		Gejiu Zili Mining and Smelting Co.	Yunnan, Huogudu	20
Do.		Guangdong Hanhe Non-Ferrous Metal Co. Ltd.	Guangdong, Chaozhou	NA
Do.		Guanyang Guida Nonferrous Metal Smelting Plant	Guangxi, Guanyang	NA
Do.		Huichang Hill Tin Industry Co. Ltd.	Jiangxi, Ganzhou	NA
Do.		Huichang Jinshunda Tin Co. Ltd.	do.	NA
Do.		Jiangxi New Nanshan Technology Co. Ltd.	Guangdong, Chaozhou	NA
Do.		Ma'anshan Weitai Tin Co. Ltd.	Anhui, Maanshan	NA
Do.		Nanshan Tin Co. Ltd.	Jiangxi, Ganzhou	10
Do.		Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	20
Do.		Yunnan Tin Industry Co. Ltd. (Yunnan Tin Corp.)	do.	70
Do.		Yunnan Yunfan Nonferrous Metals Co. Ltd.	do.	4
Titanium:				
Mine, concentrate		Panzhihua Longmang Mineral Products Co. Ltd. (LB Group Co. Ltd.)	Sichuan, Panzhihua, Yanbian;	950
Do.		do.	Yunnan, Chuxiong, Wuding	40
Do.		Pangang Group Vanadium and Titanium Resources Co. Ltd. (Ansteel Group Corp. Ltd.)	Sichuan, Panzhihua	1,000
Do.		Sichuan Anning Iron and Titanium Co. Ltd.	Sichuan, Panzhihua, Miyi	540
Do.		Xichang Mining Co. (Chongqing Iron and Steel Co. Ltd.)	Chongqing, Xichang	600

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Titanium:—Continued			
Sponge	Anshan Hailiang Nonferrous Metals Material Manufacturing Co. Ltd.	Liaoning, Anshan, Taian	8
Do.	Baoji Lixing Titanium Industry Co. Ltd.	Shaanxi, Baoji, Weibin	3
Do.	Baoti Huashen Titanium Industry Co. Ltd. [Baoji Titanium Industry Co. Ltd. (Baoti Group Co. Ltd.), 66.67%]	Liaoning, Jinzhou, Taihe	10
Do.	Chaoyang Baisheng Titanium Co. Ltd.	Liaoning, Chaoyang	15
Do.	Chaoyang Jinda Titanium Co. Ltd.	do.	16
Do.	CITIC Jinzhou Metal Co. Ltd.	Liaoning, Jinzhou, Taihe	2
Do.	Jinchuan Group Co. Ltd. (LB Group Co. Ltd.)	Gansu, Jinchang, Jinchuan	15
Do.	Longbai Lufeng Titanium Industry Co. Ltd. (operator, Yunnan Metallurgical Xinli Titanium Co. Ltd., and owner, LB Group)	Yunnan, Chuxiong, Lufeng	10
Do.	Luoyang Sunrui Wanji Titanium Industry Co. Ltd.	Henan, Luoyang, Xin'an	16
Do.	Ningbo Chuangrun New Materials Co. Ltd.	Zhejiang, Ningbo, Linshan	1
Do.	Panzhihua Iron and Steel Group Co. Ltd. (Pangang)	Sichuan, Panzhihua	23
Do.	Sichuan Shengfeng Titanium Industry Co. Ltd.	Sichuan, Meishan, Hongya	5
Do.	Xinjiang Xianrun New Material Technology Co. Ltd. (Wujo Group)	Xinjiang, Hami	15
Do.	Zunbao Titanium Co. Ltd.	Guizhou, Tongzi	10
Do.	Zunyi Titanium Industry Co. Ltd.	Guizhou, Zunyi, Zhoushuiqiao	15
Tungsten:			
Mine, WO_3 in concentrate	China Molybdenum Co. Ltd.	Henan, Luanchuan, Lengshui	12
Do.	China Tungsten High-tech Materials Co. Ltd. (China Minmetals Corp., 100%)	Jiangxi, Jiujiang, Xiushui;	4
Do.	do.	Hunan, Chenzhou, Beihu	1
Do.	Chongyi Zhangyuan Tungsten Co.	Jiangxi, Ganzhou, Chongy	1
Do.	Hunan Chenzhou Mining Co. Ltd. (Hunan Gold Co. Ltd.)	Hunan, Huaihua, Yuanling	2
Do.	Hunan Yaogangxian Mining Co. Ltd.	Hunan, Yizhang	3
Do.	Jiangxi Rare Earth and Rare Metals Tungsten Group Corp.	Jiangxi, Ganzhou	7
Do.	Jiangxi Tungsten and Rare Earth Co. Ltd.	do.	15
Do.	Jiangxi Tungsten Industry Holding Group Co. Ltd., of which— Jiangxi Dajishan Tungsten Co. Ltd.	Jiangxi, Quannan, Dajishan	2
Do.	Jiangxi Dangping Tungsten Industry Co. Ltd.	Jiangxi, Ganzhou, Yudu, Fujian	9
Do.	Jiangxi Pangushan Tungsten Co. Ltd.	Jiangxi, Ganzhou, Yudu, Jingshi	1
Do.	Jiangxi Piaotang Tungsten Co. Ltd.	Jiangxi, Ganzhou, Dayu	1
Do.	Jiangxi Xiaolong Tungsten Co. Ltd.	Jiangxi, Ji'an, Taihe	7
Do.	Ninghua Xingluokeng Tungsten Mine Co. Ltd. (Xiamen Tungsten Industry Co. Ltd.)	Fujian, Sanming, Ninghua	5
Do.	Shizhuyuan Nonferrous Metals Co. Ltd. (China Tungsten High-Tech and Materials Co. Ltd.)	Hunan, Chenzhou, Suxian	5
Do.	Wenshan Malipo Zijin Tungsten Co. Ltd.	Yunnan, Wenshan, Malipo	2
Products	Bingkun Tungsten Co. Ltd.	Jiangxi, Jiujiang	NA
Do.	Chaling Dadi Tungsten Co. Ltd.	Hunan, Zhuzhou	NA
Do.	Chongyi Zhangyuan Tungsten Co. Ltd.	Jiangxi, Ganzhou, Chongyi	10
Do.	CMOC (China Molybdenum Co. Ltd.) Tungsten Co.	Henan, Luoyang, Luanchuan	10
Do.	China Nonferrous Metals Group (Guangxi) Pinggui UFO Co. Ltd.	Guangxi, Hezhou, Zhongshan	5
Do.	Fujian Xinlu Tungsten Co. Ltd. [Xiamen Tungsten Co. Ltd. (XTC), 51%, and Fujian Jinxin Tungsten Co. Ltd., 49%]	Fujian, Longyan, Xinluo, Yanshi	12
Do.	Ganzhou Haichuang Tungsten Co. Ltd.	Jiangxi, Ganzhou, Dayu	5
Do.	Ganzhou Haisheng Tungsten and Molybdenum Co. Ltd.	Jiangxi, Ganzhou	3
Do.	Ganzhou Huaxing Tungsten Products Co. Ltd. [Jiangxi Tungsten Industry Group Co. Ltd. (JWYX)]	do.	NA
Do.	Guangdong Xianglu Tungsten Co. Ltd.	Guangdong, Chaozhou, Xingqiao	5
Do.	Guangxi Pinggui Feidie Co. Ltd. [China Nonferrous Metals (Guangxi) Pinggui Feidei Co. Ltd.]	Guangxi, Hezhou, Zhongshan	5

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Tungsten:—Continued				
Products—Continued		Huichang Jinshunda Tin Co. Ltd.	Jiangxi, Ganzhou, Huichang	NA
Do.		Huihuang Tungsten and Molybdenum Product Co. Ltd.	Jiangsu, Dongtai	NA
Do.		Hunan Chenzhou Mining Co. Ltd. (Hunan Gold Corp. Ltd.)	Hunan, Huaihua	5
Do.		Hunan Jintai New Material Co. Ltd.	Hunan, Hengyang	8
Do.		Hunan Shizhuyuan Nonferrous Metals Co. Ltd., Chenzhou Tungsten Products Branch (China Minmetals Corp.)	Hunan, Chenzhou	20
Do.		Jiangwu H.C. Starck Tungsten Products Co. Ltd. [Jiangxi Rare Metals Tungsten Holdings Group Co. Ltd. (JXTC) and H.C. Starck GmbH (Masan Group Corp.)]	Jiangxi, Ganzhou	6
Do.		Jiangxi Minmetal Gaoan Nonferrous Metals Co. Ltd.	Jiangxi, Gaoan	NA
Do.		Jiangxi Rare Metals Tungsten Holding Group Co. Ltd. (JXHC), of which— Jiangxi Tonggu Non-ferrous Metallurgical & Chemical Co. Ltd.	Jiangxi, Yichun	NA
Do.		Jiangxi Xinsheng Tungsten Industry Co. Ltd.	Jiangxi, Ganzhou, Dingnan	12
Do.		Jiangxi Xiushui Ganbei Tungsten Co. Ltd. (China Minmetals Nonferrous Metals Co. Ltd.)	Jiangxi, Jiujiang, Xiushui	NA
Do.		Jiangxi Yaosheng Tungsten Co. Ltd.	do.	9
Do.		Luoyang Yongzhuo Tungsten and Molybdenum Material Co. Ltd.	Henan, Luoyang	1
Do.		Wendeng Zhengxing Tungsten Industry Co. Ltd.	Shandong, Weihai	NA
Do.		Xiaman Tungsten Co. Ltd. (XTC)	Fujian, Xiamen	6
Do.		Xiaman Jialu Metal Industry Co. Ltd. [Xiamen Tungsten Co. Ltd. (XTC)]	Fujian, Xiamen, Haicang	NA
Do.		Xinfeng Huarui Tungsten & Molybdenum New Material Co. Ltd.	Jiangxi, Ganzhou, Xinfeng	3
Do.		Zhongxiang Tungsten Co. Ltd.	Hunan, Chenzhou	NA
Uranium, mine, U content	metric tons	China National Nuclear Corp. (CNNC), of which— Fuzhou Jin'an Uranium Co. Ltd.	Jiangxi, Fuzhou	500
Do.	do.	Ganzhou Jinrui Uranium Co. Ltd.	Jiangxi, Chongyi	300
Do.	do.	North Uranium Co. Ltd.	Liaoning, Benxi	120
Do.	do.	do.	Liaoning, Qinglong	200
Do.	do.	Shaoguan Jinhong Uranium Industry Co. Ltd.	Guangdong, Shaoguan	300
Do.	do.	Tianshan Uranium Co. Ltd.	Xinjiang, Yining	800
Do.	do.	Xi'an CNNC Lantian Uranium Co. Ltd.	Shaanxi, Lantian	100
Vanadium, V_2O_5 equivalent	do.	Chengde Jianlong Special Steel Co. Ltd.	Hebei, Chengde	6,300
Do.	do.	CITIC Jinzhou Metal Co. Ltd.	Liaoning, Jinzhou	12,000
Do.	do.	Chengyu Vanadium and Titanium Technology Co. Ltd.	Sichuan, Chengdu	9,300
Do.	do.	Heilongjiang Jianlong Vanadium Industry Co. Ltd.	Heilongjiang, Shungyashan	5,600
Do.	do.	HBIS Chengde Vanadium Titanium New Material Co.	Hebei, Chengde	14,000
Do.	do.	Liaoning Hongjing Industrial Co. Ltd.	Liaoning, Huludao, Lianshan	1,800
Do.	do.	Pangang Group Vanadium and Titanium Resources Co. Ltd.	Sichuan, Panzhihua	21,000
Do.	do.	Pangang Group Xichang Steel and Vanadium Co. Ltd.	Sichuan, Xichang, Jingjiu	19,000
Do.	do.	Sichuan Desheng Group Vanadium and Titanium Co. Ltd.	Sichuan, Chengdu, Leshan	6,700
Do.	do.	Sichuan Neijiang Tranvic Special Steel Co. Ltd. (Tranvic Group)	Sichuan, Neijiang	24,000
Vermiculite		Xinjiang Yuli Inlong Vermiculite Co. Ltd.	Xinjiang, Korla	120
Wollastonite		Dalian Huanqiu Minerals Co. Ltd.	Liaoning, Huanqiu	NA
Zinc:				
Mine output, Zn content		Baiyin Nonferrous Metal Co.	Gansu, Baiyin	53
Do.		do.	Gansu, Changba	120
Do.		China Gold International Resources Corp. Ltd.	Xizang, Maizhokunggar	34
Do.		China Tin Group Co. Ltd. (Guangxi Huaxi Group Co. Ltd.)	Guangxi, Dachang	50
Do.		Guangdong Dabaoshan Mining Co. Ltd. (Rising Nonferrous Metaks Share Co. Ltd., 40%)	Guangdong, Shaoguan	NA
Do.		Guangxi Cenxi Longwan Mining Co. Ltd. (Guangxi Nonferrous Metals Group Co. Ltd.)	Guangxi, Cenxi, Hesan	15

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Zinc:—Continued			
Mine output, Zn content—Continued	Guangxi Zhongjin Lingnan Mining Co. Ltd.	Guangxi, Laibin, Wuxuan	NA
Do.	Huidong Daliang Mining Co. Ltd. (Western Mining Group Co. Ltd.)	Sichuan, Huidong	43
Do.	Hunan Baoshan Nonferrous Metals and Mining Co. Ltd.	Hunan, Baoshan	20
Do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd. (China Minmetal Corp.)	Hunan, Kangjiawan	20
Do.	do.	Hunan, Chaling, Shuikoushan	21
Do.	Inner Mongolia Yulong Mining Co. Ltd.	Nei Mongol, Bayanhubogacha	NA
Do.	Jiangxi Dean Tianbao Mining Group Co. Ltd.	Jiangxi, Dean, Zhangshiba	30
Do.	Jiangxi Tianyi Mining Co. Ltd.	Jiangxi, Guixi	NA
Do.	Jinhui Mining Co. Ltd.	Gansu, Longnan, Hui	65
Do.	Shenzhen Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shenzhen	190
Do.	Sichuan Xinyuan Mining Industry Co. Ltd.	Sichuan, Xiacun	40
Do.	Tibet Huaxia Mineral Co. Ltd.	Xizang, Nagqu, Lhari	22
Do.	Tibet Huayu Mining Co. Ltd.	Xizang, Lhasa	20
Do.	Western Mining Co. Ltd.	Qinghai, Xining	70
Do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	40
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Huize, Rongda	300
Do.	Yunnan Hualian Zinc Indium Co. Ltd.	Yunnan, Maguan	NA
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group Co. Ltd.)	Yunnan, Nujiang, Lanping	200
Do.	Zijin Mining Group Co. Ltd.	Nei Mongol, Bayannur	50
Do.	do.	Xinjiang, Habahe	12
Do.	do.	Xinjiang, Wuqia	110
Refinery:			
Primary	Anhui Tongguan Chizhou Non-ferrous Metals. Co. Ltd.	Anhui, Chizhou	100
Do.	Baiyin Nonferrous Metal Group Co. Ltd.	Gansu, Baiyin	250
Do.	Bayannur Zijin Nonferrous Metals Co. Ltd.	Nei Mongol, Bayannur	220
Do.	Chifeng NFC Kumba Hongye Zinc Co. Ltd. (China Nonferrous Metals Mining Group Co. Ltd.)	Nei Mongol, Chifeng	210
Do.	Gansu Baohui Industrial Group Co. Ltd.	Gansu, Liulin	90
Do.	Gansu Changba Nonferrous Metals Co. Ltd.	Gansu, Chengxian	100
Do.	Guangxi China Tin Group Co. Ltd.	Guangxi, Laibin	50
Do.	Guangxi Jinhe Mining Co. Ltd.	Gansu, Huanjiang	60
Do.	Guangxi Nandan Nanfang Nonferrous Metal Smelting Co. Ltd.	Guangxi, Hechi	300
Do.	Hanzhong Zinc Industry Co. Ltd. (Youser Group)	Shaanxi, Mainxian	360
Do.	Hunan Shuikoushan Nonferrous Metals Group Co. Ltd.	Hunan, Changning	150
Do.	Huludao Zinc Smelting Co. Ltd. (Huludao Nonferrous Metals Group Co. Ltd.)	Liaoning, Huludao	390
Do.	Hulunbuir Chihong Mining Co. Ltd.	Nei Mongol, Hulunbuir	140
Do.	Jiangxi Copper Corp. Ltd.	Jiangxi, Guixi	200
Do.	Liuzhou Huaxi Group Co.	Yunnan, Laibin	60
Do.	Liuzhou Longcheng Chemical General Plant	Guangxi, Liuzhou	90
Do.	Liuzhou Zhongse Zinc Products Co. Ltd. (China Nonferrous Metals Mining Group Co. Ltd.)	do.	30
Do.	Qinghai Zhufeng Zinc Industry Co. Ltd.	Jiangsu, Nanjing	40
Do.	Shaanxi Dongling (Lead and Zinc) Smelting Co.	Shaanxi, Baoji	250
Do.	Shenzhen Zhongjin Lingnan Nonfemet Co. Ltd.	Guangdong, Shaoguan	100
Do.	Sichuan Hongda Group	Sichuan, Chengdu	100
Do.	Sichuan Huili Lead and Zinc Co. Ltd.	Sichuan, Huili	200
Do.	Sichuan Sihuan Zinc and Germanium Technology Co. Ltd.	Sichuan, Shimian	120
Do.	Western Mining Co. Ltd.	Qinghai, Xining	100
Do.	Xinjiang Jijin Nonferrous Metals Co. Ltd.	Xinjiang, Wuqia	100
Do.	Xing'an Copper & Zinc Smelting Co. Ltd.	Nei Mongol, Xilinuole	125

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2, 3]	Annual capacity[e]
Zinc:—Continued			
Refinery:—Continued			
Primary—Continued	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	300
Do.	Yuguang Zinc Industry Co. Ltd.	do.	250
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300
Do.	Yunnan Jingcheng Group Co. Ltd.	Yunnan, Ruili	100
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group)	Yunnan, Lanping	140
Do.	Yunnan Luoping Zinc and Electricity Co. Ltd.	Yunnan, Xindian	120
Do.	Yunnan Xiangyun Feilong Recycling Technology Co. Ltd.	Yunnan, Xiangyun	180
Do.	Yunnan Yountong Zinc Industry Co. Ltd.	Yunnan, Kunming	110
Do.	Yunnan Wenshan Zinc and Indium Smelting Co. Ltd.	do.	100
Do.	Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shaoguan	247
Do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	560
Secondary	Hanyuan Junlei Technology Co. Ltd.	Sichuan, Hanyuan	100
Do.	Yuanfu Zinc Industry Co. Ltd.	do.	80
Zirconium, zircon	Various private producers	Hainan, Wenchang and Wanning	120

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

[1]Most companies are owned by the central Government or a provincial government. Not all facilities are listed because the available information was inadequate to provide a complete list for the mineral commodity or because there were too many facilities to list.

[2]Listed by Province or autonomous region, followed by locality. Only headquarter locations are provided for some companies that have numerous facilities throughout the country.

[3]Some locations have different official translations, for example, Nei Mongol is also known as "Inner Mongolia" and Xizang is also known as "Tibet."

TABLE 3
CHINA: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2020 AND 2021

Commodity	2020 Quantity (metric tons)	2020 Value (thousand dollars)	2021 Quantity (metric tons)	2021 Value (thousand dollars)
METALS				
Aluminum:				
Alumina	154,585	99,004	119,896	118,458
Metal and alloys:				
Unwrought	223,959	419,048	157,764	416,916
Semimanufactures	4,613,413	12,504,756	5,265,288	18,074,374
Antimony, unwrought	8,256	46,061	11,480	112,370
Cobalt, matte, unwrought, and powder	1,637	59,703	2,464	122,966
Copper, metal and alloys:				
Unwrought	212,312	1,293,210	266,563	2,457,519
Semimanufactures	532,145	4,144,155	665,888	6,897,997
Ferroalloys	470,000	834,490	920,000	2,352,951
Iron and steel:				
Pig iron and cast iron	1,020	536	87,400	46,402
Steel:				
Bars and rods	6,900,000	4,280,613	7,770,000	7,036,584
Shapes and sections	2,810,000	1,996,799	2,570,000	2,691,562
Sheets and plates	32,730,000	23,784,843	45,090,000	50,612,456
Tube and pipe	7,340,000	8,153,458	7,530,000	11,406,937
Wire of steel or iron	2,030,000	2,755,256	2,060,000	4,609,649
Scrap	470	204	2,900	534
Manganese, unwrought	353,612	547,718	401,431	1,215,065
Molybdenum, ore and concentrate	2,921	21,793	20,278	334,230
Nickel, ore and concentrate[1]	10,109	12,756	--	4
Rare-earth ore, metals, and compounds	35,448	343,921	48,918	653,369
Tin, metal and alloys, unwrought	4,484	78,580	14,322	422,289
Tungsten, tungstate	2,586	53,298	4,389	111,146
Zinc:				
Metal and alloys, unwrought	31,659	79,406	6,624	21,015
Oxide and peroxide	20,725	43,880	13,724	40,031
INDUSTRIAL MINERALS				
Barite	541,000	88,246	924,000	140,319
Cement and clinker	3,130,000	220,347	2,200,000	181,315
Fluorspar	176,000	64,525	209,000	87,585
Granite, products	463,000	30,125	723,000	30,877
Graphite, natural	238,000	327,813	286,000	327,138
Lithium:				
Carbonates	7,490	59,574	7,840	99,385
Oxide and hydroxide	56,600	544,373	73,700	763,873
Magnesia, fused	2,570,000	570,227	3,220,000	943,652
Talc	581,000	133,084	727,000	170,701
MINERAL FUELS AND RELATED MATERIALS				
Coal	3,190,000	435,761	2,600,000	504,221
Coke, semicoke	3,490,000	772,848	6,640,000	2,357,839
Petroleum:				
Crude	1,640,000	481,626	2,610,000	1,010,394
Refinery products	61,830,000	25,473,643	60,310,000	32,414,632

-- Zero.

[1]The value and volume for exports were reported by the source; the reason for the mismatch was not specified.

Sources: General Administration of Customs of the People's Republic of China, Major Export Commodities in Quantity and Value, December 2020 and December 2021; United Nations Comtrade Database.

TABLE 4
CHINA: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2020 AND 2021

Commodity		2020 Quantity (metric tons)	2020 Value (thousand dollars)	2021 Quantity (metric tons)	2021 Value (thousand dollars)
METALS					
Aluminum:					
Bauxite		111,557,663	5,052,335	107,374,251	5,116,500
Alumina		3,806,030	1,224,921	3,326,851	1,323,160
Metal and alloys, unwrought		2,297,712	3,812,962	2,733,556	2,578,491
Semimanufactures		405,705	2,438,639	478,002	2,864,425
Scrap		824,648	1,032,110	1,033,367	2,038,417
Chromium, chromite		14,300,000	2,043,190	14,900,000	2,607,411
Cobalt, matte, unwrought, and powder		309,000	2,459,174	317,000	4,711,587
Copper:					
Ore and concentrates		21,770,000	34,297,835	23,400,000	56,763,642
Metal and alloys:					
Unwrought		5,010,000	30,601,055	4,010,000	36,073,461
Semimanufactures		1,670,000	12,569,666	1,520,000	16,379,965
Scrap		943,000	4,568,402	1,690,000	12,664,080
Iron ore		1,170,100,000	118,944,291	1,124,320,000	184,673,964
Iron and steel, steel:					
Bars and rods		2,395,000	1,148,049	2,671,000	1,780,036
Shapes and sections		673,000	1,182,736	705,000	1,498,090
Sheets and plates		16,083,000	11,379,032	9,949,000	12,019,073
Tube and pipe		427,000	2,161,746	391,000	2,317,011
Scrap		2,700	20,669	553,000	324,422
Lead, ore and concentrate		1,334,518	1,714,467	1,203,270	1,862,127
Manganese, ore and concentrate		20,900,000	7,038,412	19,700,000	7,882,724
Nickel, ore and concentrate		39,300,000	2,928,071	45,500,000	4,420,000
Silicon, polycrystalline		100,776	953,865	114,183	2,040,244
Tin, ore and concentrate		158,000	554,686	184,000	1,327,755
Titanium dioxide		187,000	582,995	211,000	703,059
Zinc, ore and concentrate		3,822,171	2,472,212	3,643,145	3,869,204
INDUSTRIAL MINERALS					
Diamond	kilograms	1,575	5,944,613	2,525	9,886,890
Lithium:					
Carbonates		50,100	260,952	81,000	562,057
Oxide and hydroxide		530	3,158	3,600	33,404
Nitrogen, phosphorus, and potassium fertilizers:					
Compound fertilizers		1,400,000	619,917	1,210,000	644,461
Potassium chloride		8,740,000	2,091,624	7,570,000	1,941,046
Potassium sulfate		75,300	26,784	51,500	21,813
Urea		1,620	1,696	53,700	28,392
MINERAL FUELS AND RELATED MATERIALS					
Coal		303,990,000	20,237,280	323,220,000	35,896,352
Natural gas		34,530,000	10,061,286	42,430,000	11,630,882
Liquefied natural gas		67,130,000	23,393,442	78,930,000	44,179,022
Petroleum:					
Crude		542,390,000	176,321,269	512,980,000	257,331,157
Refinery products		28,350,000	11,793,688	27,120,000	16,694,454

Sources: General Administration of Customs of the People's Republic of China, Major Export Commodities in Quantity and Value, December 2020 and December 2021; United Nations Comtrade Database.

TABLE 5
CHINA: RESERVES OF MAJOR MINERAL COMMODITIES IN 2021

(Thousand metric tons unless otherwise specified)

Commodities		Reserves[1, 2]
Antimony, Sb content		640
Barite		92,000
Bauxite	million metric tons	710
Chromite		3,100
Clay, kaolin	million metric tons	750
Coal	billion metric tons	210
Copper, Cu content		35,000
Fluorspar		67,000
Gas, natural	billion cubic meters	6,300
Gold, Au content	metric tons	3,000
Graphite, mineral		78,000
Iron ore	million metric tons	16,000
Lead, Pb content		20,000
Magnesite	million metric tons	580
Manganese, ore	do.	280
Mirabilite, Na_2SO_4 content	do.	38,000
Molybdenum, Mo content		5,800
Nickel, Ni content		4,200
Petroleum	million 42-gallon barrels	27,000
Phosphate rock	million metric tons	3,800
Potash, KCl content	do.	280
Pyrites	do.	1,300
Salt, NaCl content	do.	21,000
Silver, Ag content		72
Talc		72,000
Tin, Sn content		1,100
Titanium, ilmenite and leucoxene	million metric tons	210
Tungsten, WO_3 content		3,000
Vanadium, V_2O_5 content		7,900
Zinc, Zn content		44,000

do., Ditto.

[1]Data have been rounded to no more than two significant digits.

[2]The National Bureau of Statistics of China categorizes these as "basic reserves."

Source: China Statistical Yearbook 2022.