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The Mineral Industry of Saudi Arabia

By Mowafa Taib

In 2023, Saudi Arabia exported aluminum, ammonia, cement, copper, gold, iron and steel, crude petroleum, refined petroleum products, ammonium phosphate fertilizers, silver, sulfur, titanium sponge, urea, and zinc. The country also produced basalt, dolomite, feldspar, granite, gypsum, kaolin, secondary lead, limestone, magnesite, marble, petroleum coke, phosphate rock, pyrophyllite, salt, sand and gravel (construction and industrial), and schist. In 2023, Saudi Arabia held the world's second-largest proven crude petroleum reserves after Venezuela, which were estimated to be 267 billion barrels and accounted for 17.0% of the world's total. The country held the world's fifth-largest proven natural gas reserves, which were estimated to be 9.7 trillion cubic meters and accounted for 4.7% of the world's total natural gas reserves (table 1; Organization of the Petroleum Exporting Countries, 2024, p. 10, 22, 76; Workman, 2024; Tolcin, 2025).

In 2023, Saudi Arabia was the world's 2d-ranked producer of natural gas liquids (NGL) after the United States and accounted for 13.1% of the world's total production; the 3d-ranked producer of crude petroleum after the United States and Russia and accounted for 11.6%; the 4th-ranked producer of sulfur after China, the United States, and Russia and accounted for 8.7%; the 4th-ranked producer of diammonium phosphate (DAP) and direct-reduced iron (DRI) and accounted for 9.4% and 4.9%, respectively; the 5th-ranked producer of titanium sponge (excluding the United States) and accounted for 3.4%; the 5th-ranked producer of refined petroleum products and accounted for 3.4%; the 6th-ranked producer of nitrogen (fixed)-ammonia and accounted for 2.9%; the 7th-ranked producer of alumina and accounted for 1.4%; the 9th-ranked producer of bauxite (excluding the United States) and accounted for 1.2%; the 9th-ranked producer of feldspar and accounted for 2.0%; the 12th-ranked producer of cement and accounted for 1.2%; and the 14th-ranked producer of gypsum and accounted for 2.4% (Energy Institute, 2024, p. 21, 23, 24, 32; International Fertilizer Association, 2024; Midrex Technologies Inc., 2024, p. 2; Apodaca, 2025a, b; Barry, 2025; Crangle, 2025; Hatfield, 2025; Jasinski, 2025; Merrill, 2025; Tolcin, 2025).

Minerals in the National Economy

In 2023, Saudi Arabia was the leading economy in the Middle East and North Africa region and the world's 19th-ranked economy in terms of the value of its nominal gross domestic product (GDP), which amounted to $1.07 trillion.[1] The country's real GDP decreased by 0.8% in 2023 compared with an increase of 7.5% in 2022. The decrease was mainly attributed to lower crude petroleum production volumes and prices on the world market in 2023 compared with those in 2022. The price of Saudi Arabia's Arabian light crude averaged $94.94 per barrel in 2023 compared with $101.64 per barrel in 2022. The mining and quarrying sector, which included fuel and nonfuel minerals production, contributed 25.8% to the country's GDP in 2023 compared with 33% in 2022. The crude petroleum and natural gas sector's contribution to the GDP was about 25.4%; the contribution of the manufacturing sector, which included aluminum, electricity, fertilizer, and steel production, natural gas processing, and petroleum refining, to the GDP increased to 14.8% in 2023 from 14.4% in 2022; that of the nonfuel mining sector was 0.4%; and that of the construction sector increased to 5.2% in 2023 from 4.6% in 2022 (Organization of the Petroleum Exporting Countries, 2024, p. 66; World Bank, The, 2024; International Monetary Fund, 2025; Saudi Central Bank, 2025, p. 3).

Foreign direct investment (FDI) to Saudi Arabia increased to $22.1 billion (2.4% of the GDP) in 2023 from $16.2 billion (2.0%) in 2022. The Ministry of Investment was planning to double the flow of international investment to the country to 4.8% of the GDP by 2028 and set a target of $103.5 billion (5.7% of the GDP) by 2030. In 2022, the manufacturing sector received $11.0 billion of the FDI inflows; the mining sector, about $1.3 billion; and the construction sector, $1.1 billion. The FDI stock distribution in 2022 included $63.7 billion for the manufacturing sector, $12.0 billion for the construction sector, and $6.4 billion for the mining sector. The United States was the leading foreign investor in Saudi Arabia in 2023 (accounting for $2.4 billion of FDI), followed by Japan ($1.5 billion), France ($1.3 billion), and the United Kingdom ($1.2 billion) (Ministry of Investment, 2024, p. 4, 14, 15, 20).

Government Policies and Programs

The Mining Investment Law was the legal framework of the mining sector in Saudi Arabia in 2023. The law, which became effective in 2021, was expected to speed up foreign investment in the mining sector and to help reduce the country's dependence on the hydrocarbon sector by increasing the contribution of nonfuel sectors to the country's GDP. The law provides new facilities to investors to secure financing and supports exploration and geologic survey activities for the country's untapped mineral resources. The mining investment code allows mining rights to be granted to corporations and (or) individuals with technical and financial competence and expertise. The law and its implementing regulations established six types of mining permits that have various periods of validity for different classes of minerals (U.S. International Trade Administration, 2021; Ministry of Industry and Mineral Resources, 2023, p. 4–5, 22).

The Deputy Ministry of Mineral Resources (DMR), which is within the Ministry of Industry and Mineral Resources (MIMR), supervises the country's mining activities, promotes investments, provides services, and issues mining licenses and

[1]Where necessary, values have been converted from Saudi riyals (SAR) to U.S. dollars (US$) at an annual average exchange rate of SAR3.75=US$1.00 for 2023 and 2022.

concessions in the country. By the end of November 2023, the DMR issued a total of 2,341 permits, including 1,513 building materials and quarry permits, 586 mineral exploration permits, 186 mining production permits, 33 prospection permits, and 23 surplus mineral ores permits. The permits were distributed among the Regions as follows: Riyadh Region, 580 permits; Eastern Region, 398 permits; Mecca Region, 393 permits; Medina Region, 241 permits; Asir Region, 177 permits; Tabuk Region, 134 permits; Qassim and Jazan Regions, 70 permits each; Najran Region, 58 permits; Hail Region, 55 permits; Al Bahah Region, 30 permits; Northern Borders Region, 27 permits; and Al-Jawf Region, 25 permits (Ministry of Industry and Mineral Resources, 2024).

Saudi Arabia's Vision 2030 identified the mineral industry as the potential third pillar of the country's economy, beside the petroleum and petrochemicals sectors. Therefore, the MIMR has been investing in the mineral sector to increase its value by increasing mining output and planning mineral-processing plants in the country. According to the MIMR, the value of Saudi Arabia's mineral resources was estimated to be $1.3 trillion in 2016. By the end of 2023, the Government increased its estimates of the country's mineral potential by 90% to $2.5 trillion. The increase was attributed to new discoveries in rare-earth elements, and the reevaluation of the quantities and values of copper, gold, phosphate rock, and zinc resources in the country (Kingdom of Saudi Arabia, 2016, p. 44, 49; Serrari Group, 2023; Hassan, 2024).

Production

Most notable increases in Saudi Arabia's mineral commodity production in 2023 compared with those in 2022 included pozzolan, which increased by an estimated 96%; silicomanganese, by 40%; titanium sponge, by 24%; diammonium phosphate fertilizer, by 15%; and phosphate rock, by 14%. Production of magnesite was estimated to have decreased by 74% in 2023 compared with that in 2022; the decrease was attributed to exhaustion of reserves. Data on mineral production are in table 1.

Structure of the Mineral Industry

In 2023, the Government owned 98.5% of Saudi Arabian Oil Co. (Aramco) and had a majority interest in several companies that operated in the mineral fuels sector. The Government also played a significant role in supporting the private mineral sector through its Public Investment Fund (PIF) and the Saudi Industrial Development Fund. Major mining and mineral-processing companies that operated in Saudi Arabia in 2023 included Al Masane Al Kobra Mining Co. (AMAK), Al-Ittefaq Group, Saudi Arabian Mining Co. (Ma'aden), Saudi Basic Industries Corp. (SABIC), and SABIC Agri-Nutrients (SAN). The country had 18 publicly traded cement companies (table 2).

Ma'aden was a joint-stock company owned by the PIF (67.78%) and private investors (the remaining 32.22% free-floating shares). Through its subsidiaries and joint ventures, Ma'aden produced alumina, aluminum, metallurgical and nonmetallurgical (low-grade) bauxite, copper, phosphate fertilizers, gold, kaolin, magnesite, phosphate rock, silver, and zinc. Ma'aden subsidiaries included six wholly owned companies and six joint ventures. The wholly owned companies included Ma'aden Gold and Base Metals Co. (MGBM), Ma'aden Industrial Minerals Co. (MIMC), Ma'aden Infrastructure Co., Ma'aden Marketing and Distribution Co., and Ma'aden Rolling Co. The joint ventures included Ma'aden Aluminium Co. (MAC), which was a joint venture of Ma'aden (74.9%) and Alcoa Saudi Smelting Inversiones S.L. (a subsidiary of Alcoa Corp. of the United States) (25.1%); Ma'aden Bauxite and Alumina Co. (MBAC), which was a joint venture of Ma'aden (74.9%) and Alcoa Saudi Smelting Inversiones S.L. (25.1%); Ma'aden Phosphate Co. (MPC), which was owned by Ma'aden (70%) and SABIC (30%); Ma'aden Wa'ad Al-Shamal Phosphate Co. (MWSPC), which was owned by Ma'aden (60%), Mosaic Co. of the United States (25%), and SABIC (15%); and Ma'aden Barrick Copper Co. (MBCC), which was a 50–50 joint venture of Ma'aden and Barrick Gold Corp. of Canada. Ma'aden employed 6,875 workers in 2023 (table 2; Barrick Gold Corp., 2023, p. 30; Saudi Arabian Mining Co., 2023, p. 44, 68; 2024, p. 130).

Mineral Trade

The value of Saudi Arabia's total exports decreased by 16% to $371.0 billion in 2023 from $442.6 billion in 2022. Petroleum exports, which included crude petroleum and refined petroleum products, decreased by 24% to $248.4 billion in 2023 from $326.3 billion in 2022. The sharp decrease in the value of Saudi Arabia's exports was mainly attributed to decreased crude petroleum prices on the world market and to the country's decreased volume of petroleum exports. Other mineral-related exports included those of organic chemicals, which were valued at $12.2 billion; fertilizers, $4.3 billion; aluminum, $1.6 billion; inorganic chemicals, $1.48 billion; gems and precious metals, $1.26 billion; and copper concentrate, $1.14 billion. The value of Saudi Arabia's imports increased by 13% to $291.6 billion in 2023 from $258.8 billion in 2022 (Organization of the Petroleum Exporting Countries, 2023, p. 10; 2024, p. 10; United Nations Trade & Development, 2024, p. 1–2; Workman, 2024).

In terms of volume, Saudi Arabia's crude petroleum exports decreased to 6.7 million barrels per day (Mbbl/d) in 2023 from 7.4 Mbbl/d in 2022. Refined petroleum products exports decreased to about 1.3 Mbbl/d in 2023 from 1.5 Mbbl/d in 2022. Saudi Arabia's crude petroleum exports went mainly to China (23%), Japan (14%), the Republic of Korea (13%), countries in Europe (10%), India (10%), Egypt (8%), and the United States (4%) (Organization of the Petroleum Exporting Countries, 2023, p. 10; 2024, p. 10, 53; U.S. Energy Information Administration, 2024, p. 14).

Saudi Arabia's exports to the United States decreased by 32% to $15.9 billion in 2023 from $23.3 billion in 2022. The decrease was mainly attributed to the decrease in the value of crude petroleum exports, which totaled $13.7 billion in 2023. Fertilizer exports were valued at $790 million and accounted for 35% of non-petroleum exports to the United States; organic chemicals exports were valued at $706 million and accounted for 31%; and exports of inorganic chemicals, precious and rare metals, and radioactive compounds were valued at $12 million. Saudi Arabia exported about 5,500 t of titanium sponge to the United States in 2023, which accounted for 13% of the United States' total imports of titanium sponge (Gambogi, 2024; Saudi Press Agency, 2024; U.S. Census Bureau, 2024).

Saudi Arabia's imports from the United States increased to $13.8 billion in 2023 from $11.4 billion in 2022. The main categories of Saudi Arabia's imports from the United States included automotive sector products, which were valued at $2.8 billion; nuclear reactors, boilers, machinery and parts thereof were valued at $2.5 billion; and aircraft and parts thereof were valued at $1.7 billion. Saudi Arabia imported bromine products from the United States in 2023; its imports accounted for 19% of the U.S. exports of bromine (gross weight) (Saudi Press Agency, 2024; Schnebele, 2024; U.S. Census Bureau, 2024).

Commodity Review

Metals

Bauxite and Alumina, and Aluminum.—MBAC was the sole producer of bauxite and alumina in Saudi Arabia. The company's output of metallurgical bauxite at the Al Ba'itha Mine was estimated to be 5.4 million metric tons (Mt) in 2023 compared with the reported 5.3 Mt in 2022. At the end of 2023, the Al Ba'itha Mine's proven and probable reserves of metallurgical bauxite were 188.40 Mt grading 56.45% Al_2O_3 and 9.57% SiO_2 (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 276, 303).

MBAC's alumina production at the Ras Al Khair alumina refinery increased to 1.825 Mt in 2023 compared with 1.745 Mt in 2022. The MBAC refinery supplied alumina for the MAC aluminum smelter. Saudi Arabia's primary aluminum production was estimated to have decreased to 730,000 metric tons (t) in 2023 from 776,000 t (revised) in 2022. The decrease was mainly attributed to the aluminum market volatility in 2023. Aluminum production was carried out by MAC at its smelter in Ras Al Khair in Eastern Region (tables 1, 2; Saudi Arabian Mining Co., 2023, p. 62, 119).

Copper.—Saudi Arabia's copper production was estimated to be 72,000 t in 2023 compared with 76,000 t in 2022. MBCC was the leading copper producer in the country in 2023. The company produced 59,091 t of copper in 2023 compared with 68,418 t of copper in 2022. In addition to copper, MBCC produced unspecified quantities of cobalt, lead, nickel, silver, sulfur, and zinc at the Jabal Sayid Mine in Medina Region. As of December 31, 2023, total proved and probable copper reserves at the Jabal Sayid Mine were 40.09 Mt of ore grading 0.92% Cu. In 2023, Ma'aden created two joint ventures with Barrick Gold to explore for copper in the Jabal Sayid South and Umm Ad Damar license areas. The joint ventures were expected to support Ma'aden's copper production and enhance its job creation and economic development in remote areas in Saudi Arabia (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 16, 55, 276).

AMAK mined copper at the Masane Al Kobra Mine (ALM) in Najran Region and produced 19,515 t of copper concentrate in 2023 compared with 21,190 t in 2022. By the end of 2023, ALM's total minerals resources were 7.74 Mt grading 0.63% Cu (table 2; Al Masane Al Kobra Mining Co., 2024, p. 24, 27).

Gold and Silver.—Saudi Arabia's mined gold output increased to 13,476 kilograms (kg) in 2023 from 12,268 kg in 2022. Gold and silver production was carried out by AMAK and MGBM in 2023. MGBM was the leading gold producer in the country; it operated six mines in 2023. The company's gold production increased to 12,656 kg in 2023 from 10,955 kg in 2022. Most of MGBM's gold production was from the Ad Duwayhi Mine, which produced 4,581 kg of gold, and the Mansourah-Massarah Mine, which produced 4,542 kg. Gold production from MGBM's other four mines included 1,881 kg at the Bulghah and Sukhaybarat Mines, 738 kg at the Mahd Adh-Dahab Mine, 651 kg at the Al Amar Mine, and 31 kg at the As Suq Mine. MGBM's total proved and probable reserves at the end of 2023 were estimated to be 265 Mt of ore grading 1.49 grams per ton (g/t) gold for a total of 395,000 kg of gold (reported as 12.7 million troy ounces). The gold reserves were spread across 11 sites in Saudi Arabia, including the 6 existing gold mines and the following deposits under development: the Ar Rjum (Umm Naam and Ghazal), the Ar Rjum (Waseemah), the Bir Tawilah, the Humayma, and the Jabal Ghadarah mining licenses (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 54–57, 276).

In 2023, AMAK produced 166 kg of gold and 3,349 kg of silver from ALM compared with 188 kg of gold and 2,709 kg of silver in 2022. The company also produced 765 kg of gold from the Guyan gold mine in 2023 compared with 773 kg in 2022. AMAK commissioned its Guyan processing plant in 2021, which is 190 kilometers (km) east of the city of Khamis Mushait in Asir Region. The plant's throughput capacity was 400,000 metric tons per year (t/yr) of ore. In 2023, the company continued to build its Moyeath processing plant, which was expected to be completed in 2024. The completion of the plant was expected to increase AMAK's copper concentrate production by 50% and that of zinc concentrate by 80%. The Moyeath processing plant was expected to have a capacity of 1.2 million metric tons per year (Mt/yr) by dewatering, flotation, and other technologies to recover base and precious metal, which would extend the life of ALM by 10 years. By the end of 2023, the total probable and proven reserves at ALM were 6.47 Mt grading 0.78 g/t gold and 29.60 g/t silver, and those at the Guyan Mine were 2.9 Mt grading 1.74 g/t gold (table 2; Al Masane Al Kobra Mining Co., 2024, p. 23–25, 31, 32).

In 2023, Ma'aden acquired a 9.9% interest in Ivanhoe Electric Inc. of the United States and created a 50–50 joint venture with the company to explore strategic minerals in Saudi Arabia. The joint venture Ma'aden Ivanhoe Electric Exploration and Development Ltd. Co. (Ma'aden IE Electric) was expected to explore for copper, gold, nickel, and silver in Saudi Arabia (Saudi Arabian Mining Co., 2024, p. 143, 212).

Iron and Steel.—Saudi Arabia's DRI output increased to 6.80 Mt in 2023 from 6.71 Mt in 2022. Similarly, raw steel output increased to 9.94 Mt in 2023 from 9.86 Mt in 2022. Saudi Iron & Steel Co. (Hadeed), which was a wholly owned subsidiary of SABIC, produced a wide range of iron and steel products. The company's production of raw steel increased by 13% to 5.2 Mt in 2022 (the latest year for which data were available) from 4.6 Mt in 2021. In 2023, SABIC sold its share in Hadeed to the PIF. The PIF planned to acquire Rajhi Steel Industries Co. Ltd. and merge it with Hadeed to create a national steel company in Saudi Arabia that would have the capacity to meet increased demand for steel under the Kingdom Vision 2030. The Al-Ittefaq Group produced billet, DRI, pelletized iron, raw steel, reinforced steel bar, wired rods, and other iron and steel products. The company owned and operated a 2.5-Mt/yr-capacity iron pellet plant, a 2.5-Mt/yr-capacity DRI plant, a 3.0-Mt/yr-capacity scrap metal recycling mill, and a 2.8-Mt/yr-capacity rolling mill at Dammam in Eastern Region (tables 1, 2; SABIC, 2024, p. 45; World Steel Association, 2024, p. 9, 19; Al-Ittefaq Steel Products Co., undated).

Titanium.—In 2023, Saudi Arabia's production of titanium sponge increased to 12,000 t from 9,700 t in 2022 and 5,700 t in 2021. AMIC Toho Titanium Metal Co. Ltd. (ATTM), which was a joint venture of Advanced Metal Industries Cluster Co. Ltd. (AMIC) (65%) and Toho Titanium Co. of Japan (35%), operated the titanium sponge plant at Yanbu Industrial City on the Red Sea coast in Western Saudi Arabia. The plant had the capacity to produce 15,600 t/yr of titanium sponge. In 2023, AMIC operated Saudi Arabia's first titanium smelter, which is at Jazan Economic Zone in Jazan Region. The smelter had the capacity to produce 500,000 t/yr of titanium slag and 250,000 t/yr of pig iron. AMIC produced titanium slag for use by ATTM's titanium sponge plant at Yanbu (tables 1, 2; National Industrialization Company-Tasnee, 2023; Tolcin, 2024).

Zinc.—Saudi Arabia's production of zinc increased to an estimated 26,000 t in 2023 compared with 25,500 t in 2022. AMAK was Saudi Arabia's leading producer of zinc in 2023; it produced 45,700 t of zinc concentrate at ALM compared with 41,151 t of zinc concentrate in 2022. At the end of 2023, AMAK's total mineral resource at ALM was 6.61 Mt grading 3.64% Zn. Ma'aden's zinc production was carried out by its subsidiaries MBCC and MGBM, which produced unspecified amounts of zinc as a byproduct of the companies' copper- and gold-mining operations. By the end of 2023, Ma'aden's total probable and proven reserves were 40.09 Mt grading 0.60% Zn (table 1; Al Masane Al Kobra Mining Co., 2024, p. 24, 31; Saudi Arabia Mining Co., 2024, p. 276).

Industrial Minerals

Cement.—Saudi Arabia's cement production decreased to 49.2 Mt in 2023 from 52.4 Mt in 2022. The decrease was attributed to decreased domestic demand. The country's cement consumption decreased to 47.8 Mt in 2023 from 50.8 Mt in 2022, but it was expected to increase to 52.7 Mt in 2024 owing to large-scale projects such as the NEOM, Qiddiya, and the Red Sea urban development projects and the Riyadh Metro. Saudi Arabia's cement exports, which were carried out under the control of the Government through export permits, decreased to 8.5 Mt in 2023 from 8.9 Mt in 2022. There were 22 portland and white cement plants, which had a combined capacity of 85 Mt/yr in Saudi Arabia in 2023. The stockpile of cement in Saudi Arabia remained at about 35 Mt in 2023 (tables 1, 2; International Cement Review, 2023; Zawya, 2023).

Kaolin, Low-Grade Bauxite, and Magnesite.—Saudi Arabia's kaolin production was estimated to have increased to 280,000 t in 2023 from 279,000 t in 2022. Kaolin production, which has been gradually increasing over the past 5 years, came mainly from MIMC's Az Zabirah Mine. The company's total proved and probable reserves of kaolin at the Az Zabirah mining license were estimated to be 2.50 Mt, and the remaining mine life was 14 years as of 2023. Low-grade bauxite production was estimated to be 600,000 t in 2023, unchanged from that in 2022. MIMC's production of industrial bauxite came from the Az Zabirah Mine, which had 15.06 Mt of proved and probable reserves of bauxite ore grading 53.61% Al_2O_3 and 16.80% SiO_2. MIMC also produced magnesite at its Al Ghazalah Mine; its production was estimated to have decreased to 90,000 t in 2023 from an estimated 340,000 t in 2022. The total proved and probable reserves of magnesite were 130,000 t grading 49.0% MgO and 0.35% SiO_2 (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 286, 288, 290).

In 2023, MIMC was exploring for magnesite at Jabal Rokham, which is about 330 km northeast of Jeddah and 60 km northeast of the Mahd Adh Dahab Mine in Medina Region. The exploration permit covered a 12-square-kilometer (km^2) area, and the mining permit covered 3.2 km^2. Proved and probable ore reserves at the Jabal Rokham project at the end of 2023 were 130,000 t of uncalcined magnesium oxide grading 49% MgO (Saudi Arabian Mining Co., 2023, p. 43; 2024, p. 190).

Nitrogen.—Saudi Arabia produced and exported several types of nitrogen products, including ammonia, DAP, monoammonium phosphate (MAP), and urea. In 2023, the country's ammonia (N content) production decreased to an estimated 5.4 Mt from 5.5 Mt in 2022, and production of urea (N content) decreased to 2.1 Mt from 2.3 Mt in 2022. Ma'aden's affiliates, MPC and MWSPC, produced 3.2 Mt of ammonia in 2023 from their plants at the Ras Al Khair complex and used it in the manufacture of DAP and MAP for direct sales. Ma'aden sold about 2.0 Mt of ammonia in 2023 (tables 1, 2; Saudi Arabia Mining Co. 2024, p. 46).

In 2023, SAN was the sole producer of urea in the country. The company was a joint venture of SABIC (50.1%) and public investors (49.9%) created to produce and market ammonia, urea, and other nitrogen fertilizers. SAN owned the National Chemical Fertilizer Co. (Ibn Al-Baytar), which produced nitrogen fertilizer at the Al Baytar and Safco urea plants in Jubail Industrial City in Eastern Region; the plants had a combined capacity of 5.4 Mt/yr of urea. In August 2022, SAN and Aramco received the first independent certification for low-carbon ammonia production, and in November, they made the first low-carbon ammonia shipment to the Republic of Korea. In 2023, SAN made shipments of certified low-carbon ammonia to India (5,000 t), Taiwan (5,000 t), and New Zealand (2,700 t) (tables 1, 2; SABIC, 2024, p. 30–31).

Phosphate Rock.—Saudi Arabia's phosphate rock production was estimated to have increased to 9.9 Mt in 2023 from 8.7 Mt in 2022. MCP produced phosphate rock at the Al Jalamid Mine, and MWSPC produced phosphate rock at the Al Khabra Mine. Both mines are in Northern Border Region. As of 2023, the total proved and probable phosphate rock reserves at the Al Jalamid mining permit were 362 Mt grading 19.61% P_2O_5, and those of the Al Khabra and the Umm Wu'al deposits were 959 Mt grading 16.47% P_2O_5 for a total of 158 Mt of P_2O_5. Ma'aden's combined phosphate rock reserves at Al Jalamid, Al Khabra, and the Umm Wu'al sites were 1.32 billion metric tons grading 17.33% P_2O_5 for a total of 229 Mt of P_2O_5 (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 16–17, 61, 282).

The combined ammonium phosphate fertilizer (DAP and MAP) production capacity of MCP and MWSPC has been more than 6.2 Mt/yr since 2020. In 2023, MWSPC was operating at full capacity (3 Mt/yr of DAP) at the Wa'ad Al Shamal mining and processing complex, which is about 45 km northeast of Turaif in Northern Border Region. In 2023, Ma'aden approved an investment of $267 million for phase 1 of the phosphate 3 project and awarded Worley Parsons Arabia Ltd. (subsidiary of Worley Ltd. of Australia) and JESA International S.A. of Morocco an engineering, procurement, and construction management services contract. The project was expected to produce 1.5 Mt/yr of phosphate fertilizers. Production from the integrated complex, which would be built in Wa'ad Al Shamal and Ras Al Khair industrial cities, is expected to begin in 2026 (tables 1, 2; Saudi Arabian Mining Co., 2024, p. 16–17, 61, 282).

Mineral Fuels

Natural Gas and Petroleum.—In 2023, Saudi Arabia's overall hydrocarbon production decreased to 12.8 million barrels of oil equivalent per day (Mbbloe/d) from 13.6 Mbbloe/d in 2022. The country's total petroleum liquids production, which included crude petroleum, condensate, and NGL, decreased to 3.9 billion barrels (Gbbl) in 2023 from 4.2 Gbbl in 2022. Dry natural gas production increased to about 110.4 billion cubic meters in 2023 from 109.8 billion cubic meters in 2022. Refined petroleum products production decreased to 918 million barrels (Mbbl) in 2023 from 986 Mbbl in 2022. Saudi Arabia's proven reserves of natural gas increased to 7.2 trillion cubic meters in 2023 from 7.0 trillion cubic meters in 2022. Aramco's maximum sustainable capacity was 12 Mbbl/d in 2023, unchanged from that in 2022. Aramco started the development of the Al Jafurah unconventional gasfield, which was expected to be the largest nonassociated gasfield in the country. The Al Jafurah Gasfield is southeast of the Ghawar Oilfield in Eastern Region. According to Aramco, the gasfield was the largest liquid-rich shale gasfield in the Middle East; it holds an estimated 5.7 trillion cubic meters of natural gas and covers an area of 17,000 km^2. Aramco expected to produce 630,000 barrels per day (bbl/d) of NGL from the Al Jafurah Gasfield by 2030. In 2023, Aramco was ramping up production at its fifth wholly owned refinery in Saudi Arabia, the Jazan refinery, which started production in 2021. The refinery had the designed capacity to process 400,000 bbl/d of crude petroleum in 2023 and is at Jazan Economic Zone on the Red Sea coast of Jazan Region in southeastern Saudi Arabia. In 2023, Aramco employed 73,311 people (tables 1, 2; Gray, 2022; Lerh and Yap, 2023; Organization of the Petroleum Exporting Countries, 2024, p. 76; Saudi Arabia Oil Co., 2024, p. 14–16, 29, 44, 46, 129).

One of Saudi Arabia's major onshore oilfields is the world's largest conventional oilfield, Ghawar, which had the capacity to produce 5.8 Mbbl/d but currently produces 500,000 bbl/d of crude petroleum. Other major onshore oilfields included the Khurais (which currently produces 1.5 Mbbl/d), the Shaybah (1 Mbbl/d), the Khurasaniyah and the Qatif (800,000 bbl/d each), and the Abqaiq (400,000 bbl/d) Oilfields. The country's main offshore oilfields included the Safaniya (1.2 Mbbl/d), the Manifa (900,000 bbl/d), the Zuluf (500,000 bbl/d), the Berri (400,000 bbl/d), the Abu Sa'afah (300,000 bbl/d), and the Marjan (270,000 bbl/d) Oilfields. Most of the natural gas production in Saudi Arabia came from oilfields as a byproduct of crude petroleum and condensate production; however, Arabiyah, Hasbah, and Karan were the country's main offshore gasfields, which only produced natural gas (table 2; U.S. Energy Information Administration, 2024, p. 6, 14).

Outlook

The International Monetary Fund projected that Saudi Arabia's economy is going to grow by 1.5% in 2024 and 4.6% in 2025 (International Monetary Fund, 2025). Production of metal commodities (such as aluminum, copper, gold, iron and steel, titanium, and zinc) and industrial mineral commodities (such as cement, gypsum, kaolin, phosphate fertilizers, phosphate rock, pozzolan, and sand and gravel) is expected to increase over the next 5 years as Saudi Arabia's mining and mineral-processing companies ramp up production at existing facilities and start new ones. Saudi Arabia is likely to remain one of the world's leading producers of crude petroleum, natural gas, NGL, petrochemicals, and refined petroleum products as Aramco continues its capacity expansion projects. Saudi Arabia's share of world fertilizer exports is expected to increase as Ma'aden goes on board with producing 9 Mt/yr of DAP following the completion of its third phosphate project at WAS by 2025.

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TABLE 1
SAUDI ARABIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity[2]		2019	2020	2021	2022	2023
METALS						
Aluminum:						
Bauxite		5,031	4,946	5,077 r	5,300 r	5,400 e
Alumina		1,798	1,782	1,922	1,745 r	1,825
Metals:						
Primary		776	796	805 r	776 r	730 e
Secondary		279	284	288 r, e	288 r, e	288 e
Copper, mine, concentrates:						
Gross weight	metric tons	277,600	308,000	308,000	304,000	288,000
Cu content, 25% Cu	do.	68,000	77,000	77,000	76,000	72,000
Ferroalloys:						
Ferromanganese	do.	12,000	9,000	9,000	9,000	9,000
Silicomanganese	do.	63,000	35,000	48,000	40,000	56,000
Gold, mine, Au content	kilograms	12,593	11,822	11,153 r	12,268 r	13,476
Iron and steel:						
Direct-reduced iron		5,780 r	5,192 r	6,128	6,714	6,812
Raw steel		8,191	7,775	8,735	9,860	9,940
Lead, smelter, secondary	metric tons	68,000	68,000	75,600	75,600	78,000
Silver, mine, concentrate, Ag content	kilograms	7,123	6,493	8,604 r	9,464 r	9,500 e
Titanium, sponge	metric tons	100 r	2,800 r	5,700	9,700	12,000
Zinc, mine, concentrate, Zn content	do.	30,000	25,400	23,000 r	25,500 r	26,000 e
INDUSTRIAL MINERALS						
Bauxite, low grade		297	282	572 r	600 r	600 e
Cement, hydraulic		44,341	53,418	53,699	52,373 r	49,194
Clay:						
Kaolin		227	213	266 r	279 r	280 e
Unspecified		10,696	7,147	9,161 r	8,569 r	9,000 e
Feldspar		216	523	621 r	652 r	650 e
Fertilizers, diammonium phosphate		5,220 r	5,122 r	5,200 r	5,151 r	5,899
Gypsum, mine		3,472	3,803	3,640 r	3,822 r	3,800 e
Magnesite[e]		110	81	350	340	90
Nitrogen, N content:						
Ammonia		4,000	4,300	3,700 e	5,500 e	5,400 e
Urea[e]		2,100	2,200	2,100	2,300	2,100
Phosphate rock:						
Gross weight[e]		9,500	9,000	8,600 r	8,700 r	9,900
P_2O_5 content, 32% P_2O_5		2,275 r	2,600 r	2,730 r	2,800 r	3,200
Pumice and related materials, pozzolan		583	930	977	500 r	980 e
Salt		2,778	2,220	2,331	2,342 r	2,500 e
Sand and gravel, industrial, unspecified		1,505	1,380	1,978 r	2,076 r	2,100 e
Stone, sand, and gravel, construction:						
Sand and gravel:						
Common sand		25,000	21,400	36,140 r	37,947 r	40,000 e
Gravel		401,310	197,800	415,859 r	436,651 r	450,000 e
Iron sand		817	764	931 r	977 r	1,000 e
Stone:						
Crushed:						
Dolomite		2,465	639	671	704 r	750 e
Limestone, for cement		72,930	46,210	66,766 r	70,104 r	75,000 e
Marble, for industrial use		3,094	3,506	6,001 r	6,301 r	6,500 e
Schist		600	570	727 r	763 r	800 e
Dimension:						
Granite		1,218	2,320	2,436	2,557 r	2,600 e
Limestone, block		120	480	504	529 r	550 e
Marble, block		14	35	36	37 r	40 e
Sulfur, hydrocarbon processing, S content[e]		6,500	6,500	7,000	7,500	7,500
Talc and related materials, pyrophyllite		48	61	167 r	175 r	170 e

See footnotes at end of table.

TABLE 1—Continued
SAUDI ARABIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity[2]		2019	2020	2021	2022	2023
MINERAL FUELS AND RELATED MATERIALS						
Natural gas, dry basis	million cubic meters	111,200	103,500	104,806	109,800	110,348
Petroleum:						
Crude, total liquids	million 42-gallon barrels	4,096	3,808	3,781	4,212	3,899
Refinery products	do.	907 r	793 r	903 r	986 r	918

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

[1]Table includes data available through November 26, 2024. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, basalt, carbon black, lime, and methanol may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Ma’aden Bauxite and Alumina Co. (MBAC) [Saudi Arabian Mining Co. (Ma'aden), 74.9%, and Alcoa Saudi Smelting Inversiones S.L., 25.1%]	Refinery at Ras Al Khair, Jubail Industrial City, Eastern Region	1,825
Aluminum:			
Primary	Ma'aden Aluminium Co. (MAC) [Saudi Arabian Mining Co. (Ma'aden), 74.9%, and Alcoa Saudi Smelting Inversiones S.L., 25.1%]	Smelter at Ras Al Khair, Jubail Industrial City, Eastern Region	1,010
Secondary	Al Haramin Co.	Plant at Jeddah, Mecca Region	NA
Do.	Al Taiseer Group Talco Industrial Co.	Plant at Jeddah, Riyadh, Riyadh Region	60
Do.	Aluminium Products Co. (Alpuco)	Plant at Dammam, Eastern Region	45
Do.	do.	Plant at Jeddah, Mecca Region	40
Do.	Ma’aden Rolling Co. (MRC) [Saudi Arabian Mining Co. (Ma'aden), 74.9%, and Alcoa Saudi Smelting Inversiones S.L., 25.1%]	Rolling mill at Ras Al Khair, Jubail Industrial City, Eastern Region	380
Do.	do.	Recycling plant at Ras Al Khair, Jubail Industrial City, Eastern Region	130
Do.	Saudi Aluminium Extrusion & Powder Coating Co.	Plant at Riyadh, Riyadh Region	NA
Do.	Saudi Aluminium Recycling Co. (Sarco)	Recycling plant at Jeddah, Mecca Region	18
Do.	Saudi Cable Co.	Plant at Jeddah, Mecca Region	NA
Bauxite:			
Metallurgical	Ma’aden Bauxite and Alumina Co. (MBAC) [Saudi Arabian Mining Co. (Ma'aden), 74.9%, and Alcoa Saudi Smelting Inversiones S.L., 25.1%]	Mine at Al Ba'itha, Qassim Region	5,400
Low-grade	Ma'aden Industrial Minerals Co. (MIMC) [Saudi Arabian Mining Co. (Ma'aden), 100%]	Az Zabirah Mine, Ha’il Region	1,100
Caustic soda	Arabian Alkali Co. (SODA)	Plant at Jubail Industrial City, Eastern Region	55
Do.	Sahara and Ma’aden Petrochemical Co. (SAMAPCO) [Sahara Petrochemical Co., 50%, and Saudi Arabian Mining Co. (Ma’aden), 50%]	Plant at Ras Al Khair, Jubail Industrial City, Eastern Region	25
Do.	Saudi Factory for Chlorine and Alkalies (SACHLO)	Plant in Riyadh Region	NA
Cement:			
Grey portland	Al Jouf Cement Co.	Plant south of Turaif, Northern Borders Region	1,750
Do.	Al Madina Cement Co.	Plant at Medina, Medina Region	3,000
Do.	Al Safwa Cement Co. (El Khayat Group, 50%; General Organization for Social Insurance, 25%; General Pension Agency, 25%)	Plant in Mecca Region	2,000
Do.	Arabian Cement Co. Ltd.	Plant at Rabigh, Mecca Region	4,800
Do.	Eastern Cement Co.	Plant at Al Khursaniyah, Eastern Region	3,400
Do.	Hail Cement Co.	Plant at Turba, Hail Region	2,000
Do.	Najran Cement Co.	Plant at Aakfa, Najran Region	3,000
Do.	Northern Region Cement Co.	Plant at Turaif, Northern Boarders Region	1,700
Do.	Qassim Cement Co.	Plant at Jal al Watah, Buraydah, Qassim Region	4,000
Do.	Riyadh Cement Co.	3 plants in Riyadh Region	3,800
Do.	Saudi Cement Co.	Plant at Al Hofuf, 120 kilometers southwest of Damman, Eastern Region	8,600

See footnotes at end of table.

TABLE 2—Continued
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued:				
Grey portland—Continued		Southern Region Cement Co. (Government, 52%)	Plant at Suq Al Ahad, Jazan Region	7,500
Do.		do.	Plant at Bishah, southeast Jeddah, Mecca Region	2,000
Do.		do.	Plant at Tihama, Southern Region	1,800
Do.		Tabuk Cement Co.	Plant in Tabuk Region	1,300
Do.		Umm Al Qura Cement Co.	Plant near Taif, Mecca Region	2,000
Do.		United Cement Co.	Plant at Al Sadiya, Mecca Region	2,000
Do.		Yamama Cement Co. Ltd.	Plant in Riyadh Region	6,300
Do.		Yanbu Cement Co.	Plant at Yanbu, Medina Region	6,400
White		Al-Gharbiah Cement Factory	Plant at Jeddah, Mecca Region	250
Do.		Saudi White Cement Co.	Plant at Riyadh, Riyadh Region	200
Clay, kaolin		Ma'aden Industrial Minerals Co. (MIMC) [Saudi Arabian Mining Co. (Ma'aden), 100%]	Az Zabirah Mine in Mecca Region	350
Copper, concentrate, Cu content		Al Masane Al Kobra Mining Co. (AMAK) (Arab Mining Co., 20.46%; Asas Mining Services Co., 19.67%; local investors, 59.87%)	Al Masane Al Kobra Mine, Najran Region	40
Do.		Ma'aden Barrick Copper Co. (MBCC) [Barrick Gold Corp., 50%, and Saudi Arabian Mining Co. (Ma'aden), 50%]	Jabal Sayid Mine, Medina Region	60
Dolomite		Saudi Lime Industries Co.	Mine and plant in Riyadh Region	1,000
Do.		Saudi Dolomite Co. Ltd.	Mine and plant at Al Khobar, Eastern Region	1,500
Feldspar		United Mining Investment Co.	Mine at Rabigh, Mecca Region	400
Do.		Desert Mining Co. (Saudi Ceramic Co., 100%)	Mine in Riyadh Region	300
Ferroalloys		Gulf Ferro Alloys Co. (SABAYEK)	Plant at Jubail Industrial City, Eastern Region	140
Gold, mine, Au content	kilograms	Al Masane Al Kobra Mining Co. (AMAK) (Arab Mining Co., 20.46%; Asas Mining Services Co., 19.67%; local investors, 59.87%)	Guyan Mine and processing plant, Najran Region	1,000
Do.	do.	Ma'aden Gold and Base Metals Co. (MGBM) [Saudi Arabian Mining Co. (Ma'aden), 100%]	Al Amar Mine, Riyadh Region; Ad Duwayhi Mine, As Suq Mine, Mansourah-Massarah Mine, Mecca Region; Bulghah Mine, Mahd Adh-Dahab Mine, Medina Region	13,000
Granite	cubic meters	Red Sea Mining Co. Ltd.	11 quarries in Najran Region and Ranyah in Mecca Region	18,000
Do.	do.	Tanhat Mining Co. Ltd.	Quarries in Ar-Rowaidah, Riyadh Region; Jamour, Najran Region; Ranyah, Mecca Region; Samakh, Asir Region	360,000
Gypsum		Al-Zahid Industrial and Mining Group	Quarry at Taymah, Tabouk Region	NA
Do.		Global Gypsum Co. Ltd.	Plants at Damman, Eatern Region; Jeddah, Mecca Region; Riyadh, Riyadh Region; Yanbu, Medina Region	300
Do.		Mada Gypsum Co. (Al Rajhi Holding, 100%)	Plant at Yanbu Industrial City, Medina Region	400
Do.		National Gypsum Co.	Plants at Damman, Eastern Region; Jeddah, Mecca Region; Yanbu, Medinah Region	960

See footnotes at end of table.

TABLE 2—Continued
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel:				
Direct-reduced iron		Direct Reduction Iron Co. Ltd. (Al-Ittefaq Group, 100%)	Plants I and II at Dammam, Eastern Region	2,500
Do.		Saudi Iron & Steel Co. (Hadeed) [Public Investment Fund (PIF), 100%]	Plants A, B, C, D, and E, Jubail, Eastern Region	5,500
Iron pellets		do.	Iron Pelletization Plant at Dammam, Eastern Region	2,500
Do.		Arab Steel Co. (Al-Ittefaq Group, 100%)	Plant at Dammam, Eastern Region	2,500
Pig iron		Advanced Metal Industries Cluster Co. Ltd. (AMIC)	Smelter at Jazan Economic Zone, Jazan Region	250
Steel:				
Raw steel		National Steel Co. Ltd. (Al-Ittefaq Group, 100%)	Plant at Dammam, Eastern Region	1,300
Do.		Rajhi Steel Industries Co. Ltd.	Plant at Jeddah, Mecca Region	850
Do.		Saudi Iron & Steel Co. (Hadeed) [Public Investment Fund (PIF), 100%]	Plant at Jubail, Eastern Region	5,500
Do.		Solb Steel Co.	Plant at Jazan Economic Zone, Jazan Region	1,200
Products		Arab Steel Co. (Al-Ittefaq Group, 100%)	Plant at Dammam, Eastern Region	4,500
Do.		Ajeej Steel Manufacturing Co.	Plant in Riyadh Region	360
Do.		National Steel Co. Ltd. (Al-Ittefaq Group, 100%)	Rolling mill at Dammam, Eastern Region	2,800
Recycled		Metal Recycling Co. (Al-Ittefaq Group, 100%)	Metal recycling mill at Dammam, Eastern Region	3,000
Lead, smelter, secondary		National Lead Smelting Co. (National Industrialization Company-Tasnee, 100%)	Plant in Riyadh Region	100
Lime:				
Hydrated		Astra Mining (Astra Industrial Group, 60%, and Tharawat Holding, 40%)	Plant at Al Kharj Industrial City, Al-Kharj Region	66
Do.		Saudi Lime Industries Co.	Plant in Riyadh Region	100
Quick lime		Astra Mining (Astra Industrial Group, 60%, and Tharwat Holding, 40%)	Plant at Al Kharj Industrial City, Al-Kharj Region	99
Do.		Saudi Lime Industries Co.	Plant in Riyadh Region	400
Magnesite:				
Crude ore		Ma'aden Industrial Minerals Co. (MIMC) [Saudi Arabian Mining Co. (Ma'aden, 100%)]	Al Ghazalah Mine, Medina Region	90
Caustic calcined		do.	Processing plant at Al-Medina Al-Munawwara Industrial City, Medina Region	40
Dead burned		do.	do.	32
Methanol		National Methanol Co. (Ibn Sina) [Saudi Basic Industries Corp. (SABIC), 50%; Celanese Corp., 25%; Duke Energy, 25%]	Plant at Jubail Industrial City, Eastern Region	1,000
Do.		Saudi Methanol Co. (Ar-Razi) [Mitsubishi Gas Chemical Consortium, 50%, and Saudi Basic Industries Corp. (SABIC), 50%]	do.	850
Natural gas, gross	million cubic meters	Saudi Arabian Oil Co. (Aramco) (Government, 98.5%)	Arabiyah Gasfield, offshore	12,408
Do.	do.	do.	Ghawar Field, onshore	75,000
Do.	do.	do.	Hasbah Gasfield, offshore	34,122
Do.	do.	do.	Karan Gasfield, offshore	18,612
Do.	do.	do.	Marjan Gasfield, offshore	25,850

See footnotes at end of table.

TABLE 2—Continued
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas, gross—Continued	million cubic meters	Saudi Arabian Oil Co. (Aramco) (Government, 98.5%)	Safaniya Oilfield, offshore	10,000
Do.	do.	do.	Wasit gas processing plant at Jubail Industrial City, Eastern Region	27,800
Nitrogen:				
Ammonia		Al Jubail Fertilizer Co. (Al-Bayroni) (SABIC Agri-Nutrients Co. (SAN), 50%, and Taiwan Fertilizer Co. Ltd., 50%)	Plant at Jubail Industrial City, Eastern Region	1,200
Do.		Ma'aden Phosphate Co. (MPC) [Saudi Arabian Mining Co. (Ma'aden), 70%, and Saudi Basic Industries Corp. (SABIC), 30%]	Plant at Ras Al Khair, Jubail Industrial City, Eastern Region	1,200
Do.		Ma'aden Wa'ad Al-Shamal Phosphate Mining Co. (MWSPC) [Saudi Arabian Mining Co. (Ma'aden), 60%; Mosaic Co., 25%; Saudi Basic Industries Corp. (SABIC), 15%]	Plant at Wa'ad Al-Shamal Industrial City, Jubail, Turaif, Northern Borders Region	1,200
Do.		National Chemical Fertilizer Co. (Ibn Al-Baytar) [SABIC Agri-Nutrients Co. (SAN), 100%]	Plant at Jubail Industrial City, Eastern Region	2,000
Do.		SABIC Agri-Nutrients Co. (SAN) [Saudi Basic Industries Corp. (SABIC), 50.1%, and public Investors, 49.9%]	do.	2,300
Urea		do.	do.	2,000
Do.		do.	Safco 2, Safco 3, Safco 4, Safco 5 plants in Jubail Industrial City, Eastern Region	3,400
Pozzolan		Consortium of Volcanic Pozzalan Producers	Quarries and plant in Jeddah, Mecca Region	NA
Do.		do.	Quarries and plant in Khamis Mushait, Asir Region	NA
Petroleum:				
Crude	million 42-gallon barrels	Saudi Arabian Oil Co. (Aramco) (Government, 98.5%)	Abqaiq Oilfield, onshore	150
Do.	do.	do.	Abu Sa'afah Oilfield, offshore	110
Do.	do.	do.	Berri Oilfield, onshore-offshore	150
Do.	do.	do.	Ghawar Oilfield, onshore	180
Do.	do.	do.	Khurais Oilfield, onshore	550
Do.	do.	do.	Khursaniyah Oilfield, onshore	290
Do.	do.	do.	Manifa Oilfield, onshore	330
Do.	do.	do.	Marjan Oilfield, offshore	100
Do.	do.	do.	Qatif Oilfield, onshore	290
Do.	do.	do.	Safaniya Oilfield, offshore	440
Do.	do.	do.	Shaybah Oilfield, onshore	365
Do.	do.	do.	Zuluf Oilfield, offshore	150
Refined products	do.	Aramco Mobil Refinery Co. Ltd. [Saudi Arabian Oil Co. (Aramco), 50%, and Mobil Yanbu Refining Co. Inc., 50%]	Refinery at Yanbu, Medina Region	146
Do.	do.	Aramco Shell Refining Co. [Saudi Arabian Oil Co. (Aramco), 50%, and Shell Saudi Arabia Refining Ltd., 50%]	Refinery at Jubail, Eastern Region	113
Do.	do.	Aramco Total Refining and Petrochemical Co. [Saudi Arabian Oil Co. (Aramco), 62.5%, and Total S.A., 37.5%]	Refinery at Jubail, Eastern Region	146

See footnotes at end of table.

TABLE 2—Continued
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum—Continued:				
Refined products —Continued	million 42-gallon barrels	Jazan Oi Refinery Co. [Saudi Arabian Oil Co. (Aramco), 100%]	Refinery at Jazan Economic City, Jazan Region	146
Do.	do.	Jeddah Oil Refinery Co. [Saudi Arabian Oil Co. (Aramco), 100%]	Refinery at Jeddah, Mecca Region	32
Do.	do.	Rabigh Refining & Petrochemical Co. (PetroRabigh) [Saudi Arabian Oil Co. (Aramco), 37.5%; Sumitomo Chemical Co., 37.5%; private investors, 25%]	Refinery at Rabigh, Mecca Region	146
Do.	do.	Riyadh Oil Refinery Co. [Saudi Arabian Oil Co. (Aramco), 100%]	Refinery in Riyadh Region	45
Do.	do.	Saudi Arabian Oil Co. (Aramco) (Government, 98.5%)	Refinery at Ras Tanura, Jubail, Eastern Region	201
Do.	do.	do.	Refinery at Yanbu, Medina Region	86
Do.	do.	Yanbu Aramco Sinopec Refining Co. Ltd. (YASREF) [Saudi Arabian Oil Co. (Aramco), 62.5%, and China Petrochemical Corp. (SINOPEC), 37.5%]	Refinery at Yanbu, Medina Region	146
Phosphate:				
Ore		Ma'aden Phosphate Co. (MPC) [Saudi Arabian Mining Co. (Ma'aden), 70%, and Saudi Basic Industries Corp. (SABIC), 30%]	Al Jalamid Mine, Northern Borders Region	12,000
Do.		Ma'aden Wa'ad Al-Shamal Phosphate Mining Co. (MWSPC) [Saudi Arabian Mining Co. (Ma'aden), 60%; Mosaic Co., 25%; Saudi Basic Industries Corp. (SABIC), 15%]	Al Khabra Mine, 45 kilometers northeast Turaif, Northern Borders Region	12,000
Fertilizer		Ma'aden Phosphate Co. (MPC) [Saudi Arabian Mining Co. (Ma'aden), 70%, and Saudi Basic Industries Corp. (SABIC), 30%]	Plant at Ras Al Khair, Jubail Industrial City, Eastern Region	3,000
Do.		Ma'aden Wa'ad Al-Shamal Phosphate Mining Co. (MWSPC) [Saudi Arabian Mining Co. (Ma'aden), 60%; Mosaic Co., 25%; Saudi Basic Industries Corp. (SABIC), 15%]	Plant at Wa'ad Al Shamal, Turaif, Northern Boarders Region	3,000 .
Salt		Al-Zahid Industrial and Mining Group	Mines in Eastern Region	3,000
Sand, industrial, unspecified		Adwan Chemical Industries Co. Ltd.	Eldarees Quarry, Ad Doghm, Riyadh Region	NA
Do.		Al Raddadi Group	Quarry at Taymah, Tabuk Region	1,000
Do.		Al-Zahid Industrial and Mining Group	do.	100
Do.		Gulf Sand (Al-Marbaie Group)	do.	NA
Silver, mine, Ag content	kilograms	Al Masane Al Kobra Mining Co. (AMAK) [Arab Mining Co., 20.46%; Asas Mining Services Co., 19.67%; local investors, 59.87%]	Al Masane Al Kobra Mine, Najran Region	3,350
Do.	do.	Ma'aden Gold and Base Metals Co. (MGBM) [Saudi Arabian Mining Co. (Ma'aden), 100%]	Al Amar Mine, Riyadh Region; Ad Duwayhi Mine, As Suq Mine, Mecca Region; Bulghah Mine, Mahd Adh-Dahab Mine, Sukhaybarat Mine, Medina Region	5,600
Sulfur		Saudi Arabian Oil Co. (Aramco) (Government, 98.5%)	Refineries and gas processing plants at Jeddah, Jubail, Rabigh, Ras Tanura, Riyadh, and Yanbu	7,500
Sulfuric acid		Basic Chemicals National Co. (BCNC) (Basic Chemical Industries, 100%)	Plant at Yanbu Industrial City, Medina Region	365

See footnotes at end of table.

TABLE 2—Continued
SAUDI ARABIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2023

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Sulfuric acid—Continued	Ma'aden Phosphate Co. (MPC) [Saudi Arabian Mining Co. (Ma'aden), 70%, and Saudi Basic Industries Corp. (SABIC), 30%]	Plant at Ras Al Khair, Jubail Industrial City, Eastern Region	4,900
Do.	Ma’aden Wa'ad Al-Shamal Phosphate Co. (MWSPC) [Saudi Arabian Mining Co. (Ma'aden), 60%; Mosaic Co., 25%; Saudi Basic Industries Corp. (SABIC), 15%]	Plant at Wa’ad Al Shamal, Turaif, Northern Boarders Region	5,500
Do.	National Company for Sulphur Products (NCSP)	Plant in Riyadh Region	170
Do.	Nutrients Co. (SAN) [Saudi Basic Industries Corp. (SABIC), 50.1%, and public investors, 49.9%]	Plant at Ras Al Khair, Jubail Industrial City, Eastern Region	130
Titanium:			
Slag	Advanced Metal Industries Cluster Co. Ltd. (AMIC)	Smelter at Jazan Economic Zone, Jazan Region	500
Sponge	Advanced Metal Industries Cluster and Toho Titanium Metal Co. Ltd. (ATTM) [Advanced Metal Industries Cluster Co. Ltd. (AMIC), 65%, and Toho Titanium Co., 35%]	Plant at Yanbu Industrial City, Medina Region	16
Zinc, concentrate, Zn content	Al Masane Al Kobra Mining Co. (AMAK) [Arab Mining Co., 20.46%; Asas Mining Services Co., 19.67%; local investors, 59.87%]	Al Masane Al Kobra Mine, Najran Region	50
Do.	Ma'aden Gold and Base Metals Co. (MGBM) [Saudi Arabian Mining Co. (Ma'aden), 100%]	Al Amar Mine, Riyadh Region, and Mahd Adh-Dahab Mine, Medina Region	20

Do., do. Ditto. NA Not available.