



2011 Minerals Yearbook

TURKEY

THE MINERAL INDUSTRY OF TURKEY

By Philip M. Mobbs

Turkey has a diverse mineral industry that included the production of more than 60 mineral commodities. Turkey was a significant producer of barite, bentonite, boron minerals, chromite, feldspar, magnesite, perlite, and pumice. The country also was a significant source of value-added processed mineral commodities, such as cement and steel. The volume of hydrocarbons produced in Turkey was small, but the country was a significant transit corridor for crude oil and natural gas shipments (table 1; Angulo, 2012; Bolen, 2012; Crangle, 2012; Kramer, 2012; Miller, 2012; Tanner, 2012; van Oss, 2012; Virta, 2012; World Steel Association, 2012).

Minerals in the National Economy

Turkey's gross domestic product (GDP) at current prices was \$774.2 billion¹ (about 1,298 billion Turkish lira) in 2011. At constant prices (with a base year of 1998), the real GDP was \$68.5 billion in 2011 compared with about \$70.4 billion in 2010. The mining and quarrying sector accounted for about 1.4% of the GDP in 2010, which was the latest year for which data were available (T.C. Enerji ve Tabii Kaynaklar Bakanlığı, 2011; Türkiye İstatistik Kurumu, 2012).

Government Policies and Programs

Article 168 of the Constitution (1982) and the Mining Law of June 15, 1985 (Maden Kanunu, law No. 3213), as amended by law No. 5177 of 2004 and law No. 5995 of 2010, establish that natural resources, such as minerals, belong to the state. The Law on Boron Minerals, Trona and Asphaltite Mines and Exploitation of Nuclear Energy Raw Materials No. 3971 of February 19, 1994; the Mining Activities Permitting Regulation of 2005; the Regulation Concerning the Implementation of the Mining Law of 2005; and the Mining Law Implementation Regulation of November 6, 2010, also regulate mining activity in Turkey. The Government issues licenses to Turkish individuals or legal entities to explore for minerals or operate mines for a specific period of time. The Foreign Direct Investment Law of June 2003 (law No. 4875) authorizes foreign investors to establish companies in Turkey that can hold mining rights under the Mining Law.

The Maden İşleri Genel Müdürlüğü (MIGEM) [General Directorate of Mining Affairs] of the T.C. Enerji ve Tabii Kaynaklar Bakanlığı (ETKB) [Ministry of Energy and Natural Resources] regulates the mining industry. The T.C. Çevre ve Orman Bakanlığı [Ministry of Environment and Forestry] enforces the Environmental Law of 1983 (law No. 2872) and the Regulation on Environmental Impact Assessment of December 16, 2003.

¹Where necessary, values have been converted from Turkish lira (TLY) to U.S. dollars (US\$) at the rate of TLY 1.677=US\$1.00 for 2011, and TLY 1.5069=US\$1.00 for 2010.

The petroleum sector is regulated by the Enerji İşleri Genel Müdürlüğü [General Directorate of Energy Affairs] of the ETKB under the Petroleum Law of 1954 (law No. 6326). The distribution, export, import, refining, and sale of petroleum are licensed under and regulated by the Petroleum Market Law of 2003 (law No. 5015). The distribution, export, import, and transmission of natural gas are regulated by the Natural Gas Market Law of 2001 (law No. 4646), as amended by law No. 5367 of 2005. The marketing of domestic and imported liquefied petroleum gases is regulated by the Liquefied Petroleum Gases (LPG) Market Law of 2005 (law No. 5307).

Production

Most of the mineral production volumes for 2011 were estimated (table 1). Significant increases in production were reported for boron, iron ore, and kaolin and were estimated for antimony, refined borates, coal, gold, refined petroleum products, silver, and steel.

Structure of the Mineral Industry

The country's industrial minerals and metals were produced mainly by private sector companies, which also produced some coal and hydrocarbons. The Government investment in the mineral industry was estimated to be about 34% of total investment, and was focused on the boron, coal, and petroleum sectors (T.C. Enerji ve Tabii Kaynaklar Bakanlığı, 2011).

Government institutions involved in the mineral sector that were attached to the ETKB included Maden Tetkik ve Arama Genel Müdürlüğü (MTA) [General Directorate of Mineral Research and Exploration], which conducts basic geologic and geophysical surveys and mining research; Petrol İşleri Genel Müdürlüğü (PIGM) [General Directorate of Petroleum Affairs], which collects information about petroleum exploration and production activity in Turkey; and Türkiye Atom Enerjisi Kurumu Başkanlığı [Turkish Atomic Energy Authority], which is responsible for policy development and the coordination and supervision of scientific and technical activities in the nuclear sector.

Other institutions that are associated with the ETKB include Boru Hatları ile Petrol Taşıma A.Ş. Genel Müdürlüğü (BOTAS) [Petroleum Pipeline Corp.], which imports, transports, and sells natural gas, and also transports petroleum; Elektrik Üretim A.Ş. Genel Müdürlüğü [General Directorate of Electricity Generation Corp.], which produces electricity; Eti Maden İşletmeleri Genel Müdürlüğü, which has exclusive rights to explore for and to develop boron deposits according to law No. 2840 of 1983; the Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKİ) [General Directorate of Turkish Coal Enterprises], which mines lignite and subbituminous coal; Türkiye Petrolleri Anonim Ortaklığı Genel Müdürlüğü (TPAO) [Turkish Petroleum Corp.], which explores for, produces, markets, and refines crude oil; and

Türkiye Taşkömürü Kurumu Genel Müdürlüğü (TTK) [General Directorate of Turkish Hard Coal Enterprises], which mines anthracite and bituminous coal.

Mineral Trade

In 2011, total Turkish exports of goods were valued at about \$135 billion compared with about \$114 billion in 2010. Exports of manufactured products were valued at \$125.9 billion in 2011 compared with about \$105 billion in 2010. Manufactured products exports included basic metals (iron and steel, nonferrous metals, and precious metals) exports, which were valued at about \$17.1 billion in 2011; chemical products (including fertilizers), \$6.7 billion; coke and petroleum products, \$6.1 billion; and industrial mineral products, such as cement, ceramics, glass, lime, and stone, \$4 billion. Exports of the mining and quarrying sector were valued at about \$2.8 billion in 2011, compared with about \$2.7 billion in 2010. In 2011, exports of industrial minerals were valued at about \$1.5 billion and accounted for 52% of mining exports; exports of metal ores were valued at \$1.2 billion and accounted for 43.3% of mining exports; exports of crude petroleum and natural gas were valued at \$126 million and accounted for 4.5% of mining exports; and exports of coal were valued at about \$6 million and accounted for 0.2% of mining exports (T.C. Kalkınma Bakanlığı, 2012, Part 5, table 16).

In 2011, total Turkish imports of goods were valued at about \$241 billion compared with about \$186 billion in 2010. Imports of petroleum and petroleum products were valued at \$15.2 billion in 2011 compared with about \$11.4 billion in 2010. Imports of metal ores and scrap were valued at \$11.1 billion in 2011 compared with \$8.2 billion in 2010 (T.C. Kalkınma Bakanlığı, 2012, Part 5, table 5).

Commodity Review

Metals

Antimony.—Tri-Star Resource plc of the United Kingdom completed a 47-hole 4,116-meter (m) drill program on the Goynuik antimony prospect. The company planned additional exploration drilling in 2012 (Tri-Star Resources plc, 2012).

Copper, Lead, Molybdenum, Silver, and Zinc.—Eti Bakır A.Ş., which was a subsidiary of Cengiz Holding, was the leading copper producing company in Turkey. Other notable copper producers included Çayeli Bakır İşletmeleri A.Ş. (a subsidiary of Inmet Mining Corp. of Canada), which mined a record volume of 1.195 million metric tons (Mt) of ore from the underground Cayeli Mine in 2011 compared with 1.147 Mt of ore in 2010. Çayeli produced a copper concentrate that contained 28,200 metric tons (t) of copper in 2011, and a zinc concentrate that contained 48,100 t of zinc. Çayeli recovered about 6% less zinc contained in concentrates in 2011, despite an increase in the tonnage of ore milled, owing to a 5% decrease in the zinc grade to 6.0% from 6.3% (Inmet Mining Corp., 2012, p. 33–34).

Demir Export A.Ş., which was a subsidiary of Koç Holding A.Ş., produced and exported a copper-zinc concentrate from the Lahanos Mine in Giresun Province. In 2011, Demir Export

produced about 15,000 t of concentrate that contained an average of 20% to 22% copper compared with more than 17,500 t of concentrates produced in 2009. Demir Export also completed an exploratory drill program for copper near its Samli iron mine in Balıkesir Province (Demir Export A.Ş., undated).

Park Elektrik Üretim Madencilik San. ve Tic. A.Ş. mined copper ore at the Madenkoy Mine, produced and sold a copper concentrate that contained an average of 18% to 20% copper, and in 2011, also began to sell refined copper cathode. Park Elektrik produced 77,510 wet metric tons of copper concentrates in 2011, of which 17,268 wet tons was refined to produce 2,829 t of copper cathode. In 2011, the mine's ore processing capacity was increased to 1.2 million metric tons per year (Mt/yr) from 750,000 metric tons per year (t/yr). In 2013, mine activity was scheduled to shift from underground to open pit operations, and the input capacity of the Madenkoy plant was expected to increase to 1.8 Mt/yr with an output of about 150,000 t/yr of copper concentrate (Park Elektrik Üretim Madencilik San. ve Tic. A.Ş., 2012, p. 19).

Gümüştaş Madencilik A.Ş. started production from a copper-lead and zinc mine. About 400 metric tons per day of ore was processed at the company's concentrator at the Gumushane Organized Industrial Zone (Haberler.com, 2011).

Companies engaged in exploration for copper, lead, and zinc included Dedeman Madencilik Sanayi ve Ticaret A.Ş., which completed an infill drill program on the Balya lead-silver-zinc property. Dedeman subsequently proposed to develop the deposit as an underground mine and applied for an exploitation license (Eurasian Minerals Inc., 2011a).

Empire Mining Corp. of Canada terminated its agreement with Alacer Gold to acquire 65% interest in the Bursa copper project, which included the Demirtepe and the Karapınar prospects. Instead, Empire agreed to acquire 100% interest in the Bursa project for company stock and a payment of \$1.5 million that was due in 2012. Empire completed initial drill programs on the prospects in 2011 that encountered copper, gold, molybdenum, and silver mineralization (Empire Mining Corp., 2012, p. 3–4).

RCR Quantum Madencilik İthalat İhracat Ticaret ve Sanayi A.Ş. was a joint venture of Red Crescent Resources Holding A.Ş. (75% interest) and Gensay Madencilik İthalat İhracat Tic. ve San. A.Ş. (25% interest) that was formed in May to develop the Sivas copper property. In August, Petmin Ltd. of South Africa agreed to provide up to about \$17 million to fund project development expenses and to acquire up to 37.5% interest in the project. RCR Quantum subsequently completed a 10-hole 1,150-m drill program on the Sivas copper property and proposed a 15-hole 3,000-m drill program for 2012 (Red Crescent Resources Ltd., 2012, p. 3, 12–13).

Regional terrain hampered access to proposed drill sites on the Hakkari zinc project, which was being evaluated by RCR ve Seyitoğlu Madencilik İthalat İhracat Tic. ve San. A.Ş. (a joint venture of Red Crescent Resources Holding, 50% interest, and shareholders of the Seyitoğlu family, 50% interest). RCR Seyitoğlu proposed to redevelop the licenses initially as a direct-shipping-ore project, and began to rehabilitate old underground tunnels on the No. 8 and Pentagon licenses at

Hakkari. The resultant stockpile of run-of-mine ore had a grade of 26.75% zinc (Red Crescent Resources Ltd., 2012, p. 2).

Teck Madencilik Sanayi ve Ticaret Limited A.Ş. (60% interest) completed a 44-hole 19,599-m drill program on the Halilaga copper-gold property for its joint venture with Pilot Gold Inc. of Canada (40% interest). Teck Madencilik, which was earning 51% interest in the Hasancelebi project from Stratex International plc of the United Kingdom, completed a 5-hole 1,572-m drill program on the main deposit and a 2-hole 543-m drill program on Karakaya Tepe prospect at Hasancelebi. After an initial drill program, the Aydeniz Group withdrew from an agreement to earn a 55% interest in the Muratdere copper project from Stratex, but in December, Pragma Finansal Danışmanlık Ticaret A.Ş. agreed to acquire 51% of the Muratdere project from Stratex. Also in 2011, Antofagasta Minerals S.A. of Chile and Stratex entered into a strategic alliance to explore for copper in Turkey (Stratex International plc, 2011c; 2012a, b; Pilot Gold Inc., 2012, p. 7–8).

Xstrata Canada Copper proposed additional exploration activity on the Berta prospect in 2012. Nuinsco Resources Ltd. of Canada was a partner in the joint venture that controlled the Berta copper-gold property. Owing to a number of factors, Nuinsco Resources decided to surrender the exploration license for the Elmalaan zinc property (Nuinsco Resources Ltd., 2012, p. 7).

Gold.—Koza Altın, İşletmeleri A.Ş., was the leading gold producer in Turkey. In 2011, Koza produced about 9,500 kilograms (kg) of gold and 3,100 kg of silver from its four mines in 2011, compared with about 8,000 kg of gold and 3,600 kg of silver from three mines in 2010. The Cukuralan open pit, which began production in late 2010, produced 543,126 t of ore in 2011. The output from the Cukuralan underground mine, which began production in August, was 33,914 t of ore. The Ovacik underground mine produced 204,313 t of ore. The Ovacik plant, which also processed ore from Cukuralan, milled 822,777 t of ore in 2011 and recovered 3,880 kg of gold and 1,646 kg of silver. The Mastra open pit mine produced 248,788 t of ore and the Mastra underground mine produced 182,972 t of ore. The Mastra plant milled 528,516 t of ore and recovered 5,074 kg of gold and 762 kg of silver. The Kaymaz open pit, which started production in March, produced 264,248 t of ore. The Kaymaz plant milled 98,062 t of ore and recovered 629 kg of silver and 432 kg of gold (Koza Altın İşletmeleri A.Ş., 2012, p. 3–4, 30–33).

Koza began a prefeasibility study of heap leaching the Mollakara prospect. The company had an additional 15 gold exploration projects, including the Agadeve, the Bulancak, the Buyukpinar, the Cakilli Tepe, the Ciftehan, the Hapan, the Hasandagi, and the Himmetdede.

In 2011, Tüprag Metal Madencilik Sanayi ve Ticaret A.Ş., which was a subsidiary of Eldorado Gold Corp. of Canada, produced 8,853 kg of gold from the Efemcukuru and the Kisladag Mines. At Kisladag, Tüprag completed the expansion of the mine's crushing circuit to 12.5 Mt/yr, which allowed 12.4 Mt of ore to be placed on the leach pads in 2011 compared with about 10.4 Mt in 2010. Gold production increased by 313 kg compared with that of 2010, despite a decrease in ore grade to 0.95 grams per metric ton (g/t) from 1.06 g/t.

Eldorado completed a positive study on the expansion of the mine's capacity to 25 Mt/yr. Eldorado proposed to expand the mine by mid-2014, subject to the receipt of Government permits. Also at Kisladag, Tüprag completed a concentrate treatment plant that would process material from the Efemcukuru Mine, which was located about 180 km east of Kisladag (Eldorado Gold Corp., 2012a; 2012b, p. 7).

In 2011, ore production was initiated at Efemcukuru. Tüprag milled 112,612 t of ore, which graded 8.21 g/t gold. About 9,100 t of gold concentrate, which contained about 800 kg of gold, was shipped to Kisladag. The Efemcukuru Mine achieved commercial production at yearend (Eldorado Gold Corp., 2012a; 2012b, p. 11).

Alacer Gold Corp. was formed from the merger of Anatolia Minerals Development Ltd. of Canada and Avoca Resources Ltd. of Australia. Anagold Madencilik Sanayi ve Ticaret A.Ş., which was the local subsidiary of Alacer Gold (95% interest) and Lidya Madencilik Sanayi ve Ticaret A.Ş. (5%), began commercial gold production at the Copley gold mine in 2011. Lidya acquired an additional 15% equity interest in Anagold from Alacer Gold in early 2012. At Copley, about 11.3 Mt of waste and 7.4 Mt of ore were mined in 2011 to produce about 5,770 kg of gold. Anagold also completed more than 50,000 m of drilling and a prefeasibility study of the sulfide ore at Copley and resumed exploration drilling on the Karakartal prospect (Alacer Gold Corp., 2012, p. 7–9, 26).

Istanbul Altın Rafinerisi refined gold, rhodium, and silver. Emak Refining & Recycling Systems of Turkey produced equipment to refine gold scrap and recycled precious metals that were recovered from automobile catalytic converters.

Companies engaged in exploration for gold included Aldridge Minerals Inc., which completed an infill drilling program and began a definitive feasibility study on the Yenipazar gold property (which also contained copper, lead, silver, and zinc mineralization). Aldridge was earning 100% interest in the property from Alacer Gold. Aldridge Minerals wrote off its options on the Derinkoy gold property after European Goldfields Ltd. of Canada terminated its option to acquire up to 70% interest in the property (Aldridge Minerals Inc, 2012, p. 6–9).

Ariana Resources plc completed a prefeasibility study for the Red Rabbit gold project and estimated the resources of the Kiziltepe sector of the project to be 1 Mt of ore at an average grade of 3.6 g/t gold and 41.6 g/t silver. Pontid Madencilik Sanayi ve Ticaret Limited Şti., which was a subsidiary of Greater Pontides Exploration B.V. of the Netherlands [a joint venture of European Goldfields (51% interest) and Ariana Resources plc of the United Kingdom (49% interest)], completed a 44-hole drilling program on the Salinbas gold prospect on the Greater Pontides Project in northeastern Turkey. Eldorado was expected to complete its proposed acquisition of European Goldfields in early 2012 (Ariana Resources plc, 2012a, b).

In 2011, Ariana Resources acquired the Derinin Tepe (Kizilicukur) gold project, the Muratdag gold project, and the Yatij West gold project from KEFI Minerals Plc of the United Kingdom, which shifted its exploration focus to Saudi Arabia. Kackar Madencilik Sanayi ve Ticaret A.Ş. acquired the Artvin

gold project from KEFI Minerals (KEFI Minerals Plc, 2012, p. 15).

Centerra Gold Inc. of Canada was earning up to 70% interest in the Akarca gold property from Eurasian Minerals Inc. of Canada. The joint venture completed a 3-hole, 421-m drill program at Akarca in 2011. Centerra Gold continued to drill on the Ortacam North prospect on the Oksut property and earned 50% interest in the Oksut property from Stratex International PLC. Centerra also agreed to earn an additional 20% interest in the Oksut property by providing an additional \$3 million in exploration funding (Eurasian Minerals Inc., 2011b; Centerra Gold Inc., 2012, p. 29–30).

Chesser Resources Ltd. of Australia started a 30,000-m drill program on the Kestanelik gold prospect. Chesser also completed a 12-hole 2,964-m drill program on the Karaayi copper-gold prospect, which was located about 40 km southwest of Kestanelik (Chesser Resources Ltd., 2012, p. 4, 20).

Mediterranean Resources Ltd. of Canada started a 10-hole drill program on the Red Mountain (Kizildag) project, which included the Corak gold-silver (five holes) and the Tac copper-gold (five holes) properties. In December, Lovet Tekstil Gıda İnşaat Turizm Organizasyon Sanayi ve Dış Ticaret A.Ş. entered into an agreement to acquire 20% of the Red Mountain project from Mediterranean Resources (Mediterranean Resources Ltd., 2012, p. 4).

Pilot Gold Inc. acquired a 40% interest in the Orta Truva Madencilik Sanayi ve Ticaret A.Ş. joint venture from Fronteer Investment Inc. of the Cayman Islands [United Kingdom]. Teck Madencilik Sanayi ve Ticaret Limited A.Ş. held the remaining 60% interest in the Orta Truva joint venture. Orta Truva completed a 19-hole 4,184-m phase I drill program in January and a 72-hole 14,876-m phase II drill program on the TV Tower gold property in December (Pilot Gold Inc., 2012, p. 6–7).

Stratex reported that a positive feasibility study was completed on the Inlice gold project. Total reserves were estimated to be about 1.1 Mt of ore at a grade of 1.69 g/t gold. The joint venture of NTF İnşaat Ticaret Limited Şti. and Stratex expected to begin mining in early 2012; initial gold production was expected to begin in mid-2012. Stratex Madencilik Sanayi ve Ticaret Limited Şti., which was a local subsidiary of Stratex and Bahar Madencilik Sanayi ve Ticaret Limited Şti., agreed to form a joint venture (Altintepe Madencilik Sanayi ve Ticaret A.Ş.) to develop the Altintepe gold project. Stratex also continued exploration on the Altunhisar prospect (Stratex International plc, 2011a, b).

Nickel.—Meta Nikel Kobalt A.Ş. of Turkey (a subsidiary of Meta Madencilik Limited Şti.) started construction of the Gordes nickel refinery in Manisa Province. The refinery was expected to begin to process about 1.5 Mt/yr of ore in 2013, and output was expected to be 10,000 t/yr of nickel and 500 to 800 t/yr of cobalt salts (Kalkınmaforum.com, 2012; Kobiden News, 2012).

In October, European Nickel PLC of the United Kingdom agreed to sell its interest in the Caldag Mine to VTG Nikel Madencilik Sanayi ve Ticaret A.Ş., which was a subsidiary of Oremine Madencilik Sanayi ve Ticaret A.Ş. Development operations at the mine had been suspended in 2007 pending the receipt of a forestry permit. European Nickel had started work

on Caldag in 2002 but shifted its focus to developing a nickel project in the Philippines in 2010 (Fasken Martineau, 2011).

Industrial Minerals

Boron.—Eti Maden İşletmeleri Genel Müdürlüğü recovered 2.1 Mt of boron concentrates and produced 1.8 Mt of boron chemicals and products in 2011, and the company proposed an expansion of its boron products capacity to 5.5 Mt/yr from 1.725 Mt/yr. Capacity-expansion projects under construction included the company's fifth borax pentahydrate plant (which would have a production capacity of 500,000 t/yr) at Kirka, and a 50,000-t/yr-capacity boric acid plant. Proposed projects included the 500,000-t/yr-capacity sulfuric acid plant and a 500,000-t/yr-capacity boric acid plant at Emet (Eti Maden İşletmeleri Genel Müdürlüğü, 2012, p. 10–11, 17–18, 48–49).

Mineral Fuels and Related Materials

Uranium.—In 2011, Anatolia Energy Ltd. of Australia (formerly AWH Corporation Ltd.) acquired a 35% interest in the uranium exploration company Aldridge Uranium Ltd. of Australia, which Aldridge Minerals had spun off in 2008 as Aldridge Uranium Inc. of Canada. Vetter Uranium Ltd. of Australia acquired the remaining 65% interest in Aldridge Uranium. The resultant joint venture of Anatolia Energy and Vetter subsequently was named Anatolia Uranium Proprietary Ltd. In 2011, A Dur Madencilik Limited Şti., which was the venture's local subsidiary, completed two exploratory drill programs on the Temrezli deposit that totaled 32 holes for 5,009 m, and Anatolia Energy released a mineral resource estimate for the deposit of about 6.8 Mt of ore at a grade of 0.117% triuranium octoxide (U_3O_8) (Anatolia Energy Ltd., 2011a, p. 8; 2011b; Aldridge Minerals Inc., 2012, p. 10–11).

Outlook

Turkey has identified resources of a number of minerals. Most mining activity, especially in the industrial mineral sector, is performed by mining subsidiaries of domestic conglomerates, construction companies, metal and mineral traders, and small family-owned companies. Most of the international investor interest in the Turkish mineral industry remains focused on the development of metal deposits. The surge in exploration for metals by domestic and international companies is expected to continue (Ersçen, 1989).

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TABLE 1
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2007	2008	2009	2010	2011 ^c	
METALS						
Aluminum ^e	65,000	65,000	35,000	60,000 ^r	60,000	
Antimony:						
Ore, mine output:						
Gross weight	28,000 ^e	50,357	24,917	25,974 ^r	60,000	
Sb content ^e	1,400	2,700	1,400	650 ^r	3,400	
Concentrates: ^e						
Gross weight	5,000	10,000	5,000	5,400 ^r	12,000	
Sb content	1,200	2,400	1,200	1,300 ^r	3,000	
Bauxite and alumina:						
Bauxite	1,264,933	818,928	1,473,181	1,311,064 ^r	1,500,000	
Alumina, gross weight ^e	163,455 ²	160,000	80,000	160,000	160,000	
Chromium, gross weight (34% to 43% chromic oxide) ³	1,678,900	1,885,700	1,573,993	1,904,461	1,900,000	
Copper: ^c						
Mine output, exclusive of pyrite: ⁴						
Gross weight	4,806,198 ²	6,166,035 ²	6,470,475 ²	6,000,000	5,000,000	
Cu content of ore	81,000	100,000	105,000	97,000	80,000	
Metal:						
Smelter output, primary and secondary	30,000	30,000	25,000 ^r	25,000 ^r	25,000	
Refined ^c	100,000	88,000	33,000	47,000	50,000	
Gold ⁵	kilograms	9,920 ^e	11,016	14,469	16,890 ^r	25,000
Iron and steel:						
Iron ore:						
Gross weight	thousand metric tons	4,849	4,697	4,170	5,188	5,754 ²
Fe content ^e	do.	2,600	2,500	2,200	2,700	3,000
Metal:						
Pig iron and ferroalloys:						
Cast iron ^{e,6}		264,808 ²	250,000	250,000	250,000	250,000
Pig iron		6,235,537	6,697,000	6,913,325	7,676,592	7,700,000
Ferrochromium		69,730	79,840	41,028	65,000 ^e	60,000
Ferrosilicon ^e		5,000	4,500	4,000	4,000	4,000
Steel, crude including castings	thousand metric tons	25,760	26,809	25,304	29,030	34,000
Lead:						
Mine output, Pb and Pb-Zn ores:						
Gross weight		684,931	565,374	599,705	526,277 ^r	600,000
Pb content		32,000	25,000	26,000	23,000	26,000
Concentrates: ^e						
Gross weight		55,000	44,000	45,000	40,000	45,000
Pb content		28,000	22,000	23,000	21,000	23,000
Metal, refined ^c		6,000	6,000	6,000	6,000	6,000
Manganese ore, gross weight ⁷		42,033	51,703	141,206	134,336 ^r	135,000
Mercury		65	--	--	--	--
Molybdenum, gross weight		185	25	--	--	--
Nickel, mine output, Ni content ^e		500	500	100	200 ^r	200
Silver, mine output, Ag content ⁸	kilograms	198,000	294,000	351,600	363,520 ^r	450,000
Zinc: ^e						
Mine output, Zn and Cu-Zn ore:						
Gross weight	thousand metric tons	2,000	2,200 ^r	1,300 ^r	900 ^r	900
Zn content	do.	230	250 ^r	150 ^r	100 ^r	100
Concentrates:						
Gross weight		600,000	627,870 ^{r,2}	362,327 ^{r,2}	238,125 ^{r,2}	250,000
Zn content		200,000	200,000	120,000 ^r	80,000 ^r	80,000
INDUSTRIAL MINERALS						
Aluminum sulfate, alunite		2,511	15,324	2,068	2,000 ^e	2,000
Barite, crude		184,041	482,740	213,187	172,618 ^r	137,934 ²
Boron minerals:						
Run of mine		4,406,970	4,897,869	3,923,494	4,442,918	6,306,584 ²
Concentrates		2,127,812	2,139,224	1,800,000 ^e	2,200,000 ^e	2,273,122 ²
Refined borates ^c		1,092,056 ²	1,300,000	1,000,000	1,400,000	1,800,000

See footnotes at end of table.

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2007	2008	2009	2010	2011 ^c
INDUSTRIAL MINERALS—Continued					
Cement, hydraulic thousand metric tons	49,553	51,432	53,973	62,737	63,405 ²
Clays:					
Bentonite	1,742,487	1,553,588	932,487	798,397 ^r	379,918 ²
Kaolin	914,117	792,044	727,649	711,493	1,002,409 ²
Other	2,871,145	3,261,379	2,412,609	4,030,961 ^r	4,000,000
Diatomite	33,135	62,685	27,634	18,448 ^r	20,000
Emery	19,108	57,722	28,198	30,000 ^e	30,000
Feldspar, run of mine	6,548,796	6,767,500	4,212,547	6,281,597 ^r	4,477,993 ²
Fluorspar	--	2,931	3,756	25,189 ^r	25,000
Glass, crude ^e thousand metric tons	1,900	2,300	1,800	2,000	2,000
Graphite, run of mine	--	3,236	2,400	-- ^r	--
Gypsum, other than that for cement	3,241,177	7,338,127	4,369,589	6,321,891 ^r	6,400,000
Lime ^{e,9} thousand metric tons	4,000	4,000	3,800 ²	4,300	4,300
Magnesium, magnesite, run of mine	802,406	677,784	861,180	2,316,763 ^r	2,300,000
Mica:					
Illite	57,774	61,577	36,509	35,622 ^r	40,000
Other	3,313	8,392	4,172	387 ^r	--
Nepheline syenite	400	--	759	1,308 ^r	1,300
Nitrogen, N content of ammonia ^c	--	50,000	100,000	200,000	200,000
Obsidian	226	--	19	106 ^r	100
Olivine	145,839	170,631	168,567	192,394 ^r	200,000
Peat	145,403	113,112	65,315	214,620 ^r	200,000
Perlite, run of mine	478,579	551,266	522,832	545,585 ^r	429,776 ²
Phosphate rock	1,300 ^e	1,000	1,000 ^e	1,100	1,100
Pumice	3,995,423	3,449,733	4,322,543	4,000,000 ^e	4,000,000
Pyrites, cupreous, gross weight	109,100	116,091	124,130	131,315 ^r	130,000
Quartz and quartzite	2,146,969	1,762,972	1,943,877	2,500,000 ^r	2,500,000
Sepiolite (meerschaum) and palygorskite (attapulgit) ¹⁰	36,402	3,724	3,448	16,342 ^r	10,000
Silica (quartz) sand, gross weight	4,997,694	2,422,587	4,499,154	4,022,433 ^r	3,250,000
Sodium compounds:					
Salt, NaCl, all types thousand metric tons	2,366	2,472	3,768	4,000 ^e	4,000
Soda ash, trona do.	947	949	1,079	2,000 ^e	2,000
Sodium sulfate, concentrates	1,120,968	961,295	4,592,014	1,600,603 ^r	1,500,000
Stone:					
Basalt	4,115,184	3,307,107	1,908,544	20,320,391 ^r	20,000,000
Dolomite	15,672,171	16,440,257	11,152,094	15,224,546 ^r	15,000,000
Granite	252,354	367,959	324,718	239,819 ^r	250,000
Limestone, other than for cement thousand metric tons	211,454 ^r	207,982 ^r	243,184 ^r	270,441 ^r	270,000
Marble cubic meters	2,801,757	2,262,537	2,715,601	3,352,070 ^r	3,500,000
Onyx	5,663	2,145	2,322	2,113 ^r	2,000
Travertine	995,065	759,118	1,002,866	879,319 ^r	900,000
Strontium minerals, celestite:					
Run of mine	6,700	2,600	--	--	--
Concentrates	4,200	1,600	--	--	--
Sulfur: ^e					
Byproduct:					
Petroleum	65,000	63,000	45,000	50,000	50,000
Other	20,000	20,000	--	--	--
S content of pyrites	50,000	55,000	60,000	60,000	60,000
Total	135,000	138,000	105,000	110,000	110,000
Talc	12,722	3,364	6,887	1,826 ^r	2,000
Titanium minerals, rutile, gross weight	20 ^e	20	4,000	1,000 ^r	1,000
Zeolite	104,138	107,951	141,728	33,813 ^r	50,000

See footnotes at end of table.

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2007	2008	2009	2010	2011 ^c	
MINERAL FUELS AND RELATED MATERIALS						
Asphalt, natural	-- ^r	68,247 ^r	362,435 ^r	285,362 ^r	300,000	
Carbon black ^e	40,379 ²	40,000	30,000	30,000	30,000	
Coal:						
Hard coal, run of mine	thousand metric tons	3,233	3,343	3,774	3,667	5,619 ²
Lignite, run of mine	do.	70,606	85,953	82,263	74,437	89,806 ²
Coke and semicoke ^e	do.	3,337 ²	4,063 ²	4,000	3,900	4,000
Gas, natural, marketed	thousand cubic meters	287,501	894,667	660,391	625,713	680,000
Petroleum: ^e						
Crude	thousand 42-gallon barrels	15,000	15,200	17,000	17,800	16,400
Refinery products:						
Liquefied petroleum gas	do.	8,800	8,900	7,200	7,900	8,800
Gasoline	do.	33,900	37,700	30,000	33,000	35,000
Naphtha	do.	7,200	4,600	3,700	4,000	4,000
Jet fuel and kerosene	do.	20,500	22,400	15,900	21,000	25,000
Distillate fuel oil ¹¹	do.	53,000	49,000	35,200	36,600	40,000
Lubricants	do.	2,100	1,800	1,700	2,200	2,800
Residual fuel oil	do.	36,200	31,700	13,800	16,000	19,000
Asphalt	do.	13,900	13,600	12,200	16,900	18,000
Unspecified ¹²	do.	5,300	2,500	2,600	5,300	3,200
Total	do.	181,000	172,000	122,000	143,000	156,000

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

¹Table includes data available through November 30, 2012. In addition to the commodities listed, large quantities of construction materials (sand and gravel) are quarried. Also mined are diabase, sandstone, serpentine, and slate for building stone; limestone and gypsum for cement manufacture; and cobalt, garnet, iron oxide pigment, and tungsten, but available information is inadequate to make reliable estimates of output.

²Reported figure.

³Approximately 70% of gross production is salable product.

⁴Copper mines produce a copper concentrate (of about 22% Cu) and a cupreous pyrite concentrate (of about 0.7% Cu). Copper is not recovered from the cupreous pyrite concentrate.

⁵Data include estimated content of Turkish copper refinery tankhouse slimes.

⁶Series formerly carried as pig iron.

⁷Does not include manganese iron ore from the Devinci Mine, production of which amounts to several hundred thousand metric tons per year and has a manganese content of 3% to 5%.

⁸Includes estimated content of base-metals-refinery tankhouse slimes.

⁹Estimated sales only.

¹⁰Entry for sepiolite (meerschau) and palygorskite (attapulgit), which are magnesium aluminum silicates, formerly included only sepiolite production of 170 kilograms (kg) in 2005, 130 kg in 2006, 50 kilograms in 2007, and 50 kilograms in 2008.

¹¹Diesel fuel (gasoil) and special heating oil.

¹²Includes refinery fuel and losses.

TABLE 2
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, metal	Eti Alüminyum A.Ş. (Cengiz Holding)	Smelter at Seydisehir, Konya Province	65
Antimony ore	Özdemir Antimuan Maden Limited Şti.	Near Turhal, Tokat Province	NA
Bauxite and alumina:			
Alumina	do.	Refinery at Seydisehir, Konya Province	400
Bauxite	do.	Mines near Madenli, about 25 kilometers south of Seydisehir, Konya Province	500
Do.	Demireller Tarım Madencilik Petrol Sanayi ve Ticaret Limited Şti.	Mines near Arslankoy, Mersin Province	500
Do.	Albuck Madencilik San. ve Tic. A.Ş.	Mine near Cirpi, Mugla Province	NA
Do.	do.	Mine near Mihaliccik, Eskisehir Province	NA
Boron:			
Concentrate and ground ore	Bigadiç Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Three open pit mines at Bigadic, Balikesir Province	650
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Espey Mine, Emet, Kutahya Province	500
Do.	do.	Hisarcik Mine, Emet, Kutahya Province	500
Do.	Kestelek Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Kestelek Mine, Bursa Province	100
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Mine at Kırka, Eskisehir Province	800
Refined borates	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü, (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Bandırma, Balikesir Province	100
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Boric acid plant, Emet, Kutahya Province	100
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Kırka, Eskisehir Province	600
Cement:			
Gray portland	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	3,400
Do.	do.	Iskenderun grinding plant, Iskenderun, Hatay Province	1,000
Do.	Afyon Çimento Sanayii Ticaret A.Ş. (Ciments Français S.A., 77%)	Afyon, Afyonkarahisar Province	550
Do.	Akçansa Çimento Sanayi ve Ticaret A.Ş. (HeidelbergCement AG, 40%, and Sabancı Holding A.Ş., 40%)	Buyukcekmece plant, Buyukcekmece, Istanbul Province	2,800
Do.	do.	Canakkale plant, about 11 kilometers northwest of Ezine, Canakkale Province	3,500
Do.	do.	Ladik plant, Ladik, Samsun Province	1,050
Do.	Aslan Çimento A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 97%]	Darica plant, Gebze, Kocaeli Province	2,880
Do.	AS Çimento Sanayi ve Ticaret A.Ş.	Bucak, Burdur Province	6,500
Do.	Aşkale Çimento Sanayi ve Ticaret A.Ş.	Trabzon plant, Degirmendere, Trabzon Province	800
Do.	do.	Askale, Erzurum Province	720
Do.	Bakırçay Çimento Sanayii ve Ticaret A.Ş. (Kars Çimento San. ve Tic. A.Ş., 98%)	Poyracik, near Kinik, Izmir Province	12
Do.	Bartın Çimento Sanayii ve Ticaret A.Ş. (Sanko Holding A.Ş.)	Bartın plant, Bartın Province	400
Do.	Baştaş Çimento Sanayii A.Ş. (Vicat Group, 85%)	Elmadag, Ankara Province	1,500
Do.	Batıçim Batı Anadolu Çimento Sanayii A.Ş. (Orascom Construction Industries, 23%)	Bornova, Izmir Province	1,600
Do.	Batisöke Söke Çimento Sanayii ve Ticaret A.Ş. (Batıçim Batı Anadolu Çimento Sanayii A.Ş., 75%)	Soke, Aydın Province	1,300
Do.	Bolu Çimento Sanayii A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 52%]	About 14 kilometers east of Bolu, Bolu Province	2,200
Do.	do.	Ankara grinding plant, Kazan, Ankara Province	800
Do.	Bursa Çimento Sanayii ve Ticaret A.Ş. (Bursa Çimento Fabrikası A.Ş., 98%)	Kestel, Bursa Province	2,850
Do.	Çimentaş İzmir Çimento Fabrikası Türk A.Ş. (Intercecm SA, 67%, and Cementir Holding SpA, 29%)	Isikkent, Izmir Province	2,600
Do.	do.	Trakya plant, Lalapasa, Edirne Province	1,300

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued:			
Gray portland—Continued	Çimko Adıyaman Çimento ve Beton Sanayii ve Ticaret A.Ş. (Çimko Çimento ve Beton Sanayii Ticaret A.Ş.)	About 18 kilometers southwest of Adıyaman, Adıyaman Province	1,350
Do.	Çimko Çimento Kahramanmaraş Narlı Fabrikası (Çimko Çimento ve Beton Sanayii Ticaret A.Ş.)	Narlı plant, Narlı, Kahramanmaraş Province	3,300
Do.	Cimpor Yıbitaş Çimento Sanayii ve Ticaret A.Ş. (Cimpor Internacional, SGPS, S.A., 99%)	Corum plant, Corum, Corum Province	950
Do.	do.	Hasanoglan grinding plant, Hasanoglan, Ankara Province	725
Do.	do.	Nevşehir grinding plant, Kalaba, Nevşehir Province	300 ^c
Do.	do.	Samsun grinding plant, about 6 kilometers west of Samsun, Samsun Province	300 ^c
Do.	do.	Sivas plant, Sivas, Sivas Province	615
Do.	do.	Yozgat plant, Saraykoy, Yozgat Province	800
Do.	Çimsa Çimento Sanayii ve Ticaret A.Ş. (Sabancı Holding A.Ş., 47%)	Ankara grinding plant, Lalahan, Ankara Province	230
Do.	do.	About 20 kilometers northwest of Eskisehir, Eskisehir Province	1,800
Do.	do.	Near Ağırnas, Kayseri Province	1,000
Do.	do.	Mersin plant, Yenitaskent, Mersin Province	2,300
Do.	do.	Nigde plant, Nigde, Nigde Province	1,200
Do.	Denizli Çimento Sanayi ve Ticaret A.Ş. (CRH plc, 50%, and Eren Holding A.S., 50%)	About 5 kilometers northwest of Kaklık, Denizli Province	2,500
Do.	Elazığ Çimento A.Ş. (Kars Çimento Sanayii ve Ticaret A.Ş., 93.55%; Cimentas A.Ş., 6.17%; Bakırçay Çimento Sanayii ve Ticaret A.Ş., 0.27%)	Elazığ, Elazığ Province	900
Do.	Ereğli Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 50%]	Karadeniz Ereğli plant, Kemer, Zonguldak Province	300
Do.	Göлтаş Göller Bölgesi Çimento Sanayii ve Ticaret A.Ş. (Sadecib S.A., 34%, and Göl Yatırım Holding A.Ş., 28%)	About 15 kilometers north-northwest of Isparta, Isparta Province	2,900
Do.	Kars Çimento Sanayii ve Ticaret A.Ş. (Cimentas A.Ş., 58%, and Alfacem Srl, 40%)	Bozkale, Kars Province	600
Do.	Konya Çimento Sanayii A.Ş. (Vicat Group, 81%)	Konya, Konya Province	1,600
Do.	Lafarge Van Çimento A.Ş. (Lafarge S.A., 99.99%)	Edremit, Van Province	600
Do.	Limak Kurtalan Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Sanlıurfa plant, about 14 kilometers north-northwest of Sanlıurfa, Sanlıurfa Province	1,400
Do.	do.	Gaziantep plant, Gaziantep (Sehit Kamil), Gaziantep Province	1,400
Do.	do.	Kurtalan plant, Kurtalan, Siirt Province	1,140
Do.	Limak Madencilik Yapı Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ergani plant, Ergani, Diyarbakir Province	1,400
Do.	Limak-Istaç İnşaat Sanayi ve Ticaret A.Ş.	Bitlis plant, Bitlis Province	525
Do.	Mardin Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 56%]	About 6 kilometers northeast of Mardin, Mardin Province	2,000
Do.	Nuh Çimento Sanayi A.Ş. (Nuh Ticaret ve Sanayi A.Ş., 43%)	Hereke, Kocaeli Province	5,817
Do.	Set Çimento Sanayi ve Ticaret A.Ş. (Set Çimento Group)	Ambarlı grinding plant, Buyukcekmece, Istanbul Province	1,200
Do.	do.	Ankara plant, Ankara, Ankara Province	1,300
Do.	do.	Trakya plant, Pınarhisar, Kırklareli Province	800
Do.	do.	Balikesir, Balikesir Province	500
Do.	Traçım Çimento Sanayii ve Ticaret A.Ş. (Soyak Holding A.Ş. and TBS Taşıma Beton A.Ş.)	Evrencik, Vise, Kırklareli Province	2,000
Do.	Ünye Çimento Sanayi ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 51%, and Nuh Çimento Sanayi A.Ş., 39%]	Unye, Ordu Province	2,600
Slag	KarÇimsa Çimento Sanayii ve Ticaret A.Ş. (Akçansa Çimento Sanayi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	200

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued:			
White	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	325
Do.	Çimsa Çimento Sanayii ve Ticaret A.Ş. (Sabancı Holding A.Ş., 47%)	Mersin plant, Yenitaskent, Mersin Province	1,000 ^c
Coal:			
Anthracite	Armutçuk Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu Genel Müdürlüğü (T.T.K.)] (Government)	Armutçuk Mine, Kandilli, Zonguldak Province	400
Do.	Amasra Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu Genel Müdürlüğü (T.T.K.)] (Government)	Amasra Mine, Amasra, Bartın Province	300
Do.	Karadon Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu Genel Müdürlüğü (T.T.K.)] (Government)	Karadon Mine, Kilimli, Zonguldak Province	450
Do.	Kozllu Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu Genel Müdürlüğü (T.T.K.)] (Government)	Kozlu Mine, Kozlu, Zonguldak Province	600
Do.	Üzülmez Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu Genel Müdürlüğü (T.T.K.)] (Government)	Uzulmez Mine, Asma, Zonguldak Province	500
Lignite ¹	Bursa Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Bursa lignite facility, Orhaneli, Bursa Province	1,000
Do.	Çan Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Can lignite facility, Can, Canakkale Province	1,800
Do.	Ege Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Soma Mine, Soma, Manisa Province	10,500
Do.	Garp Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Tuncbilek mining center, Tavşanlı, Kutahya Province	7,000
Do.	Güney Ege Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	South Aegean lignite facility, Yatagan, Mugla Province	4,900
Do.	Ilgin Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Ilgin lignite facility, Ilgin, Konya Province	300
Do.	Seyitömer Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Seyitomer lignite facility, Seyitomer, Kutahya Province	8,000
Do.	Yeniköy Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu (TKI)] (Government)	Yenikoy lignite facility, Oren (Milas), Mugla Province	8,500
Copper:			
Concentrate, Cu content	Çayeli Bakır İşletmeleri A.Ş. (Inmet Mining Corp., 100%)	Cayeli Mine, near Cayeli, Rize Province	37
Do.	Eti Bakır A.Ş. (Cengiz Holding, 100%)	Kastamonu Kure facility (three open pit mines and one underground mine), 50 kilometers north of Kastamonu, Kastamonu Province	23
Do.	do.	Murgul facility (three open pit mines, including the Anayatak and the Çakmakkaya Mines), Murgul, Artvin Province	20
Do.	Park Elektrik Üretim Madencilik San. ve Tic. A.Ş.	Siirt Madenkoy	20
Do.	Demir Export A.Ş. (Koç Holding A.Ş.)	Lahanos Mine, Giresun Province	4
Anode (blister)	Karadeniz Bakır İşletmeleri (KBI) (Cengiz Holding)	KBI smelter, Tekkeköy, Samsun Province	38
Cathode	Sarkuysan Elektrolitik Bakır San. ve Tic. A.Ş.	Darıca, Kocaeli Province	200
Do.	Er-Bakır Elektrolitik Bakır Mamulleri A.Ş.	Denizli, Denizli Province	200
Ferrochrome, high-carbon	Eti Krom A.Ş. (Yildirim Holding A.Ş.)	About 55 kilometers east of Elazığ, Elazığ Province	150
Fertilizer:			
Ammonium nitrate	Kütahya Gübre Sanayii A.Ş. (Yıldız Yatırım Holding A.Ş.)	Kutahya, Kutahya Province	344
Diammonium phosphate	Samsun Gübre Fabrikası [Türkiye Gübre Sanayii A.Ş. (TÜGSAŞ)]	Tekkeköy, Samsun Province	227
Do.	Ege Gübre Sanayii A.Ş.	Aliaga, İzmir Province	165
Do.	Istanbul Gübre Sanayi A.Ş. (IGSAŞ), (Yıldız Yatırım Holding A.Ş.)	Korfez, Kocaeli Province	240
Mono-ammonium phosphate	Ege Gübre Sanayii A.Ş.	Aliaga, İzmir Province	130
Gold, ore, kilograms	Koza Altın İşletmeleri A.Ş. (ATP İnşaat ve Ticaret A.Ş., 60%, and Koza İpek Holding A.Ş., 40%)	Ovacik Mine, Ovacik, Mugla Province	2,000
Do.	do.	Mastra Mine, near Demirkaynak, Gumushane Province	5,000
Do.	do.	Cukuralan Mine	2,000

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold, ore, kilograms		Koza Altın İşletmeleri A.Ş. (ATP İnşaat ve Ticaret A.Ş., 60%, and Koza İpek Holding A.Ş., 40%)	Kaymaz Mine	600
Au content—Continued				
Do.	do.	Anagold Madencilik Sanayi ve Ticaret A.Ş. (Alacer Gold Corp., 95%, and Lidya Madencilik Sanayi ve Ticaret A.Ş., 5%)	Copler Mine	6,000
Do.	do.	Pomzaexport Madencilik Sanayi ve Ticaret A.Ş.	Sardes placer mine, Manisa Province	NA
Do.	do.	Tüprag Metal Madencilik Sanayi ve Ticaret A.Ş. (Eldorado Gold Corp., 100%)	Kisladag Mine, Katranci, Usak Province	7,500
Do.	do.	do.	Efemcukuru Mine	4,000
Iron and steel:				
Iron ore		Erdemir Madencilik Sanayi ve Ticaret A.Ş. (Ereğli Demir ve Çelik Fabrikaları T.A.Ş.) (Erdemir)	Fourteen mines in the Divrigi area, Sivas Province	2,500
Do.		Hekimhan Madencilik İthalat İhracat Sanayi ve Ticaret A.Ş. (Kolin İnşaat Turizm Sanayi ve Ticaret A.Ş.)	About 22 kilometers northeast of Hekimhan (formerly the Deveci Mine), Malatya Province	2,000 ²
Steel:				
Crude		Asil Çelik A.Ş.	Plant south of Orhangazi, Bursa Province	485
Do.		Bilecik Demir Çelik Sanayi ve Ticaret A.Ş. (Global Yatırım Holding A.Ş., 40%)	Bilecik, Bilecik Province	240
Do.		Çebitaş Demir Çelik Endüstrisi A.Ş.	Aliaga, Izmir Province	750
Do.		Çelik Makina Sanayi ve Ticaret A.Ş. (ÇEMTAŞ)	Bursa, Bursa Province	174
Do.		CER Çelik Endüstrisi A.Ş.	Plant at Bornova, Izmir Province	850
Do.		Çolakoğlu Metalurji A.Ş.	Dilovasi, Kocaeli Province	3,200
Do.		Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.	do.	1,500
Do.		Ege Çelik Endüstrisi Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	2,000
Do.		Ekinciler Holding A.Ş.	About 10 kilometers north of Iskenderun, Hatay Province	1,000
Do.		Erege Metal Demir Çelik Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	720
Do.		Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) (Ataer Holding A.Ş., 49.29%, and ArcelorMittal, 24.99%)	Karadeniz Ereğli, Zonguldak Province	3,800
Do.		Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.S. (Habaş Topluluğu)	Aliaga, Izmir Province	3,000
Do.		İçdaş Demir Çelik Enerji Tersane ve Ulaşım Sanayi A.Ş.	Istanbul (Gunesli), Istanbul Province	1,000
Do.		do.	About 25 kilometers north of Biga, Canakkale Province	1,500
Do.		İlhan Metalurji A.Ş.	Toprakkale, Osmaniye Province	220
Do.		İskenderun Demir ve Çelik A.Ş. (Isdemir) [Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir), 92%]	Iskenderun, Hatay Province	4,000
Do.		İzmir Demir Çelik Sanayi A.Ş. (IDÇ)	Aliaga, Izmir Province	1,320
Do.		Kaptan Demir Çelik Endüstrisi ve Ticaret A.Ş.	Marmara Ereğlisi, Tekirdag Province	1,400
Do.		Karabük Demir Çelik Sanayi ve Ticaret A.Ş. (Kardemir) (Kardemir retirement group, 68%, and Kardemir employees, 21%)	Karabuk, Karabuk Province	1,500
Do.		Kroman Çelik Sanayii A.Ş.	Cayırova, Kocaeli Province	1,250
Do.		Makina ve Kimya Endüstrisi Kurumu Genel Müdürlüğü (MKEK)	Kirikkale, Kirikkale Province	60
Do.		Mega Demir Mamulleri Sanayi ve Ticaret Ltd. ŞTI	North of Iskenderun, Hatay Province	220
Do.		Nursan Metalurji A.Ş.	Payas, Hatay Province	1,100
Do.		Sivas Demir Çelik İşletmeleri A.Ş. (Sidemir)	About 20 kilometers south of Sivas, Sivas Province	350
Do.		Tosyalı Demir Çelik Sanayi A.Ş. (Tosyalı Holding A.Ş.)	Iskenderun, Hatay Province	NA
Do.		Yazıcı Demir Çelik Endüstrisi ve Ticaret A.Ş. (Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	900
Do.		Yeşilyurt Demir Çelik A.Ş.	Tekkeköy, Samsun Province	1,300
Rolled products		Asil Çelik A.Ş.	Rolling mill south of Orhangazi, Bursa Province	200
Do.		Borçelik Çelik Sanayii ve Ticaret A.Ş. (ArcelorMittal and Borusan Holding A.Ş.)	Near Gemlik, Bursa Province	1,600
Do.		Çebitaş Demir Çelik Endüstrisi A.Ş.	Aliaga, Izmir Province	600
Do.		Çelik Makina Sanayi ve Ticaret A.Ş. (ÇEMTAŞ)	Bursa, Bursa Province	230
Do.		CER Çelik Endüstrisi A.Ş.	Rolling mill at Bornova, Izmir Province	300

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
Iron and steel—Continued:				
Steel—Continued:				
Rolled products—Continued	Çolakoğlu Metalurji A.Ş.	Dilovasi, Kocaeli Province	750	
Do.	Demirsan Haddencilik Sanayi ve Ticaret A.Ş.	do.	NA	
Do.	Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.	do.	800	
Do.	Ege Çelik Endüstrisi Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	1,200	
Do.	Ekinciler Holding A.Ş.	About 10 kilometers north of Iskenderun, Hatay Province	1,100	
Do.	Erege Metal Demir Çelik Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	400	
Do.	Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) (Ataer Holding A.Ş., 49.29%, and ArcelorMittal, 24.99%)	Karadeniz Ereğli, Zonguldak Province	8,800	
Do.	Habaş Sinai ve Tibbi Gazlar İstihsal Endustrisi A.S. (Habaş Topluluğu)	Aliaga, Izmir Province	NA	
Do.	İçdaş Demir Çelik Enerji Tersane ve Ulaşım Sanayi A.Ş.	Istanbul (Gunesli), Istanbul Province	1,500	
Do.	do.	About 25 kilometers north of Biga, Canakkale Province	1,500	
Do.	İnernet A.Ş.	Two rolling mills, Istanbul, Istanbul Province	600	
Do.	İskenderun Demir ve Çelik A.Ş. (Isdemir) [Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir), 92%]	Iskenderun, Hatay Province	3,500	
Do.	İzmir Demir Çelik Sanayi A.Ş. (İDÇ)	Aliaga, Izmir Province	900	
Do.	Kaptan Demir Çelik Endüstrisi ve Ticaret A.Ş.	Marmara Ereğlisi, Tekirdag Province	700	
Do.	do.	Corlu, Tekirdag Province	200	
Do.	do.	Karabuk, Karabuk Province	100	
Do.	Karabük Demir Çelik Sanayi ve Ticaret A.Ş. (Kardemir) (Kardemir retirement group, 68%, and Kardemir employees, 21%)	do.	700	
Do.	Kar-demir Haddencilik Sanayi ve Ticaret Ltd. ŞTI	Aliaga, Izmir Province	700	
Do.	Kocaer Haddencilik Sanayi ve Ticaret Ltd. ŞTI. (Kocaer Grubu)	do.	600	
Do.	do.	Denizli, Denizli Province	100	
Do.	Kroman Çelik Sanayii A.Ş.	Bar and profile mill at Cayirova, Kocaeli Province	200	
Do.	Kürüm Demir Sanayi Dış Ticaret A.Ş.	Gebze, Kocaeli Province	445	
Do.	Nursan Haddencilik A.Ş.	Payas, Hatay Province	500	
Do.	Özefe Demir Sanayi ve Tic. A.Ş. (Efesana Demir Sanayi ve Ticaret A.Ş.)	Bar mills at Alibeykoy, Istanbul Province	250	
Do.	Özkan Demir Sanayi A.Ş.	Aliaga, Izmir Province	500	
Do.	Sivas Demir Çelik İşletmeleri A.Ş. (Sidemir)	About 20 kilometers south of Sivas, Sivas Province	450	
Do.	Sözer Demir Çelik A.Ş.	Aliaga, Izmir Province	220	
Do.	Yazıcı Demir Çelik Endüstrisi ve Ticaret A.Ş. (Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	1,024	
Do.	Yeşilyurt Demir Çelik A.Ş.	Tekkekoy, Samsun Province	720	
Liquefied natural gas	million cubic meters	Boru Hatları İle Petrol Taşıma A.Ş. (Botaş) (Government)	Botas Marmara Ereğlisi regasification terminal, Sultankoy, Tekirdag Province	6,500
Do.	do.	EgeGas LNG (Çolakoğlu Group, 100%)	Aliaga regasification terminal, Aliaga, Izmir Province	6,000
Magnesite, dead-burned	Kümaş Kütahya Manyezit İşletmeleri A.Ş. (Zeytinoğlu Holding A.Ş.)	Kutahya, Kutahya Province	185	
Nickel, ore, metal content	VTG Nikel Madencilik Sanayi ve Ticaret A.Ş.	Caldag Mine, about 25 kilometers north of Turgutlu, Manisa Province	NA ³	
Nitrogen, N content of ammonia	Istanbul Gübre Sanayi A.Ş. (IGSAŞ) (Yıldız Yatırım Holding A.Ş.)	Korfez, Kocaeli Province	326	
Do.	Gemlik Gübre Sanayii A.Ş. [Türkiye Gübre Sanayii A.Ş. (TÜGSAŞ)]	Gemlik, Bursa Province	270	
Petroleum, refined products	thousand 42-gallon barrels per day	Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Izmir refinery, Aliaga, Izmir Province	78,650
Do.	do.	do.	Izmit refinery, Izmit, Kocaeli Province	78,650
Do.	do.	do.	Kirikkale refinery, Kirikkale, Kirikkale Province	55,000

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum, refined products— Continued	thousand 42-gallon barrels per day Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Batman refinery, Batman, Batman Province	12,100
Do.	do. Ersan Petrol Sanayii A.Ş (Sayer Group, 100%)	Narli refinery, Narli, Kahramanmaraş Province	1,330 ³
Silver, ore	metric tons Eti Gümüş A.Ş. (Yıldızlar SSS Holding)	Gumuskoy, Kutahya Province	198
Soda ash	Eti Soda Inc. [Ciner Grubu, 74%, and Eti Maden İşletmeleri Genel Müdürlüğü (Government), 26%]	Beypazari trona mine and soda ash plant, Beypazari, Ankara Province	1,000
Do.	Soda Sanayii A.Ş [Türkiye Şişe ve Cam Fabrikaları A.Ş. (ŞİŞECAM)]	Kazanlı, Mersin Province	1,150
Sulfur	Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Izmir refinery, Aliaga, İzmir Province	NA
Do.	do.	Izmit refinery, Izmit, Kocaeli Province	NA
Do.	do.	Kırıkkale refinery, Kırıkkale, Kırıkkale Province	NA
Sulfuric acid	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Bandırma, Balıkesir Province	240
Zinc concentrate, Zn content	Çayeli Bakır İşletmeleri A.Ş. (Inmet Mining Corp., 100%)	Çayeli Mine, near Çayeli, Rize Province	52
Do.	Meskan Ölmez Madencilik Harfiyat İnşaat yol Yapım Petrol Ürünleri İthalat İhracat Nakliye Taahüt San. ve Tic.	Mines in Hakkari Province	20
Do.	Silvermet Inc.	Iskenderun, Hatay Province	12
Do.	Dedeman Madencilik Tic. ve San. A.Ş.	The Delikkaya and the Yesil Hisar Cadirkaya Mines, Kayseri Province	10
Do.	Çankale Madencilik Limited Şti.	Koru Mine, Canakkale Province	5
Do.	Elkin Maden Tic. ve San. A.Ş.	Mines in Hakkari Province	NA
Do.	Seyitoğlu Madencilik A.Ş.	do.	NA

⁴Estimated. Do., do. Ditto. NA Not available.

¹Includes subbituminous coal.

²Planned expansion.

³Inactive.