

2016 Minerals Yearbook

TURKEY

THE MINERAL INDUSTRY OF TURKEY

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Turkey's mineral industry produced primarily metals and industrial minerals; mineral fuel production consisted mainly of coal and refined petroleum products. In 2016, Turkey was the world's leading producer of boron, accounting for 74% of world production (excluding that of the United States), pumice and pumicite (39%), and feldspar (23%). It was also the 2d-ranked producer of magnesium compounds (10% excluding U.S. production), 3d-ranked producer of perlite (19%) and bentonite (17%), 4th-ranked producer of chromite ore (9%), 5th-ranked producer of antimony (3%) and cement (2%), 7th-ranked producer of kaolin (5%), 8th-ranked producer of raw steel (2%), and 10th-ranked producer of barite (2%) (table 1; World Steel Association, 2017, p. 9; Bennett, 2018; Bray, 2018; Crangle, 2018a, b; Fenton, 2018; Klochko, 2018; McRae, 2018; Singerling, 2018; Tanner, 2018; van Oss, 2018; West, 2018).

Minerals in the National Economy

In 2016, Turkey's real gross domestic product (GDP) increased by 3.2% compared with that of 2015; the nominal GDP was \$863.7 billion. Mining and quarrying accounted for 0.8% of the nominal GDP in 2016. The real gross value of the mining and quarrying sector increased by 6% in 2016. The real gross value of manufacturing, which included the production of such value-added processed minerals as cement and steel, increased by 3.8% and accounted for 16.6% of the GDP in 2016 (Türkiye İstatistik Kurumu, 2018a, b).

Government Policies and Programs

The Maden İşleri Genel Müdürlüğü (MIGEM) [General Directorate of Mining Affairs], which is the primary mineral regulatory agency, is the Government agency responsible for issuing nonfuel minerals and coal licenses and permits in Turkey. As of yearend 2016, there were 17,800 mineral licenses in effect in Turkey, of which 5,445 were exploration licenses and 12,355 were operating licenses. Of the total licenses, 8,646, or 50%, were for Group II minerals covering construction materials, such as crushed and dimension stone and sand and gravel, and 7,646, or 44%, were for Group IV minerals covering other industrial minerals, metals, coal, and radioactive minerals. Of total licensed operations, 5,139 were active in 2016 (Maden İşleri Genel Müdürlüğü, 2018a, b).

Production

In 2016, there were substantial output increases for magnesium, 1,775%; granite, 99%; silver, 98%; asphalt, 87%; alumina and aluminum, 72% each; fluorspar, 66%; olivine, 65%; ferrochromium, 59%; sodium, 56%; barite, 54%; antimony (gross weight of ore), 41%; copper (gross weight of ore), 40%; lignite, 33%; zeolites, 30%; perlite, 26%; emery, 19%; zinc (gross weight of ore), 18%; limestone, 13%; and zinc (mine production, Zn content), 10%. There were significant output

decreases for illite, 72%; refined copper (secondary) and nickel (mine production, Ni content), 50% each; bentonite, 44%; refined copper (primary), 36%; manganese (mine production, Mn content), 35%; kaolin and nitrogen, 32% each; diatomite, 29%; bituminous coal and crushed stone, 28% each; chromite (mine production), 27%; dolomite, 18%; leonardite, 16%; salt, 15%; gold (mine production, Au content), 14%; silica, 13%; and lead (mine production, Pb content) and talc, 12% each (table 1; Maden İşleri Genel Müdürlüğü, 2018b).

Structure of the Mineral Industry

Turkey's industrial minerals and metals production was undertaken mainly by privately owned companies. The Government's involvement in the mineral industry was primarily in exploration and production of boron, coal, and hydrocarbons. Table 2 is a list of major mineral-producing companies, mines, and facilities.

Mineral Trade

In 2016, the value of Turkey's exports of mined minerals decreased by 3.1% to \$3.79 billion; they accounted for 2.7% of the country's exports, by value. Stone and marble made up 48% of mined mineral exports, followed by metallic minerals, such as chromite, copper, ferrochromium, gold, lead, magnesite, silver, and zinc (24%); and industrial minerals, such as bentonite, boron, feldspar, gypsum, and quartz (20%). In 2016, China remained the leading recipient of such exports, in particular those of natural stone and marble, accounting for 36% of the total. It was followed by the United States (10%); Italy (4%); and Belgium, Saudi Arabia, and India (3% each) (table 3; İstanbul Maden ve Metaller İhracatçıları Birlikleri, 2017).

Commodity Review

Metals

Bauxite and Alumina and Aluminum.—Eti Alüminyum A.Ş., which was the only primary aluminum producer in Turkey, continued its multiyear modernization of the Seydisehir aluminum smelter in Konya. Technological upgrades increased its production capacity to 82,000 metric tons per year (t/yr) in mid-2015. The Seydisehir facility processed 550,000 t/yr of locally sourced bauxite ore and had the capacity to produce 260,000 t/yr of alumina by converting 400,000 t/yr of aluminum hydroxide and 160,000 t/yr of cast products (Cengiz Holding A.Ş., 2018a).

Cobalt and Nickel.—Meta Nikel Kobalt A.Ş. began commercial production and realized its first exports from the nickel-and-cobalt-processing plant in Gordes, Manisa Province, in 2016; this was the sole nickel cobalt concentrate plant in Turkey and Europe. The plant had a production capacity of 10,000 t/yr of nickel and 750 t/yr of cobalt. Capacity would

be doubled to 20,000 t/yr of nickel with the second phase of expansion, which was to be completed in the 2015 to 2023 timeframe (Meta Nikel Kobalt A.Ş., 2017).

Copper and Zinc.—Eti Bakır A.Ş., Turkey's leading copper company, had the capacity to produce about 130,000 t/yr of copper concentrate from 3.2 million metric tons (Mt) of ore at its Murgul facility in Artvin and about 90,000 t/yr of copper concentrate and 400,000 t/yr of pyrite concentrate from 1 Mt of ore at the Kure facility in Kastamonu. Eti Bakır also had the capacity to produce 75,000 t/yr of copper cathodes at its smelter and electrolysis plant in Samsun, which was the only smelter in Turkey that was capable of producing cathodes (Cengiz Holding A.Ş., 2018b).

Çayeli Bakır İşletmeleri A.Ş., which was a subsidiary of First Quantum Minerals Ltd. of Canada, produced 25,330 metric tons (t) of copper, 106 kilograms (kg) of gold, and 8,062 t of zinc at its Çayeli copper mine in 2016. Copper output increased by 4% owing to higher throughput and recoveries despite lower grades: copper recovery was 87% and zinc recovery was 39% (First Quantum Minerals Ltd., 2017a, p. 23–24; 2017b).

Gold and Silver.—Turkey's gold production was 24 t in 2016 compared with 27.8 t in 2015. The country imported 106 t of gold in 2016 compared with 48 t in 2015. Kisladağ and Cöpler were Turkey's largest gold deposits, with reserves containing 160,000 kg and 130,000 kg of gold, respectively. The Kisladağ open pit gold porphyry mine remained the largest gold mine, in terms of output. In 2016, gold production at the Kisladağ and Efemcükürü Mines, which were operated by Eldorado Gold Corp. of Canada, was 6,568 kg of gold from ore grading 0.8 gram per metric ton (g/t) gold and 3,059 kg from ore grading 7.4 g/t gold, respectively. Production at the Cöpler open pit mine operated by Alacer Gold Corp. of the United States was 3,702 kg (from ore grading 1.1 g/t gold) in 2016 compared with 6,370 kg (from ore grading 1.23 g/t gold) in 2015. The company provided no specific reason for the 40% decrease in output; however, it was possibly owing to the depletion of ore reserves and the decreasing ore grade. In 2016, Alacer Gold began the construction of the Cöpler Sulfide Expansion Project to process refractory sulfide ore contained in the ore body. The first gold pour from the project was expected in 2018 (Alacer Gold Corp., 2017a–c; Altın Madencileri Derneği, 2018a, b; Eldorado Gold Corp., 2018a–c).

Iron and Steel.—Turkey's steel sector partially recovered in 2016 after the slowdown of 2012 to 2015. Raw steel output increased by 5.2% to 33.2 Mt in 2016, ranking eighth globally, which was nonetheless 7.6% lower than in 2012. About 66% of total raw steel production was by electric arc furnace (EAF) mills and 34% was by integrated mills. Capacity utilization in the steel sector increased to 64.4% in 2016 from 62.5% in 2015, leaving 18 Mt of capacity idle. Turkey was also a major exporter and importer of steel globally. In 2016, the country was the world's 10th-ranked exporter of steel, with 15.3 Mt of exports, and the 8th-ranked importer, with 17 Mt of imports (Türkiye Çelik Üreticileri Derneği, 2017; World Steel Association, 2017, p. 9, 10, 27).

Industrial Minerals

Boron.—Eti Maden İşletmeleri Genel Müdürlüğü (Eti Maden), which was the world's leading producer and exporter of boron, produced 1.83 Mt of refined borates in 2016. The company's total boron chemical plant capacity was 2.7 million metric tons per year (Mt/yr), yielding a capacity utilization rate of 68%. In 2016, exports, primarily of boron products, made up 97% of the company's total sales. Countries in Asia received 54% of Eti Maden's exports. The remaining 3% of total sales, or 65,000 t, met domestic demand for boron products, 74% of which were consumed by the glass and ceramics industries. Total boron reserves were 3.28 billion metric tons as of yearend 2016. In 2016, Eti Maden finished the construction of the 12,000-t/yr anhydrous borax facility in Kırka (Eti Maden İşletmeleri Genel Müdürlüğü, 2017, p. 3–4, 23, 29).

Cement.—Turkey's total cement production increased by 5.6% to 75.4 Mt and clinker production by 9.5% to 67.9 Mt in 2016. Total gray cement production capacity increased to 132.8 Mt/yr; the cement capacity utilization rate was 58.6% in 2016. The Turkish cement industry included 52 integrated plants and 18 grinding stations. In 2016, Votorantim Cimentos of Brazil was in the process of expanding the capacity of its cement plant in Sivas threefold to 1.8 Mt/yr and Sycs Çimento A.Ş. began constructing a 2.47-Mt/yr cement plant in Elazığ. Turkey's exports of cement accounted for about 10% of the country's total output and increased by 1% to 7.5 Mt in 2016. Syria received 14.4% of Turkey's total cement exports, followed by the United States (13.6%), Libya (11.1%), Israel (8%), and Yemen (7.6%) (International Cement Review, 2017, p. 356–358; Türkiye Çimento Müstahsilleri Birliği, 2018a–c).

Phosphate Rock.—Phosphate rock production, which started in Turkey in 2013, increased again in 2016. Eti Bakır was in the process of constructing a 2.3-Mt/yr-capacity Mazıdağı phosphate plant in Mardin through a \$1.1 billion investment. When it begins operating in 2018, Mazıdağı would be the only such facility in Turkey and the Middle East. The Mardin complex would have the capacity to produce 550,000 t/yr of phosphate rock and 200,000 t/yr of diammonium phosphate, which would initially supply 20% of Turkey's annual fertilizer for consumption (Cengiz Holding A.Ş., 2018b).

Soda Ash.—Eti Soda A.Ş., which was a subsidiary of Ciner Group, produced about 1 Mt/yr of soda ash and 100,000 t/yr of sodium bicarbonate in Ankara. The company planned to commission additional capacity of 600,000 t/yr for the Beypazarı plant by February 2017. In June, Eti Soda signed an agreement with Tianchen Engineering Corp. of China for powerplant expansion to supply steam to the expanded sodium carbonate plant and generate power through newly installed turbines. In 2016, Kazan Soda Elektrik Üretim A.Ş., also a subsidiary of Ciner Group, was in the process of constructing its 2.7-Mt/yr greenfield soda ash production complex in Kazan, Ankara. When completed in 2018, the Kazan facility was expected to meet 14% of the total global demand for trona (an ore that is the primary source of sodium carbonate), making Kazan Soda the leading trona and sodium bicarbonate producer in Europe. The entire output would be exported (Tianchen Engineering Corp., 2016; Ciner Holding, 2018a, b).

Outlook

Turkey is likely to remain a globally significant producer of boron, cement, feldspar, perlite, pumice, and steel. Production of aluminum, cobalt, nickel, and phosphate rock is expected to increase substantially. Turkey is likely to become one of the leading producers of soda ash globally in the near future. Exploration projects in copper, gold, and silver may reverse the production declines of recent years if they move to the extraction phase; however, precious metals production is expected to continue to decrease in the near future. Mineral exports are likely to continue their slightly declining trend unless demand recovers in the country's leading export markets, in particular for stone and marble.

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TABLE 1
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity	2012	2013	2014	2015	2016
METALS					
Aluminum:					
Bauxite	1,521,150 ^r	795,562 ^r	1,091,442 ^r	1,050,000 ^r	1,000,000
Alumina	280,000 ^c	206,000 ^{r, c}	195,000 ^{r, c}	294,000 ^r	505,000 ^c
Metal, primary	43,700 ^r	32,200 ^r	30,400 ^r	45,900 ^r	78,800
Antimony, mine production:					
Ore:					
Gross weight	131,839	83,553	55,791	35,501	50,000 ^c
Sb content ^c	7,300	4,600	3,100	2,000	2,800
Concentrate:					
Gross weight ^c	26,200	16,600	11,100	7,100	10,000
Sb content	6,590 ^{r, c}	4,180 ^{r, c}	3,070 ^{r, c}	1,950 ^{r, c}	2,520
Chromium:					
Chromite, mine production, 34% to 43% Cr ₂ O ₃	3,295,398 ^r	4,140,655 ^r	4,100,000 ^r	3,500,000 ^r	2,550,000
Ferrochromium ^c	80,000 ^r	133,000	110,000 ^r	85,000 ^r	135,000
Copper:					
Mine production, exclusive of pyrite:					
Gross weight	7,684,052	7,983,438	6,422,445	3,642,130 ^r	5,094,268
Cu content	104,300 ^r	120,500 ^r	122,000	108,000 ^r	105,000
Refinery production:					
Primary	76,300 ^r	64,000 ^r	61,300 ^r	74,000 ^r	47,400
Secondary	10,000	10,000	10,000	10,000	5,000
Smelter production:					
Primary	35,500 ^r	35,800 ^r	40,600 ^r	45,400 ^r	46,200
Secondary ^c	5,000	5,000	5,000	5,000	5,000
Fluorspar	5,197	3,874	4,271	6,238	10,339
Gold, mine production, Au content kilograms	29,390	33,980	31,260	27,800	24,030
Iron and steel:					
Pig iron thousand metric tons	8,613	9,180	9,364	10,184	10,304
Raw steel, including castings do.	35,885	34,654	34,035	31,517	33,163
Iron ore, mine production:					
Gross weight do.	6,557	8,492	6,982	6,010	6,000 ^c
Fe content do.	3,967 ^r	5,138 ^r	4,224 ^r	3,636 ^r	3,600 ^c
Lead:					
Mine production:					
Lead-zinc ore:					
Gross weight	300,940 ^r	351,700 ^r	202,600 ^r	333,700 ^r	293,100
Pb content	56,000 ^r	78,000 ^r	65,400 ^r	74,000 ^r	65,000
Concentrate:					
Gross weight	78,920 ^r	109,380 ^r	158,170 ^r	126,500 ^r	111,100
Pb content	47,350	65,630	94,900	75,900	66,700
Refinery production, secondary	50,000	50,000	55,000	56,000	58,000
Magnesite, run of mine	2,475,828	2,597,465	2,377,157	3,335,258	3,258,445
Magnesium metal, primary	--	--	--	200 ^c	3,750 ^c
Manganese, mine production:					
Gross weight	192,756	321,785	245,830	142,809	150,000 ^c
Mn content ^c	69,000	116,000	89,000	83,000	84,000
Molybdenum, mine production:					
Gross weight	3,000	3,200	3,500	3,500	3,500 ^c
Mo content	600	800	900	900	900 ^c
Nickel, mine production, Ni content, laterite ore	4,400 ^r	1,200 ^r	6,900 ^r	8,600 ^r	4,300
Selenium, Se content	31,180	59,426	52,658	50,000 ^c	50,000 ^c
Silver, mine production, Ag content kilograms	193,890	189,600	183,880	190,550 ^r	376,640
See footnotes at end of table.					

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity	2012	2013	2014	2015	2016
METALS—Continued					
Zinc, mine production:					
Gross weight thousand metric tons	1,000 ^r	990 ^r	1,050 ^r	850 ^r	1,000
Zn content do.	209	200	212	184 ^r	202
Zirconium mineral concentrates, zircon	200	--	1,100	1,500	500
INDUSTRIAL MINERALS					
Abrasives, emery	54,848	43,776	38,816	75,538	89,756
Barite, ground	187,111 ^r	257,116 ^r	320,754 ^r	209,097 ^r	321,239
Boron:					
Crude ore	4,220,291	4,065,655	7,309,708	5,071,896	4,814,553
Concentrate	2,220,000	2,100,000 ^r	3,300,000 ^r	2,300,000 ^r	2,200,000 ^e
Refinery production, refined borates	1,788,000 ^r	1,800,000	1,995,000 ^r	1,839,000 ^r	1,831,000
Cement, hydraulic thousand metric tons	63,879	71,337	71,239 ^r	71,419	75,403
Clay and shale:					
Bentonite	1,032,325	731,936	1,098,817	3,134,911	1,744,912
Fuller's earth, sepiolite	31,180	59,426	53,110	28,804	56,038
Kaolin	988,081	1,168,441	2,032,103	1,887,302	1,283,260
Other	3,628,601 ^r	3,055,857 ^r	4,600,107 ^r	7,130,271 ^r	3,677,258
Total	5,680,000 ^r	5,020,000 ^r	7,780,000 ^r	12,200,000 ^r	6,760,000
Diatomite	86,403	84,571	61,884	86,656	61,722
Feldspar, mine production:					
Gross weight	4,524,943 ^r	4,545,197 ^r	5,120,000 ^r	5,500,000 ^r	5,300,000 ^e
Nepheline syenite	4,000	404	2,241	--	1,432
Gemstones:					
Chalcedony	2,287	2,249	1,689	1,154	1,000 ^e
Obsidian	1,230	3,240	400	--	--
Olivine	244,753 ^r	126,990	244,138	184,623	304,279
Graphite	31,500	28,740	3,850	4,000 ^r	4,000 ^e
Leonardite	--	5,737	2,996	1,780	1,500
Lime ^e thousand metric tons	4,500	4,400	4,300	4,400	4,500
Mica:					
Illite	4,824 ^r	800	16,200	44,000	12,110
Other	1,253	276	1,240	637	3,321
Nitrogen, ammonia, N content	521,000 ^r	357,000 ^r	407,000 ^r	563,000 ^r	383,000
Perlite	887,600	1,075,949	897,125	843,242	1,066,251
Phosphate rock:					
Gross weight	--	510,080	604,000	713,230	772,500
P ₂ O ₅ content	--	153,000	181,000	214,000	232,000
Pumice and related materials	12,281,626	8,644,716	6,966,987	5,660,190 ^r	5,637,494
Salt, all types thousand metric tons	5,378	5,614	5,331	6,257 ^r	5,328
Soda ash, natural and synthetic do.	1,853	1,665	1,828	1,854	1,977
Sodium compounds, sodium sulfate	309,088	207,315	203,184	167,688	261,159
Stone, sand, and gravel:					
Silica, mine production, unspecified	7,085,380	7,969,392	10,258,912	12,013,933 ^r	10,471,915
Stone, crushed, serpentine thousand metric tons	1,025	1,470	1,331	1,385	991
Stone, dimension:					
Basalt	24,013,727 ^r	21,870,408 ^r	22,887,509 ^r	23,060,917 ^r	24,883,169
Diabase	94,835	335,958	226,939	331,027	313,228
Dolomite	16,950,670	17,291,454	15,743,710	21,609,434	17,669,892
Granite	566,650	183,535	189,364	157,463	314,059
Limestone thousand metric tons	365,348	392,352	382,404	407,702	459,247
Marble do.	11,492 ²	10,894 ²	10,805 ²	14,370 ²	13,536 ²
Onyx do.	34 ²	39 ²	27 ²	17 ²	18 ²
Travertine do.	2,011 ²	1,799 ²	2,048 ²	3,123 ²	2,762 ²
Stone, size and shape unspecified, calcite	9,248,471	9,727,092	11,054,222	10,071,769	8,410,582

See footnotes at end of table.

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity	2012	2013	2014	2015	2016
INDUSTRIAL MINERALS—Continued					
Sulfur, S content:					
Natural gas and petroleum, byproduct	72,900	72,900	72,900	72,900	79,000 ^c
Pyrites	52,080	45,348	40,000	40,000	40,000 ^c
Unspecified	5,889	8,069	9,000 ^r	10,000	10,000 ^c
Total	130,869	126,317	122,000	123,000	129,000
Talc and related materials:					
Pyrophyllite	85,251	101,872	100,000 ^c	50,000 ^c	50,000 ^c
Talc	14,537	1,132	5,048	9,681	8,559
Zeolites	60,258	33,197	49,366	55,224	71,568
MINERAL FUELS AND RELATED MATERIALS					
Asphalt, natural	749,830 ^r	751,263 ^r	336,852	837,112	1,567,277
Coal:					
Bituminous thousand metric tons	3,235	2,789	1,917	2,074	1,496
Lignite do.	78,014	63,324 ^r	66,207 ^r	58,730 ^r	77,896
Coke, metallurgical do.	4,072 ³	4,205 ³	4,388 ³	4,400 ^c	4,500 ^c
Natural gas million cubic meters	664	562	502	399 ^r	382
Peat, unspecified	108,610	156,357	150,828	134,647	134,091
Petroleum:					
Crude thousand 42-gallon barrels	17,134 ^r	17,581 ^r	18,002 ^r	18,440 ^r	18,852
Refinery production:					
Diesel do.	58,200	57,000	45,300	63,500	71,500
Fuel oil do.	8,000 ^r	6,000 ^r	6,000 ^r	4,100 ^r	2,300
Kerosene do.	287 ^r	355 ^r	340 ^r	447 ^r	91
Gasoline do.	37,300	36,700	33,700	43,600	43,500
Jet fuel do.	26,000	28,200	28,100	39,800	35,600
Residual fuel oil do.	14,800	12,500	17,200	15,600	15,600
Other fuels do.	23,100 ^r	23,000	21,300	43,300	51,900
Total do.	168,000 ^r	164,000 ^r	152,000 ^r	210,000 ^r	220,000

^cEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through March 13, 2018. Cobalt, garnet, iron oxide pigment, and tungsten were also mined. Rutile and silicon also were produced, but available information was inadequate to make reliable estimates of output. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Converted from cubic meters to metric tons.

³Source: U.S. Energy Information Administration.

TABLE 2
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(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 A.Ş., 100%)	Smelter at Seydisehir, Konya Province	82
Antimony ore, Sb content	Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Halikoy, Izmir Province	91
Do.	Özdemir Antimuan Maden Limited Şti. (Koza-İpek Holding A.Ş.)	Turhal, Tokat Province	NA
Bauxite and alumina:			
Alumina	do.	Refinery at Seydisehir, Konya Province	209
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, 100%)	Four open pit mines at Bigadic, Balikesir Province	635
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Espey Mine, Emet, Kutahya Province	500
Do.	do.	Hisarcik Mine, Emet, Kutahya Province	500
Do.	Kestelek Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Kestelek Mine, Bursa Province	100
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Mine at Kırka, Eskisehir Province	856
Refined borates	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Plant at Bandırma, Balikesir Province	341
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Boric acid complex, Emet, Kutahya Province	263
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü, 100%)	Plant at Kırka, Eskisehir Province	840
Calcite	Hisar Madencilik (Bera Holding, 100%)	2 plants in Aksaray and Aydin	120
Cement:			
Gray portland	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	5,500
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	500
Do.	Akçansa Çimento Sanayi ve Ticaret A.Ş. (HeidelbergCement AG, 40%, and Sabancı Holding A.Ş., 40%)	Buyukcekmece plant, Buyukcekmece, Istanbul Province	2,600
Do.	do.	Canakkale plant, about 11 kilometers northwest of Ezine, Canakkale Province	4,990
Do.	do.	Ladik plant, Ladik, Samsun Province	953
Do.	Aslan Çimento A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 97%]	Darica plant, Gebze, Kocaeli Province	1,090
Do.	AS Çimento Sanayi ve Ticaret A.Ş.	Bucak, Burdur Province	3,901
Do.	Aşkale Çimento Sanayi ve Ticaret A.Ş.	Trabzon plant, Degirmendere, Trabzon Province	1,000
Do.	do.	Askale, Erzurum Province	900
Do.	Bakırçay Çimento Sanayii ve Ticaret A.Ş. (Kars Çimento San. ve Tic. A.Ş., 98%)	Poyracik, near Kinik, Izmir Province	907
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	1,270
Do.	Batiçim Batı Anadolu Çimento Sanayii A.Ş. (Orascom Construction Industries, 23%)	Bornova, Izmir Province	1,814
Do.	Batısöke Söke Çimento Sanayii ve Ticaret A.Ş. (Batiçim Batı Anadolu Çimento Sanayii A.Ş., 75%)	Soke, Aydin Province	1,300

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(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	Bolu Çimento Sanayii A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 52%]	About 14 kilometers east of Bolu, Bolu Province	907
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	2,722
Do.	Çimentaş İzmir Çimento Fabrikası Türk A.Ş. (Intercem SA, 67%, and Cementir Holding SpA, 29%)	Isikkent, İzmir Province	2,921
Do.	do.	Trakya plant, Lalapasa, Edirne Province	1,300
Do.	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	898
Do.	Çimko Çimento Kahramanmaraş Narlı Fabrikası (Çimko Çimento ve Beton Sanayii Ticaret A.Ş.)	Narlı plant, Narlı, Kahramanmaraş Province	907
Do.	Cimpor Yibitaş Çimento Sanayii ve Ticaret A.Ş. (Votorantim Cimentos, 100%)	Corum plant, Corum, Corum Province	950
Do.	do.	Hasanoglan grinding plant, Hasanoglan, Ankara Province	725
Do.	do.	Nevşehir grinding plant, Kalaba, Nevşehir Province	300 °
Do.	do.	Samsun grinding plant, about 6 kilometers west of Samsun, Samsun Province	300 °
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	481
Do.	do.	About 20 kilometers northwest of Eskişehir, Eskişehir Province	907
Do.	do.	Near Ağırnas, Kayseri Province	1,000
Do.	do.	Mersin plant, Yenitaskent, Mersin Province	998
Do.	do.	Nigde plant, Nigde, Nigde Province	1,200
Do.	Denizli Çimento Sanayi ve Ticaret A.Ş. (OYAK, 100%)	About 5 kilometers northwest of Kaklık, Denizli Province	2,722
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.	Göllaş Çimento A.Ş. (Sadecib S.A., 34%, and Göl Yatırım Holding A.Ş., 28%)	About 15 kilometers north-northwest of Isparta, Isparta Province	2,000
Do.	Kars Çimento Sanayii ve Ticaret A.Ş. (Cimentas A.Ş., 58%, and Alfacem Srl, 40%)	Bozkale, Kars Province	390
Do.	Konya Çimento Sanayii A.Ş. (Vicat Group, 81%)	Konya, Konya Province	1,814
Do.	Lafarge Van Çimento A.Ş. (Lafarge S.A., 99.99%)	Edremit, Van Province	600
Do.	Limak Ege Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ege plant, Turgutlu, Manisa Province	700
Do.	Limak Kurtalan Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ambarlı grinding plant, Büyükçekmece, İstanbul Province	907
Do.	do.	Ankara plant, Ankara, Ankara Province	1,261
Do.	do.	Balıkesir, Balıkesir Province	1,100

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(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	Limak Kurtalan Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Gaziantep plant, Gaziantep (Sehit Kamil), Gaziantep Province	1,152
Do.	do.	Kurtalan plant, Kurtalan, Siirt Province	1,200
Do.	do.	Mardin, Balikesir Province	790
Do.	do.	Sanliurfa plant, about 14 kilometers north-northwest of Sanliurfa, Sanliurfa Province	862
Do.	do.	Trakya plant, Pinarhisar, Kırklareli Province	971
Do.	Limak Madencilik Yapı Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ergani plant, Ergani, Diyarbakir Province	1,270
Do.	Limak-Istaç İnşaat Sanayi ve Ticaret A.Ş.	Bitlis plant, Bitlis Province	1,000
Do.	Mardin Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 56%]	About 6 kilometers northeast of Mardin, Mardin Province	3,000
Do.	Medcem Çimento Sanayi A.Ş. (Eren Holding, 100%)	Akdere, Mersin Province	4,500
Do.	Nuh Çimento Sanayi A.Ş. (Nuh Ticaret ve Sanayi A.Ş., 43%)	Hereke, Kocaeli Province	5,171
Do.	Sönmez Çimento Yapı ve Madencilik San. Tic. A.Ş.	Yumurtalık, Adana Province	1,588
Do.	Taçım Çimento Sanayii ve Ticaret A.Ş. (Soyak Holding A.Ş. and TBS Taşıma Beton A.Ş.)	Evrencik, Vize, 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	2,359
Slag	KarÇimsa Çimento Sanayii ve Ticaret A.Ş. (Akçansa Çimento Sanayi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	200
White	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	318
Do.	Çimsa Çimento Sanayii ve Ticaret A.Ş. (Sabancı Holding A.Ş., 47%)	Mersin plant, Yenitaskent, Mersin Province	1,000
Chromium, Cr content	Eti Krom A.Ş. (Yıldırım Holding A.Ş., 100%)	Mines in Adana, Diyarbakir, Elazig, Hatay, Hatay, Kayseri, Malatya, and Mugla Provinces	1,000
Do.	Eti Elektrometalurji A.Ş. (Özdoğu İnşaat Tic. Ltd. Şti, 100%)	7 mines in Fethiye and Gocek, Mugla Province	100
Coal:			
Anthracite	Amasra Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (TTK)]	Amasra Mine, Amasra, Bartın Province	5,000
Do.	Armutçuk Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (TTK)]	Armutçuk Mine, Kandilli, Zonguldak Province	400
Do.	Karadon Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (TTK)]	Karadon Mine, Kilimli, Zonguldak Province	450
Do.	Kozllu Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (TTK)]	Kozlu Mine, Kozlu, Zonguldak Province	2,000
Do.	Üzülmüş Taşkömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (TTK)]	Uzulmez Mine, Asma, Zonguldak Province	2,370
Lignite ¹	Bursa Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKI)]	Bursa lignite facility, Orhaneli, Bursa Province	1,000
Do.	Çan Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKI)]	Can lignite facility, Can, Canakkale Province	1,800
Do.	Ege Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKI)]	Soma Mine, Soma, Manisa Province	10,500

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal:—Continued				
Lignite ¹ —Continued		Garp Linyitleri İşletmesi Müessesesi Müdürlüğü (Ciner Group, 100%)	Tuncbilek mining center, Tavsanlı, Kutahya Province	7,000
Do.		Güney Ege Linyitleri İşletmesi Müessesesi Müdürlüğü (Bereket Enerji Üretim A.Ş., 100%)	South Aegean lignite facility, Yatağan, Muğla Province	4,900
Do.		İlgın Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKİ)]	İlgın lignite facility, İlgın, Konya Province	300
Do.		Seyitömer Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKİ)]	Seyitomer lignite facility, Seyitomer, Kutahya Province	8,000
Do.		Yeniköy Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKİ)]	Yeniköy lignite facility, Oren (Milas), Muğla Province	8,500
Cobalt, metal	metric tons	Meta Nikel Kobalt A.Ş. (Zorlu Holding)	Processing plant in Gordes, Manisa Province	750
Copper:				
Concentrate, gross weight		Çayeli Bakır İşletmeleri A.Ş. (First Quantum Minerals Ltd., 100%)	Cayeli Mine, near Cayeli, Rize Province	37
Do.		Demir Export A.Ş. (Koç Holding A.Ş.)	Lahanos Mine, Giresun Province	4
Do.		Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Kastamonu Kure facility (three open pit mines and one underground mine), 50 kilometers north of Kastamonu, Kastamonu Province	90
Do.		do.	Murgul facility (three open pit mines, including the Anayatak and the Çakmak kaya Mines), Murgul, Artvin Province	130
Do.		Kuzey Ege Bakır İşletmeleri A.Ş. (Özdoğan İnşaat Tic. Ltd. Şti, 100%)	Tepeoba, Balıkesir Province	50
Do.		Nesko Maden (Yıldızlar SSS Holding, 100%)	Ivrindi facility, Balıkesir Province	NA
Do.		do.	Kocayayla Mine, Canakkale Province	NA
Do.		do.	Yenice Mine, Canakkale Province	NA
Concentrate, Cu content		Park Elektrik Üretim Madencilik San. ve Tic. A.Ş. (Park Holding A.Ş., 61.25%; Turgay Ciner, 6.76%; others, 31.99%)	Madenköy, Siirt Province	20
Anode (blister) and cathode		Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Smelter, Tekkeköy, Samsun Province	75
Cathode		Er-Bakır Elektrolitik Bakır Mamulleri A.Ş.	Denizli, Denizli Province	200
Do.		Sarkuysan Elektrolitik Bakır San. ve Tic. A.Ş.	Darica, Kocaeli Province	200
Feldspar		Kaltun Madencilik Sanayi ve Ticaret A.Ş.	Cine, Milas, Yatağan Mines, Muğla Province	2,000
Ferrochromium, high-carbon		Eti Krom A.Ş. (Yıldırım Holding A.Ş., 100%)	About 55 kilometers east of Elazığ, Elazığ Province	165
Do.		Eti Elektrometalurji A.Ş. (Özdoğan İnşaat Tic. Ltd. Şti, 100%)	Plant in Antalya, Antalya Province	58
Fertilizer:				
Ammonium nitrate		Kütahya Gübre Sanayii A.Ş. (Yıldız Yatırım Holding A.Ş.)	Kutahya, Kutahya Province	339
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.		İstanbul Gübre Sanayi A.Ş. (IGSAŞ) (Yıldız Yatırım Holding A.Ş.)	Korfez, Kocaeli Province	240
Monoammonium phosphate		Ege Gübre Sanayii A.Ş.	Aliaga, İzmir Province	130
See footnotes at end of table.				

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold:				
Ore, Au content	kilograms	Koza Altın İşletmeleri A.Ş. (ATP İnşaat ve Ticaret A.Ş., 60%, and Koza İpek Holding A.Ş., 40%)	Ovacık Mine, Ovacık, Mugla Province	2,000
Do.	do.	do.	Mastra Mine, near Demirkaynak, Gumushane Province	5,000
Do.	do.	do.	Cukuralan Mine, Dikili, Izmir Province ²	3,800
Do.	do.	do.	Himmetdede Mine, Kayseri Province	NA
Do.	do.	do.	Kaymaz Mine, Sivrihisar, Eskisehir Province	3,300
Do.	do.	Anagold Madencilik Sanayi ve Ticaret A.Ş. (Alacer Gold Corp., 80%, and Lidya Madencilik Sanayi ve Ticaret A.Ş., 20%)	Copler Mine	6,000
Do.	do.	Gümüştaş Madencilik ve Ticaret A.Ş.	Niğde-Bolkar Mine, Nigde Province	NA
Do.	do.	Pomzaexport Madencilik Sanayi ve Ticaret A.Ş.	Sart placer mine, Manisa Province	NA
Do.	do.	Tüprağ Metal Madencilik Sanayi ve Ticaret A.Ş. (Eldorado Gold Corp., 100%)	Kisladag Mine, Katranci, Usak Province	10,000
Do.	do.	do.	Efemcukuru Mine, Izmir Province	4,000
Metal	metric tons	Atasay Kuyumculuk Sanayi ve Ticaret A.Ş.	Refinery at Istanbul	15
Do.	do.	İstanbul Altın Rafinerisi A.Ş.	do.	120
Do.	do.	Nadir Metal Rafineri A.Ş.	do.	140
Iron and steel:				
Iron ore		Erdemir Madencilik Sanayi ve Ticaret A.Ş. (Ereğli Demir ve Çelik Fabrikaları T.A.Ş.) (Erdemir Group)	Fourteen mines in the Divrigi area, Sivas Province	2,900
Do.		Hekimhan Madencilik İthalat İhracat Sanayi ve Ticaret Ltd. Şti. (Kolin İnşaat Turizm Sanayi ve Ticaret A.Ş.)	Deveci Mine, Malatya Province	2,000
Do.		Özkoyuncu Madencilik A.Ş.	Mines in Yahyali, Kayseri Province	2,000
Pellet		Erdemir Madencilik Sanayi ve Ticaret A.Ş. (Ereğli Demir ve Çelik Fabrikaları T.A.Ş.) (Erdemir Group)	Plant in Ekinbasi, Sivas Province	2,250
Steel:				
Raw		Asil Çelik A.Ş.	Plant south of Orhangazi, Bursa Province	485
Do.		Bilecik Demir Çelik Sanayi ve Ticaret A.Ş. (Ada Metal Demir Çelik Geri Dönüşüm San. ve Tic. 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.		Çolakoglu 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 Group) (Ataer Holding A.Ş., 49.29%, and ArcelorMittal, 24.99%)	Karadeniz Ereğli, Zonguldak Province	3,800
Do.		Habaş Sinai ve Tibbi Gazlar İstihsal Endustrisi 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) [Erdemir Group, 92%]	Iskenderun, Hatay Province	4,700
Do.		İzmir Demir Çelik Sanayi A.Ş. (İDÇ)	Aliaga, Izmir Province	1,320
Do.		Kaptan Demir Çelik Endüstrisi ve Ticaret A.Ş.	Marmara Ereglisi, Tekirdag Province	1,400

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(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			
Raw—Continued	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	1,000
Do.	Yeşilyurt Demir Çelik A.Ş.	Tekkekoy, Samsun Province	1,300
Rolled products	Asil Çelik A.Ş.	Rolling mill south of Orhangazi, Bursa Province	410
Do.	Borçelik Çelik Sanayii ve Ticaret A.Ş. (ArcelorMittal and Borusan Holding A.Ş.)	Near Gemlik, Bursa Province	1,500
Do.	Çebitaş Demir Çelik Endüstrisi A.Ş.	Aliaga, Izmir Province	600
Do.	Çelik Makina Sanayi ve Ticaret A.Ş. (ÇEMTAŞ)	Bursa, Bursa Province	210
Do.	CER Çelik Endüstrisi A.Ş.	Rolling mill at Bornova, Izmir Province	300
Do.	Çolakoglu Metalurji A.Ş.	Dilovasi, Kocaeli Province	750
Do.	Demirsan Haddecilik Sanayi ve Ticaret A.Ş.	do.	500
Do.	Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.	do.	1,500
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 Sınai ve Tibbi Gazlar İstihsal Endustrisi A.S. (Habaş Topluluğu)	Aliaga, Izmir Province	3,000
Do.	İçdaş Demir Çelik Enerji Tersane ve Ulaşım Sanayi A.Ş.	Istanbul (Gunesli), Istanbul Province	1,500
Do.	do.	About 25 kilometers north of Biga, Canakkale Province	1,500
Do.	Intermet 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	500
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 Haddecilik Sanayi ve Ticaret Ltd. ŞTI	Aliaga, Izmir Province	700
Do.	Kocaer Haddecilik Sanayi ve Ticaret Ltd. ŞTI. (Kocaer Grubu)	do.	700
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 Haddecilik A.Ş.	Payas, Hatay Province	500
Do.	Özefer Demir Sanayi ve Tic. A.Ş. (Efesan Demir Sanayi ve Ticaret A.Ş.)	Bar mills at Alibeykoy, Istanbul Province	250

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(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	Özkan Demir Sanayi A.Ş.		Aliaga, Izmir Province	700
Do.	Sivas Demir Çelik İşletmeleri A.Ş. (Sidemir)		About 20 kilometers south of Sivas, Sivas Province	400
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	1,250
Do.	Yeşilyurt Demir Çelik A.Ş.		Tekkekoy, Samsun Province	900
Liquefied natural gas	Boru Hatları İle Petrol Taşıma A.Ş. (Botaş)		Botas Marmara Ereğlisi regasification terminal, Sultankoy, Tekirdag Province	6,500
Do.	EgeGas LNG (Çolakoğlu Group, 100%)		Aliaga regasification terminal, Aliaga, Izmir Province	6,000
Magnesite	Kümaş Kütahya Manyezit Sanayi A.Ş. (Yildiz Holding and Gurmen Group, 90%)		Dead-burned magnesia plant in Kutahya, Kutahya Province	300
Do.	do.		Fused magnesia plant in Kutahya, Kutahya Province	38
Do.	Akdeniz Mineral Kaynakları A.Ş. (Grecian Magnesite S.A., 90%)		Caustic calcined magnesia plant in Eskisehir, Eskisehir Province	32
Do.	Konya Selçuklu Krom Magnezit Tuğla Sanayi A.Ş. (Grecian Magnesite S.A., 90%)		Caustic calcined magnesia plant in Selcuklu, Konya Province	40
Do.	Magnesit Anonim Şirketi (MAŞ) (RHI Group, 100%)		Dead-burned magnesia plant in Dutlucu, Eskisehir Province	265
Do.	Cihan Grubu		Dead-burned magnesia plant in Erzurum, Erzurum Province	60
Molybdenum ore, Mo content	metric tons	Kuzey Ege Bakır İşletmeleri A.Ş. (Özdoğu İnşaat Tic. Ltd. Şti, 100%)	Tepeoba, Balıkesir Province	1,800
Natural gas	million cubic meters	Türkiye Petrolleri Anonim Ortaklığı (TPAO)	Akcakoca offshore terminal, Duzce Province	730
Nickel:				
Ore, Ni content		Meta Nikel Kobalt A.Ş. (Zorlu Holding)	Mines in Gordes, Manisa Province, and Yunussemre, Eskisehir Province	40 °
Metal		do.	Processing plant in Gordes, Manisa Province	10
Nitrogen, N content of ammonia		Istanbul Gübre Sanayii 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
Perlite		Bergama Mining Construction Machinery Perlite Industry & Trade Inc. (Cullas Group)	Bergama plant, Izmir Province	120
Do.		do.	Konya plant, Konya Province	20
Petroleum:				
Crude	thousand 42-gallon barrels per day	Türkiye Petrolleri Anonim Ortaklığı (TPAO)	Oilfields in Adıyaman and Batman Provinces	65
Refined products	do.	Türkiye Petrol Rafinerileri A. Ş. (Tüpraş) (Koç Holding, 37.86%; Fiat Chrysler Automobiles NV, 37.86%; free-floating shares, 24.28%)	Izmir refinery, Aliaga, Izmir Province	221
Do.	do.	do.	Izmit refinery, Izmit, Kocaeli Province	221
Do.	do.	do.	Kirikkale refinery, Kirikkale, Kirikkale Province	110
Do.	do.	do.	Batman refinery, Batman, Batman Province	22
Phosphate rock		Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Mazidagi, Mardin Province	550

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Silver:			
Ore, gross weight metric tons	Eti Gümüş A.Ş. (Yıldızlar SSS Holding)	Gumuskoy, Kutahya Province	12,000
Metal do.	Atasay Kuyumculuk Sanayi ve Ticaret A.S.	Refinery at Istanbul	NA
Do. do.	İstanbul Altın Rafinerisi A.Ş.	do.	NA
Do. do.	Nadir Metal Rafineri A.Ş.	do.	150
Soda ash	Alkim Alkali Kimya	Cayirhan Mine, Ankara Province	150
Do.	Eti Soda A.Ş. [Ciner Group, 74%, and Eti Maden İşletmeleri Genel Müdürlüğü (Government), 26%]	Beypazari trona mine and soda ash plant, Beypazari, Ankara Province	1,500
Do.	Soda Sanayii A.Ş [Türkiye Şişe ve Cam Fabrikaları A.Ş. (ŞİŞECAM)]	Kazanli, Mersin Province	1,230
Sulfur	Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Izmir refinery, Aliaga, Izmir Province	NA
Do.	do.	Izmit refinery, Izmit, Kocaeli Province	NA
Do.	do.	Kirikkale refinery, Kirikkale, Kirikkale Province	NA
Sulfuric acid	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü)	Plant at Bandırma, Balıkesir Province	240
Zinc concentrate, Zn content	Çanakkale Madencilik Limited Şti.	Koru Mine, Çanakkale Province	5
Do.	Çayeli Bakır İşletmeleri A.Ş. (First Quantum Minerals Ltd., 100%)	Cayeli Mine, near Cayeli, Rize Province	52
Do.	Dedeman Madencilik Tic. ve San. A.Ş.	Delikkaya and Yesil Hisar Cadirkaya Mines, Kayseri Province	10
Do.	Eczacıbaşı Esan	Balya Mine, Balıkesir Province	120
Do.	Elkin Maden Tic. ve San. A.Ş.	Mines in Hakkari Province	NA
Do.	Meskan Ölmez Madencilik Harfiyat İnşaat yol Yapım Petrol Ürünleri İthalat İhracat Nakliye Taahhüt San. ve Tic.	do.	20
Do.	RCR ve Seyitoğlu Madencilik İthalat İhracat Tic. ve San. A.Ş. (Red Crescent Resources Ltd. and the Seyitoğlu family)	Hakkari Mine	NA
Do.	Seyitoğlu Madencilik A.Ş.	Mines in Hakkari Province	NA
Do.	Silvermet Inc.	Iskenderun, Hatay Province	12

^aEstimated. Do., do. Ditto. NA Not available.

¹Includes subbituminous coal.

²Suspended since 2013.

TABLE 3
TURKEY: EXPORTS OF SELECTED MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2012	2013	2014	2015	2016
Abrasives, emery	46,879	54,650	57,176	8,669 ^r	16,344
Antimony	2,450	3,173	3,610	2,645	2,553
Asbestos	40	185	--	-- ^r	--
Barite	153,536	214,625	271,026	421,633 ^r	417,467
Bauxite	166,727	174,100	200,936	5,412 ^r	4,093
Bentonite	333,471	379,472	373,639	647,611 ^r	568,834
Borate	585,695	734,528	841,638	713,491	692,992
Calcium phosphate	937	106,033 ^r	1,423	4,865 ^r	6,159

See footnotes at end of table.

TABLE 3—Continued
TURKEY: EXPORTS OF SELECTED MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2012	2013	2014	2015	2016	
Cement	thousand metric tons	9,702	9,627	7,653	7,399	7,461
Chromite ore		2,126,546	2,024,923	1,411,688	347,180 ^r	424,440
Clay		18,570	21,783	48,846 ^r	101,316	246,295
Clinker	thousand metric tons	2,805	2,183	2,858	3,062	3,725
Cobalt ore	kilograms	25	30	3 ^r	5 ^r	56
Copper ore		353,215	428,834	342,268	1,258,031 ^r	1,213,019
Cryolite and zeolites		388	24	1 ^r	--	--
Feldspar		4,072,448	4,090,678	4,609,692 ^r	5,731,271	5,509,009
Ferrochromium		75,755	104,298	102,306	80,550	130,560
Graphite		761	841	726	748	868
Gypsum		870,501	913,651	847,576 ^r	467,284 ^r	456,055
Iron and steel:						
Iron ore		426,983	945,984	1,099,798	327,015 ^r	334,021
Iron pellets		48	1,243	14,714 ^r	2,413 ^r	2,691
Steel, crude billet and slab		2,992,163	1,566,731	602,909	306,425	258,804
Steel, rolled products		1,146,485	1,578,215	1,874,133	1,903,605	2,335,021
Kaolin		110,059	91,194	115,438 ^r	51,857 ^r	48,871
Lead ore		95,029	127,730	103,652	51,187 ^r	52,634
Magnesite		339,661	300,848	303,896	283,517	319,363
Magnesium sulfate	kilograms	--	--	300	--	--
Manganese ore		117,820	316,090	128,184	1,474 ^r	1,031
Mica, raw		1,043	505	475	439	457
Mica, processed		65	46	84 ^r	94 ^r	95
Molybdenum ore		--	1,551	1,600	1,474 ^r	1,031
Nickel ore		294,450	104,151	163,916	80,236	82,780
Perlite		388,933	388,289	423,229 ^r	216,614 ^r	167,376
Pig iron		7,711	6,232	4,661	5,182	10,276
Pumice and pumicite:						
Pumice		86,616	112,603	128,489	243,737 ^r	275,216
Volcanic ash		13,014	13,291 ^r	16,411	8,099	6,826
Quartz and quartzite		339,471	394,638	465,899 ^r	416,572 ^r	539,195
Salt		66,510	88,527	153,117 ^r	415,664	259,602
Selenium, celestine		34	4	--	--	--
Silica		36,974	55,576	45,954	53,656 ^r	37,461
Stone:						
Building stone		27,096	30,110	25,875	26,153 ^r	24,675
Dolomite		25,603	47,696	53,968 ^r	51,772 ^r	52,979
Granite, raw		784,515	578,327	296,220	112,087	100,661
Granite, processed		21,394	21,644	16,848	13,846 ^r	21,089
Marble, ore		5,179,369	5,684,901	4,918,745	4,350,560	4,360,255
Marble, processed		1,424,097	1,573,555	1,537,725 ^r	1,508,436	1,529,425
Travertine		413,131	494,826	522,982 ^r	456,699	436,054
Sulfur		62,662	49,561	62,876	118,157	124,409
Talc and steatite		2,383	3,566	3,257	50,967 ^r	67,414
Zinc ore		391,585	390,049	420,304	299,309 ^r	244,592

^rRevised. -- Zero.

¹Table includes data available through March 13, 2018.

Sources: Istanbul Mineral Exporters Association (IMIB); General Directorate of Mineral Research and Exploration [Turkey] (MTA); Turkish Cement Producers Association; Turkish Steel Producers Association; World Steel Association.