

# 2016 Minerals Yearbook

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## BULGARIA

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# THE MINERAL INDUSTRY OF BULGARIA

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In 2016, the minerals mined in Bulgaria included barite, clay, copper, gold, gypsum, lead, lignite, limestone, manganese, salt, sand and gravel, silver, vermiculite, and zinc. The metallurgical sector smelted and refined cadmium, copper, lead, tellurium, and zinc and produced raw steel and processed steel products. In terms of world production in 2016, Bulgaria ranked 6th and 7th in tellurium and vermiculite production, respectively, and accounted for 1% and 2% of the world production, respectively (table 1; National Statistical Institute, 2017a, p. 2; 2017c, p. 14; Anderson, 2018; Tanner, 2018).

## Minerals in the National Economy

In 2016, Bulgaria's real gross domestic product (GDP) increased by 3.4% compared with an increase of 3.6% (revised) in 2015; the nominal GDP was \$53.2 billion. In terms of production value, the value of mining and quarrying accounted for about 3.8% of the value of all industrial enterprises combined compared with 4.0% in 2015 and increased by 0.2% (in constant 2010 prices) following an increase of 1.1% in 2015. The value of manufacturing output accounted for about 82.2% of the value of all industrial enterprises combined compared with 81.6% in 2015 and increased by 3.9% (in constant 2010 prices) following an increase of 5.8% in 2015. Within the manufacturing industry, the production value of basic metal and fabricated metal products (except machinery and equipment) accounted for about 17.0% of the production value of all industrial enterprises combined compared with 16.9% in 2015. In 2016, 26,000 workers were employed in mining and quarrying and 588,900 workers were employed in manufacturing (International Monetary Fund, 2017, p. 232; National Statistical Institute, 2017a, p. 15; 2017b; 2017c, p. 191, 193, 194; World Bank Group, 2017).

## Production

In 2016, production of silver (mine output, Ag content) increased by 38%; lead (mine output, Pb content), by 20%; natural gas (marketed), by 15%; tellurium metal, by 11%; aluminum metal (secondary), by 10%; and cadmium metal (smelter), by 6%. Granite, sandstone, and other building material production decreased by 94%; that of manganese ore (gross weight), by 65%; manganese (Mn content), by 64%; gypsum and anhydrite (crude), by 59%; chalk and dolomite, by 50%; vermiculite, by 47%; secondary copper, by 20%; industrial sand, by 18%; barite (run of mine), by 17%; primary copper (smelter), by 14%; lignite, by 13%; sulfuric acid, by 10%; raw (crude) steel, by 9%; and primary copper (refined), and hydraulic cement, by 6% each. These and other data on mineral production are in table 1.

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

## Mineral Trade

In 2016, the total value of Bulgaria's exports was about \$26.1 billion compared with about \$25.6 billion in 2015. Among exported goods, mineral fuels, lubricants, and related materials contributed 9.3% to the value of exports, and inedible crude materials (excluding fuels) accounted for 6.8% of all exports. The country's major export trade partners were Germany (which received 20.2% of Bulgaria's exports), Italy (13.6%), Greece (10.4%), and France (6.7%) (National Statistical Institute, 2017a, p. 32–33). The total value of Bulgaria's imports was about \$28.9 billion compared with \$29.0 billion in 2015. Mineral fuels, lubricants, and related materials accounted for 12.4% of the country's total imports, and inedible crude materials (excluding fuels) accounted for 7.1%. Bulgaria's major import trade partners were Germany (which supplied 19.7% of Bulgaria's imports), Italy (11.9%), Greece (7.3%), and Poland (6.1%) (National Statistical Institute, 2017a, p. 32–33).

## Commodity Review

### Metals

**Copper, Gold, and Silver.**—In 2016, Aurubis AG of Germany, through its subsidiary Aurubis Bulgaria AD, owned the country's only copper smelting and refining facility, which was located in the town of Pirdop. The company produced 297,000 metric tons (t) of copper anode, 216,000 t of copper cathode, and 1.04 million metric tons (Mt) of sulfuric acid in 2016 (Aurubis Bulgaria AD, 2016).

Dundee Precious Metals Inc. of Canada (Dundee) owned and operated the Chelopech underground copper mine, which was located about 70 kilometers (km) east of the capital city of Sofia, through its 100%-owned subsidiary Chelopech Mining EAD. In 2016, the company produced more than 2.2 Mt of copper ore, 3,700 kilograms (kg) (reported as 118,428 troy ounces) of gold contained in copper concentrate, and 17,500 t (reported as 38.5 million pounds) of copper contained in copper concentrate. Dundee produced 1,500 kg (reported as 47,237 troy ounces) of gold contained in 214,775 t of gold-bearing pyrite concentrate (Dundee Precious Metals Inc., 2017, p. 12).

In 2016, Dundee continued with its plan to develop the Krumovgrad open pit gold project, in which it owned a 100% interest. The project was located at Ada Tepa, which is located about 3 km south of the town of Krumovgrad in southeastern Bulgaria. As of December 31, 2015, the proven and probable reserves of the two zones in the Krumovgrad deposit were estimated to be 25,100 kg (reported as 806,000 troy ounces) of gold and 13,800 kg (reported as 443,000 troy ounces) of silver. The production was expected to start in the fourth quarter of 2018. The total cost of mine construction was estimated to be \$164 million. Dundee expected to produce about 2,670 kilograms per year (kg/yr) (reported as 85,700 troy ounces per year) of gold

and 1,200 kg/yr (reported as 38,700 troy ounces per year) of silver for at least 8 years (Mineral.ru, 2014; Dundee Precious Metals Inc., 2017, p. 7–9, 14).

Industrial Minerals

**Fluorspar.**—Solvay S.A. was the sole producer of fluorspar in Bulgaria. In January 2016, Solvay S.A. ceased mining at its fluorspar mine in Chiprovtsi owing to depletion of fluorite reserves, weak demand, and low fluorspar prices. The company employed 116 people, of which 107 were laid off by the end of March and 9 continued to work at the mine to maintain activities until the mine operations are completely stopped. The date for complete closure of mine was not provided. When Solvay acquired the mine in 2011 from N&N Group of Italy, the mine had the capacity to produce 50,000 metric tons per year of fluorspar (acid spar) (Duma, 2016; McCormick, 2016; Patel, 2016; Salwan, 2016).

Outlook

The increases in Bulgaria’s production of mineral commodities were moderate in 2016, and continued increases most likely will depend mainly on the future domestic and European economic outlooks. Owing to new projects, the mining of gold and silver is likely to increase modestly in the near future. Increases in nonferrous production will most likely depend on the ore grades, world commodity prices, and demand.

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TABLE 1  
BULGARIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2012	2013	2014	2015	2016
METALS					
Aluminum metal, secondary	8,538	8,071	7,537	8,620	9,445
Bismuth, refinery production, metal kilograms	4,750	5,156	5,042	4,280	4,300 <sup>c</sup>
Cadmium, refinery production, primary, metal	360	411	382	340	362
Copper:					
Mine production:					
Gross weight, ore thousand metric tons	18,987	18,119	18,250	17,628	17,643
Concentrate, Cu content	78,653	75,307	72,419	71,748	70,573
Refinery production, electrolytic:					
Primary	202,000 <sup>r</sup>	205,000 <sup>r</sup>	210,000 <sup>r</sup>	210,000	197,000
Secondary	25,000	25,000	25,000	25,000	20,000
Smelter production:					
Primary	269,000 <sup>r</sup>	290,000 <sup>r</sup>	310,000 <sup>r</sup>	302,000 <sup>r</sup>	260,000
Secondary	56,000 <sup>r</sup>	60,000 <sup>r</sup>	55,000 <sup>r</sup>	55,000 <sup>r</sup>	47,000

See footnotes at end of table.

TABLE 1—Continued  
BULGARIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>		2012	2013	2014	2015	2016
METALS—Continued						
Gold, mine production, concentrate, Au content	kilograms	7,058	7,385	7,889 <sup>r</sup>	7,914 <sup>r</sup>	7,920
Iron and steel:						
Hot-rolled products	thousand metric tons	818	874	937	835	840 <sup>e</sup>
Raw steel	do.	633	523	612	543	493
Lead:						
Mine production, Pb content		14,366	15,986	15,461	16,456 <sup>r</sup>	19,688
Refinery production, primary and secondary		86,156	90,742	93,394	96,900	100,817
Manganese, mine production, crude ore:						
Gross weight		38,000 <sup>r</sup>	45,000	70,000 <sup>r</sup>	191,000 <sup>r</sup>	67,000
Mn content		11,000 <sup>r</sup>	13,000 <sup>r</sup>	20,000 <sup>r</sup>	53,000 <sup>r</sup>	19,000
Silver, mine production, Ag content	kilograms	46,523	55,637	50,200	37,955 <sup>r</sup>	52,526
Tellurium, metal	do.	2,472	5,014	4,932	4,046 <sup>r</sup>	4,479
Zinc:						
Mine production, Zn content		8,995	11,992	11,299	10,783 <sup>r</sup>	11,415
Smelter production, primary		73,558	75,830	76,293	75,095 <sup>r</sup>	75,811
INDUSTRIAL MINERALS						
Barite, run of mine		--	1,000 <sup>r</sup>	20,000 <sup>r</sup>	60,000 <sup>e</sup>	50,000 <sup>e</sup>
Cement, hydraulic	thousand metric tons	1,803	1,812	1,785	2,114	1,994
Clay:						
Bentonite	do.	110	--	411	--	--
Kaolin		252,100	281,600	321,700	--	--
Fluorspar		12,000	12,000	20,000	20,000	2,000
Gypsum, including anhydrite, crude	thousand metric tons	114	119	88	99	41 <sup>e</sup>
Lime, industrial	do.	1,425	1,377	1,482	1,474 <sup>r</sup>	1,512
Nitrogen, N content, ammonia	do.	269 <sup>r</sup>	300 <sup>r</sup>	313	313	300 <sup>e</sup>
Perlite	do.	4	5 <sup>e</sup>	5 <sup>e</sup>	5 <sup>e</sup>	5 <sup>e</sup>
Salt, all types	do.	2,100	2,000	3,300	3,500 <sup>e</sup>	3,500 <sup>e</sup>
Stone, sand, and gravel:						
Sand and gravel, construction, unspecified	do.	6,213	6,530	6,600	3,833	3,800 <sup>e</sup>
Sand and gravel, industrial, sand	do.	NA	NA	NA	7,640 <sup>r</sup>	6,289
Silica, mine production, quartz	do.	660 <sup>e</sup>	660 <sup>e</sup>	680 <sup>e</sup>	947	350 <sup>e</sup>
Stone, crushed:						
Chalk, including dolomite		NA	NA	149,158	149,000 <sup>e, r</sup>	74,362
Limestone, flux for cement production	thousand metric tons	5,376	5,024	5,580	5,506 <sup>r</sup>	5,286
Stone, size and shape unspecified, granite, including sandstone and other building material	do.	NA	NA	NA	25,530	1,544
Sulfur compounds, S content, sulfuric acid	do.	1,101	1,353	1,309	1,341	1,210
Vermiculite, elemental content, concentrate <sup>e</sup>		18,600	18,600	19,000	19,000	10,000
MINERAL FUELS AND RELATED MATERIALS						
Coal, lignite	thousand metric tons	33,341	28,637	31,300	35,863 <sup>r</sup>	31,229
Natural gas, marketable	million cubic meters	390	282	183	82 <sup>r</sup>	94
Petroleum:						
Crude	thousand 42-gallon barrels	168	198	192	200	200 <sup>e</sup>
Refinery production	do.	41,300	39,550	36,400	42,350	42,000 <sup>e</sup>

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero.

<sup>1</sup>Table includes data available through December 12, 2017. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>In addition to the commodities listed, bituminous coal, calcinate of sodium carbonate, feldspar, refractory clays, sulfur, tin, and zeolites may have been produced in Bulgaria, but available information was inadequate to make reliable estimates of output.

TABLE 2  
BULGARIA: 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 <sup>e</sup>
Aluminum, secondary		Alcomet JSC	Shumen	NA.
Do.		ETEM Bulgaria JSC	Sofia	NA.
Cadmium		KCM A.D. (KCM 2000 Group)	Plovdiv	NA.
Do.		Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardzhali	NA. <sup>1</sup>
Cement		Devnya Cement AD (Italcementi Group)	Devnya	2,000.
Do.		Vulkan Cement S.A. (Italcementi Group)	Dimitrovgrad	500.
Do.		LafargeHolcim (Bulgaria) AD (LafargeHolcim Ltd., 100%)	Beli Izvor	1,700.
Do.		Zlatna Panega Cement AD (Titan Group)	Zlatna Panega	1,500.
Clay:				
Bentonite, mine output		Imerys S.A.	Kardzhali	NA.
Kaolin, mine output		Kaolin A.D.	Senovo, Rousse District	NA.
Coal:				
Bituminous		Balkan 2000 Mines EAD	Southeast of Tvarditsa, Sliven District	NA.
Do.		Vagledobiv Bobov Dol EOOD	Bobov Dol coalfield	NA.
Do.		Other small producers	Cherno More Mine in the Black Sea coalfield and Vitren Mine in Katrishte deposit	NA.
Lignite		Mini Maritsa Iztok EAD (state-owned Bulgarian Energy Holding EAD)	East Maritsa coal basin near Radnevo	35,000.
Do.		Other small producers	Beli Breg, Chukurovo, and Stanyantsi Mines	NA.
Do.		Otkrit Vagledobiv Mines EAD	Pernik coal basin, southwest of Sofia	NA.
Copper:				
Concentrate, Cu content		Assarel-Medet JSC	Panagurishte, Pazardzhik District	50.
Do.		Ellatzite-Med AD (Geotechmin Co.)	Mine 8 kilometers south of Etropole, and concentrator near Mirkovo village	45.
Do.		Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	21.
Do.		Bradtze	Malko Turnovo	2.
Do.		Burgaskii Mines Ltd.	Zidorovo Mine at Burgas, near the Black Sea	1.
Metal:				
Smelter		Aurubis Bulgaria AD (Aurubis AG, 99.8%)	Pirdop, Srednogorie region	400.
Refinery		do.	do.	230.
Fluorspar	metric tons	Chiprovtsi Mine (Solvay S.A.) <sup>2</sup>	Chiprovtsi, Montana Province	50,000.
Gold, in concentrate	kilograms	Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	4,000.
Do.	do.	Ellatzite-Med AD (Geotechmin Co.)	Mine 8 kilometers south of Etropole and concentrator near Mirkovo village	NA.
Do.	do.	KCM A.D. (KCM 2000 Group)	Plovdiv	NA.
Lead-zinc:				
Concentrate, Pb-Zn content	metric tons	Gorubso AD (KCM 2000 Group and and Minstroy Holding A.D.)	Kardjali	5,700 lead, 5,500 zinc.
Do.	do.	Rudmetal JSC	Dimov Dol Mine, near Rudozem	2,900 lead, 1,900 zinc.
Metal:				
Lead, refined		KCM A.D. (KCM 2000 Group)	Plovdiv	72.
Primary		Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardzhali	33. <sup>1</sup>
Secondary		Monbat Recycling Plc	Town of Montana	17.
Do.		Elbat JSC	Dolna Banya	15.
Zinc, smelter		KCM A.D. (KCM 2000 Group)	Plovdiv	80.
Do.		Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardzhali	28. <sup>1</sup>

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity <sup>e</sup>
Manganese, ore		Obrochishte Mine (Euromangan AD)	Tsarkva village, 10 kilometers west of Balchik	NA.
Natural gas	million cubic meters	Melrose Resources Bulgaria EOOD (Petroceltic International Plc)	Galata, Kaliakra, and Kavarna fields, in the Black Sea off the coast of Varna	400.
Do.	do.	Oil and Gas Exploration and Production Plc.	Bhutan, Bulgarevo, Dolni Dubnik, Durankulak, Marionov Geran, Selanovtzi, and Staroseltzi fields	NA.
Perlite, mine output		Imerys S.A.	Kardzhali	NA.
Petroleum:				
Crude	thousand 42-gallon barrels	Oil and Gas Exploration and Production Plc.	Bardarski Geran, Dolni Dubnik, Dolni Lukovit, Gorni Dubnik, Tjulenovo, Selanovtzi, Staroseltzi, and other oilfields	200.
Refined	do.	LUKOIL Neftochim Burgas AD (LUKOIL Oil Co.)	Refinery at Burgas	70,000.
Silver:				
In concentrate	kilograms	Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	18,000.
Metal	do.	KCM A.D. (KCM 2000 Group)	Plovdiv	55,000.
Steel:				
Crude		Stomana Industry S.A. (Sidenor S.A., 100%)	Pernik	800.
Manufacturing		Promet Steel JSC	Rolling mills	700.
Do.		PIH Industry JSC	Eastern part of the city of Ruse	NA.
Do.		Stomana Industry S.A. (Sidenor S.A., 100%)	Pernik	1,000.
Do.		Helios Metallurg Ltd.	Plovdiv	140.
Sulfuric acid		Aurubis Bulgaria AD (Aurubis AG, 99.8%)	Pirdop, Srednogorie region	1,200.
Vermiculite, crude		Wolff and Muller Minerals Bulgaria OOD	Near Sofia	20.
Zeolites, mine output		Imerys S.A.	Kardzhali	NA.

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>Suspended since 2012.

<sup>2</sup>The company ceased operation in 2016.