

# **2008 Minerals Yearbook**

## MACEDONIA

## THE MINERAL INDUSTRY OF MACEDONIA

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Macedonia produced a range of metals, as well as industrial minerals and lignite. Production was not important on either a world or regional scale, but exports of metal commodities were an important source of revenue for Macedonia. Crude petroleum was imported and processed at the country's sole domestic refinery (table 1).

#### Minerals in the National Economy

Macedonia's real gross domestic product (GDP) grew by 4.9% in 2008 compared with the GDP in 2007. In 2007 (the latest year for which data were available), manufacturing accounted for 18.4% of the GDP, and mining and quarrying accounted for 0.7%. Mineral industry production, especially that of mineral fuels, had a significant effect on Macedonia's trade balance. In 2008, mineral fuels made up 20.7% of the value of Macedonian imports and 7.9% of the value of exports. Macedonia's State Statistical Office listed ferronickel, flat-rolled steel products, and clothing as the country's most significant export items, although data concerning the value of the trade of these goods in 2008 were not available (Republic of Macedonia State Statistical Office, 2008b-d).

#### Production

Several significant production changes occurred in Macedonian metals production in 2008 when compared with that of 2007. Chromite concentrate production and copper concentrate production both increased by 15%, but copper content of concentrate production decreased by 12%. Zinc content of concentrate production increased by 40% and ferrosilicon production increased by 25%. Production of crude steel decreased by 32%; semimanufactures, by 31%; and silicomanganese, by 22%. For industrial minerals, talc production decreased by 45% compared with that of 2007, bentonite production decreased by 35%, feldspar production decreased by 12%, and pumice production increased by 28%. For mineral fuels, lignite production increased by 18% compared with production in 2007.

#### Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

#### **Commodity Review**

#### Metals

**Chromium.**—Chromite ore production of 4.2 million metric tons (Mt) and chromite concentrate production of 38,000 metric tons (t) were reported for 2008. The 2007 and 2008 production figures were the first chromite production figures for Macedonia that have been reported by the U.S. Geological Survey since

1997. It was estimated that no production took place between 1997 and 2007.

**Copper**.—In December, Solway Industries Ltd. announced plans to halt mining temporarily at Macedonia's only copper mine at Bucim beginning on January 1, 2009, owing to the low market price for copper. According to a Solway representative, the Bucim Mine operated at a financial loss when copper prices dropped to less than \$4,000 per ton; at the end of 2008, copper was trading at close to \$3,000 per ton (Macedonian International News Agency, 2008; London Metals Exchange Ltd., 2009).

**Iron and Steel**.—Makstil, which was Macedonia's sole steel producer, operated for only 10 months in 2008, and crude steel and semimanufactures production decreased by 32% and 31%, respectively. The specific factors that caused the 2-month shutdown were unknown, although it seems to be in part owing to the installation of a new slab reheating furnace as well as an accident that occurred in early December. Details of the accident and its effect on the plant were unknown at the time this report was written. At Skopski Leguri DOOEL, production of silicomanganese (SiMn) began in 2007 and production of ferromanganese (FeMn) began in 2008 (Duferco Group, 2009, p. 37; Limun.hr, 2009).

**Nickel.**—Ferronickel production was accomplished using imported nickel ores and concentrates, which were then processed at Feni Industries' plant at Kavadarci. In 2006 (the latest year for which data were available), Macedonia imported 466,623 t of nickel ores and concentrates mainly from Indonesia (226,130 t), Albania (138,949 t), Greece (52,246 t), and Turkey (41,038 t) (Republic of Macedonia State Statistical Office, 2008a, p. 353).

#### Mineral Fuels

Lignite.—Lignite production increased by about 17% compared with that of 2007. Four surface mines operated by AD ELEM produced lignite to supply the thermal powerplants (TPP) at Bitola and Oslomej, which accounted for about 80% of Macedonia's domestic electricity production. The Suvodol and the Brod-Gneotino Mines produced about 6.4 Mt and 127,536 t of lignite, respectively, for use at TPP Bitola, and the mine at Oslomej produced about 936,278 t for use at TPP Oslomej. An additional 305,713 t was produced at the Star Rudnik Mine (Old Mine) for use at TPP Oslomej. The Brod-Gneotino Mine began production in 2008 and produced lignite only in August, November, and December, but AD ELEM expected the mine eventually to produce about 2 million metric tons per year (Mt/yr). AD ELEM also planned to extend the life of the Suvodol Mine by exploiting the mine's undercoal series, which AD ELEM estimated to have lignite reserves of 50 Mt. The Brod-Gneotino Mine and the undercoal series at the Suvodol Mine were forecast to extend the available supply of domestic lignite to the Bitola TPP by 20 to 25 years past the expected

2012 end of currently active lignite mining projects (AD ELEM, 2009a, p. 9, 22, 33; 2009c, d).

To secure future lignite production, AD ELEM also intended to develop the Zivojna lignite deposit, which is located south of the Suvodol Mine and TPP Bitola. AD ELEM expected mining at Zivojna to produce about 2.3 Mt/yr of lignite from about 65 Mt of reserves, but owing to a relatively large amount of overburden and the deposit's distance from the TPP Bitola, the mine was expected to be exploited only after the Suvodol Mine is exhausted (AD ELEM, 2009b).

#### Outlook

The world economic crisis and the concurrent fall in mineral prices could have a negative short- to medium-term effect on the mineral industry of Macedonia. Production of metals could be the most affected sector because of their greater dependence on export sales, whereas the level of lignite production was expected to remain similar to the 2008 output level to maintain electricity production.

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#### TABLE 1 MACEDONIA: PRODUCTION OF MINERAL COMMODITIES1

#### (Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2004	2005	2006	2007	2008
METALS					
Chromite:					
Ore, gross weight thousand metric tons				4,109	4,239
Concentrate				33,467	38,337
Copper, mine and concentrator output:					
Ore, gross weight thousand metric tons		2,536	4,132	4,109	4,240
Concentrate:					
Gross weight		22,854	33,591	33,467	38,337
Cu content <sup>e</sup>		6,000	8,000	7,300	6,400
Gold <sup>e</sup> kilograms		400	400	450	450
Iron and steel:					
Ferroalloys:					
Ferromanganese	e	e			12,623
Ferronickel (24% Ni), gross weight <sup>e</sup>	22,000 r	33,900 <sup>r</sup>	45,100 <sup>r</sup>	63,800 <sup>r</sup>	62,600
Ferrosilicon	56,000 °	71,249	59,023	34,215 r	42,647
Silicomanganese	e	e	·	70,472	54,931
Total	78,000 <sup>r, e</sup>	105,149 <sup>r</sup>	104,123 <sup>r</sup>	168,487 r	172,801
Steel:	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			,	,
Crude	313,594	325,690	360,304	371,930	252,461
Semimanufactures	309,154	319,123	353,964	366,076	252,946
Lead, mine output, concentrate, Pb content			11,000	32,000	34,000
Nickel, Ni content of FeNi	5,300 °	8,141	10,942	15,321	15,026
Zinc, mine output, concentrate, Zn content			11,000 <sup>r</sup>	20,000	28,000
INDUSTRIAL MINERALS			,		
Cement thousand metric tons	752	827	867	902	862
Clays, bentonite	25,000 °	25,767	32,507	35,234	22,890
Diatomite <sup>e</sup>	5,000	5,000	5,000	5,000	5,000 °
Feldspar, crude	22,925	27,076	32,824	32,814	28,920
Gypsum, crude	165,416	190,232	267,760	255,500	242,400
Lime	10,000	15,009	12,704	7,517	
Pumice and related materials, volcanic tuff <sup>e</sup>	50,000	50,000	60,000 r	80,910 <sup>r, 3</sup>	103,476 3
Sand and gravel, excluding glass sand <sup>e</sup> thousand cubic meters	100	100	100	120 r	124
Stone, excluding quartz and quartzite:	100	100	100	120	124
Dimension, crude <sup>e</sup> square meters	150,000	150.000	150,000	150,000	150,000
Ornamental <sup>e</sup> thousand cubic meters	300	300	300	300	300
Crushed and broken, n.e.s. <sup>4</sup> cubic meters	72,378	125,154	111,829	58,369	33,023
Other <sup>e</sup> thousand metric tons	25,000	25,000	25,000	25,000	25,000
Talc, crude	23,000 °	23,000	1,025	1,775	23,000
MINERAL FUELS AND RELATED MATERIALS	1,000	1,955	1,025	1,775	7//
Lignite thousand metric tons	7,138 <sup>r</sup>	6,949 <sup>r</sup>	6,722 <sup>r</sup>	6,569	7,746
Petroleum, refinery products:	7,130	0,247	0,722	0,509	7,740
As reported do.	837	919	1,022	1,042	1,036
1	6,700		8,200	<i>,</i>	,
Converted <sup>e</sup> thousand 42-gallon barrels	0,700	7,400	8,200	8,300	8,300

<sup>e</sup>Estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. -- Zero. <sup>1</sup>Table includes data available through September 15, 2009.

<sup>2</sup>In addition to commodities listed, secondary aluminum in small amounts and common clay also are produced, but available information is inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

<sup>4</sup>Not elsewhere specified.

#### TABLE 2 MACEDONIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

#### (Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
Cement		Usje Cementarnica AD (Titan S.A., 95%)	Plant at Skopje	1,000
Chromite, concentrate		Jugohrom, Hemijsko-Elektrometakurski Kombinat (HEK)	Concentrator at Radusa	1,000
Coal, lignite		AD ELEM (state owned)	Mine at Suvodol	7,000
Do.		do.	Mine at Oslomej	1,000
Do.		do.	Mine at Brod-Gneotino	200
Copper ore		Bucim Mine (Solway Industries Ltd.)	Mine and mill at Bucim, near Radovis	4,100
Ferroalloys:				
Ferrosilicon		Silmak DOOEL	Plant at Jegunovce	80
Silicomanganese		Skopski Leguri DOOEL	Plant at Skopje	60
Ferromanganese		do.	do.	70
Ferronickel <sup>1</sup>		Feni Industries (Cunico Resources)	Ferronickel plant at Kavadarci	16
Gold		Bucim Mine (Solway Management)	Mine and mill at Bucim, near Radovis	NA
Lead metal		MHK d.o.o. Zletovo	Imperial smelter at Titov Veles	40
Do.		do.	Refinery at Titov Veles	40
Lead-zinc, concentrate		Sasa (Solway Management)	Mill near Kamenica	100
Lead-zinc ore		do.	Mine near Kamenica	1,000
Do.		Zletovo (Indo Minerals and Metals DOOEL)	Mine and mill near Probistip	500
Do.		Toranica (Indo Minerals and Metals DOOEL)	Mine near Dolga Livada	100
Lignite		AD ELEM (state owned)	Mine at Suvodol	6,500
Do.		do.	Mine at Oslomej	1,000
Do.		do.	Star Rudnik Mine at Oslomej	310
Do.		do.	Brod-Gneotino Mine, south of Suvodol near Brod	200
Nickel, ore		Feni Industries (Cunico Resources)	Mine and opencast mine near Kavadarci	2,300
Do.		do.	Opencast mine at Rzanovo	NA
Petroleum, refined	42-gallon barrels	OKTA A.D. Skopje (EL.P.ET Balkanike, 81.51%)	Oil refinery at Skopje	20,000
Steel, crude		Makstil A.D. Skopje (Duferco Group, 54.4%)	Plant at Skopje	360
Zinc metal		MHK Zletovo	Imperial smelter plant and refinery at Titov Veles	65

Do., do. Ditto. NA Not available. <sup>1</sup>Nickel content of ferronickel.