

THE MINERAL INDUSTRY OF

AUSTRIA

By Harold R. Newman

On January 1, 1995, Austria acceded to the European Union (EU). Accession was expected to spur investment, employment, and growth for the country's general economy and, in particular, its mineral industry, both by providing access to the single market and by fostering policies to promote competition and dismantle protectionism. Dependent on foreign trade, Austria has had an open economy closely linked to the economies of other EU member countries, especially Germany.

The mining industry traditionally has been very popular in Austria. However, the metal mining sector continues to decline, principally due to high costs, low ore grades, environmental problems, and increased competition. This was not the case with the industrial minerals sector, which has been producing a number of important minerals. Austria has been considered a significant world producer of graphite, talc and magnesite. Recycling activities were also increasing. (*See table 1.*)

The Austrian mineral industry, in the last several years, has turned away from coal and base metal mining toward the industrial minerals sector. All the metalliferous mines, except for the iron ore operation at Erzberg, and the tungsten operation at Mittersil, were closed. The Mittersil Mine was reopened in 1995 after being closed for 2 years for economic reasons. A small and diminishing portion of the mineral industry is still under Government control. (*See table 2.*)

Only secondary aluminum was produced in 1996. The Ranshofen smelter, with a capacity of 50,000 metric tons per year (t/yr), is the larger of two secondary smelters. The Government-owned facility was scheduled to be privatized by 1998. The operation consisted of a smelter and casthouse, a rolling mill, a press mill, and an automobile wheel plant. Scrap was obtained from private collecting organizations.

At the smaller Lend smelter, indigenous scrap is augmented with imported ingots depending on the particular requirements of the finished products. The facility consisted of a 15,000-t/yr smelter, two casthouses, a crucible furnace, three oil-fired furnaces, and a closed furnace. Fuel and compressed air tanks were the main products.

The secondary copper smelter at Brixlegg relied on copper and copper alloy scrap from domestic sources as well as scrap imports from Germany and Italy.

The Erzberg Mine produced a beneficiated iron ore which was shipped by rail to the nearby Donawitz and Linz steel mills of Voest-Alpine Stahl GmbH for the production of self-fluxing sinter, averaging 50% iron and 3% manganese. The mine shipped 1 million tons to Linz and the remainder to Donawitz (Skillings Mining Review, 1996).

The Donawitz steel plant was equipped with three blast

furnaces with a total capacity of 2 million tons per year (Mt/yr), three basic oxygen converters (1.2 Mt/yr capacity) and two continuous casting machines. The Linz steel plant had five blast furnaces (2.99 Mt/yr capacity), three basic oxygen converters (3.35 Mt/yr capacity), two continuous casting machines, and several rolling mills. The Government was proceeding with plans to privatize both operations.

Most of the growth in the mineral resources area in Austria has been in the production of industrial minerals where operations have been developed by the private sector.

There are ample supplies of calcite, dolomite, and limestone to support a viable cement industry. Perlmooser Zementwerke AG (PZ), with four plants, was the largest company. PZ's largest plant, at Mannesdorf near Vienna, had a 1.4 Mt/yr capacity, accounting for about 65% of the annual domestic cement production.

Austria is one of the world's largest sources of high-grade graphite. Grafitbergbau Kaiserberg AG operates open pit mines at Kaiserberg and at Trieben. Grafitbergbau's 30,000-t/yr capacity processing plant at Kaiserberg consists of drying, classification, milling, flotation, and fine grinding sections. The other company involved in graphite production is Industrie und Bergbaugesellschaft, Pryssock & Co. KG, which operates the Trandorf open pit mine at Mühldorf.

Veitsch-Radex AG (VRAG) was the largest producer of magnesite in Austria. Three of its five mines were active in 1996: Breitenau, Hochfilzen, and Radenthein. With an output of about 400,000 t/yr, Breitenau is VRAG's largest operation. Radenthein, the smallest with an output of 80,000 t/yr, produces a high iron magnesite. VRAG's dead burned magnesia capacity is very large, exceeding 400,000 t/yr. The iron and steel industry was the largest consumer of VRAG's products.

Austrian salt mines were owned by the Government and regulated by the Ministry of Finance. All salt output was from three underground mines and one brine well in central Austria. The Government was proceeding with plans to privatize the operations.

Luzenac Naintsch, the only producer of talc in Austria, operated three mines in the Styria region and produced a range of talc, chloritic talc, dolomite talc, and chlorite-mica-quartz ores. The Rabenwald open pit mine is the largest, with a capacity of about 100,000 t/yr of talc and chloritic talc. The Lassing underground mine has a capacity of 30,000 t/yr, producing a dolomite-talc product with a high degree of whiteness. The Weisskirchen underground mine has a capacity of 30,000 t/yr and produces an ore containing chlorite, muscovite mica, and quartz.

In the coal mining sector, the open pit Oberdorf Mine of Graz-Koflacher Eisenbahn und Bergbaugesellschaft GmbH was the only lignite mine with any significant production in 1996. The production of around 1 million tons was used by a local thermal power station. Output from the only other pit, the Ampflwang Mine, was negligible. Additional coal for other thermal power stations was imported from Australia and Poland.

Austria is a landlocked country and nearly all transportation is on railroads and highways. The total length of railroad consisted of 5,410 kilometers (km) of standard-gauge and 339 km of narrow-gauge tracks. About 98% of the railroad was Government-owned and more than 50% was electrified. The length of roads totaled 95,412 km, of which 34,612 km were primary highways while the rest were unpaved communal roads. The only navigable river was the Danube, with major ports in Linz and Vienna.

Because of Austria's long history of minerals exploration and mining tradition, geologic conditions are fairly well known. Future mining activities will most probably be concentrated in industrial minerals, mainly for domestic consumption.

Reference Cited

Skillings Mining Review, 1996, Voest-Alpine's iron ore production at Erzberg:
Skillings Mining Review, v. 86, no. 24, June 14, p. 7.

Major Source of Information

Bundesministerium für Wirtschaftliche Angelegenheiten
Lansatrasse Hauptstrasse 55-57
1031 Vienna, Austria

TABLE 1
AUSTRIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
METALS					
Aluminum metal:					
Primary	32,866	--	--	--	--
Secondary	45,400	43,300	52,500	46,800 r/	50,000
Total	78,266	43,300	52,500	46,800 r/	50,000
Copper:					
Smelter, secondary	48,975	46,856	49,562	53,400 e/	55,000 2/
Refined:					
Primary	5,705	5,871	2,904	530 r/	1,000
Secondary	48,975	46,856	49,562	53,000 r/	57,000
Total	54,680	52,727	52,466	53,530 r/	58,000
Gold, metal kilograms	158	315	382	100	100
Iron and steel:					
Iron ore and concentrate:					
Gross weight thousand tons	1,627	1,427	1,653	2,116	1,853 2/
Fe content do.	510	448	390	709	504 2/
Metal:					
Pig iron do.	3,074	3,070	3,362	3,838 r/	3,416 2/
Ferroalloys, electric-furnace e/ do.	12	12	12	454 2/	404 2/
Crude steel do.	3,953	4,149	4,405 r/	4,537 r/	4,442 2/
Semimanufactures do.	3,360	3,450	3,500	3,968 r/	3,600
Lead:					
Mine output, Pb content of concentrate	1,715	2,047	--	--	--
Metal:					
Smelter:					
Primary e/	3,800	2,000	--	--	--
Secondary	17,800	18,800	15,833 r/	23,000 r/	24,000
Total	21,600	20,800	15,833 r/	23,000 r/	24,000
Refined:					
Primary	5,727 r/	4,779 r/	418 r/	--	--
Secondary	18,203 r/	17,857 r/	17,165	21,919 r/	16,400
Total	23,930	22,636 r/	17,583 r/	21,919 r/	16,400
Manganese, Mn content of domestic iron ore	30,752	26,890	31,288	42,463 r/	26,000
Silver, metal	22	--	24	--	--
Tungsten, mine output, W content of concentrate	1,718 r/	120	--	188	360 2/
Zinc:					
Mine output, Zn content of concentrate	15,787	20,014 e/	--	--	--
Metal, primary, refined	5,537	6,838	--	--	--
INDUSTRIAL MINERALS					
Cement, hydraulic thousand tons	5,031	4,941	4,828 r/	3,843 r/	4,000
Clays:					
Illite do.	276	300	267	277 r/	151 2/
Kaolin:					
Crude do.	344	342	469	427 r/	178 2/
Marketable do.	65	64	65 r/ e/	87 r/	50
Other do.	3,450	2,990	2,981	2,900 e/	3,000
Feldspar, crude	11,059	8,492	4,883	-- r/	--
Graphite, crude	19,796	4,146	12,324	12,019 r/	30,000
Gypsum and anhydrite, crude thousand tons	792	876	1,070	858 r/	996 2/
Lime	17,200	18,100	18,500	19,079 r/	19,902 2/
Magnesite:					
Crude thousand tons	995	649	681	784	624 2/
Sintered or dead-burned do.	223	323	297 r/	272 r/	289 2/
Caustic calcined do.	54	50	76	59 r/	52 2/
Nitrogen, N content of ammonia e/	410	400	400	400	400
Pigments, mineral, micaceous iron oxide	9,480	8,400	8,000 e/	8,000 e/	7,500

See footnotes at end of table.

TABLE 1--Continued
AUSTRIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
INDUSTRIAL MINERALS--Continued					
Pumice (trass)	7,493 r/	9,102 r/	5,670	6,000 e/	6,000
Salt:					
Rock	1	1	1	1	1
In brine	742 r/	695	701	523 r/	500
Sand and gravel:					
Quartz sand	5,880	4,300	6,457	7,503	6,012 2/
Other sand and gravel	17,427 r/	16,942 r/	19,067 r/	16,048 r/	16,000
Total	23,307 r/	21,242 r/	25,524 r/	23,551 r/	22,012
Sodium compounds, n.e.s.: e/					
Soda ash, manufactured	150	150	150	200	200
Sulfate, manufactured	120	120	120	100	100
Stone: 3/					
Dolomite	5,870	7,770	8,159	8,790	9,155 2/
Quartz and quartzite	511	429	416	395	380 2/
Other:					
Limestone and marble	19,300	19,600	19,993	19,080	20,000
Basalt	4,100	3,360	4,092	4,202	4,000
Marl	2,640	2,840	2,306	1,931	2,000
Crushed stone	10,600	11,500	11,937 r/	11,299 r/	12,000
Total	43,021	45,499	46,903 r/	45,697 r/	47,535
Sulfur, byproduct:					
Of metallurgy e/	8,200	9,296 2/	6,500 r/	1,500 r/	--
Of petroleum and natural gas	8,683	7,656	9,266	9,000 e/	10,000
Total	16,883	16,952	15,766 r/	10,500 r/	10,000
Talc and soapstone, crude	145,664	136,640	130,602 r/	131,614 r/	130,000
MINERAL FUELS AND RELATED MATERIALS					
Coal, brown and lignite	1,753	1,691	1,368 r/	1,282 r/	1,110 2/
Coke	1,490	1,400	1,328 r/	1,330 r/	1,350
Gas, natural:					
Gross	1,440	1,488	1,489 r/	1,480 r/	1,400
Marketed e/	1,100	1,100	1,000	1,000	1,000
Oil shale	430	195	1,146	1,078	498 2/
Petroleum:					
Crude	8,230	8,060	7,671	7,213 r/	7,400
Refinery products:					
Liquefied petroleum gas	7,380	6,760	4,292	6,960	7,000
Gasoline	19,500 e/	19,000 e/	21,598	17,680	18,000
Kerosene and jet fuel	3,240	3,140	2,929	3,309	3,300
Distillate fuel oil	12,900	12,800	9,064	8,736	9,000
Lubricants	6,910	8,670	280 e/	--	--
Residual fuel oil e/	11,700 2/	11,000	11,000	11,000	11,000
Bitumen	1,120	1,660	1,500 e/	1,500 e/	1,500
Unspecified	787	739	628	630	600
Refinery fuel and losses	2,470	2,240	2,102	2,310	2,200
Total e/	66,007	66,009	53,393	52,125	52,600

e/ Estimated. r/ Revised.

1/ Table includes data available through May 1997.

2/ Reported figure.

3/ Excluding stone used by the cement and iron and steel industries.

TABLE 2
AUSTRIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	Salzburger Aluminum GmbH	Smelter at Lend	15
Do	Austria Metall AG (Government 100%)	Smelter at Ranshofen	50
Cement	Perlmooser Zementwerke AG	Plants at Kirchblich, Mannesdorf, Retsnei, and Rodaun	3,000
Do	Gebr Leube Portlandzementwerke	Plant at Gartenau	700
Do	Zemenwerke Eiberg	Plant at Eiberg	600
Do	Wietersdorfer Zemenwerke	Plant at Wietersdorf	600
Coal	Graz-Koflacher Eisenbahn und Bergbaugesellschaft GmbH (Government 100%)	Oberdorf Mine	1,200
Copper	Austria Metall AG (Metal Mining Corp. of Canada 41%, Mount Isa Mines of Australia, 41%, and Government, 18%)	Plant at Brixlegg	75
Graphite	Industrie und Bergbaugesellschaft Prysok & Co KG	Trandorf Mine at Mühldorf	15
Do	Grafitbergbau Kaiserberg Franz Mayr-Melnhof & Co	Kaisersberg Mine	3
Do	Grafitbergbau Trieben GmbH	Trieben Mine	3
Gypsum	Erste Salzburger Gipswerk-Gesellschaft Christian Moldan KG	Abtenau and Moosegg Mines	300
Do	Rigips Austria GmbH	Grundsee, Puchberg, Unterkainisch, and Weisenbach Mines	250
Do	Knauf Gesellschaft GmbH	Hinterstein Mine	160
Iron ore	Voest-Alpine Erzberg GmbH (Government 100%)	Erzberg Mine at Eisenerz	2,000
Lead	Bleiberg Bergwerks-Union AG (Metall Gesellschaft 74%)	Smelter at Brixlegg	55
Magnesite	Veitsch - Radex AG	Mines at Breitenau, Hochfilzen and Radenthein	600
Do	Radex Austria AG (Osterreichische Magnesit AG 100%)	Millstatteralpe Mine	250
Natural gas			
million cubic meters	Osterreichische Mineralolverwaltung AG (Government 100%)	Fields in Vienna Basin	1,500
Steel	Voest-Alpine Stahl GmbH (Government 100%)	Plants at Donawitz and Linz	4500
Talc	Luzenac Naintsch AG	Mines at Lassing, Rabenwald, and Weisskirchen Plants at Oberfeistitz and Weisskirchen	160
Tungsten	Wolfram Bergbau und Hütten GmbH	Mittersill Mine, Salzburg; conversion plant, Bergla	350