

# THE MINERAL INDUSTRY OF CZECH REPUBLIC

By Walter G. Steblez

The Czech Republic was an important Central European producer of heavy industrial goods in the toolmaking, machine building, and chemical sectors of industry. Regionally important mineral industries included steelmaking and industrial minerals, as well as construction materials production.

The growth rate of the country's gross domestic product in 1997 increased by 1% compared with that of 1996. Industrial production during the same period rose by 6.1%. Exports of goods (in terms of constant value) rose by more than 15% in 1997 compared with those of 1996. Imports during this period increased by about 9.3%. Foreign investment in the country's iron and steel sector was among the major industry events during the year (Sujan and Sujanova, 1998).

The Government of the Czech Republic continued economic development policies the aim of which has been to integrate the country into the European Union (EU). The country's memberships in the World Bank for Reconstruction and Development, the International Monetary Fund, and the Organization for Economic Cooperation and Development (OECD), as well as the World Trade Organization and participation in the General Agreement on Tariffs and Trade were largely the result of the Czech Republic's full orientation to a Western European political system and market economy. Collectively, these policies also have resulted in increased foreign investment in the Czech economy, which, in 1997, amounted to \$1.3 billion, a 6% increase compared with that of 1996. According to Piskova (1998), 4 cement plants and Ceska rafinerska Praha a.s. (petroleum refinery) were reported to be among the 15 largest foreign investment projects in the Czech Republic through December 31, 1997.

Three constituent acts compose the country's mining law—Act no. 44/1988 Coll., on Protection and Use of Mineral Resources (the Mining Act), as amended; the Czech National Council Act No. 61/1988 Coll., on Mining Activity, Explosives, and State Mining Administration (Authority/Sedenka), as amended; and the Czech National Council Act no. 62/1988 Coll., on Geological Works, as amended. The Mining Act classifies minerals into two categories—"reserved" and "unreserved." Apart from market considerations, "reserved" mineral deposits were determined to be necessary for the development of the national economy. "Unreserved" deposits, in contrast, lack commercial and/or strategic values (Luks, 1997). Other provisions in the mining law address issues of licensing and federal and regional compliance with environmental regulations during the exploration and exploitation of a mineral deposit.

To meet the needs of a developing market economy, major changes in the Czech Republic's environmental policies were promulgated in 1997. On the basis of environmental principles that were approved by the Government in 1995, the new policy

was officially formulated in the environmental law of 1997, Act No. 125 1997. Also, four of the six underlying provisions of the new law were formally adopted at the same time as the new law on January 1, 1998. The new environmental law focused on reducing the volume of waste, discreet collection of waste by category, and recycling. The law has adopted the main provisions in EU and OECD regulations, as well as those of the Basel Convention. The new catalog of wastes is compatible with the European Catalogue of Wastes of the EU. Substances on the Government's red list can be imported only with the approval of the Ministry of the Environment. The four principal provisions are as follows (Mikulova, 1998):

- Ministry of the Environment Decree No. 338/97 of December 11, 1997, addresses issues pertaining to waste management. The decree stipulates terms and conditions for reducing landfilling waste charges, and requiring the maintenance of records and also sets limits for contained lead, cadmium, mercury, and chromium.
- Ministry of the Environment Decree No. 337/97 of December 11, 1997, contains the waste classification catalogue. The catalogue includes 668 types of classified waste, which are separated by N (hazardous) and O (other) designations. Codes for certain types of waste accord with those in Annexes I and II of the Basel Convention, as well as with those of the OECD. Also a list of hazardous wastes under a special regime includes 14 types of wastes that pose a serious environmental threat.
- Ministry of the Environment Decree No. 339/97 of December 11, 1997, deals with the evaluation of dangerous properties in waste. These include explosiveness, flammability, inclination to oxidize, thermal instability of organic peroxides, and inclination to release toxic gases when exposed to air or water.
- Ministry of the Environment Decree No. 340/97 of December 11, 1997, concerns terms and conditions for the operation of landfills—their clearance, closure, and reclamation, as well as requirements for opening new facilities.

In 1997, the output of most metals generally fell within the range of 1996 production. The Czech Republic met almost all its requirements for metals through imports of ores and concentrates and scrap and waste recycling. The iron and steel branch continued to play a dominant role in the country's metals sector. The production of pig iron, crude steel, and steel semimanufactures, compared with that of 1996, showed increases of about 6%, 4%, and 7%, respectively. In the industrial minerals sector, bentonite, diatomite, feldspar, and quartz registered increases of 86%, 20%, 15%, and 325%, respectively. During the same period, however, the production of cement, graphite, gypsum, nitrogen in ammonia, and sand and gravel for construction use declined by 3%, 17%, 46%, 18%, and 18%, respectively. The yearend results for mineral fuels also were

mixed. Bituminous and brown coal (including lignite) each declined by about 4% compared with their respective production levels in 1996. The production of natural gas declined by 19%, and that of crude petroleum showed an increase of about 3%.

The latest available foreign trade returns were for 1996 and 1995. Although the trade patterns of the Czech Republic have become greatly diversified in the ferrous metals sector since 1991, Russia and Ukraine continued to be the country's major suppliers of iron ore and concentrate. In 1996, Czech receipts of Russian and Ukrainian iron ore and concentrate accounted for 27% and 68%, respectively, of total imports. Also, Czech receipts of manganese ore and concentrate from Ukraine amounted to 82% of total imports.

With respect to nonferrous metals, Poland and Russia were the major suppliers of copper to Czech industry in 1996, accounting for about 27% and 32%, respectively, of total imports. Poland also accounted for 59% of the Czech Republic's import of zinc in 1996.

The Czech Republic conducted major import and export operations in the mineral fuels sector. In terms of volume, imports of bituminous coal amounted to more than 3.2 million metric tons (Mt). Exports, however, amounted to more than twice that amount. The major receivers of Czech bituminous and brown coal and coke in 1996 were Austria, Germany, and Slovakia. Russia continued to provide the Czech Republic with nearly all its needs for natural gas and petroleum, which, in 1996, accounted for 95% and 93%, respectively, of total imports.

The Czech Republic's metals sector produced a broad range of base metals and their semimanufactures from imported primary raw materials (ores and concentrates) and secondary materials (scrap). The metals sector represented approximately 10% of the value of the country's industrial production. The iron and steel branch alone generated between 8% and 9% of the industrial output. Employment in the metals sector generally accounts for 10% of the total employment in industry; employment in the iron and steel sector accounted for about 8% of the Czech Republic's industrial workforce. Material costs composed 60% of total production costs of the metals sector; labor costs composed 12% (Ambroz, 1997).

The iron and steel branch accounts for more than 75% of the sales of the country's metals sector and comprised 12 enterprises producing pig iron; crude steel; rolled materials; steel and cast iron pipes, including closed welded pipes; and various welded semimanufactures. The nonferrous metals branch comprised nine enterprises producing finished and semifinished commodities of aluminum, copper, and lead and their alloys. The nonferrous metals branch relied entirely on domestic and imported scrap and on imports of semimanufactured products as its raw materials base. Overall, scrap accounted for 40% to 50% of the country's total metal production. Employment in the metals sector (1995 data) amounted almost 128,000 employees (Urban, 1998).

Denationalization continued to be a hallmark of the metals sector in 1997. In the iron and steel branch, the coupon method of distributing state-owned assets was widely used. In this method, stock ownership coupons are distributed to the population on a per capita basis. The assets of KZ Beroun a.s. and ZDB Bohumin a.s. were fully privatized by the coupon method and subsequently became consolidated in large investment funds. A

partial coupon method of privatization, or distribution of state-owned assets, was used at the steel mills of Zelezarny Veseli a.s., Zelezarny Hradek u Rokycan a.s., Vakovny trub Chomutov a.s., and Trinecke zelezarny a.s. The shares of these steel companies that were not distributed by the coupon method were sold directly in a tender offered by the National Property Fund. Poldi United Steel Works in Kladno was denationalized through a tender that offered the majority of the enterprise's stock for open bidding. Nova Hut s.p. and Vitcovice a.s. underwent restructuring and modernization while under full state ownership. A portion of their stock was to be sold to new semiprivate managing companies that were to be included in the enterprises' existing management. Valcovny plechu Frydek-Mistek and Zelezarny Chomutov s.p. were being prepared for privatization during the year (Urban, 1998). By 1997, most of the enterprises in the nonferrous branch had been denationalized. The country's nonferrous metals industry produced a broad range of products principally consisting of aluminum, copper, lead, nickel, noble metals, tin, and zinc. Also, the branch's 10 major enterprises produce more than 90% of the country's output of nonferrous metals. (See table 2.)

The Czech Republic's foreign commercial activity has come to favor heavily countries in the EU with respect to exports and imports of iron and steel products, as well as nonmetallic minerals. In 1996, the EU accounted for 37.6% and 36.2% of the Czech Republic's total exports and imports, respectively. Slovakia was the second largest metals trade partner and accounted for 17.2% and 49.4% of the Czech Republic's total metal exports and imports, respectively.

The iron and steel industry played a key economic role, providing steel for the Czech Republic's considerable downstream machine building and metalworking industries.

The process of modernization and restructuring within this sector continued as Nova Hut s.p., one of the country's major producers of steel, obtained a loan, valued at \$250 million, from the International Finance Corporation. The loan was part of the total project cost of \$650 million to modernize fully the Nova Hut steelworks. About 13% of the investment was earmarked for improving environmental protection to bring the enterprise into compliance with the Czech Republic's clean air regulations, as well as with the environmental guidelines of the World Bank for Reconstruction and Development. The modernization of Nova Hut, which was in the process of being denationalized, will include increased operational efficiency, as well as a reduction of capacity by 1 Mt (Journal of Commerce, 1997). The construction of a minimill, valued at \$260 million, composed the principal element in Nova Hut's investment program. IFC Kaiser International, Inc., of the United States won a contract to build the new facility on a "lump sum" turnkey basis (Reuters Limited, 1997). The first stage of the project, completed in November, included the construction of a 205-metric-ton ladle facility and a 100- to 150-millimeter single-strand caster with capacity to produce 800,000 metric tons per year of steel; the caster could be expanded to include a second strand. The second stage of construction began in June 1997 with the installation of an equalizing furnace and a hot-strip rolling mill. The company's main goal was to achieve parity of technical standards with steel producers in the EU (Metal Bulletin, 1998b).

The Poldi United Steel Works in Kladno was declared bankrupt by the Commerce Court during the early part of 1997. The court planned to sell the steel mill's assets to pay off creditors (Legge, 1997). Moravia Steel, majority owner of the Trinecke Zelezarny a.s. steelworks, was awarded a lease in early 1998 to operate the rolling mill to produce bars and strips at Poldi's rolling facility in Drin (Metal Bulletin, 1998b).

The issue of whether or not geological exploration for gold could be prevented by regional authorities following approval from the central government's certifying bodies apparently, raised in 1996, was resolved in late 1997. The Ministry of the Environment ruled against local municipal authorities in Kasperske Hory and in favor of TVX Gold Inc. of Toronto, Canada, to proceed with exploration for gold in the Kasperske Hory region in the Sumava Mountains in the southern part of the country. Legal challenges to gold exploration in the region, however, continued from local residents and environmental groups. These challenges must be overcome if TVX is to proceed with its work. The permit, originally received in 1993, was extended to 1999. In early 1998, TVX indicated that its estimates of gold resources in Kasperske Hory were increased to 3 million ounces [about 93,000 kilograms (kg)] from 1 million ounces (31,000 kg) (Mining Journal, 1997).

Specialists from the Cement and Lime Production Association of the Czech Republic reportedly anticipated that the country's economic growth in 1997 would boost cement consumption to about 3.9 Mt. In addition, extensive repairs because of flooding in one-third of the country was another important factor for the expected increase in the consumption of cement and other construction materials. Repair of infrastructure, including commercial buildings, roads, railroads, and bridges, as well as residential facilities, could be extensive (Rock Products, 1997; Gypsum, Lime & Building Products, 1998).

Major events facing the country's cement and building materials branches, in 1998 and in later years, will center on the reduction and/or elimination of import duties on building materials (including cement) imported from the EU and in compliance with EU's ISO 9000 materials standards (Rock Products, 1997; Gypsum, Lime & Building Products, 1998).

With respect to the issue of import duties, these duties will be eliminated for many types of building materials beginning on January 1, 1998. The construction market is expected to continue growing for the foreseeable future, given the high nationwide demand for residential units, which will create a favorable market for domestic products and EU imports. There were 380 apartment units per 1,000 residents in the Czech republic, compared with about 500 per 1,000 in the EU. The issue of compliance is closely related to that concerning import duties; namely, the harmonizing of the Czech Republic's product standards with those of the EU, a process that was expected to be completed in the near future. The two issues are part of the Czech Republic's preparation for entry into the EU in 2002.

Companies in Belgium, Germany, and Switzerland have been major investors in the country's cement industry and its associated limestone and lime-producing components (Gypsum, Lime & Building Products, 1998).

In late 1997, an agreement on technical cooperation was reached between Keramost AS, the Czech Republic's leading

mine producer of clays and manufacturer of ceramics, and the Stephen Schmidt Group, a major German producer of ceramic clays. The agreement called for the pooling of know-how to develop ceramic and refractory products for the Central European and the East European markets. The agreement was expected to develop into a joint venture enterprise. The Stephen Schmidt Group has been an importer of clays and blended clays from Keramost AS (Industrial Minerals, 1997).

Following a strong competitive period in 1993-94, five joint stock companies came into existence in the coal industry while smaller, less competitive mining enterprises faced closure. Ostravsko-karvinske doly Ostrava, Ceskomoravske doly Kladno, Mostecka uhelna spolecnost Most, Severoceske doly Chomutov, and Sokolovska uhelna Sokolov composed the new structure of the Czech Republic's bituminous and brown coal mining industry. The mining of lignite was continued under the auspices of Lignit Hodonin s.r.o. Contraction of the coal mining sector continued through the end of 1997. The most significant decline in coal production, however, occurred in 1995-96; a number of mines were closed, and the rise in financial assistance by the Government to the affected areas was steep. About 100,000 employees have been displaced during the coal industry's contraction, but most were able to be reemployed by the private sector, largely in enterprises with close ties to the coal sector (Doruska, 1997).

The Czech Republic's minerals sector will continue to rely heavily on imports of metal ores and concentrate and such minerals fuels as natural gas and petroleum, largely from the republics of the former Soviet Union (mainly Russia and Ukraine). Additional rationalization within the iron and steel sector is to be expected prior to the country's entry into the EU.

## References Cited

- Ambroz, Petr, 1997, The Czech steel industry: Czech Business and Trade, no. 8, p. 35-36.
- Doruska, Josef, 1997, The current position and the future of Czech coal mining: Czech Business and Trade, November, p. 7.
- Gypsum, Lime & Building Products, 1998, Czech revival—Materials and products in the Czech building market: International Cement Review, April, pp. 14-23.
- Industrial Minerals, 1997, Stephen Schmidt & Keramost clays venture: Industrial Minerals, December, p. 11.
- Journal of Commerce, 1997, IFC backs loans for Czech steel firm Nova Hut: Journal of Commerce, July 1, p. 11.
- Legge, Michele, 1997, Poldi Kladno runs aground: Prague Post, March 12-18, p. 1.
- Luks, Josef, 1997, Current mining law in the Czech Republic: Czech Business and Trade, no. 11, pp. 35-36.
- Metal Bulletin, 1998a, Czech mill aims to meet EU standards: Metal Bulletin, June 4, no. 8283, p. 22.
- 1998b, Moravia Steel leases rolling mill at bankrupt Poldi works: Metal Bulletin, no. 8279, May 21, p. 24.
- Mikulova, Vlastimila, 1998, Waste management (Czech Industry, No. 1, supplement): Czech Business and Trade, no. 3, pp. 4-5.
- Mining Journal, 1997, Czech success for TVX: Mining Journal, v. 329, no. 8445, September 5, p. 192.
- Piskova, Hana, 1998, Influx of investments, preparation of fundamental measures for collective investment conditions improvement: Czech Business and Trade, no. 5, p. 10-11.
- Reuters Limited, 1997, IFC Kaiser in \$160mln Czech mini-mill deal: Reuters Limited, June 27, 2 p.
- Rock Products, 1997, Czech Republic: Rock Products (Cement Edition), January, pp. 21-22.
- Sujan, Ivan and Sujanova, Milota, 1998, Short-term forecast of macroeconomic development in the Czech Republic: Czech Business and Trade, no. 8, p. 6-8.
- Urban, Zdenek, 1998, Metallurgy and metal processing in the Czech Republic: Czech Business and Trade, no. 1, p. 15-16.

TABLE 1  
CZECH REPUBLIC: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1993	1994	1995	1996	1997e/
<b>METALS</b>						
Aluminum, secondary		30,000 e/	48,339	48,000	45,000	45,000
Copper:						
Metal:						
Refined, primary 2/		200	--	--	--	--
Refined, secondary		20,000 e/	23,323	20,000	20,000	20,000
Gold metal	kilograms	512	75	--	--	--
Iron and steel:						
Iron ore:						
Gross weight	thousand tons	-- 3/	--	36 r/	32 r/	28 3/
Fe content		--	--	10,000 e/	10,000 e/	10,000
Metal:						
Pig iron	thousand tons	4,668	5,287	5,289	4,898	5,195 3/
Ferrous alloys, total electric furnace e/	do.	1	1	1	1	1
Steel, crude	do.	6,732	7,075	7,189	6,257	6,495 3/
Semimanufactures	do.	7,000	6,445	8,851	9,368	10,017 3/
Lead:						
Mine output, Pb content		100	--	--	--	--
Concentrate, gross weight		2,000	--	--	--	--
Pb content of concentrate		1,000	500	--	--	--
Metal, secondary		20,000	20,000	20,000	20,000	20,000
Silver	kilograms	500	100	--	--	--
Uranium, mine output, U content		1,018	537	611	589	624 3/
Zinc: e/						
Mine output:						
Ore (Pb-Zn), gross weight		250,000	15,000	--	--	--
Zn content of ore		1,500	100	--	--	--
Concentrate, gross weight		9,000	9,000	--	--	--
Zn content		4,000	4,000	--	--	--
Metal, secondary		1,000	1,000	1,000	1,000	1,000
<b>INDUSTRIAL MINERALS</b>						
Cement, hydraulic	thousand tons	5,393	5,303	4,825	5,015 r/	4,877 3/
Clays:						
Bentonite	do.	63	65	54	59	110 3/
Kaolin	do.	2,336	2,706	2,800	2,798	2,982 3/
Other	do.	1,018	823	915	1,060	1,200 3/
Diatomite		39,000	40,000	29,000	35,000	42,000 3/
Diamond, synthetic e/	carats	5,000	5,000	5,000	5,000	5,000
Fertilizer, manufactured:						
Nitrogenous, N content		180,000 e/	234,000	264,000	252,600	250,000
Phosphatic, P2O5 content		40,000 e/	13,700	14,000	415,500	400,000
Potassic, K2O content		20,000 e/	21,900	22,000	25,000	20,000
Mixed		50,000 e/	85,000	117,000	552,300	500,000
Feldspar		203,000	170,000	183,000	211,000	243,000 3/
Fluorspar		22,000	10,000	-- 3/	--	--
Gemstones, crude, pyrope-bearing rock		34,000	33,000	24,000	39,000	49,000 3/
Graphite		27,000	25,000	27,000	30,000	25,000 3/
Gypsum and anhydrite, crude		560,000	591,000	542,000	443,000	241,000 3/
Lime, hydrated and quicklime	thousand tons	1,147	1,206	1,186	1,176	1,217 3/
Mica		--	--	3,803	--	--
Nitrogen, N content of ammonia e/		200,000	200,000	254,000 r/	304,100 r/	250,700 3/
Quartz		23,000	2,000	3,000	4,000	13,000 3/
Salt e/		180,000	180,000	180,000	180,000	100,000
Sand and gravel:						
Common sand and gravel	thousand cubic meters	12,245	11,465	10,525	12,350 r/	10,181 3/
Foundry sand	thousand tons	954	1,093	964	1,079	769 3/
Glass sand	do.	781	862	1,026	1,130	994 3/

See footnotes at end of table.

TABLE 1--Continued  
CZECH REPUBLIC: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997 <sup>e/</sup>	
<b>INDUSTRIAL MINERALS--Continued</b>						
<b>Stone:</b>						
Basalt (for casting)	134,000	85,000	108,000	90,000	103,000 3/	
Dimension stone	thousand cubic meters	187,000	225,000	210,000	190,000	200,000
Limestone and other calcareous stones	thousand tons	10,498	10,205	10,092	10,610	11,304 3/
Building Stone	thousand cubic meters	8,077	8,290	9,021	9,891	11,178 3/
Sulfur, byproducts, all sources <sup>e/</sup>		20,000	20,000	20,000	40,000 <sup>r/</sup>	40,000
Sulfuric acid <sup>e/</sup>		300,000	337,000 3/	340,000 3/	350,000	350,000
Wollastonite		--	--	800	800	-- 3/
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
<b>Coal:</b>						
Bituminous	thousand tons	23,862	20,910	21,309	21,784	20,847 3/
Brown and lignite	do.	68,154	60,728	58,773	60,441	58,142 3/
Coke	do.	5,236	5,125	4,945	4,836	2,915 3/
Fuel briquets from brown coal	do.	800	499	616	600	600
<b>Gas:</b>						
Manufactured, all types	million cubic meters	5,000 <sup>e/</sup>	1,136	791	800	800
Natural, marketed <sup>4/</sup>	do.	106	154	165	146	118 3/
<b>Petroleum:</b>						
<b>Crude:</b>						
As reported	thousand tons	107	131	149	155	159 3/
Converted	thousand 42-gallon barrels	550	889	1,010	1,052	1,080
Refinery products <sup>e/</sup>	do.	70,000	40,000	35,000	27,000	27,000

<sup>e/</sup> Estimated. <sup>r/</sup> Revised.

1/ Table includes data available through November 1998. In addition to the commodities listed, arsenic, diatomite, dolomite, illite, sodium compounds, sulfuric acid, talc, and zeolite are produced, but information is inadequate to make reliable estimates of output levels.

2/ Produced as a byproduct from noncopper ores.

3/ Reported figure.

4/ Includes gas produced from coal mines. Gross output of natural gas is not reported, but is believed to exceed reported marketed output by an inconsequential amount.

TABLE 2  
THE CZECH REPUBLIC: EXPORTS OF SELECTED MINERAL COMMODITIES

(Metric tons, unless otherwise specified)

Commodity	Quantity		Major Receiving Countries
	Year		
	1995	1996	
<b>METALS</b>			
Copper, Cu cont. ore and conc.	15	163	NA.
Gold (kilograms)	2,329	4,693	NA.
<b>Iron and Steel:</b>			
Rolled steel	681,000	668,000	
	194,000	190,000	Germany.
	110,000	107,000	Slovakia.
	25,000	62,000	United States.
	69,000	73,000	Slovenia.
	31,000	29,000	Austria.
	42,000	21,000	Poland.
Tubes and pipe	553,000	489,000	
	96,000	120,000	Germany.
	170,000	92,000	Slovakia.
	31,000	23,000	Austria.
	11,000	14,000	Italy.
	2,000	2,000	Hungary.
	11,000	21,000	India.
	22,000	27,000	Poland.
Steel semimanufactures	292,000	289,000	
	110,000	32,000	Germany.
	42,000	135,000	Poland.
	42,000	25,000	Croatia.
	7,000	8,000	Slovakia.
	14,000	23,000	Hungary.
	2,000	--	Austria.
Scrap	805,000	906,000	
	518,000	386,000	Austria.
	69,000	300,000	Germany.
	53,000	92,000	Italy.
	101,000	76,000	Slovenia.
	55,000	34,000	Slovakia.
	7,000	10,000	Switzerland.
	--	4,000	France.
Lead	110	--	NA.
Zinc	1,800	--	NA.
<b>INDUSTRIAL MINERALS</b>			
Bentonite	18,048	21,633	NA.
Cement	1,463,000	1,417,000	
	1,256,000	1,206,000	Germany.
	146,000	183,000	Austria.
	60,000	23,000	Slovakia.
	--	1,000	Poland.
Clay, refractory and other	199,891	98,397	NA.
Diatomite	7,714	7,359	NA.
Feldspar	74,181	67,515	NA.
Fluorspar	26,011	17,172	NA.
Graphite	2,691	2,722	NA.
Gypsum	101,016	86,176	NA.
Limestone	72,000	88,000	NA.
Kaolin	383,498	361,858	NA.

TABLE 2--Continued  
THE CZECH REPUBLIC: EXPORTS OF SELECTED MINERAL COMMODITIES

(Metric tons, unless otherwise specified)

Commodity	Quantity		Major Receiving Countries
	Year		
	1995	1996	
<b>INDUSTRIAL MINERALS, continued:</b>			
Lime	169,000	199,000	NA.
	147,000	171,000	Germany.
	21,000	19,000	Austria.
	1,000	8,000	Slovakia.
Mica	2,000	40,000	NA.
<b>Sand and Gravel:</b>			
sand	1,039,000	770,000	
	576,000	292,000	Germany.
	138,000	141,000	Slovakia.
	254,000	258,000	Austria.
	54,000	30,000	Slovenia.
	15,000	2,000	Poland.
Gravel	1,265,000	1,104,000	
	1,025,000	902,000	Germany.
	202,000	161,000	Austria.
	29,000	29,000	Slovakia.
	4,000	8,000	Poland.
<b>Silica:</b>			
Quartz	191	270	NA.
Sand, glass and foundry	661,142	692,336	NA.
Stone, dimension	266,000	188,000	NA.
<b>MINERAL FUELS</b>			
<b>Coal:</b>			
Bituminous	7,015,000	6,738,000	
	1,910,000	1,654,000	Slovakia.
	2,051,000	2,133,000	Austria.
	981,000	909,000	Hungary.
	927,000	767,000	Germany.
	1,105,000	1,200,000	Poland.
	18,000	61,000	Romania.
Brown and lignite	6,898,000	6,173,000	
	2,274,000	2,331,000	Germany.
	4,098,000	3,275,000	Slovakia.
	294,000	345,000	Hungary.
	146,000	112,000	Croatia.
	42,000	37,000	Slovenia.
Coke and semi-coke	1,406,000	1,330,000	
	415,000	373,000	Austria.
	406,000	482,000	Germany.
	172,000	179,000	Slovakia.
	141,000	101,000	Hungary.
	101,000	110,000	Finland.
	92,000	--	Belgium.
Natural gas, million cubic meters	2	1	NA.
Petroleum	108,000	8,484,000	NA.

Sources: Mineral Commodity Summaries of the Czech Republic 1997, 166 p.; Statisticka Rocenka Ceske Republiky (Statistical Yearbook of the Czech Republic) 1997, 712 p.

TABLE 3  
THE CZECH REPUBLIC: IMPORTS OF SELECTED MINERAL COMMODITIES

(Metric tons, unless otherwise specified)

Commodity	Quantity		Major Exporting Countries
	1995	1996	
<b>METALS</b>			
Copper:			
Ore and concentrate (Cu)	15	163	NA.
Metal, refined	15,137	19,186	
	3,910	3,821	Germany.
	2,998	5,170	Poland.
	2,763	736	Slovakia.
	568	1,712	Austria.
	312	183	Netherlands.
	3,252	6,109	Russia.
	197	411	Bulgaria.
Gold (kilograms)	2,463	3,388	NA.
Iron and steel:			
Ore and concentrate	9,146,000	8,255,000	
	3,388,000	2,219,000	Russia.
	5,235,000	5,583,000	Ukraine.
	111,000	87,000	Malta.
	13,000	7,000	Switzerland.
	10,000	5,000	Poland.
	106,000	5,000	Brazil.
Pig iron	189,000	139,000	
	91,000	69,000	Slovakia.
	20,000	20,000	Norway.
	46,000	16,000	Russia.
	3,000	2,000	Germany.
	15,000	11,000	Ukraine.
	1,000	1,000	Austria.
	1,000	1,000	Switzerland
Rolled steel	712,000	779,000	
	593,000	569,000	Slovakia.
	19,000	38,000	Austria.
	33,000	81,000	Germany.
	6,000	20,000	Hungary.
	27,000	28,000	Ukraine.
	1,000	1,000	Slovenia.
	2,000	2,000	France.
Manganese, ore and concentrate	47,253	18,515	
	32,796	15,135	Ukraine.
	906	915	Netherlands.
	783	521	Greece.
	6,974	515	Slovakia.
	592	693	Australia.
Nickel	34	30	NA.
Zinc, metal	17,959	17,125	
	12,029	10,023	Poland.
	1,177	1,606	Bulgaria.
	781	612	Germany.
	1,667	2,282	Belgium.
	387	289	Slovakia.
	448	52	Austria.
	857	488	Finland.

TABLE 3--Continued  
THE CZECH REPUBLIC: IMPORTS OF SELECTED MINERAL COMMODITIES

(Metric tons, unless otherwise specified)

Commodity	Quantity		Major Exporting Countries
	Year		
	1995	1996	
<b>INDUSTRIAL MINERALS</b>			
Barite	39,964	14,692	NA.
Bentonite	3,065	5,394	NA.
Clay, refractory and other	7,001	8,513	NA.
Diatomite	7,714	7,359	NA.
Feldspar	620	3,923	NA.
Fluorspar	67,720	42,437	NA.
Graphite	977	1,176	NA.
Gypsum	7,622	22,088	NA.
Mica	404,000	533,000	NA.
Limestone	623,000	512,000	NA.
<b>Silica:</b>			
Quartz	8,781	21,339	NA.
Sand, glass and foundry	159,946	127,952	NA.
Glass, sheet (square meters)	5,139,000	7,981,000	
	2,693,000	4,447,000	Germany.
	1,427,000	1,418,000	Belgium.
	60,000	18,000	France.
	12,000	5,000	Austria.
	443,000	1,343,000	Poland.
	97,000	323,000	Hungary.
<b>Stone:</b>			
Construction	377,000	260,000	NA.
Dimension	623,000	512,000	NA.
<b>Sulfur</b>			
	113,402	105,838	
	110,514	86,327	Poland.
	535	19,316	Germany.
	2,353	122	Slovakia.
<b>MINERAL FUELS</b>			
<b>Coal:</b>			
Bituminous	2,676,000	3,211,000	NA.
Brown and lignite	--	5,000	NA.
<b>Natural gas, thousand cubic meters</b>			
	8,049	9,500	
	8,033	9,060	Russia.
<b>Petroleum</b>			
	7,052,000	7,671,000	
	7,027,000	7,126,000	Russia.

Sources: Mineral Commodity Summaries of the Czech Republic, 1997, 166 p.; Statistická Rocenka Ceske Republiky (Statistical Yearbook of the Czech Republic), 1997, 712 p.

TABLE 4  
CZECH REPUBLIC: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities 1/	Annual capacity
Bentonite	Keramost a.s.	Most	150
Cement	Bohemia, Cizkovice, Hranice, Karlov Dvor, Lochkov, Pracovice, and Velary	Bohemia	3,500
Do.	Bystre, Malomerice, Mokra, Ostrava-Kunice, and Zahorie	Moravia	2,800
Clay, koalin	Mines in Karlovy vary area	West Bohemia	450
Do.	Mines in Plzen area	Central Bohemia	150
Coal:			
Bituminous	Mines in OKD coal basin	Ostrava-Karvina, north Moravia	22,100
Do.	Mines in KD coal basin	Kladno, central Bohemia	3,000
Brown	SHD administration	Most, northwest Bohemia	61,000
Do.	HDB administration	Sokolov, west Bohemia	17,000
Lignite	JLD administration	Hodonin, south Moravia	5,000
Copper, ore	Zlate Hory	North Moravia	300
Graphite	Grafit a.s.	Netolice	35
	Rudne doly Stare Mesto-F s.r.o.	Stare Mesto	
Kaolin	Zapadoceske Kaolinove a Keramicke Zavody a.s.	Horni Briza	190
Mica	GARMICA s.r.o.	Netolice	5
Lead-zinc, ore	Horni Benesov and Zlate Hory	do.	400
Lead, metal, secondary, Refined	Kovohute Pribram	Pribram	26
Natural gas billion cubic meters	Gasfields around Hodonin	South Moravia	25
Petroleum:			
Crude	Oilfields around Hodonin	do.	140
Refinery	Kolin, Kralupy, Pardubice, and Zaluzi	Bohemia	NA
Steel, crude	Nova Hut sp (Ostrava)	Kunice-Ostrava	3,800
Do.	Zelezarne Vitkovice	Vitkovice-Ostrava	900
Do.	Trinecke Zelezarny (Trinecke Iron and Steel Works)	Trinec	3,000
Do.	Poldi United Steel Works	Kladno-Prague	1,700
Do.	Zelezarny Bila Cerkev	Hradek-Rokycany	300
Do.	Zelezarny Veseli	Veseli and Moravou	300
Do.	Zelezarny Chomutov sp	Chomutov	350
Do.	Bohumin Iron and Steel Works	Bohumin	400
Titanium dioxide	Precheza A.S	Precheza	25
Uranium	DIAMO s.p.	Straz pod Ralskem	2

NA Not available.

1/ Names and locations of mines and crude oil refineries are identical.