

THE MINERAL INDUSTRY OF

ITALY

By Harold R. Newman

Italy has been a significant processor of imported raw materials, as well as a significant consumer and exporter of mineral and metal semimanufactured and finished products. It was the world's largest producer of pumice and related materials, producing almost one-half of the world's output, as well as the world's largest feldspar producer, producing about one-fourth of the world's output. The country was the world's eighth and ninth largest producer of crude steel and cement, respectively. Italy was also an important producer of dimension stone and marble.

Italy's gross domestic product, adjusted for inflation, grew at a rate of 1.0% in 1997, up from the 0.7% rate of 1996, as the Italian Government continued to exercise budget austerity and to reduce its role in the economy through privatization of its assets. This included the privatization of Ilva, a major steel producer (U.S. Department of State, Government role in the economy, accessed January 13, 1998, at URL http://www.state.gov/www/about_state/business/com_guides/1997/europe_canada/italy97.html).

Growth in Italy's mining and extractive industries was minimal in 1997. Among the metallic ores, lead was mined, although production was minimal and decreasing. Most of the output comes from the Silius Mine in Sardinia. A small output of zinc ore comes from the safety and environmental recovery work in the remaining sites in the Iglesias area of Sardinia.

Industrial mineral production remained the most important sector with overall output remaining about the same as that of 1996. Domestic production of natural gas remained static while that of petroleum decreased slightly. (*See table 1.*)

Table 2 lists the relation of selected classes of mineral commodities on Italy's balance of payments position in relation to the European Union (EU) and the world.

Although Italy has significant trade in mineral commodities with EU countries and the rest of the world, it is principally a net importer of mineral commodities. Tables 3 and 4 list exports, including reexports, and imports of selected mineral commodities, respectively, in 1996, the latest date complete data were available.

Private and public companies own facilities for the mining and processing of minerals and mineral products. Some enterprises were under state control for economic reasons and to maintain employment. (*See table 5.*)

Alumina in Italy was produced only by Eurallumina S.p.A. at Portoscuso, Sardinia. The company was owned jointly by Alumix S.p.A. (52.1%) and by Australian interests. Almost all alumina in Italy was produced from imported bauxite, most of which was obtained from Australia and Guinea.

Alumix, part of the state holding company Eute Fiere Italiane Atacchine, was the only primary aluminum producer in Italy. As part of the Government's privatization efforts, the Aluminum Company of America (Alcoa) acquired the principal operating

assets of Alumix in March. The primary aluminum assets, operated by Alcoa Italia S.p.A., included two smelters with a combined capacity of 180,000 metric tons per year (t/yr) at Porto Vesme and Fusina (Aluminum Company of America, 1997).

Other assets acquired in the transaction were a rolling mill with a capacity of 140,000 t/yr at Fusina; four aluminum extrusion plants with a combined capacity of 70,000 t/yr at Bolzano, Fossanova, Feltre, and Iglesias; an extrusion die shop at Mori, a network of six metal distribution centers in Italy; three administrative centers, and sales offices in France, Germany, Spain, and the United Kingdom (Aluminum Company of America, (untitled data), accessed February 4, 1998, on the World Wide Web at URL <http://www.shareholder.com/alcoa/news/>). Details on output and/or capacity were not readily available on Italy's several secondary aluminum producers.

Italy's refined copper production has averaged about 89,000 t/yr between 1993 and 1997. Enirisorse S.p.A., the largest producer of refined copper in Italy, accounted for about one-half of Italy's copper output. There are no significant copper mines in Italy, and imports of ore are small. Imported scrap, ashes, slag, and other residues were the major sources of the copper produced in Italy.

Gold Mines of Sardinia Ltd. (GMS), a joint venture of Gold Mines of Sardinia (70%) and Progemisa S.p.A. (30%), had completed construction of the main carbon-in-leach circuit and associated mill to recover gold and copper at its Furtei project, north of Cagliari. Furtei was the first gold mine of GMS and the first gold mine in Italy. Initial production was from a heap leaching pad. GMS poured its first bar of gold [23 kilograms (kg)] in May 1997. This was also the first pouring of a bar of gold produced by mining in modern Italian history. Some 1,400 kg of gold are expected to be recovered from the oxidized ores and an additional 700 kg of gold and 2,500 metric tons of copper in concentrates from the sulfide ores (Gold Mines of Sardinia Ltd., 1997).

Italy imported most of its supplies of lead and zinc concentrates, with Canada being the largest single source for these commodities. (*See table 4.*) Within Italy, most lead and zinc concentrate production came from Enirisorse's mines in Sardinia. Enirisorse's lead and zinc smelters were also on Sardinia, and the zinc electrolytic plant was near Venice. The Porto Vesme smelter on Sardinia produced primary lead and zinc metal and cadmium, and the San Gavino complex, near Porto Vesme, produced refined lead and byproducts, such as bismuth, gold, and silver.

Enirisorse was negotiating the sale of its Porto Vesme zinc smelter and its San Gavino lead smelter with Glencor of Switzerland. Glencor was selected after submitting the best offer in a privatization tender (Mining Journal, 1997).

Italy was the second largest producer of crude steel in the EU after Germany. About 60% of steel in Italy was produced by electric arc furnaces, and 40% was produced by basic oxygen furnaces. In Italy, all the steel was produced by private companies following the completion of a privatization program by the Government between 1992 and 1997 (Scruffier, 1997).

Iron ore was imported in 1997, Brazil supplied 50%, Mauritania 19%, and Australia 8%. (See table 4.) The country's steel industry also imported about 5 million metric tons (Mt) of scrap, mostly from Austria, France, and Germany.

Italy was the second largest cement producer in the EU, following Germany. Italcementi-Fabbriche Riunite Cemento S.p.A. was the largest of Italy's 52 cement producers, with about 40% of the Italian market. (See table 5.) Exports, however, were up (International Bulk Journal, 1997). Italy was a net exporter of cement. (See table 3.)

Most of Italy's bentonite ores were mined on Sardinia; processing plants were on the mainland. More than one-half of the country's bentonite production came from Industria Chimica Carlo Laviosa S.p.A. The company's main mining activity was in the Pedra de Fogu and the Puntuova areas of Sardinia. Production from these areas fed the processing plants at Livorno, Oristano, and Sardinia.

Montmorillonite clay (white bentonite) was quarried at S'Aliderru in northwestern Sardinia. Caffaro S.p.A., operating in Sardinia, was Italy's only producer of acid-activated montmorillonite. The clay was shipped to the company's plant at Porto Marghera near Venice. Several small bentonite producers operated on the mainland at Foggia, Pietracuta di S. Leo, and Puglia.

Italy was the world's leading producer of feldspar and feldspathic minerals. These materials are important constituents of ceramic tile. Italy accounted for 30% of world tile output and more than 50% of the total tile produced in the EU. The more than 350 small companies producing tiles employed about 30,000 workers. Major sources for clay imports were, in declining order of importance, the United Kingdom, Germany, and the United States.

Italian marble occurs in many localities from the Alps to Sicily and is quarried at hundreds of operations. The most important geographic area for producing white marble is in the Apuan Alps in Tuscany, particularly near the town of Carrara. The Lazio region of Lombardy, the Po Valley, Puglia, Sicily, and Venice are important colored-marble-producing areas. About one-half of production was in block form. About one-half of the total production was exported. Other major marble-producing areas include the Valle di Susa, near Turin in the northwestern Italian Alps; the valley of the Po River in the region of Lombardy; the Verona-Vicenza area of Venice; and the vicinity of Benevento, northeast of Naples in southern Italy. Relative to consumption rates, resources are considered to be extensive.

Production of potash continued to remain suspended in 1997. The main reasons were the result of a severe drought that has restricted the availability of process water to the plants and the inability to remove waste material and mine water owing to environmental and ecological concerns. In Sicily, the three underground mines that were previously operating at Pasquasia, Racalmuto, and Realmonte remained on standby.

Italy was the world's leading producer of pumice and pozzolan. The Mediterranean island of Lipari, 40 kilometers (km) off the northern coast of Sicily, was the center of the Italian pumice industry, where two companies, Pumex S.p.A. and Sta Siciliana per l'Industria ed il Commercio della Pomice di Lipari S.p.A. (Italpomice S.p.A.), quarried pumice for world markets. Pumex, with about a 650,000-t/yr capacity, was Italy's largest pumice producer. The company quarried the Mount Pelato deposit, and Italpomice produced about 70,000 t/yr of pumice at Acqualcalda.

Talco e Grafite Val Chisone S.p.A. operated two underground talc mines at Pinerolo near Turin. The white talc, mined from metamorphic rocks, has been of very high quality. Talco owned a 10% interest in an open pit mine at Orani, Sardinia, with the other 90% belonging to the Sardinian Mining Board. Talco also operated an underground mine at Fontane. Industria Mineraria Italiana S.p.A. operated mines at Largone and Predaccia, Val Malenco, northern Italy. Talco Sarda S.p.A. operated a mine at Orani.

Italy was heavily dependent on imported coal. Most imports were, in declining order of importance, from Russia, South Africa, the United States, and China. Lignite coal was produced by Ente Nazionale per l'Energia Elettrica (ENEL). Extraction problems and environmental reasons caused a further reduction in output from ENEL's Santa Barbara mine in Tuscany, the only lignite mine in Italy.

Geothermal energy was produced in the Larderello, the Monte Amiata, and the Travale areas in Tuscany. Exploration using various geologic techniques have been actively pursued in these areas along with research for power stations exploiting geothermal energy.

More than 100 natural gasfields were in operation; 70% was located offshore. About 35% of Italy's natural gas demand was met from domestic production. Algeria supplied more than 25% of Italy's natural gas needs through a 1,070-km-long natural gas pipeline from Algeria to Mazzara del Vallo in Sicily. Former Soviet Union countries supplied about 25% of the country's natural gas through a pipeline across Austria and the Czech Republic.

Despite increasing domestic production of crude oil, Italy was almost totally dependent on imported crude oil for its needs. Some 75 Mt of crude oil were imported. The major sources were, in declining order of importance, Libya, Iran, and Saudi Arabia.

The Government was hoping this situation would change with the discovery of the Agri oilfield in the Val d'Agri area of southern Italy by Agip S.p.A. in September 1997. The Agri field was believed to be the largest in the European continent with estimated reserves of 622 million barrels. So far, four producing wells have been developed. Agip was planning to invest about \$1.4 billion in developing the field (Alexander's Gas and Oil Connections, October 27, 1997, Agip finds very large oilfield in South Italy, accessed April 21, 1998, at URL <http://www.gasandoil.com/goc/discover/dix74414.htm>).

Public and private spending on environmental controls is expected to grow, particularly in the areas of water treatment, transportation equipment and services, disposal of urban and industrial waste, remediation of soil contamination, and control of emissions.

Mining of metallic ores is expected to remain at its reduced

levels because of ore depletion. The metals-processing industry, based primarily on imported stocks, is expected to continue to play an important role in Italy's economy. Italy is expected to remain a large producer of crude steel and a significant producer of secondary aluminum and refined copper, lead, and zinc in the EU.

The industrial minerals quarrying industry and preparation plants are expected to remain significant, especially in the production of barite, cement, clays, fluorspar, marble, and talc. Italy is expected to continue to be the world's leading producer of feldspar, feldspathic minerals, and pumice. The ceramics sector is expected to be important, particularly regarding exports.

Domestic output of natural gas, crude petroleum, and petroleum refinery products is expected to grow, although Italy will continue to depend on imported coal, gas, and petroleum for most of its needs.

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Major Sources of Information

- Associazione Mineraria Italiana
Via delle Madonne, 20
00197 Rome, Italy
- Ministero dell'Industria del Commercio e dell'Artigianato
Direzione Generale delle Miniere
Via Molise, 2
00184 Rome, Italy

TABLE 1
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997 e/
METALS					
Aluminum:					
Bauxite, gross weight	90,100	23,400	11,200	--	--
Alumina, calcined basis	549,100	556,928	857,000	881,000	850,000
Metal:					
Primary	155,700	175,631	197,750	184,377 r/	187,719 2/
Secondary	346,100	375,500	412,300	376,600 r/	442,900 2/
Antimony, oxides, gross weight 3/	942	900	757	800	800
Bismuth metal	15	5	5 e/	5	5
Cadmium metal, smelter	517	475	308	296 r/	287 2/
Copper, metal, refined, all kinds e/	90,300	84,000	98,000	85,800 r/ 2/	86,000
Iron and steel, metal:					
Pig iron	thousand tons	11,066	11,157	11,684	10,427
Ferrous alloys:					
Blast furnace, silicon pig iron e/	500	500	--	--	--
Electric furnace:					
Ferromanganese	53,504	22,650	51,017	29,915	11,295 2/
Ferrosilicon	17,000	16,000	20,216	25,143	16,000
Silicomanganese	3,350	--	--	11,741	12,000
Silicon metal	50,000 e/	50,000 e/	103,961	100,353	100,000
Other e/	--	--	15,006	14,240	15,000
Grand total e/	12,000	10,000	10,000	10,000	10,000
Steel, crude	thousand tons	136,354	99,150	200,200	191,392
Semimanufactures	do.	25,701	26,114	27,766	23,922
		21,760	22,775	22,000 e/	23,048
Lead:					
Mine output, Pb content	7,404	13,902	15,142 r/	14,070 r/	11,792 2/
Metal, refined:					
Primary e/	89,900	91,700 r/	84,900	65,900 r/ 2/	65,700 2/
Secondary e/	92,900	114,200 r/	95,500	143,900 r/ 2/	145,900 2/
Total e/	182,800	205,900 r/	180,400	209,800 r/	211,600 2/
Manganese, mine output:					
Gross weight	8,198	8,200	6,548	5,829	6,000
Mn content	2,075	1,868	1,625	1,450	1,490
Silver metal	kilograms	9,340	12,080	13,900	9,100 r/ e/
Zinc:					
Mine output, Zn content e/	5,600	22,906	24,500	11,055 r/ 2/	8,470 2/
Metal, primary	253,600	255,900	259,600 r/ 2/	269,000 r/	268,300 2/
INDUSTRIAL MINERALS					
Barite	52,697	57,856	44,000	80,463	26,300 2/
Bromine e/	300	300	300	300	300
Cement, hydraulic	thousand tons	33,771 r/	32,713 r/	33,715 r/	33,327 r/
Clays, crude:					
Bentonite	do.	327	386	591	475
Refractory excluding kaolinitic earth	do.	434	619	730 e/	784
Fuller's earth	do.	20	24	34	26
Kaolin	do.	76	74	88	120
Kaolinitic earth	do.	15	7	10 e/	9
Diatomite e/	25,000	25,000	25,000	25,000	25,000
Feldspar	thousand tons	1,534	1,807	2,199	2,310
Fluorspar:					
Acid-grade	58,000	52,630	91,529	103,527	105,800 2/
Metallurgical-grade	25,000	15,312	33,140	23,000	20,000
Total	83,000	67,942	124,669	126,527	125,800

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997 e/
INDUSTRIAL MINERALS--Continued					
Gypsum thousand tons	1,200	1,361	2,362	2,000	2,000
Lime, hydrated, hydraulic and quicklime e/ do.	3,600	3,500	3,500	3,500	3,500
Nitrogen, N content of ammonia do.	729	504	487 r/	397 r/	445 2/
Perlite e/	65,000	65,000	60,000	60,000	60,000
Pigments, mineral, iron oxides, natural e/	700	600	600	500	500
Potash, crude salts:					
Gross weight thousand tons	200	--	--	--	--
K ₂ O equivalent do.	24	--	--	--	--
Marketable product, K ₂ O equivalent do.	20	--	--	--	--
Pumice and related materials: e/					
Pumice and pumiceous lapilli do.	700	700	650	600	600
Pozzolan do.	4,500	4,500	4,000	4,000	4,000
Pyrite, all types, gross weight do.	377	258	--	--	--
Salt:					
Marine, crude e/ 4/ do.	580	600	600	600 r/ e/	600
Rock and brine do.	3,150	3,353	2,952	2,941 r/	2,910 2/
Sand and gravel: e/					
Volcanic sand do.	100	100	100	100	100
Silica sand do.	3,100	2,700	3,000	2,950	3,000
Other sand and gravel	100,000	100,000	87,000	90,000	100,000
Sodium compounds: e/					
Soda ash thousand tons	1,056	1,050	1,070	1,100	1,000
Sodium sulfate do.	125	125	125	125	125
Stone: e/ 5/					
Calcareous:					
Alabaster do.	20	25	25	25	25
Marble in blocks:					
White do.	110	110	100	103	100
Colored do.	2,900	3,000	3,000	3,000	3,000
Travertine do.	1,000	1,000	2,000	2,610	2,500
Other:					
Granite do.	1,000	1,000	1,000	67	100
Sandstone do.	1,800	1,800	1,800	1,800	1,800
Slate do.	120	120	120	107	100
Crushed and broken:					
Dolomite do.	700	700	700	700	700
Limestone do.	120,000	120,000	120,000	120,000	120,000
Marl for cement do.	14,000	12,000	14,000	14,000	15,000
Serpentine do.	1,500	1,500	1,400	1,662	1,500
Quartz and quartzite do.	250	250	250	29	30
Sulfur, recovered as elemental and in compounds:					
S content of pyrite do.	145	108	--	--	--
Byproduct, oil refining and other sources e/ do.	300	300	300	300	300
Total e/ do.	445	408	300	300	300
Talc and related materials	142,000	139,200	136,000	136,000 r/ e/	142,000
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bituminous rock, natural	38,000	36,000	31,620	29,646	30,000
Carbon black e/	130,000	130,000	--	--	--
Coal:					
Lignite thousand tons	1,053	517	352	223	203
Subbituminous (Sulcis coal)	17,000	--	--	4,787	4,800
Coke, metallurgical e/ thousand tons	5,000	5,000	5,000	4,686 r/ 2/	5,214 2/
Gas, natural million cubic meters	19,427	20,506	20,383	20,218	19,500
Natural gas liquids e/ thousand 42-gallon barrels	400	400	400	400	400

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity		1993	1994	1995	1996	1997 e/
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	31,462	33,212	35,466	36,994	36,720
Refinery products:						
Liquefied petroleum gas	do.	25,543	26,622	25,926	25,114	25,000
Gasoline	do.	161,823	160,251	160,000 e/	160,000	160,000
Naphtha e/	do.	16,000	16,000	16,000	16,000	16,000
Jet fuel	do.	22,206	23,007	24,000 e/	24,000	24,000
Kerosene	do.	34,038	34,929	35,000 e/	35,000	35,000
Distillate fuel oil	do.	218,000	220,000	220,000 e/	220,000	220,000
Residual fuel oil	do.	154,112	138,781	140,000 e/	140,000	140,000
Other e/	do.	35,000	35,000	35,000	35,000	35,000
Refinery fuel and losses e/	do.	39,000	38,000	38,000	38,000	38,000
Total e/	do.	705,722	692,590	693,926	693,114	693,000

e/ Estimated. r/ Revised.

1/ Table includes data available through June 1998.

2/ Reported figure.

3/ Antimony content is 83% of gross weight.

4/ Does not include production from Sardinia and Sicily estimated to be 200,000 metric tons per year.

5/ Output of limestone and serpentine for dimension stone is included with "Stone: Crushed and broken." In addition to the commodities listed, a variety of other dimension stone was produced and previously listed, but available general information was inadequate for continued reliable estimation of output levels.

TABLE 2
ITALY: 1996 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES in 1996 1/

(Thousand dollars)

Mineral commodity	Exports to EU	Imports from EU	Net gain or (loss)	Exports to the world	Imports from the world	Net gain or (loss)
Crude industrial minerals:						
Clays, kaolin	1,338	71,065	(69,727)	2,892	119,881	(116,989)
Feldspar	2,282	4,744	(2,462)	3,361	27,247	(23,886)
Fluorspar	1	2,103	(2,102)	174	12,791	(12,617)
Marble	43,076	34,614	8,462	187,419	74,391	113,028
Talc	13,055	14,462	(1,407)	17,272	18,610	(1,338)
Vermiculite, perlite, chlorite	1,173	857	316	1,414	4,057	(2,643)
Other	164,815	380,447	(215,632)	290,352	919,989	(629,637)
Total	225,740	508,292	(282,552)	502,884	1,176,966	(674,082)
Portland cement	42,277	63,161	(20,884)	98,393	81,436	16,957
Stone, building	806,920	23,559	783,361	2,017,328	47,104	1,970,224
Metals:						
Aluminum:						
Ore and concentrate	368	1,600	(1,232)	1,317	87,553	(86,236)
Oxides and hydroxides	2,236	84,173	(81,937)	83,267	109,921	(26,654)
Metal including alloys:						
Unwrought	51,487	549,893	(498,406)	64,174	865,960	(801,786)
Semimanufactures	771,571	853,411	(81,840)	1,200,900	1,084,603	116,297
Total	823,058	1,403,304	(580,246)	1,265,074	1,950,563	(685,489)
Copper:						
Ore and concentrate	1	20	(19)	14	62	(48)
Matte and speiss including cement copper	1,824	33	1,791	1,875	33	1,842
Metal including alloys:						
Scrap	60,328	323,296	(262,968)	63,085	381,733	(318,648)
Unwrought	34,892	335,109	(300,217)	48,331	1,188,499	(1,140,168)
Semimanufactures	642,459	925,406	(282,947)	845,249	1,000,011	(154,762)
Total	737,679	1,583,811	(846,132)	956,665	2,570,243	(1,613,578)
Iron and steel:						
Ore and concentrate	312	2,789	(2,477)	520	454,949	(454,429)
Metal excluding scrap	4,476,529	5,704,439	(1,227,910)	7,638,440	7,863,729	(225,289)
Lead:						
Ore and concentrate	1,432	12,663	(11,231)	4,685	41,126	(36,441)
Oxides	799	1,751	(952)	6,169	1,803	4,366
Metal including alloys:						
Scrap	406	2,613	(2,207)	414	4,656	(4,242)
Unwrought	11,358	47,815	(36,457)	14,315	92,711	(78,396)
Semimanufactures	710	5,199	(4,489)	1,058	5,481	(4,423)
Total	12,474	55,627	(43,153)	15,787	102,848	(87,061)
Zinc:						
Ore and concentrate	119	21,188	(21,069)	659	131,779	(131,120)
Oxides	12,148	12,130	18	12,821	18,043	(5,222)
Blue powder	1,161	12,197	(11,036)	1,495	12,544	(11,049)
Metal including alloys:						
Scrap	1,151	14,786	(13,635)	7,247	16,072	(8,825)
Unwrought	70,820	92,752	(21,932)	88,531	142,108	(53,577)
Semimanufactures	2,756	12,514	(9,758)	1,351	12,748	(11,397)
Total	74,727	120,052	(45,325)	97,129	170,928	(73,799)
Other nonferrous metals	130,110	417,723	(287,613)	183,615	860,302	(676,687)
Total, metals	6,274,665	9,430,711	(3,156,046)	10,269,012	13,921,477	(3,652,465)
Mineral fuels	813,627	1,875,769	(1,062,142)	3,086,562	17,406,188	(14,319,626)

1/ Table prepared by Glenn J. Wallace.

TABLE 3
ITALY: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
METALS			
Akali and alkaline-earth metals:			
Alkali metals	818	1	Germany 163; France 130; unspecified countries 187.
Alkaline-earth metals	147	--	Thailand 28; Germany 20; Slovenia 17.
Aluminum:			
Ore and concentrate	17,528	--	France 11,354; Morocco 2,385; Hungary 2,357.
Oxides and hydroxides	410,798	241	Slovakia 305,965; Ukraine 33,000; Romania 27,000.
Metal including alloys:			
Scrap	11,800	4	Germany 5,322; France 2,872; Hungary 1,001.
Unwrought	39,362	(2/)	Germany 24,261; France 4,162; United Kingdom 2,235.
Semimanufactures	300,861	12,566	Germany 77,566; France 43,067; Spain 30,490.
Antimony, metal including alloys, all forms	10	--	Belgium-Luxembourg 6; Switzerland 2; Croatia 1.
Beryllium, metal including alloys, all forms	value, thousand \$132	--	Japan \$82; Romania \$29; Republic of Korea \$8.
Bismuth, metal including alloys, all forms	do. \$43	--	Mexico \$16; Pakistan \$14; Germany \$9.
Cadmium, metal including alloys, all forms	221	--	Belgium-Luxembourg 118; Netherlands 83; United Kingdom, 17.
Chromium:			
Ore and concentrate	2,330	--	Austria 426; Slovenia 355; France 346.
Metal including alloys, all forms	51	--	Australia 24; Syria 20; Egypt 6.
Cobalt, metal including alloys, all forms	76	--	United Kingdom 26; Belgium-Luxembourg 17; Denmark 7.
Columbium and tantalum:			
Ore and concentrate 3/	42	--	Sri Lanka 41; Pakistan 1.
Tantalum metal including alloys, all forms	11	7	Germany 2; Singapore 1.
Copper:			
Ore and concentrate	90	--	Unspecified countries.
Matte and speiss including cement copper	1,794	2	Belgium-Luxembourg 1,787; Switzerland 2; Australia 1.
Metal including alloys:			
Scrap	46,468	267	Germany 21,774; Austria 5,927; France 3,779.
Unwrought	19,017	68	United Kingdom 4,832; France 3,133; Spain 2,876.
Semimanufactures	220,125	2,103	Germany 48,255; France 37,097; Spain 36,262.
Germanium, metal including alloys, all forms	value, thousand \$1	--	All to Japan.
Gold:			
Waste and sweepings	do. \$167	--	Switzerland \$144; Germany \$17; France \$4.
Metal including alloys, unwrought and partly wrought	kilograms 27,432	1,405	Austria 16,145; United Kingdom 3,312; Switzerland 2,485.
Iron and steel:			
Ore and concentrate:			
Excluding roasted pyrite	231	--	Ecuador 200; Spain 25; Greece 5.
Pyrite, roasted	18,957	--	France 14,806; Slovenia 4,012; Malta 44.
Metal:			
Scrap	20,012	7	France 7,577; Germany 3,094; Slovenia 2,709.
Pig iron, cast iron, related materials	23,725	756	Germany 4,907; Turkey 2,791; Belgium-Luxembourg 2,683.
Ferroalloys:			
Ferromanganese	2,005	--	Germany 851; Slovenia 640; France 208.
Ferromanganese	7,256	5,113	Canada 1,073; France 492; Hungary 200.
Ferronickel	2	--	All to India.
Ferrosilichromium	7	--	France 6; Germany 1.
Ferrosilicomanganese	2,881	--	Austria 2,384; Croatia 352; Germany 60.
Ferrosilicon	7,956	3,891	Germany 1,647; France 1,610; Austria 200.
Silicon metal 4/	2,850	228	Germany 1,955; Japan 170; Austria 125.
Unspecified	733	--	Tunisia 248; Slovenia 168; Slovakia 72.
Steel, primary forms	656,996	43,528	India 104,926; Morocco 99,311; Republic of Korea 77,404.

See footnotes at end of table.

TABLE 3--Continued
ITALY: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations		
		United States	Other (principal)	
METALS--Continued				
Semimanufactures:				
Flat-rolled products:				
Of iron or nonalloy steel:				
Not clad, plated, coated	thousand tons	2,611	271	France 478; Spain 220; Turkey 193.
Clad, plated, coated		779,523	58,892	France 149,414; Turkey 65,443; Germany 63,360.
Of alloy steel		500,913	83,669	Germany 58,198; Spain 41,029; France 40,872.
Bars, rods, angles, shapes, sections	thousand tons	3,715	36	Germany 1,030; France 608; Greece 376.
Rails and accessories		27,189	61	Finland 14,276; Switzerland 4,182; Turkey 2,279.
Wire		321,578	7,505	France 84,335; Germany 41,385; Austria 38,252.
Tubes, pipes, fittings	thousand tons	2,204	74	Germany 474; France 356; Norway 209.
Lead:				
Ore and concentrate		11,856	--	Morocco 6,005; Yugoslavia 4,000; Austria 1,851.
Oxides		5,444	--	Poland 1,109; Thailand 1,020; Algeria 789.
Metal including alloys:				
Scrap		2,268	--	France 2,219; Belgium-Luxembourg 48; Malaysia 1.
Unwrought		15,894	--	Austria 6,031; Turkey 3,495; Netherlands 2,003.
Semimanufactures		745	(2/)	France 551; Turkey 35; Croatia 27.
Magnesium, metal including alloys:				
Scrap		388	22	Norway 250; Belgium-Luxembourg 35; Germany 34.
Unwrought		767	--	Belgium-Luxembourg 230; Germany 204; United Kingdom 184.
Semimanufactures		1,541	--	Belgium-Luxembourg 511; Netherlands 255; Germany 188.
Manganese:				
Ore and concentrate, metallurgical-grade		3,109	1,917	Canada 1,073; France 94; Spain 25.
Oxides and hydroxides		126	--	Yugoslavia 58; Croatia 16; Poland 12.
Metal including alloys, all forms		506	43	Germany 409; Sweden 20; Belgium-Luxembourg 11.
Mercury		58	--	Slovenia 33; Netherlands 15; Spain 5.
Molybdenum:				
Ore and concentrate:				
Roasted		31	--	All to United Kingdom.
Unroasted	value, thousand	\$1	--	All to Belgium-Luxembourg.
Metal including alloys:				
Unwrought, including waste and scrap		16	(2/)	Portugal 5; United Kingdom 5; Germany 4.
Semimanufactures		16	1	Canada 8; Czech Republic 2; Germany 2.
Nickel:				
Matte and speiss		329	(2/)	Spain 328; Brazil 1.
Metal including alloys:				
Scrap		617	53	Germany 324; United Kingdom 154; Belgium-Luxembourg 52.
Unwrought		4,753	101	Ireland 2,463; United Kingdom 1,374; Belgium-Luxembourg 461.
Semimanufactures		4,602	52	France 3,545; Hong Kong 176; Spain 122.
Platinum-group metals:				
Waste and sweepings	value, thousand	\$1,134	--	Netherlands \$705; Switzerland \$315; United Kingdom \$115.
Metal including alloys, unwrought and partly wrought	do.	\$26,537	\$2,517	United Kingdom \$12,553; Germany \$2,805; Netherlands \$1,388.
Silver, metal including alloys, unwrought and partly wrought	do.	\$61,303	\$399	Spain \$19,564; Germany \$13,322; United Kingdom \$5,681.
Tin:				
Ore and concentrate		3	--	All to United Kingdom.
Metal including alloys:				
Scrap		164	--	United Arab Emirates 87; Belgium-Luxembourg 61; Germany 16.
Unwrought		2,594	1	Ireland 2,440; France 43; Switzerland 32.
Semimanufactures		232	(2/)	Czech Republic 49; Turkey 34; Egypt 28.

See footnotes at end of table.

TABLE 3--Continued
ITALY: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
METALS--Continued			
Titanium:			
Ore and concentrate	850	--	All to United Kingdom.
Oxides	15,915	30	Canada 8,038; Japan 3,551; United Kingdom 1,508.
Unwrought, including waste and scrap	1,497	1,344	United Kingdom 92; Germany 43; Belgium-Luxembourg 7.
Semimanufactures	3,037	121	Germany 406; United Kingdom 323; France 315.
Tungsten:			
Ore and concentrate	value, thousand	\$3	--
Metal including alloys:			France \$2; Spain \$1.
Unwrought, including waste and scrap	163	28	Germany 68; Netherlands 28; France 25.
Semimanufactures	27	(2/)	Canada 18; Hungary 5; Slovenia 1.
Zinc:			
Ore and concentrate	2,474	--	Bulgaria 2,040; Tunisia 273; Germany 89.
Oxides	12,808	--	Spain 5,612; Belgium-Luxembourg 2,949; France 1,863.
Metal including alloys:			
Scrap	8,773	(2/)	Hong Kong 2,999; France 1,179; Germany 466.
Unwrought	53,722	6,001	Netherlands 12,310; Turkey 7,619; Austria 4,996.
Semimanufactures 5/	2,429	17	France 861; Germany 845; Slovenia 75.
Zirconium:			
Ore and concentrate	19,435	--	Turkey 6,976; Hungary 2,169; Hong Kong 1,260.
Metal including alloys:			
Unwrought, including waste and scrap	822	--	China 336; Thailand 120; Brazil 103.
Semimanufactures	604	(2/)	China 315; Mexico 84; Iran 70.
Other:			
Ores and concentrates	257	--	Turkey 252; Hong Kong 2; Germany 1.
Oxides and hydroxides	2,277	50	Germany 677; France 294; Belgium-Luxembourg 264.
Ashes and residues	71,984	52	Belgium-Luxembourg 23,073; Spain 15,189; Germany 13,876.
Base metals including alloys, all forms	value, thousand	\$304	\$22
Metalloids 6/	16	--	United Kingdom \$62; Germany \$50; Algeria \$49.
Precious metals, n.e.s.:			
Ores and concentrates	kilograms	8,176	--
Waste and sweepings	do.	7,271	--
			Denmark 2,176; Spain 6,000.
			United Kingdom 6,708; Germany 458; United Arab Emirates 60.
INDUSTRIAL MINERALS			
Abrasives, n.e.s.:			
Natural, corundum, emery, pumice, etc.	50,594	902	Germany 21,683; United Kingdom 18,037; France 3,101.
Artificial corundum	23,191	1,668	Austria 5,410; Germany 4,204; France 3,581.
Dust and powder of precious and semiprecious stones including diamonds	value, thousand	\$7,314	\$160
Grinding and polishing wheels and stones	42,811	583	Germany \$4,403; Hong Kong \$534; Ireland \$372.
Asbestos, crude	51	--	France 3,710; Saudi Arabia 2,724; Spain 2,642.
Barite and witherite	1,082	--	Austria 30; Albania 10; Spain 9.
Boron, crude natural borates	8,840	--	Tunisia 270; Spain 211; Slovenia 180.
Bromine, fluorine, iodine	64	--	France 8,308; Germany 290; Indonesia 79.
Cement	thousand tons	1,651	230
Chalk	7,912	--	Germany 60; Switzerland 2; France 1.
Clays, crude:			
Bentonite	172,627	12	Austria 300; Malta 221; Albania 176.
Kaolin	30,811	85	Switzerland 7,583; Greece 157; Malta 48.
Unspecified	18,857	--	Germany 52,579; France 44,858; Spain 33,309.
Cryolite and chiolite	7	--	France 22,459; Austria 3,003; Tunisia 1,947.
Diamond, natural:			
Gem, not set or strung	value, thousand	\$8,240	\$1,066
			Belgium-Luxembourg \$3,104; United Kingdom \$2,562; Switzerland \$330.

See footnotes at end of table.

TABLE 3--Continued
ITALY: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations		
		United States	Other (principal)	
INDUSTRIAL MINERALS--Continued				
Diatomite and other infusorial earth	1,106	--	Switzerland 280; Egypt 158; Slovenia 93.	
Feldspar	37,349	--	Germany 14,876; Spain 7,720; Switzerland 4,596.	
Fertilizer materials:				
Crude, n.e.s.	35,252	2	France 18,943; Spain 4,970; United Arab Emirates 3,704.	
Manufactured:				
Ammonia	551	--	Slovenia 322; France 47; Hungary 40.	
Nitrogenous	361,914	119	Greece 65,018; Spain 50,990; Thailand 36,240.	
Phosphatic	3,151	--	Spain 2,827; Croatia 196; Greece 48.	
Potassic	1,170	--	Somalia 500; Tunisia 148; France 118.	
Unspecified and mixed	28,158	54	France 5,726; Kenya 4,875; Spain 3,446.	
Fluorspar	2,114	--	Malta 1,700; Switzerland 194; Turkey 130.	
Graphite, natural	210	3	Spain 71; Germany 40; Poland 25.	
Gypsum and plaster	89,799	1	Slovenia 43,385; Switzerland 24,918; Austria 14,166.	
Lime	30,226	--	France 18,440; Switzerland 5,608; Slovenia 2,019.	
Magnesium compounds:				
Magnesite, crude	4,836	126	Netherlands 1,065; Canada 271; Portugal 271.	
Oxides and hydroxides	71,531	2,613	Germany 19,298; India 14,700; South Africa 11,225.	
Mica:				
Crude including splittings and waste	158	--	Germany 103; Israel 20; Belgium-Luxembourg 12.	
Worked including agglomerated splittings	377	--	Germany 165; Austria 80; France 74.	
Nitrates, crude	135	--	Slovenia 66; Russia 32; Romania 16.	
Phosphates, crude	1,644	(2/)	Slovenia 1,033; Croatia 504; Spain 74.	
Pigments, mineral, iron oxides and hydroxides, processed	18,621	670	Germany 4,352; United Kingdom 2,861; France 1,796.	
Potassium salts, crude	10	--	All to Tunisia.	
Precious and semiprecious stones other than diamond:				
Natural	value, thousand	\$9,444	\$1,088	France \$1,723; Switzerland \$1,568; Netherlands \$1,259.
Synthetic	do.	\$4,311	\$407	Switzerland \$1,332; France \$826; Spain \$509.
Pyrite, unroasted		8,361	312	Germany 3,421; Australia 865; France 709.
Quartz crystal, piezoelectric	value, thousand	\$624	--	France \$826; Spain \$509; United Kingdom \$184.
Salt and brine		292,480	222	Austria 62,889; Greece 55,728; Netherlands 53,490.
Sodium compounds, n.e.s.:				
Soda ash, manufactured		16,993	18	Israel 10,613; Greece 4,203; Tunisia 627.
Sulfate, manufactured		4,736	--	Czech Republic 1,953; Slovenia 803; Greece 170.
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked		809,676	17,361	Lebanon 153,357; Germany 70,539; Spain 61,213.
Worked	thousand tons	2,638	233	Germany 668; Saudi Arabia 220; Switzerland 105.
Dolomite, chiefly refractory-grade		64,291	235	France 39,637; Germany 6,706; Venezuela 5,509.
Gravel and crushed rock	thousand tons	1,171	1	Germany 217; Switzerland 209; Belgium-Luxembourg 150.
Limestone other than dimension		109	--	Japan 54; Egypt 37; Turkey 10.
Quartz and quartzite		15,061	1	France 6,472; Germany 1,895; Netherlands 1,645.
Sand other than metal-bearing		79,624	(2/)	Switzerland 63,317; France 3,783; Croatia 3,265.
Sulfur:				
Elemental:				
Crude including native and byproduct		64,883	--	United Kingdom 20,045; Croatia 15,963; Lebanon 13,945.
Colloidal, precipitated, sublimed		309	--	Croatia 226; Lebanon 40; Israel 15.
Dioxide		8,288	1	Austria 3,782; France 1,571; Australia 378.
Sulfuric acid		140,553	41	Lebanon 61,673; Spain 43,848; Greece 17,437.
Talc, steatite, soapstone, pyrophyllite		68,246	145	Germany 37,372; Austria 8,057; France 5,692.
Vermiculite, perlite, chlorite		40,957	--	United Kingdom 22,465; France 15,691; Greece 2,002.
Other:				
Crude		17,751	41	Spain 4,949; France 2,226; Malaysia 1,484.
Slag and dross, not metal-bearing	thousand tons	1,811	275	Israel 335; Greece 259; Croatia 239.

See footnotes at end of table.

TABLE 3--Continued
 ITALY: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
MINERAL FUELS AND RELATED MATERIALS			
Asphalt and bitumen, natural	3,387	--	France 500; Germany 419; Switzerland 387.
Carbon black	63,943	6	Turkey 19,751; France 16,653; Germany 10,586.
Coal:			
Anthracite	2,416	--	France 1,246; Venezuela 525; Spain 394.
Bituminous	1,590	--	Lebanon 1,575; Malta 15.
Briquets of anthracite and bituminous coal	396	--	Germany 386; Bosnia and Herzegovina 5; Russia 3.
Unspecified	3,941	--	Croatia 2,164; Macedonia 500; Slovenia 374.
Coke and semicoke	88,806	--	France 39,426; Austria 9,131; Turkey 7,000.
Gas, natural:			
Gaseous	19,083	--	Switzerland 11,327; Slovenia 7,755.
Liquefied	23,264	--	Switzerland 23,222; Israel 23; Albania 20.
Peat including briquets and litter	1,731	--	Slovenia 805; Switzerland 742; Germany 55.
Petroleum:			
Crude	317,706	--	Germany 272,154; Spain 45,551; Albania 1.
Refinery products:			
Liquefied petroleum gas	181,897	14,411	Tunisia 58,871; Morocco 40,966; Lebanon 14,292.
Gasoline	thousand tons 3,393	221	Libya 661; Spain 364; Lebanon 312.
Mineral jelly and wax	17,042	99	Netherlands 6,358; Germany 5,409; Slovenia 2,250.
Kerosene and jet fuel	815,205	70,209	Tunisia 144,599; Malta 112,269; Spain 82,396.
Distillate fuel oil	thousand tons 7,137	1	Brazil 954; Spain 863; Switzerland 765.
Lubricants	781,611	20,646	United Kingdom 232,172; United Arab Emirates 68,848; Syria 60,969.
Residual fuel oil	do. 3,741	150	Romania 1,428; Malta 575; Tunisia 471.
Bitumen and other residues	191,844	--	Tunisia 43,046; Austria 36,393; Switzerland 26,555.
Bituminous mixtures	4,186	20	Poland 763; Ukraine 423; Croatia 375.
Petroleum coke	45,731	--	France 20,198; Slovenia 18,729; Greece 5,300.

1/ Table prepared by Glenn J. Wallace.

2/ Less than 1/2 unit.

3/ May include vanadium.

4/ May include high-purity silicon.

5/ Includes dust, flakes, and powders.

6/ Reported under SITC item number as "selenium, tellurium, phosphorus, arsenic, etc."

Source: United Nations Statistical Office (microfiche).

TABLE 4
ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
METALS			
Akali and alkaline-earth metals:			
Alkali metals	569	211	France 252; China 30; Hungary 25.
Alkaline-earth metals	403	(2/)	France 166; Netherlands 120; Ireland 50.
Aluminum:			
Ore and concentrate	thousand tons 2,079	(2/)	Australia 1,096; Guinea 906; China 51.
Oxides and hydroxides	310,370	1,375	France 89,689; Greece 62,504; Germany 60,694.
Metal including alloys:			
Scrap	266,187	405	Germany 117,755; France 47,635; Switzerland 38,684.
Unwrought	484,899	21	Netherlands 105,518; France 75,878; Germany 36,443.
Semimanufactures	352,790	6,538	Germany 112,827; United Kingdom 47,917; France 39,572.
Antimony, metal including alloys, all forms	686	19	Netherlands 416; Belgium-Luxembourg 120; Peru 60.
Beryllium, metal including alloys, all forms	value, thousand \$607	\$450	Germany \$156; United Kingdom \$1.
Bismuth, metal including alloys, all forms	96	--	United Kingdom 74; Netherlands 17; Belgium-Luxembourg 4.
Cadmium, metal including alloys, all forms	51	(2/)	Finland 26; United Kingdom 12; Belgium-Luxembourg 11.
Chromium:			
Ore and concentrate	123,272	--	South Africa 65,407; Albania 26,237; Turkey 12,620.
Oxides and hydroxides	3,219	40	Germany 1,274; United Kingdom 846; Poland 479.
Metal including alloys, all forms	419	1	Netherlands 128; France 100; United Kingdom 95.
Cobalt:			
Oxides and hydroxides	669	--	Finland 252; Belgium-Luxembourg 229; Netherlands 98.
Metal including alloys, all forms	682	11	Belgium-Luxembourg 213; France 137; Germany 89.
Columbium and tantalum, tantalum metal including alloys, all forms	7	2	Austria 2; Germany 2; France 1.
Copper:			
Ore and concentrate	13	(2/)	Austria 10; Democratic Republic of Congo 2.
Matte and speiss including cement copper	5	--	Mainly from the Netherlands.
Metal including alloys:			
Scrap	228,079	1,401	Germany 90,480; France 47,629; United Kingdom 19,163.
Unwrought	489,828	960	Chile 146,351; Kazakstan 43,032; Germany 41,955.
Semimanufactures	286,335	1,999	Germany 97,349; France 71,876; Spain 23,353.
Germanium, metal including alloys, all forms	value, thousand \$162	\$43	Belgium-Luxembourg \$58; France \$51; United Kingdom \$9.
Gold:			
Waste and sweepings	do. \$995	--	Switzerland \$931; Spain \$47; United Kingdom \$16.
Metal including alloys, unwrought and partly wrought	kilograms 331,746	15,544	South Africa 129,776; Switzerland 121,707; Canada 16,327.
Iron and steel:			
Ore and concentrate:			
Excluding roasted pyrite	thousand tons 16,048	41	Brazil 8,104; Mauritania 3,070; Australia 1,274.
Pyrite, roasted	20	20	
Metal:			
Scrap	thousand tons 4,935	2	Germany 1,830; France 962; Austria 416.
Pig iron, cast iron, related materials	do. 1,472	1	Russia 678; Algeria 259; Ukraina 207.

See footnotes at end of table.

TABLE 4--Continued
 ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
METALS--Continued			
Iron and steel--Continued:			
Metal--Continued:			
Ferroalloys:			
Ferrochromium	184,552	9	South Africa 77,187; Zimbabwe 28,627; Finland 24,070.
Ferromanganese	55,184	196	South Africa 20,480; France 14,270; Norway 8,841.
Ferronickel	37,602	--	France 17,429; Greece 8,560; Netherlands 6,681.
Ferrosilicochromium	293	--	Mainly from Germany.
Ferrosilicomanganese	70,452	--	Norway 25,566; China 15,349; Spain 8,586.
Ferrosilicon	100,594	10	Norway 48,848; Slovakia 16,082; France 9,556.
Silicon metal 4/	19,889	45	France 7,070; Netherlands 2,616; Ukraine 1,923.
Unspecified	23,803	383	Germany 5,665; United Kingdom 4,237; France 3,842.
Steel, primary forms	thousand tons 1,155	91	Russia 307,740; Ukraine 172,212; Germany 169,746.
Semimanufactures:			
Flat-rolled products:			
Of iron or nonalloy steel:			
Not clad, plated, coated	do. 5,630	144	France 1,171; Germany 662; Belgium-Luxembourg 538.
Clad, plated, coated	do. 1,399	95	France 296; Belgium-Luxembourg 234; Germany 220.
Of alloy steel	861,112	641	Germany 189,646; France 164,598; Belgium-Luxembourg 132,587.
Bars, rods, angles, shapes, sections	thousand tons 1,297	1	Germany 285; France 265; United Kingdom 200.
Rails and accessories	26,130	66	Netherlands 6,399; France 6,040; Germany 3,625.
Wire	114,130	48	Belgium-Luxembourg 28,284; Russia 24,478; France 9,032.
Tubes, pipes, fittings	666,346	26,528	Germany 120,178; France 85,446; Russia 76,162.
Lead:			
Ore and concentrate	104,483	10,131	Canada 24,022; Spain 17,315; Ireland 16,393.
Oxides	858	2	Netherlands 319; United Kingdom 245; Germany 146.
Metal including alloys:			
Scrap	8,449	--	United Kingdom 2,231; Tunisia 2,074; Switzerland 1,383.
Unwrought	104,126	100	France 20,581; Bulgaria 16,490; Peru 14,717.
Semimanufactures	4,623	(2/)	Belgium-Luxembourg 2,698; Germany 630; France 630.
Magnesium, metal including alloys:			
Scrap	390	(2/)	Germany 321; Croatia 31; Austria 24.
Unwrought	6,975	(2/)	Netherlands 1,723; Yugoslavia 1,375; Germany 893.
Semimanufactures	893	3	France 470; Netherlands 194; Spain 97.
Manganese:			
Ore and concentrate, metallurgical-grade	201,200	--	Gabon 139,541; South Africa 33,862; France 16,000.
Oxides and hydroxides	2,065	72	Belgium-Luxembourg 883; Germany 356; India 336.
Metal including alloys, all forms	3,445	16	China 1,192; Germany 604; Netherlands 571.
Mercury	19	--	Spain 10; Portugal 6; France 1.

See footnotes at end of table.

TABLE 4--Continued
ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
METALS--Continued			
Molybdenum:			
Ore and concentrate:			
Roasted	2,849	753	Chile 741; Belgium-Luxembourg 722; United Kingdom 367.
Unroasted	15	--	Peru 11; Germany 3; United Kingdom 1.
Metal including alloys:			
Unwrought, including waste and scrap	232	1	Belgium-Luxembourg 184; Russia 19; United Kingdom.
Semimanufactures	68	3	Austria 51; United Kingdom 6; Germany 5.
Nickel:			
Ore and concentrate	22	--	All from the Netherlands.
Matte and speiss	3,022	--	Netherlands 1,494; Cuba 1,461; Russia 60.
Metal including alloys:			
Scrap	70	2	Azerbaijan 35; United Arab Emirates 16; Germany 6.
Unwrought	32,089	86	Russia 9,498; Netherlands 3,720; United Kingdom 2,965.
Semimanufactures	4,251	638	Germany 1,306; United Kingdom 1,045; France 504.
Platinum-group metals:			
Waste and sweepings	value, thousand \$4,229	--	United Kingdom \$1,949; France \$1,660; Netherlands \$620.
Platinum metal including alloys, unwrought and partly wrought	do. \$207,156	\$10,915	Russia \$109,590; United Kingdom \$39,950; Switzerland \$14,917.
Silver:			
Ore and concentrate	do. \$7	--	All from Belgium-Luxembourg.
Metal including alloys, unwrought and partly wrought	do. \$152,360	\$2,854	Germany \$62,580; Switzerland \$40,164; unspecified countries \$12,943.
Tin:			
Ore and concentrate	39,875	4	France 23,827; Germany 5,806; Austria 2,815.
Metal including alloys:			
Scrap	120	--	Germany 118; Netherlands 2.
Unwrought	6,576	--	Malaysia 1,677; Ireland 1,472; Belgium-Luxembourg 1,186.
Semimanufactures	1,373	5	France 624; Germany 380; United Kingdom 186.
Titanium:			
Ore and concentrate	4,689	--	South Africa 3,540; Ukraine 750; Netherlands 128.
Oxides	22,270	95	Saudi Arabia 4,981; Australia 3,241; Slovenia 3,044.
Metal including alloys:			
Unwrought, including waste and scrap	4,005	904	Russia 1,718; Germany 507; Canada 309.
Semimanufactures	1,840	309	Russia 362; Germany 289; United Kingdom 171.
Tungsten:			
Ore and concentrate	152	--	All from Germany.
Metal including alloys:			
Unwrought, including waste and scrap	78	10	France 26; China 19; Israel 9.
Semimanufactures	57	15	Germany 23; Austria 5; France 5.
Uranium and thorium, metal including all forms:			
Uranium	value, thousand \$2	--	All from Austria.
Thorium	do. \$1	\$1	
Vanadium, metal including alloys, all forms	20	--	Mainly from Germany.

See footnotes at end of table.

TABLE 4--Continued
ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
METALS--Continued			
Zinc:			
Ore and concentrate	518,844	18,183	Canada 95,769; Australia 78,322; Peru 52,549.
Oxides	17,241	39	United Kingdom 2,285; France 2,260; Netherlands 2,006.
Metal including alloys:			
Scrap	21,825	--	Germany 10,221; France 8,073; Switzerland 1,199.
Unwrought	129,374	--	Belgium-Luxembourg 23,117; Poland 22,240; France 16,704.
Semimanufactures 5/	15,825	57	Germany 4,402; France 3,550; Netherlands 3,312.
Zirconium:			
Ore and concentrate	115,945	349	Australia 59,750; South Africa 45,077; Ukraine 3,720.
Metal including alloys:			
Unwrought, including waste and scrap	223	25	United Kingdom 82; Belgium-Luxembourg 44; Germany 38.
Semimanufactures	6	1	Belgium-Luxembourg 1; Germany 1; Israel 1.
Other:			
Ores and concentrates	124,334	--	South Africa 65,407; Albania 26,237; Turkey 12,820.
Oxides and hydroxides	7,672	416	France 2,196; Germany 1,711; United Kingdom 907.
Ashes and residues	165,515	19	Canada 125,078; France 15,144; Germany 6,344.
Base metals including alloys, all forms	30	13	Germany 9; France 5; Belgium-Luxembourg 1.
Metalloids 6/	3,264	(2/)	China 2,141; Kazakstan 348; Austria 292.
Precious metals, n.e.s.:			
Ores and concentrates kilograms	4,700	--	All from Germany.
Waste and sweepings do.	418,013	61,270	Switzerland 159,759; Canada 64,043; Hong Kong 31,588.
INDUSTRIAL MINERALS			
Abrasives, n.e.s.:			
Natural corundum, emery, pumice, etc.	29,001	49	Turkey 16,013; Greece 8,960; China 1,603.
Artificial corundum	31,030	178	Ukraine 6,708; Austria 6,301; France 3,774.
Dust and powder of precious and semiprecious stones including diamonds value, thousand	\$72,932	\$4,574	Switzerland \$45,115; Germany \$11,109; Belgium-Luxembourg \$5,892.
Grinding and polishing wheels and stones	7,451	38	Germany 1,256; Austria 1,230; Czech Republic 1,136.
Asbestos, crude	127	--	All from France.
Barite and witherite	67,046	--	Bulgaria 31,570; Turkey 18,992; Spain 4,999.
Boron:			
Crude natural borates	104,377	859	Turkey 102,173; Spain 1,227; Belgium-Luxembourg 43.
Oxides and acids	8,623	9	Turkey 2,854; Spain 2,694; Chile 1,226.
Bromine, fluorine, iodine	1,408	51	Japan 562; Netherlands 293; Chile 291.
Cement thousand tons	1,304	(2/)	Greece 672; France 204; Croatia 199.
Chalk	5,273	19	France 2,196; Germany 1,711; United Kingdom 907.
Clays, crude:			
Bentonite	57,941	137	Greece 21,453; Morocco 12,600; Turkey 6,568.
Kaolin	868,006	142,933	United Kingdom 243,370; Germany 245,640; Bulgaria 86,692.
Unspecified thousand tons	2,433	9	Germany 1,350; Ukraine 500; France 348.

See footnotes at end of table.

TABLE 4--Continued
ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
INDUSTRIAL MINERALS--Continued			
Cryolite and chiolite	501	--	Egypt 500; Netherlands 1.
Diamond, natural:			
Gem, not set or strung	value, thousand \$256,893	\$5,070	Belgium-Luxembourg \$150,482; Switzerland \$36,166; Israel \$3,119.
Industrial stones	do. \$5,141	\$6	Belgium-Luxembourg \$4,271; Germany \$243; United Kingdom \$233.
Diatomite and other infusorial earth	7,244	505	France 5,537; Spain 550; Germany 316.
Feldspar	602,980	2,048	Turkey 491,040; Canada 39,720; Greece 27,788.
Fertilizer materials:			
Crude, n.e.s.	27,170	11	France 10,783; Spain 9,242; Germany 1,989.
Manufactured:			
Ammonia	342,561	25	Russia 115,603; Ukraine 75,689; Algeria 36,199.
Nitrogenous	992,049	270	Germany 175,571; Bulgaria 134,758; Romania 114,399.
Phosphatic	271,183	--	Tunisia 67,805; Morocco 58,638; Lebanon 47,307.
Potassic	519,879	27,640	Israel 134,743; Germany 109,539; Jordan 90,390.
Unspecified and mixed	thousand tons 1,226	5	Tunisia 299; Morocco 164; Belgium-Luxembourg 141.
Fluorspar	95,823	--	China 36,910; Mexico 27,546; Kenya 14,928.
Graphite, natural	10,029	330	China 3,028; Germany 1,748; Austria 1,528.
Gypsum and plaster	24,628	2,784	Germany 10,753; France 8,834; United Kingdom 1,237.
Lime	18,111	--	Slovenia 11,198; United Kingdom 3,023; France 1,643.
Magnesium compounds:			
Magnesite, crude	27,136	9	Greece 12,870; Turkey 8,759; China 3,699.
Oxides and hydroxides	103,752	369	China 22,365; Greece 21,320; Austria 16,563.
Mica:			
Crude including splittings and waste	2,201	127	Austria 586; France 431; United Kingdom 390.
Worked including agglomerated splittings	957	30	Slovenia 230; Belgium-Luxembourg 218; China 124.
Nitrates, crude	4,724	--	Chile 3,564; Germany 572; Belgium-Luxembourg 468.
Phosphates, crude	231,733	--	Morocco 184,825; Syria 40,440; Israel 5,921.
Pigments, mineral, iron oxides and hydroxides, processed	26,695	204	Germany 11,366; Slovakia 5,234; France 3,663.
Potassium salts, crude	265	--	Canada 139; France 120; Germany 6.
Precious and semiprecious stones other than diamond:			
Natural	value, thousand \$40,854	\$1,229	Thailand \$11,271; Germany \$8,921; India \$4,762.
Synthetic	do. \$7,316	\$681	Germany \$2,779; Thailand \$1,082; Philippines \$975.
Pyrite, unroasted	12,003	--	Austria 5,846; Russia 5,837; Germany 209.
Quartz crystal, piezoelectric	value, thousand \$535	\$89	Germany \$206; Japan \$124; France \$41.
Salt and brine	648,456	47	France 336,555; Spain 89,363; Germany 84,917.
Sodium compounds, n.e.s.:			
Soda ash, manufactured	159,410	--	Bulgaria 99,461; Spain 28,870; Austria 12,617.
Sulfate, manufactured	146,733	13	Spain 90,424; Austria 31,599; France 7,933.

See footnotes at end of table.

TABLE 4--Continued
ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources		
		United States	Other (principal)	
INDUSTRIAL MINERALS--Continued				
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	thousand tons	1,837	50	Brazil 332; Spain 229; South Africa 210.
Worked		117,050	268	Argentina 28,905; Portugal 16,377; Spain 15,359.
Dolomite, chiefly refractory-grade		3,681	--	Germany 2,182; Netherlands 867; Austria 277.
Gravel and crushed rock		853,931	9	Croatia 744,402; France 80,343; Ukraine 7,400.
Limestone other than dimension		93,056	--	Croatia 51,386; Slovenia 37,455; Germany 4,196.
Quartz and quartzite		110,043	110	Spain 50,012; Switzerland 36,732; Germany 9,926.
Sand other than metal-bearing	thousand tons	1,373	2	France 707,066; Spain 164,157; Egypt 149,449.
Sulfur:				
Elemental:				
Crude including native and byproduct		191,228	--	Poland 75,510; Germany 28,541; France 23,218.
Colloidal, precipitated, sublimed		915	11	United Kingdom 840; Germany 42; Albania 18.
Dioxide		88	--	Poland 72; Greece 16.
Sulfuric acid		51,708	53	Spain 26,686; Switzerland 6,892; Slovenia 6,475.
Talc, steatite, soapstone, pyrophyllite		85,744	92	China 29,583; France 26,158; Austria 14,615.
Vermiculite, perlite, chlorite		64,850	--	Turkey 45,290; Greece 11,027; South Africa 7,805.
Other:				
Crude		163,085	1,385	Spain 79,983; Australia 19,467; China 17,687.
Slag and dross, not metal-bearing		39,875	4	France 23,827; Austria 2,815; Spain 2,050.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural		698	498	Germany 94; Austria 76; France 28.
Carbon black		48,779	1,837	Croatia 10,678; France 9,370; Russia 6,027.
Coal:				
Anthracite		391,852	86,531	Russia 103,094; South Africa 92,403; China 60,500.
Bituminous	thousand tons	13,239	6,041	South Africa 2,711; Australia 2,407; Canada 1,206.
Briquets of anthracite and bituminous coal		3,192	--	France 2,812; Germany 351; Belgium-Luxembourg 12.
Lignite including briquets		16,251	173	Germany 15,194; Spain 864; United Kingdom 20.
Unspecified	thousand tons	3,093	2,022	South Africa 332; Colombia 197; Russia 180.
Coke and semicoke		551,769	5	China 297,151; Romania 83,805; France 57,032.
Gas, natural: Liquefied		109	--	All from Germany.
Peat including briquets and litter		399,808	857	Germany 228,219; Netherlands 55,108; Lithuania 5,708.
Petroleum:				
Crude	thousand tons	74,542	--	Libya 24,302; Iran 11,965; Saudi Arabia 9,894.
Refinery products:				
Liquefied petroleum gas	do.	1,806	(2/)	Algeria 873; Saudi Arabia 246; France 243.
Gasoline	do.	3,289	9	Libya 793; France 728; Belgium-Luxembourg 438.
Mineral jelly and wax		45,662	1,810	Belgium-Luxembourg 10,322; France 6,440; Germany 5,741.
Kerosene and jet fuel		43,781	33	France 19,937; Bahrain 14,914; Belgium-Luxembourg 4,047.

See footnotes at end of table.

TABLE 4--Continued
 ITALY: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources		
		United States	Other (principal)	
MINERAL FUELS AND RELATED MATERIALS--Continued				
Petroleum--Continued:				
Refinery products--Continued:				
Distillate fuel oil	thousand tons	1,814	22	Russia 936; Algeria 430; Germany 93.
Lubricants		134,888	8,067	France 27,895; Belgium-Luxembourg 23,605; Germany 20,988.
Residual fuel oil	thousand tons	25,104	78	United Kingdom 5,288; Libya 3,004; Russia 2,916.
Bitumen and other residues		206,907	126,067	Spain 62,281; France 17,366; Germany 593.
Bituminous mixtures		2,778	41	France 758; Austria 712; United Kingdom 584.
Petroleum coke	thousand tons	2,352	1,799	Venezuela 228; Aruba 101; Argentina 42.

1/ Table prepared by Glenn J. Wallace.

2/ Less than 1/2 unit.

3/ May include vanadium.

4/ May include high-purity silicon.

5/ Includes dust, flakes, and powders.

6/ Reported under SITC item number as "selenium, tellurium, phosphorus, arsenic, etc."

Source: United Nations Statistical Office (microfiche).

TABLE 5
 ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 1997
 (Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Eurallumina S.p.A. (Comalco Ltd., 56.2%, Glencore AG, 43.8%)	Plant at Porto Vesme, Sardinia	950
Aluminum	Alcoa Italia S.p.A. (Aluminium Company of America, 100%)	Smelters at Porto Vesme, Sardinia, and Fusina, near Venice	188
Asbestos	Amiantifera di Balangero S.p.A.	Mine at Balangero, near Turin	100
Barite	Bariosarda S.p.A. (Ente Mineraria Sarda)	Mines at Barega and Mont 'Ega, Sardinia	100
Do.	Edem S.p.A. (Government)	Mines at Val di Castello, Lucca	20
Do.	Edemsarda S.p.A. (Soc. Imprese Industriali)	Mines at Su Benatzu, Sto Stefano, and Peppixeddu, Sardinia	20
Do.	Mineraria Baritina S.p.A.	Mines at Marigolek, Monte Elto, and Primaluna, near Milan	20
Bauxite	Sardabauxiti S.p.A. (Government)	Mine at Olmedo, Sardinia	350
Cement	52 companies, of which the largest are:		
Do.	Italcement-Fabbriche Riunite Cemento S.p.A.	19 plants, of which the largest are Calusco, Monselice, and Collefero	(6,003)
Do.	Cementerie del Tirreno S.p.A. (Cementir)	Plants at Arquasta Scivia, Livorno, Maddaloni, Napoli, Spoleto, and Taranto	(6,250)
Do.	Unicem S.p.A.	Plants at Guidonia, Lugagnano, Morano, Piacenza, S'Arcangelo di Romagna, and Settimello	(4,630)
Copper, refined	Enirisorse (Government)	Refineries at Porto Marghera, near Venice, and Pieve Vergonte	46
Do.	Europa Metalli - LMI S.p.A.	Refineries at Campo Tizzoro, Fornaci di Barga, and Villa Carcina	26
Do.	Chimet S.p.A.	Refinery at Arezzo	13
Feldspar	At least 5 companies, of which the largest are:		1,500
Do.	Maffei S.p.A.	Surface mines at Pinzolo, Sondalo, and Campiglia Marittima; underground mine at Vipiteno	(200) (300)
Do.	Miniera di Fragne S.p.A.	Surface mine at Alagna Valsesia	(60)
Do.	Sabbie Silicee Fossanova S.p.A. (Sasifo)	Surface mine at Fossanova	(30)
Gold	Gold Mines of Sardinia 70%, Government 30%	Furtei Mine near Cagliari, Sardinia	1,400 1/
Lead-zinc, ore	Enirisorse S.p.A. (Government)	Mines at Masua, Monteponi, and Sardinia	60
Lead, metal	do.	Refinery at San Gavino, Sardinia	80
		Kivcet smelter and Imperial smelter at Porto Vesme, Sardinia	114
Lignite	Ente Nazionale per L'Energia Electrica (ENEL)	Surface mines at Pietrafitta and Santa Barbara	1,500
Magnesium, metal	Societa Italiana Magnesio S.p.A. (INDEL)	Plant at Bolzano	8
Marble	A number of companies including: Mineraria Marittima Srl Industria dei Marmi Vicentini S.p.A. Figaia S.p.A.	Quarries mostly at Carrara and Massa Quarries in the Carrara and Massa areas Quarries in the Carrara area do.	2,000 (500) (300) (100)
Petroleum, crude	Ente Nazionale/Idrocarburi (ENI) (Government)	Oilfields: offshore Sicily, the Adriatic Sea, and onshore in Po River Valley	90
Petroleum, refined	do.	About 30 refineries	2,000 2/
Potash ore	Industria Sali Otassici e Affini per Aziono S.p.A.	Underground mines at Corvillo, Pasquasia, Racalmuto, and San Cataldo, in Sicily	1,300
Do.	Sta Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Casteltermini and Pasquasia, Sicily	700
Pumice	Pumex S.p.A.	Quarries, Lipari Island, north of Sicily	600
Do.	Sta Siciliana per l'Industria ed il Commercio della Pomice di Lipari S.p.A. (Italpomice S.p.A.)	do.	200
Pyrite	Nuova Solmine S.p.A.	Underground mines at Campiano and Niccioleta	900
Salt, rock	Sta Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Petralia, Racalmuto, and Realmonte, Sicily	4,000
Do.	Solvay S.p.A.	Underground mines at Buriano, Ponteginori, and Querceto, Tuscany	2,000
Steel	Ilva Laminati Piani S.p.A. (Riva Group)	5 steel plants, the largest of which is Taranto (1,300 capacity)	4,000
Do.	Riva S.p.A.	About 5 plants	7,000
Do.	AFV Beltrame S.p.A.	Steel plant at Vicenza	700
Talc	Talco e Grafite Val Chisone S.p.A.	Mines at Pinerolo, near Turin, and at Orani, Sardinia	120
Do.	Industria Mineraria Italiana S.p.A.	Mines at Largone and Predaccia	20
Do.	Talco Sarda S.p.A.	Mine at Orani, Sardinia	20
Zinc, metal	Enirisorse S.p.A. (Government)	Plants at Crotone and Porto Vesme, Sardinia, and Porto Maghera, near Venice	349

1/ Kilograms

2/ Thousand 42-gallon barrels per day.