



# 2007 Minerals Yearbook

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ITALY

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# THE MINERAL INDUSTRY OF ITALY

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In 2007, Italy's gross domestic product (GDP) amounted to an estimated \$2.1 trillion; the country was the fourth largest economy in the European Union (EU) after Germany, the United Kingdom, and France. Italy's economy was complex and highly developed with industry accounting for about 26.7% of the GDP in 2007, which was a 2.3% decrease from the previous year. Industrial output as a whole was down by 4.3% compared with output in 2006. Heavy industry had facilities for the production of chemicals and iron and steel for automotive assembly and for machine building and metal working. These sectors continued to be heavily dependent on imports of nonfuel minerals and mineral fuels (U.S. Central Intelligence Agency, 2006; Istituto Nazionale di Statistica, 2008).

## Minerals in the National Economy

Italy's mineral industry produced such metals as copper, iron and steel, lead, and zinc, all of which were important materials for the country's manufacturing sector. The raw materials used to produce these and other metals were imported ores and concentrates or were obtained from secondary scrap recovery. The country was also highly dependent on imported mineral fuels, although Eni S.P.A. (of which the Government owned a 30% share), was the country's leading petroleum and natural gas company and among the 25 leading energy companies in the world (Petroleum Intelligence Weekly, 2009). Italy was a significant world producer of a variety of industrial minerals, which included cement, clays, feldspar, lime, marble, pumice, and sand and gravel.

## Government Policies and Programs

The Government plays a significant role in the economy through regulation of ownership of large financial and industrial companies; privatization and regulatory reform in accordance with EU directives, however, has reduced that role in recent years. Italy's basic mining legislation is mining law No. 1443 of July 29, 1927, which gives subsoil ownership of minerals to the state. The reimbursement of the state by mining concessionaires is regulated by law No. 752 of June 10, 1982. Quarrying operations are regulated by law No. 44 of September 1982.

As a member of the EU, Italy's national environmental policy generally is in full accord with established EU environmental laws and regulations. Disparities in the environmental policies of the two entities, such as the definition of term "waste," persisted, however, and affected Italy's ferrous and nonferrous metals scrap sector (Ferrigno, 2003). Environmental issues in Italy were focused on three main problem areas—air pollution from industrial emissions, such as sulfur dioxide; water pollution of coastal and inland rivers from industrial and agricultural effluents; and such natural hazards as avalanches, landslides, land subsidence in Venice, and volcanic eruptions (U.S. Central Intelligence Agency, 2006).

In the industrial minerals sector, a new legislative decree superseded law No. 748/1984. The new law stipulates that the standards for all domestic Italian mineral fertilizer grades are to be replaced with EU standards. Compulsory registration of fertilizer producers and products is specified in the legislation (Fertilizer Week, 2006).

## Production

In 2007, the iron and steel sector reported mixed results; the production of pig iron decreased slightly to 11.1 million metric tons (Mt) and the production of crude steel increased to 31.99 Mt, which was a decrease of about 4% and an increase of about 1.1%, respectively, compared with output levels in 2006. During the same period, output in the nonferrous metals sector also was mixed; aluminum production [848,100 metric tons (t)] and copper production (28,600 t) decreased by about 1.3% and 21%, respectively, compared with that of 2006. The output of mined lead remained static whereas that of refined lead metal increased by about 10%. Zinc metal declined slightly to about 100,000 t. In the industrial minerals sector, cement output increased by about 10% compared with that of 2006. Among mineral fuels, natural gas production decreased by 19% whereas petroleum production increased slightly (table 1).

## Structure of the Mineral Industry

Private and mixed public and private entities were the principal owners of Italy's mineral industry. Full Government (public) ownership continued mainly in the mineral fuels sector (table 2).

## Mineral Trade

In 2006 (the latest year for which foreign trade data were available), Italy's trade was mainly with other member-countries of the EU. The country's total exports amounted to slightly less than €27 billion<sup>1</sup> (\$430 billion) and those to the EU amounted to more than €90 billion (\$250 billion) and accounted for about 58.1% of total exports. Its exports increased by 8.5% from the previous year. Its total imports amounted to €348 billion (\$458 billion), and imports from the EU amounted to about €92.5 billion (\$253 billion) and accounted for about 55.3% of total imports. As a percentage of total exports, the value of fuel and nonfuel minerals constituted about 0.3%, or €1.08 billion (\$1.42 billion). Fuel and nonfuel minerals, however, accounted for more than 15.9% of the value of total imports. Among imports of mineral fuels and related material, natural gas and oil imports amounted to more than €50 billion (\$66 billion), which was an increase of about 22.9% compared with those of

<sup>1</sup>Values have been converted from European euros (€) to U.S. dollars (US\$) at a rate of €0.76=US\$1.00 for 2006.

the previous year and constituted about 96% of total imports in this category. Italy's net trade balance of nonmetallic minerals was a positive exchange of €6.1 billion (\$8 billion), and that of metals and metal products, a negative exchange of €5.7 billion (\$7.5 billion) (Istituto Nazionale di Statistica, 2007).

## Commodity Review

### Metals

**Aluminum and Bauxite and Alumina.**—In 2007, Italy's total output of primary and secondary aluminum decreased by about 1.3%, with secondary production remaining practically unchanged and primary production decreasing by 6% (table 1). The country's chief producers of alumina and primary aluminum were Alcoa Italia S.p.A. and Eurallumina S.p.A. (table 2).

**Copper.**—KME Group S.p.A. (a major European refiner and fabricator of copper that was headquartered in Florence) conducted its operations in Italy at Barga and at Scrivia under its subsidiary EuropaMetalli-LMI S.p.A. Copper and copper semimanufactures were the main products at these locations. Italy imported small amounts of copper concentrate and relied mainly on imports and scrap recovery.

**Iron and Steel.**—Italy remained a major European producer and consumer of pig iron and crude and finished steels. In 2007, the production of pig iron decreased slightly (by about 4% compared with output in 2006) to 11.1 Mt, and the production of crude steel increased by about 1.1% to 31.99 Mt (table 1). In 2007, Italy produced its highest production ever, which placed the country as the third ranked pig iron producer in the EU after Germany and France, and the second ranked producer of crude steel after Germany. Italy's apparent consumption of crude steel continued to rank the country second in Europe [excluding the Commonwealth of Independent States (CIS)] after Germany (International Iron and Steel Institute, 2006, p. 3, 10, 77, 80, 83).

**Lead and Zinc.**—In 2007, Italy's mine output of lead remained static whereas that of zinc metal decreased slightly to about 100,000 t. Domestic mine production of lead and zinc was not sufficient to meet demand, and the country imported most of its requirements for lead and zinc concentrates; a minor amount of lead and zinc concentrate, however, was produced in Sardinia. Glencore International AG of Switzerland remained the country's principal processor (smelter and refiner) of lead and zinc (table 2).

### Industrial Minerals

In 2007, Italy remained a leading European and global producer of such industrial minerals as bromine (among the top 13 world producers), pumice (25% of world output), feldspar (25% of world output), bentonite (4% of world output), lime (2% of world output), cement (1.7% of world output), and gypsum (1% of world output) (Bolen, 2008; Jasinski, 2008; Miller, 2008; Olson, 2008; Potter, 2008; van Oss, 2008; Virta, 2008). Domestic resources of several industrial minerals were insufficient to meet domestic demand and had to be imported; these included ball clay and barite (supplied mainly from Ukraine), chamotte (Germany), fluor spar (China), kaolin

(United States), magnesite (Turkey), mica (China), and talc (China) (Wilson, 2007).

**Pumice and Pumicite.**—In December 2006, Pumex S.p.A., which was the world's leading producer of pumice and pumice products, reportedly ceased mining operations. Pumex operations were located in Lipari off the northwest coast of Sicily—an island that in 2000 became part of the Aeolian island group that was declared a World Heritage Site by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Company spokespersons indicated that operations were to continue through processing stocks, which would be sufficient for about 12 months. Mining operations would resume when inconsistencies between commercial and environmental policies were resolved (Industrial Minerals, 2007).

### Mineral Fuels and Other Sources of Energy

**Natural Gas and Petroleum.**—In 2007, Italy's output of natural gas decreased by 19% whereas petroleum production increased slightly compared with production levels in 2006 (table 1). The country was not well endowed with hydrocarbons and imported much of its total domestic requirements for gas and refined oil. Italy's natural gas reserves were estimated to be 16 billion cubic meters, and its petroleum reserves were estimated to be 100 Mt (table 1; BP p.l.c., 2007).

Major issues in the oil and gas sector included plans to put the Tempa Rossa oilfield in the southern Apennines into production by 2010; petroleum would be extracted from six wells, of which five had been drilled by 2006. At full capacity, output at Tempa Rossa was expected to amount to about 50,000 barrels per day of petroleum, which would be transported to the Toranto refinery by pipeline. Total S.A. of France held 50% of Tempe Rossa's shares, and Exxon Mobil Corp. of the United States and Royal Dutch Shell plc of the Netherlands each held 25% (Petroleum Economist, 2006b). In midyear 2006, Eni obtained Government approval to develop the Guendalina and the Tea gasfields in the northern Adriatic area. Eni and Mediterranean Oil & Gas Plc of the United Kingdom owned 80% and 20% interest in the project, respectively (Petroleum Economist, 2006a).

**Nuclear Energy.**—In 2007, Metex Resources Ltd. of Australia remained interested in exploring for uranium in the Region of Lombardy; the company had announced its intention to explore for uranium there in September 2006. Deposits that were estimated to hold inferred resources of 870,000 t of ore (0.15%  $U_3O_8$ ) had been discovered in the Region in the 1960s. The company submitted an application for an exploration license to the Lombardy government in 2006; in response to pressure from local groups, the government placed a moratorium on processing the application. The area covered by Metex's exploration license application was about 291 hectares (719 acres) near Valgolio (Metex Resources Ltd., 2006).

### Outlook

Italy is expected to continue to be a major consumer and producer of durable goods and to continue to rely on imported and recycled mineral raw materials. Cement and steel production will probably continue to decline slowly and

eventually to stabilize, as the construction sector that drove it will probably slow down in response to economic conditions following the rapid development of previous years. The country is likely to continue to rely on major imports of mineral fuels, despite some anticipated increases in domestic production from new deposits coming onstream in the near term.

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

(Metric tons unless otherwise specified)

Commodity	2003	2004	2005	2006	2007 <sup>e</sup>
<b>METALS</b>					
<b>Aluminum:</b>					
Alumina, calcined basis	1,021,000	1,064,000	1,109,457	1,090,000	1,100,000
Bauxite <sup>e</sup>	--	--	300	--	--
<b>Metal:</b>					
Primary	191,400	195,400	192,900	194,200	182,600 <sup>2</sup>
Secondary	594,000	619,000	654,100	665,500	665,500 <sup>2</sup>
Total	785,400	814,400	847,000	859,700	848,100 <sup>2</sup>
Bismuth, metal <sup>e</sup>	5	5	5	5	5
Cadmium, metal, smelter	22	--	--	--	--
Copper, metal, refined, all kinds <sup>e</sup>	26,700 <sup>2</sup>	33,600	32,200	36,400 <sup>2</sup>	28,600
Gold, mine output, Au content	100 <sup>e</sup>	--	--	--	--
<b>Iron and steel, metal:</b>					
Pig iron	10,604	10,664	11,423	11,535	11,100
<b>Ferrous alloys, electric furnace:<sup>e</sup></b>					
Ferromanganese	40,000	40,000	40,000	40,000	40,000
Ferrosilicon	12,000	12,000	12,000	10,000	10,000
Silicomanganese	100,000	100,000	100,000	100,000	100,000
Other	10,000	10,000	10,000	10,000	10,000
Total	162,000	162,000	162,000	160,000	160,000
Steel, crude	26,832	28,317	29,061	31,624 <sup>r</sup>	31,990 <sup>2</sup>
<b>Lead:</b>					
Mine output, Pb content <sup>e</sup>	2,621 <sup>2</sup>	800	800	800	800
<b>Metal, refined:</b>					
Primary	16,000 <sup>e</sup>	40,000	49,500	34,600	47,800 <sup>2</sup>
Secondary	198,000 <sup>e</sup>	162,000	161,500	155,900	164,000 <sup>2</sup>
Total	214,000	202,000	211,000	190,500	211,800 <sup>2</sup>
Manganese, mine output, Mn content	763	714	600 <sup>e</sup>	600 <sup>e</sup>	600
Silver, mine output, Ag content <sup>e</sup>	1,000	200	100	100	100
Zinc, metal, primary	123,100	118,000 <sup>e</sup>	121,200	109,200	100,000
<b>INDUSTRIAL MINERALS</b>					
Barite	12,214	9,698	4,722	5,000 <sup>e</sup>	5,000
Bromine <sup>e</sup>	300	300	300	300	300
Cement, hydraulic	43,580	45,343	40,284	43,234	47,541 <sup>2</sup>
<b>Clays, crude:</b>					
Common clay	3,808	3,858	3,651	3,937	3,900
Bentonite	474	475	446	470	470
Refractory, excluding kaolinitic earth	2,639	1,375	1,310	1,964	1,960
Ball clay	691	568	539	550	550
Fuller's earth <sup>e</sup>	3 <sup>2</sup>	3	3	3	3
Kaolin	257	247	250 <sup>e</sup>	470	470
Diatomite <sup>e</sup>	25,000	25,000	25,000	25,000	25,000
Feldspar	2,972	3,251	3,335	4,019	4,727 <sup>2</sup>
Fluorspar	26,387	17,915	15,000	15,000 <sup>e</sup>	--
Gypsum	1,784	1,616	2,356	2,860	5,458 <sup>2</sup>
Lime, hydrated, hydraulic, and quicklime	5,510	5,982	5,894	5,800 <sup>e</sup>	6,000
Magnesia	444	350	371	348	765
Nitrogen, N content of ammonia	475	532	525	500 <sup>e</sup>	460
Perlite <sup>e</sup>	60,000	60,000	60,000	60,000	60,000
Pigments, mineral, iron oxides, natural <sup>e</sup>	500	500	500	500	500
<b>Pumice and related materials:</b>					
Pumice	25	27	28	30 <sup>e</sup>	30
Pozzolan <sup>e</sup>	4,000	4,000	4,000	4,000	4,000
Salt	2,128	3,174	3,613	3,438	2,214 <sup>2</sup>
Sand and gravel	212,169	176,252	206,149	210,000 <sup>e</sup>	210,000

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	2003	2004	2005	2006	2007 <sup>e</sup>
INDUSTRIAL MINERALS—Continued					
Silica sand	12,656	12,791	13,492	14,000 <sup>e</sup>	14,000
Sodium compounds, n.e.s.: <sup>3</sup>					
Soda ash	193 <sup>r</sup>	505 <sup>r</sup>	525 <sup>r</sup>	500 <sup>r,e</sup>	500
Sodium sulfate <sup>e</sup>	125	125	125	125	125
Stone:					
Calcareous:					
Alabaster <sup>c</sup>	5,000	7,215 <sup>2</sup>	7,000	7,000	7,000
Chalk	474	330	312	228	228
Dolomite	2,046	2,213	2,092	2,192	1,726
Marble and travertine, crude	4,396	5,155	5,061	4,687	4,643
Limestone for lime and cement	28,633	40,000	42,390	41,255	32,953
Granite	2,288	2,637	2,651	1,894	1,477
Sandstone	353	369	362	397	397
Slate	150	143	138	220	288
Crushed and broken <sup>4</sup>	44,562	54,195	61,640	60,000 <sup>e</sup>	60,000 <sup>2</sup>
Sulfur:					
From metallurgy	127	113	92	90 <sup>e</sup>	90 <sup>2</sup>
From hydrocarbons	565	575	650	650 <sup>e</sup>	650 <sup>2</sup>
Talc and related materials	122,849	111,887	112,781	146,942	112,080
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bituminous rock, natural	955	1,807	1,900	1,807	1,810
Coal, lignite	10	--	--	--	--
Coke, metallurgical <sup>e</sup>	4,500	4,500	4,000	4,000	4,000
Gas, natural	13,885	12,961	11,977	11,000	8,900
Natural gas liquids <sup>e</sup>	350	350	350	350	350 <sup>2</sup>
Petroleum:					
Crude:					
As reported	5,570,000	5,445,000	6,100,000	5,800,000	5,900,000
Converted	28,407	27,670	31,110	29,600 <sup>e</sup>	30,012
Refinery products <sup>e</sup>	650,000	650,000	650,000	650,000	650,000

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through March 31, 2009.

<sup>2</sup>Reported figure.

<sup>3</sup>Not elsewhere specified.

<sup>4</sup>Output of limestone and serpentine for dimension stone is included with "Stone: Crushed and broken."

TABLE 2  
ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(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. (UC Rusal, 56.2%)	Plant at Portoscuso, Sardinia	1,000
Aluminum	Alcoa Italia S.p.A. (Alcoa Inc., 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)	Barega and Mont 'Ega Mines on 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.	Società Mineraria Baritina S.p.A.	Mines at Marigolek, Monte Elto, and Primaluna, near Milan	20
Bauxite	Sardabauxiti S.p.A. (Cogein S.p.A., 40%; Comtec S.p.A., 40%; Icofin Co., 20%)	Mine at Olmedo, Sardinia	350
Bentonite	Industria Chimica Carlo Laviosa S.p.A.	Mines and plant on Sardinia and a plant near Pisa	250
Cement	52 companies, of which the largest are:		
Do.	Italcementi Fabbriche Riunite Cemento S.p.A.	18 plants, of which the largest are Calusco, Monselice, and Collefero	15,000
Do.	Buzzi Unicem Group	11 plants, of which the largest are Guidonia, Lugagnano, Morano, Piacenza, S'Arcangelo di Romagna, and Settimello	9,000
Do.	Cementerie del Tirreno S.p.A.	6 plants at Arquasta Scivia, Livorno, Maddaloni, Napoli, Spoleto, and Taranto	5,300
Copper:			
Refined	Società Metalli Italia S.p.A.	Refinery at Porto Marghera	60
Refined, secondary	Europametalli - LMI S.p.A.	Refinery at Fornaci di Barga	24
Do.	Sitindustrie S.p.A.	Refinery at Pieve Vergonte	22
Feldspar	At least 5 companies, of which the largest are:	Locations:	1,500
Do.	Maffei S.p.A.	Surface mines at Pinzolo and Campiglia	(200)
Do.	do.	Underground mine at Vipiteno	(300)
Do.	Miniera di Fragne S.p.A.	Surface mine at Alagna Valsesia	(60)
Do.	Sabbie Silicee Fossanova S.P.A.	Surface mine at Fossanova	(30)
Gold	kilograms Sargold Resources plc.	Furtei Mine near Cagliari, Sardinia	1,400
Gypsum	Fassa S.r.l.	Plant at Moncalvo, Asti	90
Lead, metal	Glencore International AG	Refinery at San Gavino, Sardinia	100
Do.	do.	Kivcet smelter and Imperial smelter at Porto Vesme, Sardinia	80
Lignite	Ente Nazionale per l'Energia Electrica	Surface mine at Santa Barbara (closed)	1,000
Lime	Unicale S.p.A.	Plants in Lombardy region	500
Magnesium, metal	Societa Italiana Magnesio S.p.A.	Plant at Bolzano	8
Marble	A number of companies, of which the largest include:	Locations:	2,000
Do.	Mineraria Marittima Srl	Quarries in the Carrara and Massa areas	(500)
Do.	Industria dei Marmi Vicentini S.p.A.	do.	(300)
Do.	Figaia S.p.A.	do.	(100)
Nitrogen, N content of ammonia	Hydro Agri S.p.A.	Plant at Ferrara	410
Petroleum:			
Crude	Ente Nazionale Idrocarburi	Oilfields: offshore Sicily, in the Adriatic Sea, and onshore in Po River Valley	90
Refined	thousand 42-gallon barrels per day do.	About 30 refineries	2,000
Potash, ore	Industria Sali Otassici e Affini per Aziono S.p.A.	Underground mines at Corvillo, Pasquasia, Racalmuto, and San Cataldo, Sicily (closed)	1,300
Do.	Sta. Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Casteltermini and Pasquasia, Sicily	700

See footnote at end of table.

TABLE 2—Continued  
 ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
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. (Italkahi)	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 S.p.A. (Riva Group)	5 steel plants, of which the largest is Taranto (1,500)	4,000
Do.	Riva Acciaio S.p.A. (Riva Group)	7 steel plants	7,000
Do.	Acciaierie e Ferriere Vicentine Beltrame S.p.A. (AFV-Beltrame S.p.A.)	Steel plant at Vicenza	1,000
Talc	Luzenac Val Chisone S.p.A.	Mines at Pinerolo, near Turin, and at Orani, Sardinia	120
Do.	Talco Sardegna S.p.A.	Mine at Orani, Sardinia	20
Zinc, metal	Glencore International AG	Plant at Porto Vesme, Sardinia	120
Do.	Pertulosa Sud S.p.A.	Plant at Crotone, Calabria	100

Do., do. Ditto.