

2016 Minerals Yearbook

ITALY

THE MINERAL INDUSTRY OF ITALY

By Elena Safirova

The mineral industry in Italy is composed mostly of companies that manufacture and process steel and other metals and construction and industrial products; however, significant amounts of industrial minerals and aggregates are mined. The industrial mineral mining industry—in particular, the companies that produce construction materials, mineral manufacturing components, and stone—are some of the leading producers, in terms of volume, in the world. Italy was the second-ranked producer of pumice, feldspar, and industrial sand and gravel in the world, having produced 23%, 17%, and 7.7% of the world's output of these commodities, respectively. The country also was a 6th-ranked gypsum producer, having produced 3.3% of world output, and the 10th-ranked lime producer (1.0% of world output) (Apodaca, 2018; Corathers, 2018; Crangle, 2018a, b; Dolley, 2018; Tanner, 2018).

Italy has largely ceased mining for metals and the raw materials necessary for its metal refining industry. The necessary materials are imported or obtained from secondary scrap recovery. Italy produced principally cement, clays, gypsum, lime and limestone, salt, sand and gravel, silica sand, and talc. Although Italy continued to produce natural gas and petroleum, production had been decreasing, and the country largely depended on imported petroleum and natural gas to satisfy domestic demand for energy (Italian National Institute of Statistics, 2017, p. 483–518; U.S. Central Intelligence Agency, 2018).

In 2016, Italy's gross domestic product (GDP), measured at market prices, was \$1.788 trillion,¹ which amounted to a 0.9% increase in real GDP growth compared with that of 2015. The country reported an unemployment rate of 11.7% and an inflation rate of negative 0.1% (deflation). Italy ranked fourth in the European Union (EU) in terms of GDP after Germany, the United Kingdom, and France. The value of Italy's services sector accounted for 73.9% of its GDP in 2016, whereas the entire industrial sector accounted for 24.0% of the GDP (Italian National Institute of Statistics, 2017, p. 413–417, 561–575; U.S. Central Intelligence Agency, 2018).

Minerals in the National Economy

In 2016, total industrial production increased by 1.2%. Mineral industry production decreased by 5.8%, measured in terms of value, and it had a 17.1% decrease in revenue compared with that of the previous year. Metallurgical and metal manufacturing sector production increased by 2.6% compared with that of the previous year, but the revenues decreased by 4.1% compared with those of the previous year. Italy's production of coke and refined petroleum products combined decreased by 2.0% and revenue decreased by 12.8% compared

with those of the previous year (Italian National Institute of Statistics, 2017, p. 563).

Government Policies and Programs

The Government played a significant role in the mining industry through regulation of ownership of large financial and industrial companies; however, privatizations and regulatory reform in accordance with EU directives had 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. All petroleum and gas upstream activities are supervised by the Ufficio Nazionale Minerario per gli Idrocarburi e la Geotermia [National Office for Mining, Hydrocarbons, and Geothermal Resources] (UNMIG), which operates within the Ministero dello Sviluppo Economico [Ministry of Economic Development]. After various organizational changes, the eight divisions that compose UNMIG all operate within the Directorate General for Energy and Mineral Resources. By Presidential decree, in 2007, the Committee for Hydrocarbons and Mineral Resources (CIRM) was set up to carry out the UNMIG's duties. The committee performs technical advisory tasks related to mining, hydrocarbons, and mineral royalties (Ministero dello Sviluppo Economico, 2010).

On April 17, 2016, Italy held a referendum on oil and natural gas drilling. The question on the ballot asked voters if they wanted to repeal a line in the 2016 Stability Law that allows drilling rigs within 12 nautical miles of the coast to continue operating until the field runs out of oil and gas. In 2016, new drilling concessions were no longer given out; the referendum was only about the existing concessions. The ballot was proposed by nine regional assemblies that objected to drilling platforms on environmental grounds and because of concerns about the effect on tourism. Prior to the referendum, Italy had a total of 44 exploration concessions that fell within the 12-mile range, and most of them were run by Eni S.p.A. of Italy. Opponents of the proposition warned that if the referendum passed, 11,000 jobs would be at risk. In 2016, Italy imported more than 90% of its oil and gas, and passage of the referendum would increase those shares even more (Balmer, 2016; Stefanini, 2016a, b).

Although a large majority of people voted in favor, the referendum failed to pass because the required quorum (50%) was not reached. Only 29% of voters turned out to cast their votes. Proponents argued that allowing drilling to continue indefinitely would likely slow the country's shift to renewable energy sources (Balmer, 2016; Stefanini, 2016a).

¹Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR0.940=US\$1.00 for 2016 and EUR0.937=US\$1.00 for 2015.

Production

In 2016, the largest increases in production, in terms of volume, were for bentonite (277%), table salt (58%), ball clay (33%), sandstone (29%), sulfuric acid (21%), pig iron (20%), primary zinc (18%), and alabaster (11%). The largest decreases in production, terms of volume, were for slate (49%); crude petroleum (31%); natural gas (24%); unspecified ferroalloys (20%, estimated); crude marble, including travertine (18%); dolomite (17%); industrial salt (16%); crushed limestone (14%); and feldspar (11%, estimated). These and other production data are in table 1.

Structure of the Mineral Industry

Mineral resources, by law, are the property of the state, but private and mixed public and private entities were the principal owners of Italy's mineral industry in 2016. Significant companies with operations in Italy were Glencore plc of Switzerland, which had a lead refinery at San Gavino; IMI FABI S.p.A, which had a talc mine at Orani; HeidelbergCement AG, which had acquired Italcementi S.p.A. and had major cement plants in Calusco, Collefero, and Monselice; Lucchini S.p.A., which produced pig iron at a plant in Trieste; and the petroleum and hydrocarbons company Eni S.p.A., which had oilfields offshore Sicily and in the Adriatic Sea and onshore in the Po River Valley (table 2).

Mineral Trade

In 2016, Italy exported a total of \$454.1 billion worth of goods and services and it imported a total of \$387.1 billion in goods and services. Italy's principal export trade partners were Germany, to which Italy sent 12.6% of its exports; France, 10.5%; the United States, 8.9%; the United Kingdom, 5.4%; Spain, 5.0%; and Switzerland 4.6%. Italy's principal import trade partners were Germany, from which Italy received 16.3% of its total imports; France, 8.9%; China, 7.5%; the Netherlands, 5.5%; Spain (5.3%); and Belgium, 4.9% (Italian National Institute of Statistics, 2017, p. 521–536; U.S. Central Intelligence Agency, 2018).

Commodity Review

Metals

Iron and Steel.—In 2016, the ILVA Group (ILVA), which comprised ILVA S.p.A. and a number of structurally linked companies, was put up for sale. ILVA had 15 production units (13 in Italy and 2 in France), including the Taranto steel plant, which was the largest steel plant in Italy and the third-largest plant in Europe. In 2014, the company, on average, produced about 540,000 metric tons per month of steel. In January 2015, ILVA had a debt totaling almost 3 billion euros (about \$3.3 billion), and Milan's bankruptcy court declared ILVA insolvent. By this action, the court affirmed the removal of ILVA from the Riva family's ownership and the placement of ILVA under temporary management by three Government-appointed commissioners. The Taranto steel plant was placed under temporary public control, which was expected to last no longer than 3 years. Also, the

Government was expected to save about 16,000 jobs and to clean up emissions from the plant that were shown to cause high levels of pollution in the city of Taranto. In April 2015, the Government guaranteed a 400-million-euro (\$425 million) bridge loan for the plant and, in December 2015, it signed an emergency decree to provide \$300 million euros (about \$320 million) in financing to accelerate the ending of direct state control of the plant (ANSA.it, 2015; ET Realty, 2015).

In January 2016, the Government launched a tender to find a buyer for the ILVA steelworks. The tender specified that offers could be submitted between January 10 and February 10, 2016, by individual companies or by groups. The Government emphasized that offerors would need to ensure that production continued, jobs were largely protected, and environmental regulations enforced. In addition to the Taranto plant, the seven subsidiary companies—Ilva Servizi Marittimi, Ilvaform, Innse Cilindri, Canac, Taranto Energia, Socova, and Tillet—were also put up for sale with the same deadlines as the Taranto plant. The Government specified that it intended to complete the sale by June 30, 2016 (Ferrari, 2015; ANSA.it, 2016; Thelocal.it, 2016).

In January 2016, in response to the Government's involvement in the rescue of the troubled ILVA plant, the European Commission (EC) announced an investigation into whether the Government-guaranteed loans and direct aid to ILVA amounted to illegal state aid. The EC was expected to investigate whether the polluter (ILVA) or the Government would pay for the environmental cleanup caused by the Taranto plant and whether any taxpayer money had been spent on plant modernization, which could have given the Italian steelmaker an unfair advantage. The EU rules allowed member states to support research activities or relieve steel companies of some energy costs, but there were strict rules against bailing out companies facing financial difficulties. The steel industry was suffering from global excess capacity, and the EC tried to ensure that Governments did not engage in harmful subsidy races (Aries, 2016; Cattolica Global Markets Magazine, 2016).

In February 2016, the Government announced that the tender had attracted 29 potential bidders who were interested in buying all or a part of ILVA. Italy's Amenduni Group; Arvedi Group; Marcegaglia Group; Duferco S.A of Switzerland; and the world's leading steel producer, ArcelorMittal of Luxembourg, expressed their interest in ILVA. In the following months, ILVA reviewed offers, sorted applications, and allowed the offerors to review ILVA's documents prior to placing precise bids. By June 2016, there were two joint-bid offers. One of the bids was offered by Arvedi Group of Italy and Erdemir Group of Turkey and the other was offered by ArcelorMittal. The bidding process was further delayed, and by yearend, it was still not clear who would become the next owner of ILVA (ThemEDIATELEGRAPH.com, 2016; Thomson Reuters, 2016).

Lead, Silver, and Zinc.—In March 2016, Energia Minerals Ltd. of Australia reported that it had completed its resource estimation for lead, zinc, and silver at the Colonna Zorzone zinc deposit within its wholly owned Gorno zinc project in northern Italy. The estimates were based on an 8-month-long diamond-drilling program. Total indicated and inferred resources were 3.87 million metric tons (Mt) grading 6.1%

zinc (with a 1.0% Zn cutoff), 1.6% lead, and 25 grams per metric ton silver. These resources would yield 238,000 t of contained zinc, 63,000 t of contained lead, and 3.1 million troy ounces (about 96,000 kilograms) of contained silver. Energia Minerals also generated a new exploration target of between 7 and 10 Mt of lead and zinc at the Gorno project, which was an alpine-style zinc-lead-silver deposit containing high-grade Mississippi Valley-type zinc (Leach and others, 1986; MiningCapital.com, 2016).

In December 2016, Energia Minerals was in the middle of its ongoing definitive feasibility study that was on track to be completed in March 2017. The company reported that it had received written confirmation from the local government, Commune Di Gorno, that the historical treatment plant site at Riso, near Gorno, which was the preferred site for logistical reasons, was available for the construction of a treatment plant. The company was working on the design of a treatment plant; the preliminary mine design had been completed and was expected to be refined as the resource definition was further refined. Late in 2016, the company continued resource definition drilling. By yearend, the company stated that, with a high-grade resource, a supportive local community, and favorable market conditions, Energia Minerals was on a clear path to financing, development, and production (Van Wyngaardt, 2016).

Industrial Minerals

Cement.—In 2016, Italy's cement production and consumption continued to decrease. Cement production decreased by an estimated 8.1%; it had continued to decrease since the financial crisis in 2008. In 2006, prior to the financial crisis, both production and consumption of cement were at about 47 million metric tons per year. During this 10-year period, the industry was undergoing a deep restructuring and 26 kilns were closed. Italy's cement consumption decreased by 4.7% in 2016 compared with that of 2015. An analysis by type of construction showed that this decrease was present across all sectors. The cement consumption forecast for 2017 suggested a further decrease, by 3.0%, owing mainly to anticipated weak demand by the public sector (Associazione Italiana Tecnico Economica Cemento, 2017; Cembureau, 2017, p. 12; Rowland, 2017).

Consolidation was a recent trend in Italy's cement industry. In 2016, HeidelbergCement AG of Germany completed the purchase of Italcementi S.p.A. for \$4.1 billion, which the parties had agreed to in 2015. The acquisition of Italcementi would expand HeidelbergCement's operations in countries located along the Mediterranean coast, such as Italy and Egypt, as well as in other European countries, such as Belgium, which combined represented the company's biggest market (AggregateResearch.com, 2016; HeidelbergCement Group, 2016).

Mineral Fuels and Related Materials

Petroleum.—In 2016, Italy's production of crude petroleum continued to decrease. The country's net imports of petroleum and other energy liquids were about 1.2 million barrels per day, or about 450 million barrels per year (Mbbbl/yr). At the same time, Italy continued to be a major oil-refining center in Europe

and a leading exporter of refined petroleum products. Italy's refining capacity of about 750 Mbbbl/yr was second in Europe after Germany and among the top 10 producing countries in the world. Italy was also a major transit country for crude petroleum. The key pipeline systems in Italy were the Central Europe pipeline system [750 kilometers in length, from Italy to Switzerland and Germany], the Transalpine pipeline (from Italy to Germany, Austria, and Czechia), and the Northern Italian Pipeline System. Italy was a logistics center, through which petroleum from exporting countries (Azerbaijan, Russia, and Saudi Arabia) was distributed to refineries across Europe (U.S. Department of State, 2008; U.S. Energy Information Administration, 2017; TAL Group, 2018).

Outlook

Italy is one of the largest EU members in terms of population and the size of its industrial sector. The economic conditions that have affected the country since 2008 continue to affect its mineral and industrial production sectors, but there are indications that the mineral commodity markets may begin to recover slowly. The country is likely to continue being a significant producer of processed metals and industrial minerals and is also likely to continue to rely on imports of mineral fuels. Small metal mining projects, such as the Gorno zinc project in northern Italy, could result in some metal mining, but are unlikely to alter the country's production structure significantly.

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TABLE 1
ITALY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2012	2013	2014	2015	2016
METALS					
Aluminum metal:					
Primary	110,000	--	--	--	--
Secondary	1,002,814	1,061,603	1,000,000 ^c	1,000,000 ^c	1,000,000 ^c
Copper, refinery production, secondary	2,000 ^r	4,900 ^r	7,900 ^r	7,300 ^r	6,600
Ferroalloys:					
Ferromanganese	12,000	6,000	--	--	--
Silicomanganese	24,000	--	--	--	--
Other, unspecified ^c	10,000	10,000	10,000	10,000	8,000
Iron and steel:					
Pig iron	9,424	6,933 ^r	6,371	5,051	6,048
Raw steel	27,257 ^r	23,093 ^r	23,714	22,018	23,373
Lead, refinery production:					
Primary	--	30,000 ^c	50,000 ^c	50,000 ^c	55,000 ^c
Secondary ^c	138,000	150,000	160,000	160,000 ^r	160,000
Zinc, smelter production, primary	275,309 ^r	267,624 ^r	154,982 ^r	158,214	186,028

See footnotes at end of table.

TABLE 1—Continued
ITALY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²		2012	2013	2014	2015	2016
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	26,240	23,100	21,400	21,000 ^{r, e}	19,300
Clay and shale:						
Ball clay	do.	693 ^r	300 ^r	372 ^r	305 ^r	407
Bentonite	do.	96 ^r	21 ^r	20 ^{r, e}	13 ^r	49
Common clay	do.	3,328 ^r	4,679 ^r	3,608 ^r	2,925 ^r	3,115
Fire clay	do.	327	429	223	300	327
Refractory, excluding kaolinitic earth	do.	878	870	870	870	870 ^e
Feldspar, mine production ^e	do.	4,700	4,700	4,700 ^r	4,500 ^r	4,000
Gypsum and anhydrite	do.	3,201 ^r	3,192 ^r	5,887 ^r	572 ^r	617
Lime, hydrated, hydraulic, and quicklime ^e	do.	5,800	3,640	3,600	3,500	3,500
Nitrogen, ammonia, N content ^e	do.	590 ^r	570	570	570	570
Pigments, mineral, iron oxides, natural ^e		23 ^r	25 ^r	30 ^r	38	36
Pumice and pumiceous lapilli ^e		30,000	28,000	28,000	43,000	43,000
Salt:						
Table	thousand metric tons	1,192 ^r	365 ^r	468 ^r	305 ^r	482
Industrial	do.	3,404	2,672	2,820	3,031	2,535
Stone, sand, and gravel:						
Sand and gravel, construction, unspecified	do.	123,049	102,381	73,690	73,690	75,000 ^e
Silica, mine production, unspecified	do.	13,946	13,870	11,602 ^r	13,900	13,900 ^e
Stone, crushed:						
Limestone, for lime and cement	do.	26,863 ^r	27,435 ^r	17,095 ^r	22,844 ^r	19,578
Other, including broken	do.	74,169	63,782	44,143	44,143	45,000 ^e
Stone, dimension:						
Alabaster, calcareous	do.	6,925 ^r	9,865 ^r	4,423 ^r	5,122 ^r	5,687
Chalk, calcareous	do.	200	910 ^r	719	719	700 ^e
Dolomite, calcareous	do.	807 ^r	735 ^r	706 ^r	516 ^r	426
Granite	do.	886 ^r	1,010 ^r	466 ^r	673 ^r	673
Marble, including travertine, crude, calcareous	do.	2,574 ^r	3,087 ^r	1,128 ^r	1,310 ^r	1,070
Sandstone	do.	279 ^r	241 ^r	323 ^r	322 ^r	415
Slate	do.	59	42	85	59	30
Sulfur, byproduct, S content: ^e						
Metallurgy		58,000 ^r	40,200 ^r	40,200 ^r	40,200 ^r	40,000
Petroleum		540,000 ^r	510,000 ^r	510,000 ^r	510,000 ^r	510,000
Sulfuric acid		891	830	1,173	964	1,167
Talc and related materials, steatite and talc		140,000 ^e	162,234	165,000 ^e	165,000 ^e	165,000 ^e
MINERAL FUELS AND RELATED MATERIALS						
Asphalt and bitumen, natural	thousand metric tons	1,216 ^r	953 ^r	687 ^r	700 ^r	700 ^e
Natural gas	million cubic meters	8,608	7,731	7,136	7,200	5,500 ^e
Petroleum:						
Crude	thousand 42-gallon barrels	36,865	37,157	38,690	38,690	26,800
Refinery production	do.	617,543	549,690	550,000	550,000	500,000

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through March 12, 2018. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, Italy may have produced barite, coke, diatomite, kaolin, magnesite, perlite, potash, pozzolan, and soda ash, but available information was inadequate to make reliable estimates of output.

TABLE 2
ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, secondary	RaffiMetal S.p.A	Plant at Costo	250
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
Cement	11 companies, of which the largest are: Italcementi S.p.A (HeidelbergCement)	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
Clay, bentonite	Industria Chimica Carlo Laviosa S.p.A	Mines and plant on Sardinia and a plant near Pisa	250
Copper:			
Refined	Simar S.p.A. (Cordifin S.p.A.)	Refinery at Porto Marghera	60
Refined, secondary	KME Italy S.A. (KME Group S.p.A.)	Refinery at Fornaci di Barga and Scrivia	24
Do.	Sitindustrie S.p.A.	Refinery at Pieve Vergonte	22
Feldspar	At least 5 companies, of which the largest are: Maffei S.p.A. do. Miniera di Fragne S.p.A. Sabbie Silicee Fossanova S.P.A.	Locations: Surface mines at Pinzolo and Campiglia Underground mine at Vipiteno Surface mine at Alagna Valsesia Surface mine at Fossanova	4,000
Gypsum	Fassa S.r.l.	Plant at Moncalvo, Asti	NA
Do.	Gyroc Saint Gobain	Quarry in Tondo	NA
Iron and steel:			
Pig iron	Altiforni e Ferriere di Servola S.p. A. (Lucchini S.p.A.)	Pig iron and coke plant at Trieste	500
Steel	ILVA S.p.A. (Government)	5 steel plants, the largest of which is Taranto	6,000
Do.	Riva Acciaio S.p.A. (Riva Group)	7 steel plants	7,000
Do.	Cevital S.A.	Steel plant in Piombino	2,500
Do.	Acciaierie e Ferriere Vicentine Beltrame S.p.A. (AFV-Beltrame S.p.A.)	Steel plant at Vicenza	1,000
Lead, metal	Glencore plc	Refinery at San Gavino, Sardinia	100
Do.	do.	Kivcet smelter and Imperial smelter at Porto Vesme, Sardinia	85
Lime	Unicale S.p.A.	Plants in Lombardy region	3,500
Magnesium, metal	Società Italiana Magnesio S.p.A.	Plant at Bolzano	8
Natural gas	Eni S.p.A.	Fields in the Adriatic Sea and Ionian Sea	NA
Nitrogen, N content of ammonia	Hydro Agri S.p.A.	Plant at Ferrara	570
Petroleum:			
Crude	Eni S.p.A.	Oilfields offshore Sicily and in the Adriatic Sea, and onshore in the Po River Valley	NA
Refined thousand 42-gallon barrels per day	Several companies, including: AgipPetroli S.p.A. ERG Refinerie Mediterranee North ERG Refinerie Mediterranee South Exxon Mobil Corp. Saras S.p.A.	About 14 refineries, including: Sannazaro, Pavia; Gela, Ragusa Priola, Sicily Melilly, Sicily San Marino di Treconte; Augusta, Siracusa Saroeh, Sardinia	2,000

See footnotes at end of table.

TABLE 2—Continued
ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash, ore	Industria Sali Otassici e Affini per Aziono S.p.A.	Underground mines at Corvillo, Pasquasia, and Racalmuto, Sicily	1,300
Do.	Societa Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Casteltermini and Pasquasia, Sicily	700
Pumice	Pumex S.p.A.	Quarries on 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	Societa 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	2,000
Stone, marble	A number of companies, of which the largest include: Figaia S.p.A. Industria dei Marmi Vicentini S.p.A. Mineraria Marittima Srl	Locations: Quarries in the Carrara and Massa areas do. do.	2,000
Talc	Luzenac Val Chisone S.p.A.	Mines at Pinerolo, near Turin, and an open pit mine in Orani, Sardinia	150
Do.	IMI FABI S.p.A.	Mine at Orani, Sardinia	20
Zinc, metal	Glencore plc	Plant at Porto Vesme, Sardinia	140
Do.	Pertulosa Sud S.p.A.	Plant at Crotone, Calabria	100

Do., do. Ditto. NA Not available.