

# THE MINERAL INDUSTRY OF FRANCE

By Harold R. Newman

France was a major European mineral producer and the world's sixth ranked industrialized economy in terms of the gross domestic product (GDP). The country has a tradition of highly centralized administrative oversight of essentially a market-based economy. International pressures of globalization and more-direct pressure from the European Union (EU) were moving the trend away from Governmental involvement in industry. The Government was working on a decentralization program that will transfer many central Government responsibilities to the regions, departments, and cities. In accordance with EU requirements, the reduction of Government subsidies to support uneconomic mineral operations continued in 2004. Total general government outlays amounted to almost 53% of the GDP, which was one of the highest percentages among the Organisation for Economic Co-operation and Development (OECD) countries (U.S. Commercial Service, 2004§<sup>1</sup>).

France had a population of 60.6 million in 2004, and has a land area of 545,630 square kilometers, which excludes overseas administrative divisions. In 2004, the GDP based on purchasing power parity was \$1.7 trillion, which was the second largest in the EU, and per capita income based on purchasing power parity was \$27,900. The inflation rate was 2.1%, and the unemployment rate was 9.7% (International Monetary Fund, 2005§).

Changing economic conditions, such as rising energy costs, increased imports of raw materials from other countries, and depletion of mineral reserves, have required the closing or reduced output of such traditionally strong mineral extractive operations as bauxite, coal, iron ore, and uranium during the past 10 years.

## Government Policies and Programs

Considerable progress has been made in privatization through implementation of EU liberalization and deregulation directives. Reforms undertaken in France during the past two decades have helped the country's economic performance, but further improvements in regulations could benefit its businesses and citizens. Regulatory reform by the Government has reduced the role of the state in its economy and has largely opened its markets to competition. Efforts were continuing to promote the private sector and to reduce the dependence of state-owned companies on subsidies (Organisation for Economic Co-operation and Development, 2004§).

## Environmental Issues

The Ministère de l'Écologie et du Développement Durable was responsible for key environmental issues, which included agriculture runoff, air pollution from industrial and vehicle emissions, forest damage from acidic rain, and water pollution

from urban wastes. The Government was committed to reducing toxic emissions and to adherence to regulations that concerned transportation of hazardous materials. The major natural hazards in France were avalanches, droughts, and flooding (U.S. Central Intelligence Agency, 2005§).

French steel producers are required to cut their carbon dioxide (CO<sub>2</sub>) emissions by 2.7% to 28.7 million metric tons per year (Mt/yr) during the first phase of the EU emission trading scheme that extends from January 2005 to yearend 2007. The French steel industry voluntarily cut its CO<sub>2</sub> emissions by 7% between 1990 and 2000, despite an increase in crude steel production from 17.8 million to 19 million metric tons (Mt) during that period. This translates to a 13% CO<sub>2</sub> reduction per metric ton of steel produced during those 10 years (Metal Bulletin, 2004a).

Environmental ministers of the 25 EU countries reached a political agreement on a draft law aimed at controlling the environmental effects of waste from mining and quarrying. The legislation would set tougher standards for the planning, licensing operations, closure, and after-care of waste facilities and provide for a major accident policy for high-risk facilities. The directive was likely to be adopted formally and to enter into force in 2005, but member states would have until the end of 2007 to implement it (Mining Journal, 2004b).

## Production

Metal and mineral industries generally maintained production and other activities at about the same rate or continued to decline compared with those of 2003 (table 1). Several industries have steadily undergone changes during the past few years; this was especially true for iron ore, which was no longer mined. Some bauxite waste dumps in the Languedoc region were reprocessed; the resulting product was used by cement companies to correct alumina and the iron content of cement. The uranium mining sector closed its last operation in 2003 owing to depletion of commercial reserves. The mining sector contributed less than 0.7% to the annual GDP and employed less than 1% of the workforce (Link2Exports Co., 2004§).

The coal industry, along with other mineral producers, was affected by cheaper foreign sources, high operating costs, and the depletion of domestic resources.

## Trade

In general, EU agreements and practices determine France's trade policies. Strong commercial relations continued between France and the United States, and Germany remained France's leading export destination. On the basis of the quantity of exports and imports, France was the third largest trading partner in Europe after the United Kingdom and Germany, and the ninth largest trading partner of the United States worldwide. French exports, reexports, and imports for 2003, the latest year for which data were available, are listed in tables 3 and 4.

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

In 2004, export of goods and services was 26% of the GDP, import of goods and services was 25% of the GDP, and trade in goods as a share of the GDP was 44% (World Bank Group, 2005§).

## Structure of the Mineral Industry

Government and private companies explored for new domestic and international mineral resources, conducted research, and produced minerals and mineral products. Adjustment to the single European market resulted in mergers, closures of operations, and cooperative ventures as companies sought ways to obtain competitive advantages (table 2).

## Commodity Review

### Metals

**Aluminum.**—Alcan Inc. of Canada announced that it had secured 97.95% of Aluminium Pechiney's (a subsidiary of Pechiney Group of France) total share capital as of December 30, 2003. At the time of acquisition, Pechiney Group represented about \$12 billion in annual revenue and about \$10 billion of asset value. Through the combination of the two companies, Alcan was expecting to realize annual cost savings and benefits of about \$360 million (Alcan Inc., 2004b§).

Alcan acquired the remaining 65% stake in the Aluminium Dunkerque smelter, which was located in Dunkirk (Dunkerque) in northern France, from the smelter's financial partners at a cost of €280 million (\$347 million<sup>2</sup>) (Alcan Inc., 2004a§).

**Antimony.**—Produits Chimiques de Lucette (PCL) produced antimony metal, antimony derivatives, and antimony-based flame retardant formulations. PCL's product portfolio included the TRIOX® range of standard and special antimony trioxide (Sb<sub>2</sub>O<sub>3</sub>) and POLYTRIOX® extruded plastic master-batches that contain Sb<sub>2</sub>O<sub>3</sub> and one or more additives (Industrial Minerals, 2004a).

**Gold.**—The Bank of France raised the possibility that it might sell up to 50,000 kilograms (kg) of gold from its holdings. Any sales would be made within the limits of the central bank gold agreement that went into effect September 2003. The agreement will allow the 14 participating European central banks to sell up to 500,000 kilograms per year (kg/yr) of gold compared with the 400,000 kg/yr authorized in the previous agreement. France's reserves of 3,025,000 kg was the world's fourth ranked reserves of gold and was the highest share (65%) of total reserves among the 14 central banks. The value of the country's reserves of foreign exchange and gold was estimated to be \$70.8 billion at yearend 2003 (Mining Journal, 2004a).

Mines d'Or de Salsigne's underground Salsigne Mine near Carcassonne, which had been closed since 2002, remained closed and on care and maintenance status at yearend 2004.

**Iron and Steel.**—Sollac Atlantique S.A. (a subsidiary of the Arcelor Group) was increasing crude steel production by 700,000 t/yr to a total of 6,700 Mt/yr at its Dunkirk works. This action was to support increased hot rolled coil output. The Dunkirk plant comprised two sinter plants, one coking plant, three blast furnaces, one steel plant equipped with three basic

oxygen furnace converters, two vacuum treatment units, and one nonreversing hot-strip mill (Metal Bulletin, 2004c).

Sollac's integrated plant at Florange comprised a sinter plant, a coking plant, two blast furnaces, a steel plant, a hot-strip mill, a coupled pickling/cold-rolling plant, and a continuous-annealing line. Florange also operated a galvanizing line and an electrogalvanizing line and was an important supplier to the automotive sector and household appliance manufacturers (Arcelor Group, 2004§).

**Lead and Zinc.**—Metaleurop S.A. was granted a stay by the Paris Commercial Court after agreeing to a process of judicial management. The ruling allowed Métaleurop an observation period during which a recovery plan would be put in place. During this period, the operations of the company would continue. An administrator appointed by the court would monitor all commercial activities (Metal Bulletin, 2004b).

### Industrial Minerals

**Cement.**—Lafarge S.A. and Société des Ciment Français were the two leading producers of cement in France. Lafarge, which was founded in 1833, was first worldwide in the production of cement and roofing, second worldwide in aggregates and concrete, and third worldwide in gypsum. Lafarge was a market leader in cement in France and worldwide (International Cement Review, 2004).

**Fluorspar.**—Société Générale de Recherches et d'Exploitation Minière (SOGEREM) (a subsidiary of Alcan Inc.) produced fluorspar in the Tarn region of southwest France. Production varies each year among SOGEREM's three mines and totaled about 80,000 metric tons (t) of acid-grade and about 10,000 t of metallurgical-grade fluorspar in 2004. Alcan consumed only a small amount of SOGEREM's production in its aluminum production, although 80% remained in France. The remainder was exported to Europe (mainly Germany and Italy), North America, and Tunisia (Industrial Minerals, 2004b).

**Gypsum.**—France was one of Europe's major producers of gypsum. Two-thirds of the production was from the Paris Basin. Of the companies that produced about 95% of the Basin output, S.A. de Matériel de Construction was the leading producer.

**Potash.**—With the closing of the last mine in 2002, potash was no longer mined in France. Mines de Potasse d'Alsace S.A. was continuing with postmining programs, which included disposing of property, remediation, and enhancing the environment. These activities were expected to continue through 2009 (Alsace Development Agency, 2004§).

### Mineral Fuels and Related Materials

France has few indigenous energy sources, with only small amounts of coal, natural gas, and petroleum. The exploitation of these resources has steadily decreased during the past two decades, and nuclear power has dominated the energy supply sector. French energy policy has been relatively consistent with the main objectives of securing energy supply, achieving international competitiveness, and protecting the environment. The focus on energy security has led France to become one of the world's top producers and consumers of nuclear power.

<sup>2</sup>Where necessary, values have been converted from European Union euros (€) to U.S. dollars (\$) at a rate of €1.00=\$1.24.

**Coal.**—Charbonnages de France proceeded with final rationalizations that resulted in the closure of its last operating coal mine, La Houve near Cretzwald. This brought an end to coal production in France in 2004 (U.S. Energy Information Administration, 2004§, p. 4).

ATH Resources of the United Kingdom, through its French subsidiary Société des Ressources Minières du Massif Central S.A., was in the process of acquiring two coal concessions that it intended to develop into surface operations. The two coal projects were in various stages of development with drilling programs planned for 2004 and 2005 (Mining Journal, 2004c).

**Natural Gas and Petroleum.**—Because of its limited natural gas resources (15.9 billion cubic meters as of January 2004), France imported almost all the natural gas that it consumed; domestic production supplied only 3% of demand. Reliance on imports would most likely increase because the country's largest natural gas field, Lacq, was nearly depleted. Sources of natural gas imports were Algeria, Norway, and Russia (U.S. Energy Information Administration, 2004§).

France had 146 million barrels of estimated proven reserves of petroleum at yearend 2004. France was the tenth ranked consumer of petroleum in the world, consuming 2.04 million barrels per day (Mbb/d) in 2004. To meet this demand, crude oil imports totaled 1.96 Mbb/d in 2004. The major sources of these imports were Norway, Russia, Saudi Arabia, and the United Kingdom (U.S. Energy Information Administration, 2004§).

**Nuclear Energy and Uranium.**—Compagnie Générale des Matières Nucléaires, which was the state-owned uranium mining company, was the major producer of uranium. France was the world's leading nuclear power generator on a per capita basis and ranked second in total installed nuclear capacity after the United States. About 79% of electricity generated in France came from 58 nuclear powerplants. Because a number of reactors will need to be shut down between 2015 and 2020, the Government will face choices of replacing obsolete nuclear powerplants with more modern powerplants. France partnered with Germany to develop the European Pressurized Reactor (EPR). The EPR is a third-generation reactor that is designed to be safer, more efficient, and less susceptible to a terrorist attack. Each EPR reactor is expected to be able to produce about 1,600 megawatts (MW) of electricity versus 900 MW for most second-generation reactors. Electricité de France (EdF) announced that it would build the world's first EPR at a site near Flamaville in the Basse Normandie region of northern France. EdF was planning to complete the project by 2012 at a cost of \$3.8 billion (U.S. Energy Information Administration, 2004§).

## Outlook

Having one of the world's most developed economies, France was an advocate of the EU and European single-market concept. The country has had to make considerable changes in the structure of its industries, particularly those mineral industries controlled by the State. Some state-owned companies, such as EdF, have taken the initiative to become leaders in their respective industries. Others have been forced to make additional adjustments under rationalization schemes proposed by either the EU or the French Government. The depletion

of mineral resources and/or the cessation of subsidies for uneconomic operations have had impacts on local communities and their economies. France has the advantage of plentiful electrical power to attract industrial facilities that require skilled workforces and good access to markets in Europe. If nuclear power is phased out, then imports of oil and gas will be required to supplement power production from wind farms.

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## Major Sources of Information

Ministère de l'Économie, des Finances et de l'Industrie (MINEFI)  
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TABLE 1  
FRANCE: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2000	2001	2002	2003	2004 <sup>c</sup>	
<b>METALS</b>						
<b>Aluminum:</b>						
Bauxite, gross weight <sup>3</sup>	thousand metric tons	185	174	170	168	168
<b>Alumina:</b>						
Crude	do.	500	600	600 <sup>e</sup>	500 <sup>e</sup>	500
Calcined	do.	462	480	500 <sup>e</sup>	450 <sup>e</sup>	450
<b>Metal:</b>						
Primary	do.	441	462	463	445	541 <sup>4</sup>
Secondary	do.	260	253	262	240	236 <sup>4</sup>
Antimony, metal, including regulus <sup>c</sup>		500	500	500	500 <sup>e</sup>	500
Cadmium metal		160	176	63	--	--
<b>Cobalt, metal:</b>						
Powder <sup>c</sup>		600	600	500	500	500
Chloride		204	199	175	181	191 <sup>4</sup>
<b>Copper:<sup>c</sup></b>						
Mine output, Cu content		100	--	--	--	--
<b>Metal, secondary:</b>						
Blister		1,000	500	--	--	--
Refined		1,500	1,500	500	--	--
Gold, mine output, Au content	kilograms	2,632	2,510	1,724	1,470	1,312 <sup>4</sup>
<b>Iron and steel:</b>						
<b>Metal:</b>						
Pig iron	thousand metric tons	13,661	12,004	13,217 <sup>r</sup>	12,756	13,200 <sup>4</sup>
<b>Ferroalloys, electric furnace:<sup>c</sup></b>						
Ferromanganese	do.	140	130	130	130	106 <sup>4</sup>
Ferrosilicon	do.	110	100	100	100	87
Silicon metal	do.	60	65	65	65	65
Other	do.	100	100	100	100	100
Total	do.	410	395	395	395	358
<b>Steel:</b>						
Crude	do.	21,002	19,431	20,524	19,803	20,760 <sup>4</sup>
Hot-rolled	do.	17,722	16,593	18,561	18,400	19,128 <sup>4</sup>
<b>Lead:</b>						
Smelter, secondary		209,000	132,000 <sup>e</sup>	105,000	--	-- <sup>4</sup>
<b>Refined:</b>						
Primary		109,868	98,257	83,575	1,535	--
Secondary		158,226	143,338	111,643	96,155	105,600 <sup>4</sup>
Total		268,094	241,595	195,218	97,690	105,600 <sup>4</sup>
Magnesium metal, including secondary <sup>c</sup>		16,500	4,000 <sup>5</sup>	--	--	--
Nickel metal <sup>6</sup>		10,100	11,033	11,440	11,138	12,100
<b>Silver:<sup>c</sup></b>						
Mine output, Ag content	kilograms	720 <sup>4</sup>	800	600	500	500
Metal, Ag content of final smelter products	do.	500	450	400	400	400
Tin, secondary		1,257	1,644	1,600	1,500	1,500
Tungsten, mine output, W content of powder <sup>c</sup>		500	500	500	500	500
Zinc metal, including slab and secondary		347,705	343,805	338,924	268,408	267,528 <sup>4</sup>
<b>INDUSTRIAL MINERALS</b>						
Barite, BaSO <sub>3</sub> equivalent		91,000	81,000	80,000 <sup>e</sup>	81,000	81,000
Bromine, elemental <sup>c</sup>		7,900 <sup>4</sup>	7,800	6,000	6,000	6,000
Cement, hydraulic	thousand metric tons	20,191	19,839	19,450 <sup>r</sup>	19,660 <sup>r</sup>	20,960 <sup>4</sup>
<b>Clays:</b>						
Kaolin and kaolinitic clay (marketable)	do.	380	375	339	323	316 <sup>4</sup>
Refractory clay, unspecified	do.	12	14	15 <sup>e</sup>	15 <sup>e</sup>	15
Diamond, synthetic, industrial <sup>c</sup>	thousand carats	3,600	3,600	3,600	3,600	3,600

See footnotes at end of table.

TABLE 1--Continued  
FRANCE: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2000	2001	2002	2003	2004 <sup>c</sup>
<b>INDUSTRIAL MINERALS</b>					
Diatomite <sup>c</sup> thousand metric tons	75	85	80	80	75
Feldspar, crude do.	642	650 <sup>c</sup>	659	671	628 <sup>4</sup>
Fluorspar:					
Crude do.	250	250	250 <sup>c</sup>	250 <sup>c</sup>	260
Marketable:					
Acid- and ceramic-grade do.	85	90 <sup>r</sup>	90 <sup>r</sup>	79	80
Metallurgical grade do.	20	20	15 <sup>r</sup>	10	10
Total do.	105	110 <sup>r</sup>	105	89	90
Gypsum and anhydrite, crude <sup>c</sup> do.	4,500	4,500	4,500	3,500	3,500
Kyanite, andalusite, related materials <sup>c</sup> do.	65	65	65	65	65
Lime, quick and hydrated, dead-burned dolomite <sup>c</sup> do.	3,000	3,000	3,000	3,100	3,000
Mica <sup>c</sup>	10,000	10,000	10,000	10,000	10,000
Nitrogen, N content of ammonia thousand metric tons	1,620	1,373	1,172	1,153	1,120 <sup>4</sup>
Pigments, mineral, natural, iron oxide <sup>c</sup>	1,500	1,000	1,000	1,000	1,000
Phosphates, Thomas slag thousand metric tons	50	50	50 <sup>c</sup>	50 <sup>c</sup>	50
Potash, K <sub>2</sub> O equivalent (marketable) do.	321	257	139	-- <sup>c</sup>	--
Pozzolan and lapilli <sup>c</sup> do.	450	400	400	400	400
Salt:					
Rock salt do.	386	596	446	439	407 <sup>4</sup>
Brine salt, refined do.	1,774	1,727	1,741	1,718	1,702 <sup>4</sup>
Marine salt <sup>c</sup> do.	1,000	1,000	1,000	1,000	1,000
Salt in solution do.	3,956	3,774	3,620	3,516	3,800
Total do.	7,116	7,097	6,807	6,673	6,910
Sodium compounds: <sup>c</sup>					
Soda ash	1,000	1,000	1,000	1,000	1,000
Sodium sulfate	120	120	120	120	120
Stone, sand and gravel: <sup>c</sup>					
Limestone, agricultural and industrial	12,000	12,000	12,000	12,000	12,000
Slate, roof	30	30	30	30	30
Sand and gravel:					
Industrial sands	5,359	5,062	5,179	5,089	5,242 <sup>4</sup>
Other sand, gravel, and aggregates	181,020	172,764	166,788	160,884	163,404 <sup>4</sup>
Sulfur, byproduct:					
Of natural gas and petroleum	887 <sup>r</sup>	837 <sup>r</sup>	787 <sup>r</sup>	816 <sup>r</sup>	765
Of unspecified sources	260 <sup>r</sup>	260 <sup>r</sup>	229 <sup>r</sup>	196 <sup>r</sup>	200
Total	1,147 <sup>r</sup>	1,097 <sup>r</sup>	1,016 <sup>r</sup>	1,012 <sup>r</sup>	965
Talc:					
Crude	376,000	367,000	343,200	345,600	336,000 <sup>4</sup>
Powder <sup>c</sup>	300,000	300,000	300,000	300,000	300,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Asphaltic material <sup>c</sup>	24,000	25,000	20,000	20,000	20,000
Carbon black <sup>c</sup>	250,000	250,000	200,000	200,000	200,000
Coal, including briquets:					
Anthracite and bituminous thousand metric tons	3,805	2,364	1,483	1,730	160 <sup>4</sup>
Lignite do.	297	324	148	9	--
Total do.	4,102	2,688	1,631	1,739	160 <sup>4</sup>
Briquets <sup>c</sup> do.	200	200	175	175	100
Coke, metallurgical do.	5,327	5,091	4,552	4,601	4,616 <sup>4</sup>
Gas, natural, marketed million cubic meters	1,873	1,810 <sup>c</sup>	1,750	1,520	1,330 <sup>4</sup>

See footnotes at end of table.

TABLE 1--Continued  
FRANCE: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2000	2001	2002	2003	2004 <sup>c</sup>	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	11,591	10,082	9,825	9,150	8,550 <sup>4</sup>
Refinery products:						
Liquefied petroleum gas	do.	30,937	29,000 <sup>e</sup>	24,360	29,000	29,000 <sup>4</sup>
Gasoline, all kinds	do.	132,107	140,000 <sup>e</sup>	140,000 <sup>e</sup>	329,800 <sup>r</sup>	315,350 <sup>4</sup>
Kerosene and jet fuel	do.	48,872	48,800 <sup>e</sup>	48,800 <sup>e</sup>	41,600 <sup>r</sup>	44,800 <sup>4</sup>
Distillate fuel oil	do.	250,417	250,000 <sup>e</sup>	91,758	97,726	93,996 <sup>4</sup>
Residual fuel oil	do.	57,776	69,000 <sup>e</sup>	61,938	67,266	72,594 <sup>4</sup>
Other products <sup>e</sup>	do.	46,179 <sup>4</sup>	45,000	45,000	45,000	48,900 <sup>4</sup>
Refinery fuel	do.	1,148	1,200 <sup>e</sup>	1,200 <sup>e</sup>	1,212 <sup>r</sup>	1,248 <sup>4</sup>
Total	do.	567,436	583,000 <sup>e</sup>	413,056	611,604 <sup>r</sup>	605,888 <sup>4</sup>
Uranium:						
Mine output, U content		318	182	-- <sup>r</sup>	--	--
Chemical concentrate, U <sub>3</sub> O <sub>8</sub> equivalent		302	156	12	--	--

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

<sup>1</sup>Table includes data available through October 2005.

<sup>2</sup>In addition to the commodities listed, France produced germanium from domestic ores. Unfortunately, actual output is not regularly reported. France also produced large amounts of stone, but statistics on output are not available.

<sup>3</sup>Reprocessed bauxite not for metallurgical use.

<sup>4</sup>Reported figure.

<sup>5</sup>Plant closed in June 2001.

<sup>6</sup>Excludes secondary production from nickel/cadmium batteries.

TABLE 2  
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina		Aluminium Pechiney (Alcan Inc., 97.95%)	Plant at Gardanne	700
Aluminum		do.	Aluminum smelters at:	
Do.		do.	Saint-Jean-de-Maurienne, Savoie Province	120
Do.		do.	Nogueres, Pyrenees, Atlantiques Province	115
Do.		do.	Lannemezan, Hautes-Pyrenees Province	63
Do.		do.	Auzat, Ariege Province (closed)	50
Do.		Aluminium Dunkerque (Alcan Inc., 97.95%)	Dunkerque, Calais du Nord	250
Andalusite		Denain-Anzin Minéraux Refractaire Ceramique	Glomel Mine, Brittany	75
Antimony, metal		Produits Chimiques de Lucette	Plant at Le Genest, Mayenne Province	15
Barite		Barytine de Chaillac	Mine and plant at Chaillac, Indre Province	150
Do.		Société Industrielle du Centre	Mine at Rossigno, Indre Province	100
Cadmium	metric tons	Compagnie Royal Asturienne des Mines	Plant at D'Auby-les-Douai, Nord Province	200
Cement		Eight companies, the largest of which are:	80 plants, including:	23,233
Do.		LaFarge S.A.	15 plants; largest at St. Pierre-la-Cour (1,160)	7,815
Do.		Société des Ciments Français	13 plants; largest at Gargenville (1,100)	6,190
Coal		Charbonnages de France (CdF) including:		
Do.		Centre-Midi Bassin	Open pit mines in western France (closed)	1,000
Do.		Lorraine Bassin	Underground mines in eastern France	2,500
Cobalt, metal	metric tons	Société Métallurgique le Nickel (SLN)	Plant at Sandouville, near Le Havre	600
Copper, metal		Compagnie Generale d'Électrolyse du Palais	Electrolytic plant at Palais-sur-Vienne	45
Do.		Société Française d'Affinage du Cuivre	Smelter at Poissy, Yvelines	11
Diatomite		Ceca S.A.	Mines and plants at Riom-les-Montagne and St. Bazille	100
Feldspar		Denain-Anzin Minéraux S.A.	Mine and plant at St. Chely d'Apcher	55
Ferroalloys		Comilog International	Plant at Boulogne-sur-Mer	500
Do.		Société du Ferromanganese de Paris, Outreau	Plant at Boulogne-sur-Mer	420
Do.		Pechiney Electrometallurgie	Plants at Bellegarde, Laudun, and Marignac	400
Fluorspar		Société Générale de Recherches et d'Exploitation Minière (Alcan Inc.)	Mines in southern France	150
Gold	kilograms	Société des Mines du Bourneix (Compagnie Général des Matières Nucléaires)	Saint Yrieix la Perche District (closed)	4,000
Do.	do.	Mines d'Or de Salsigne (Eltin Co., 51%; Ranger Co., 18%; Peter Hambro Plc., 10%)	Mine near Carcassonne (closed)	3,000
Gypsum		S.A. de Materiel de Construction	Mine at Taverny	1,500
Iron and steel:				
Steel		Sollac Atlantique S.A. (Acelor Group)	Dunkerque	6,700
Do.		do.	Fos-sur-Mer	4,200
Do.		do.	Florange	3,200
Do.		Sollac Unimetal (Usinor Group, 100%)	Gadrange, Neuves Maisons, and Thonville	8,400
Kaolin		La Source Compagnie Minière	Kaolin d'Arvor Mine, Quessoy	300
Lead, metal		Metaleurop Nord (Metaleurop S.A.)	Plant at Noyelles Godault (closed)	165
Magnesium, metal		Pechiney Electrometallurgie	Plant at Marignac (closed)	15
Natural gas	million cubic meters	Société Nationale Elf Aquitaine (SNEA)	Gasfield and plant at Lacq	20,000
Nickel, metal		Société Metallurgia le Nickel (SLN)	Plant at Sandouville	16
Nitrogen, N content of ammonia		Grande Paroisse S.A.	Plant at Grandpuits	390
Petroleum:				
Crude	barrels per day	Société National Elf Aquitaine (SNEA)	Paris Basin oilfields	1,000
Refined	do.	Total S.A.	Refineries at Gonfreville and La Mede	446,000
Do.		Shell-Française	Refinery at Petite Couron	285,000
Do.		do.	Refinery at Berre	270,000
Do.		Société Nationale Elf Aquitaine (SNEA)	Refinery at Feyzin	120,000
Do.		do.	Refinery at Donges	200,000
Do.		do.	Refinery at Grandpuits	96,000
Do.		Société Française British Petroleum (S.F.B.P.)	Refineries at Lavera	175,000
Do.		Esso S.A.	Refineries at Fos-sur-Mer	237,000
Do.		Mobil Oil Française	Refineries at Gravenchon	62,000
Do.		Cie. Rhenane de Raffinage (CRR)	Refinery at Reichstett	80,000



TABLE 2--Continued  
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash, K <sub>2</sub> O		Mines de Potasse d'Alsace S.A. (MDPA)	Amelie and Marie-Louise mines in Alsace (closed)	2,500
Salt, rock		Compagnie des Salins du Midi et des Salines de l'Est	Varangeville Mine at Saint-Nicolas-de-Port	9,000
Sulfur		Société Nationale Elf Aquitaine (SNEA)	Byproduct from natural gas, Lacq plant	3,000
Talc		Talc de Luzenac S.A. (Rio Tinto Corp., 100%)	Trimouns Mine near Ariege, Pyrenees	350
Uranium, U <sub>3</sub> O <sub>8</sub>	metric tons	Compagnie Général des Matières Nucléaires (Cogema)	Mines at Limousin, Vendee, and Herault (closed)	1,800
Zinc, metal		Umicore Group	Plant at Auby-les-Douai	220
Do.		Metaleurop Nord (Metaleurop S.A).	Plant at Noyelles Godault (closed)	110

TABLE 3  
FRANCE: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>METALS</b>			
Alkali metals	6,193	74	Japan 3,000; New Caledonia 898; Italy 699.
<b>Aluminum:</b>			
Ore and concentrate	270,436	--	Belgium 181,800; Netherlands 35,199; Germany 24,500.
Oxides and hydroxides	314,410,176	11,614,800	Italy 114,077,024; Germany 82,153,776; Spain 32,721,900.
Ash and residue containing aluminum	30,090,670	--	Germany 18,575,700; Spain 9,054,800; Algeria 1,176,000.
<b>Metal, including alloys:</b>			
Scrap	257,283,104	640,625	Italy 75,262,000; Spain 59,849,300; Belgium 45,419,500.
Unwrought	139,036,608	214,601	Germany 53,271,200; Italy 26,167,796; Spain 11,575,199.
Semimanufactures	488,098,161	4,244,271	Germany 128,567,708; Italy 105,998,594; Spain 40,094,774.
<b>Antimony:</b>			
Oxides	metric tons 4,352	20	Germany 1,407; Italy 1,037; United Kingdom 623.
Metal, including alloys, all forms	9,619	--	Tunisia 7,000; Austria 759; unspecified Asia 757.
Arsenic, metal, including alloys, all forms	value \$236,533	--	Germany \$136,942; United Kingdom \$48,665; Italy \$19,239.
Beryllium, metal, including alloys, all forms	do. \$252,376	\$57,719	Portugal \$84,882; Brazil \$30,557; Argentina \$21,503.
Bismuth, metal, including alloys, all forms	45,833	--	Germany 31,300; Belgium 7,312; Spain 2,687.
Cadmium, metal, including alloys, all forms	825,165	--	Belgium 746,187; United Kingdom 40,000; Germany 23,636.
<b>Chromium:</b>			
Ore and concentrate	2,878,561	--	Spain 1,564,875; Italy 1,091,375; Netherlands 81,699.
Oxides and hydroxides	270,073	1,125	Belgium 84,398; Austria 42,500; Germany 32,085.
Metal, including alloys, all forms	4,536,029	1,434,687	United Kingdom 788,171; Germany 746,741; Japan 388,375.
<b>Cobalt:</b>			
Ore and concentrate	393	--	India 199; Italy 97; United Kingdom 97.
Oxides and hydroxides	69,520	29,000	Republic of Korea 7,500; Spain 7,000; Brazil 6,000.
Metal, including alloys, all forms	502,774	53,074	Sweden 76,413; Italy 53,074; Germany 47,788.
Columbium (niobium) and tantalum, metal, including all forms, tantalum	value \$1,196,263	\$178,818	Italy \$705,086; Republic of Korea \$75,827; Austria \$61,115.
<b>Copper:</b>			
Ore and concentrate	35,782	--	Canada 33,000; Singapore 2,000; Belgium 296.
Matte and speiss, including cement copper	111,298	--	Morocco 26,601; Belgium 26,101; Spain 20,300.
Oxides and hydroxides	metric tons 468	54	Netherlands 130; Belgium 100; United Kingdom 83.
Sulfate	7,214,703	39,500	United Kingdom 1,660,500; Spain 936,125; Canada 879,375.
Ash and residue containing copper	metric tons 9,702	--	Belgium 8,422; United Kingdom 635; Netherlands 280.
<b>Metal, including alloys:</b>			
Scrap	180,301,472	96,300	Belgium 41,478,800; Spain 39,800,600; Germany 33,715,100.
Unwrought	39,558,370	75,670	Germany 9,651,071; United Kingdom 7,522,998; Spain 6,398,747.
Semimanufactures	495,940,792	6,435,709	Italy 115,279,901; Germany 112,223,604; Spain 56,153,228.
Germanium, metal, including alloys, all forms	value \$190,133	--	Italy \$90,540; Spain \$31,689; United Kingdom \$29,425.
<b>Gold:</b>			
Waste and sweepings	93,534	10	Belgium 39,400; Germany 36,700; Italy 10,000.
Metal, including alloys, unwrought and partly wrought	34,602	14	United Kingdom 13,921; Italy 11,901; Switzerland 5,200.
<b>Iron and steel:</b>			
Iron ore and concentrate, including roasted pyrite	43,472,568	--	Belgium 19,474,100; Italy 11,139,824; Spain 4,936,300.
<b>Metal:</b>			
Scrap	metric tons 4,990,461	702	Spain 1,360,018; Belgium 1,266,707; Italy 1,053,537.
Pig iron, cast iron, related materials	6,384,628	7,597	South Africa 1,479,187; Venezuela 1,354,312; Germany 953,659.
<b>Ferroalloys:</b>			
Ferrochromium	1,454,731	--	Spain 594,687; Germany 468,074; Netherlands 96,368.
Ferromanganese	28,093,620	--	Norway 9,595,699; Germany 6,642,101; Spain 6,101,601.
Ferromolybdenum	300,210	8,000	Germany 151,398; Belgium 74,500; Spain 28,000.
Ferronickel	1,585	--	Switzerland 1,187; Poland 398.
Ferrosilicomanganese	metric tons 53,270	1,906	Germany 18,699; Italy 16,969; United Kingdom 8,486.
Ferrosilicon	65,876,230	5,374,101	Germany 29,564,500; Italy 12,787,296; Spain 6,096,250.
Ferrotitanium and ferrosilicotitanium	1,462,643	--	Finland 459,812; Canada 297,812; Brazil 223,800.
Ferrotungsten and ferrosilicotungsten	10,802	--	Belgium 7,187; Austria 1,125; Switzerland 898.

See footnotes at end of table.

TABLE 3--Continued  
FRANCE: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>METALS--Continued</b>			
<b>Iron and steel--Continued:</b>			
<b>Metal--Continued:</b>			
<b>Ferroalloys--Continued:</b>			
Ferrovandium	50,122	5,312	Luxembourg 14,000; Malaysia 7,000; Canada 6,812.
Ferroniobium	926,509	--	Belgium 452,812; Canada 144,199; Germany 115,898.
Unspecified	37,564,452	231,898	Germany 18,861,300; Spain 3,075,625; Slovakia 2,732,000.
Steel, primary forms	metric tons 3,420,958	4,627	Belgium 1,697,680; Spain 625,248; Luxembourg 594,669.
<b>Semimanufactures:</b>			
<b>Flat-rolled products:</b>			
<b>Of iron or nonalloy steel:</b>			
Not clad, plated, coated	do. 2,949,623	181,349	Italy 928,828; Spain 570,042; Germany 416,463.
Clad, plated, coated	do. 2,791,790	15,203	Germany 609,308; Italy 493,774; Spain 400,626.
Of alloy steel	do. 3,866,227	95,634	Spain 1,032,398; Italy 897,977; Germany 491,253.
Bars, rods, angles, shapes, sections	do. 2,796,558	52,555	Germany 849,547; Belgium 349,785; Italy 232,760.
Rails and accessories	63,207,876	12,500	Belgium 17,886,148; Spain 13,083,311; Portugal 5,255,500.
Wire	303,711,898	18,603,748	Germany 102,219,377; Belgium 36,526,447; Italy 27,391,824.
Tubes, pipes, fittings	metric tons 1,169,201	36,871	Germany 181,822; Netherlands 80,165; United Kingdom 75,017.
<b>Lead:</b>			
Ore and concentrate	7,400,101	--	Belgium 6,001,101; Germany 1,358,000; Spain 41,000.
Oxides	metric tons 11,237	38	Germany 7,077; United Kingdom 2,683; Belgium 695.
Ash and residue containing lead	6,658,800	--	Germany 5,758,800; Belgium 900,000.
<b>Metal, including alloys:</b>			
Scrap	27,789,006	--	Belgium 13,870,398; Spain 11,341,000; Germany 1,484,687.
Unwrought	12,879,941	--	Germany 4,396,487; Belgium 3,149,585; Spain 2,314,912.
Semimanufactures	7,362,769	--	Belgium 345,625; South Africa 279,312; unspecified 6,379,913.
Lithium, oxides and hydroxides	7,338	--	Iran 2,500; Senegal 2,000; Japan 1,000.
<b>Magnesium, metal, including alloys:</b>			
Scrap	metric tons 1,190	--	Serbia and Montenegro 805; India 107; Germany 91.
Semimanufactures	1,272,950	18,300	Australia 1,076,687; Spain 96,500; Portugal 39,601.
<b>Manganese:</b>			
Ore and concentrate	332,607,296	--	Norway 111,304,376; Poland 92,301,808; Ukraine 48,717,600.
Oxides and hydroxides	915,092	--	Italy 342,187; Spain 127,898; Denmark 89,699.
Metal, including alloys, all forms	424,052	71,199	Germany 321,375; Spain 11,125; Netherlands 8,000.
Mercury	7,283	--	Colombia 4,000; Italy 1,312; Belgium 1,125.
<b>Molybdenum:</b>			
<b>Ore and concentrate:</b>			
Roasted	296	--	All to Spain.
Unroasted	value \$4,527	--	All to Australia.
Oxides and hydroxides	26,637	--	Germany 11,812; Spain 11,812; Netherlands 1,125.
<b>Metal, including alloys:</b>			
Unwrought and scrap	value \$57,716	--	India \$16,976; Malaysia \$13,581; United Kingdom \$11,317.
Semimanufactures	do. \$562,474	\$91,672	Germany \$150,522; Austria \$116,571; Switzerland \$66,773.
<b>Nickel:</b>			
Ore and concentrate	34,500	--	Italy 24,000; Russia 10,500.
Matte and speiss	74,773	--	Canada 68,898; Japan 5,875.
Oxides and hydroxides	value \$7,612,615	--	Unspecified \$7,612,615.
<b>Metal, including alloys:</b>			
Scrap	8,306	1,858	Germany 4,741; United Kingdom 853; Belgium 296.
Unwrought	metric tons 8,938	1,708	Germany 1,521; United Kingdom 1,461; Italy 704.
Semimanufactures	9,308,229	1,539,668	Germany 2,388,083; United Kingdom 945,036; Italy 843,509.
<b>Platinum-group metals:</b>			
Waste and sweepings	38,650	--	Belgium 31,400; United Kingdom 3,600; Spain 1,678.
<b>Metal, including alloys, unwrought and partly wrought:</b>			
Plalladium	3,200	110	Israel 1,100; United Kingdom 500; Italy 455.
Platinum	4,104	239	United Kingdom 1,132; Germany 1,000; Italy 618.

See footnotes at end of table.

TABLE 3--Continued  
FRANCE: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
METALS--Continued			
Platinum-group metals--Continued:			
Metal, including alloys, unwrought and partly wrought--Continued:			
Rhodium value, thousands	\$4,276	--	Italy \$2,146; Germany \$1,360; United Kingdom \$358.
Iridium, osmium, ruthenium value	\$79,219	--	Switzerland \$26,030; United Kingdom \$13,581; Germany \$13,580.
Rare-earth metals, including alloys, all forms	59,030	--	Iran 40,000; India 15,187; Morocco 1,500.
Selenium, elemental	53,399	--	Germany 17,300; Spain 17,300; Switzerland 14,500.
Silicon, high-purity	31,037	40	Germany 20,398; Bulgaria 5,125; Japan 3,175.
Silver, metal, including alloys, unwrought and partly wrought	468,512	8,200	Spain 108,311; Switzerland 72,600; Italy 42,311.
Tin:			
Ore and concentrate	306,675	--	Belgium 281,375; Germany 25,300.
Metal, including alloys:			
Scrap	278,881	--	Belgium 188,000; Spain 75,898; Germany 7,812.
Unwrought	1,189,759	16,500	Germany 389,125; Spain 361,125; Italy 133,500.
Semimanufactures	1,578,831	36,061	Germany 493,608; Austria 433,225; Singapore 172,101.
Titanium:			
Ore and concentrate	284,999	--	Spain 151,199; United Kingdom 92,000; Italy 41,300.
Oxides	26,427,612	14,811,101	Germany 3,643,187; Japan 1,914,187; Belgium 727,187.
Metal, including alloys:			
Scrap and unwrought	362,981	165,300	United Kingdom 100,000; Germany 50,199; Italy 41,000.
Semimanufactures metric tons	3,363	1,105	United Kingdom 1,125; Germany 275; Hungary 213.
Tungsten:			
Ore and concentrate	699	--	Spain 500; Germany 199.
Metal, including alloys:			
Scrap and unwrought	253,441	1,163	Germany 73,210; Japan 42,824; Belgium 36,495.
Semimanufactures	285,858	17,187	Austria 71,475; Belgium 67,897; United Kingdom 64,892.
Vanadium:			
Oxides and hydroxides	183,470	162,800	Belgium 6,187; Russia 6,000; Germany 4,000.
Metal, including alloys, all forms value	\$12,448	--	Belgium \$5,658; Italy \$3,395; United Kingdom \$3,395.
Zinc:			
Ore and concentrate	37,167,000	--	Belgium 31,636,100; Germany 5,475,300; Italy 31,300.
Oxides metric tons	4,205	--	Netherlands 1,257; Belgium 1,237; United Kingdom 600.
Blue powder	1,450,612	--	Netherlands 1,396,125; Luxembourg 24,101; Italy 23,699.
Ash and residue containing zinc	34,224,131	--	Belgium 13,051,824; Netherlands 11,494,699; Italy 5,456,398.
Metal, including alloys:			
Scrap	38,294,420	--	Belgium 10,524,699; China 6,063,699; India 5,105,500.
Unwrought metric tons	141,465	26	Belgium 89,000; Germany 25,873; United Kingdom 6,420.
Semimanufactures	2,139,388	--	Belgium 596,510; Luxembourg 572,625; Germany 371,398.
Zirconium, ore and concentrate	652,713	1,125	Spain 300,187; Austria 103,199; Switzerland 96,601.
Other:			
Ore and concentrate	150,837	400	Tunisia 65,000; Belgium 61,500; Brazil 15,000.
Oxides and hydroxides, base metals, and precious metals, excluding gold, silver and platinum-group metals value, thousands	\$3,334,268	\$694,674	Belgium \$801,782; Germany \$458,538; Italy \$218,359.
Ash and residue except iron or steel	201,133,680	4,000	Belgium 126,173,632; Germany 26,441,572; Spain 22,843,208.
INDUSTRIAL MINERALS			
Abrasives, n.e.s.:			
Natural: Corundum, emery, pumice, etc.	827,422	29,000	Japan 153,601; Algeria 100,000; Turkey 92,101.
Artificial, silicon carbide	962,641	1,312	Germany 438,312; Italy 407,875; Belgium 57,398.
Dust and powder of precious and semiprecious stones, including diamond value	\$152,780	--	Mauritius \$37,347; Italy \$21,503; Portugal \$20,371.
Grinding and polishing wheels and stones	7,581,147	89,768	Netherlands 1,420,021; Spain 1,368,522; Italy 1,192,295.
Asbestos, crude	4,608	--	Spain 1,812; United Kingdom 1,500; Luxembourg 898.

See footnotes at end of table.

TABLE 3--Continued  
FRANCE: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
<b>Boron materials:</b>			
Crude natural borates	metric tons	1,546	-- United Kingdom 1,377; Switzerland 74; Germany 56.
Oxides and acids		147,221	-- Germany 129,800; Spain 13,125; Switzerland 4,000.
Cement	metric tons	1,228,968	97,947 Germany 217,236; Italy 169,196; Spain 140,267.
Chalk		631,420,928	995,812 Belgium 221,601,808; Germany 195,524,800; Spain 46,478,800.
<b>Clays, crude:</b>			
Bentonite		18,966,078	223,101 Germany 6,640,300; Spain 4,175,000; Portugal 2,398,125.
Chamotte earth and Dinas earth		113,251,840	2,500 Italy 25,101,100; Spain 18,956,100; United Kingdom 15,831,199.
Fire clay		987,448	-- Austria 341,000; Italy 304,000; Norway 130,000.
Kaolin	metric tons	1,613,481	935 Spain 1,135,927; Italy 231,977; United Kingdom 57,844.
<b>Diamond, natural:</b>			
Gem, not set or strung	value, thousands	\$73,628	\$14,020 Switzerland \$29,675; Belgium \$6,238; United Kingdom \$5,544.
Industrial stones	value	\$1,495,053	-- Spain \$1,441,862; Belgium \$52,060; Netherlands \$1,131.
Dust and powder	do.	\$124,487	-- Italy \$21,503; Portugal \$20,371; Tunisia \$19,239.
Diatomite and other infusorial earth		30,191,758	186,398 Germany 3,955,687; Russia 3,909,812; Italy 2,602,812.
Feldspar		286,370,048	-- Italy 134,261,120; Spain 90,566,872; Belgium 20,281,600.
<b>Fertilizer materials:</b>			
Crude, n.e.s.	metric tons	25,960	162 Switzerland 6,615; Spain 4,944; United Kingdom 2,993.
<b>Manufactured:</b>			
Ammonia		54,830,004	5,000,000 Spain 33,121,676; Belgium 7,271,574; Switzerland 5,359,699.
Nitrogenous		572,690,616	1,057,284 Spain 122,300,576; Germany 116,219,672; Belgium 76,273,832.
Phosphatic		29,431,990	-- Spain 13,315,898; Germany 6,154,398; Netherlands 4,219,875.
Potassic		43,116,865	-- Germany 16,969,000; Spain 9,123,199; Belgium 7,456,995.
Fluorspar		18,519,368	76,800 Italy 6,038,312; Tunisia 5,757,000; Germany 3,025,000.
Graphite, natural		167,284	-- Italy 40,000; Sweden 24,500; Germany 23,698.
Gypsum and plaster	metric tons	633,080	194 Belgium 276,554; Netherlands 111,137; Germany 75,561.
Iodine		31,222	-- Italy 10,000; Benin 9,187; Germany 3,187.
<b>Kyanite and related materials, andalusite, kyanite, sillimanite</b>			
	metric tons	49,957	-- Germany 13,050; United Kingdom 8,550; Poland 8,114.
Lime	do.	680,644	17 Germany 352,026; Finland 107,291; Belgium 101,691.
<b>Magnesium compounds:</b>			
Magnesite, crude		502,407	-- Germany 129,000; Italy 77,898; Saudi Arabia 67,601.
Oxides and hydroxides		23,037,808	2,375 Belgium 7,175,601; Italy 4,365,101; Poland 4,117,800.
Other		222,198	-- Germany 183,398; Switzerland 38,800.
<b>Mica:</b>			
Crude, including splittings and waste		114,467,136	1,187 Italy 55,617,696; Portugal 47,276,800; Germany 8,586,324.
Worked, including agglomerated splittings		921,148	29,812 Switzerland 659,312; Germany 159,875; United Kingdom 25,495.
Nitrates, crude		10,312	-- All to Belgium.
Phosphates, crude		1,016,028	4,125 Thailand 240,000; Algeria 180,000; Mauritania 157,500.
<b>Pigments, mineral, iron oxides and hydroxides, processed</b>			
		9,151,387	17,300 Netherlands 2,272,687; Italy 1,526,625; Belgium 1,254,312.
<b>Potassium salts, crude</b>			
		12,687	-- All to Belgium.
<b>Precious and semiprecious stones other than diamond:</b>			
Natural	value	\$34,420,184	\$1,578,804 Switzerland \$25,187,320; Italy \$1,837,977; Belgium \$891,826.
Synthetic	value, millions	\$33	\$2 Switzerland \$18; Hong Kong, China \$3; Mauritius \$2.
Pyrite, unroasted		1,187	-- All to United Kingdom.
Quartz crystal, piezoelectric	value	\$83,747	-- Belgium \$21,503; Poland \$15,844; Spain \$13,581.
Salt and brine		497,619,072	2,321,000 Italy 149,586,000; Germany 101,515,688; Portugal 88,571,624.
<b>Sodium compounds, n.e.s., sulfate, natural and/or manufactured</b>			
		26,621,232	-- Germany 10,080,699; Italy 8,979,800; Belgium 5,449,601.
<b>Stone, sand and gravel:</b>			
<b>Dimension stone:</b>			
Crude and partly worked		107,463,188	1,628,385 Germany 35,061,005; Belgium 21,932,385; Italy 14,065,611.
Worked	metric tons	104,802	12,845 Germany 18,476; Belgium 16,099; Switzerland 13,956.

See footnotes at end of table.

TABLE 3--Continued  
FRANCE: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
Stone, sand and gravel--Continued:			
Dolomite, chiefly refractory-grade metric tons	32,652	--	Belgium 13,958; Netherlands 3,534; Switzerland 3,441.
Gravel and crushed rock thousand metric tons	7,799	5	Switzerland 2,593; Germany 1,613; Netherlands 1,499.
Limestone other than dimension metric tons	71,453	18	Netherlands 31,350; Belgium 21,050; United Kingdom 17,597.
Quartz and quartzite	61,757,200	42,500	Norway 60,813,800; Germany 440,500; Italy 207,499.
Sand other than metal-bearing metric tons	3,311,298	33	Germany 1,485,022; Switzerland 603,115; Italy 372,580.
Sand and gravel thousand metric tons	11,111	5	Switzerland 3,196; Germany 3,098; Netherlands 1,563.
Sulfur:			
Elemental:			
Crude, including native and byproduct	399,138,080	742,187	Morocco 158,462,496; Spain 85,912,184; Tunisia 80,285,504.
Colloidal, precipitated, sublimed	652,136	58,000	Spain 245,101; Germany 159,300; United Kingdom 49,101.
Sulfuric acid metric tons	201,727	--	Belgium 83,303; United Kingdom 53,282; Spain 29,380.
Talc, steatite, soapstone, pyrophyllite	226,548,368	1,468,812	Germany 55,925,584; Spain 41,394,896; Italy 37,340,700.
Vermiculite, perlite, chlorite	589,914	53,601	Portugal 163,300; Switzerland 140,601; Spain 107,300.
Other:			
Crude value, thousands	\$870,986	\$24,917	Germany \$178,082; Italy \$137,026; Belgium \$87,776.
Slag and dross, not metal-bearing metric tons	1,125,150	374,528	Luxembourg 211,888; Germany 163,218; Norway 90,457.
<b>MINERAL FUELS AND RELATED MATERIALS</b>			
Asphalt and bitumen, natural	5,052,184	32,386	Belgium 3,366,187; United Kingdom 648,125; Greece 420,000.
Carbon black	134,081,512	266,000	Germany 43,828,200; Spain 31,310,300; Netherlands 8,628,000.
Coal:			
Anthracite	9,324,062	--	Belgium 7,393,500; Germany 1,844,687; Netherlands 81,500.
Bituminous metric tons	65,227	--	Belgium 44,314; Netherlands 13,020; United Kingdom 5,866.
Briquets of anthracite and bituminous coal	2,111,323	--	Italy 1,277,375; Austria 573,625; Belgium 169,800.
Lignite, including briquets	188,499	--	Germany 164,898; Switzerland 23,601.
Coke and semicoke metric tons	415,352	--	Belgium 207,479; Germany 159,396; Luxembourg 12,578.
Gas, manufactured value	\$27,160	--	Morocco \$16,976; Switzerland \$5,658; Syria \$3,395.
Gas, natural:			
Gaseous value, thousands	\$362,360	--	Italy \$109,543; Belgium \$89,055; Switzerland \$87,624.
Liquefied value	\$5,567,123	--	Italy \$5,532,043; Germany \$13,581; Congo \$6,790.
Peat, including briquets and litter	9,580,473	--	Italy 4,856,300; Switzerland 2,934,875; Belgium 470,687.
Petroleum:			
Crude metric tons	91,090	--	United Kingdom 80,360; Germany 10,597; Austria 65.
Refinery products:			
Liquefied petroleum gas do.	1,657,851	61,327	Morocco 388,513; Italy 274,939; United Kingdom 169,032.
Mineral jelly and wax do.	129,223	36	Belgium 53,233; Netherlands 18,813; Belgium 14,622.
Asphalt	549,891,136	--	Belgium 142,522,368; Spain 109,926,128; Germany 84,762,496.
Bitumen and other residues	600,700,240	--	Belgium 144,341,555; Spain 109,926,128; Germany 87,544,996.
Bituminous mixtures metric tons	545,038	--	United Kingdom 209,396; Ireland 156,228; Portugal 51,045.
Petroleum coke do.	56,899	634	Belgium 31,799; Luxembourg 10,999; United Kingdom 10,253.
Uranium:			
Ore and concentrate value	\$1,131	--	All to Belgium.
Oxides and other compounds	9,669,956	873,800	Russia 7,660,900; Belgium 491,200; Germany 137,000.
Metal, including alloys, all forms:			
Uranium	1,296,900	--	Germany 709,900; Japan 560,700; Belgium 26,300.
Thorium	7,646,256	--	Russia 7,361,800; Luxembourg 106,500; Netherlands 71,589.
-- Zero.			

<sup>1</sup>Source: United Nations Statistics Division, Commodity Trade Statistics Database (COMTRADE), accessed November 3, 2005, at URL <http://unstats.un.org/unsd/comtrade/dqBasicQueryResults>.

TABLE 4  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS</b>			
Alkali and alkaline-earth metals:			
Alkali metals	1,054,910	3,124	Belgium 609,913; Germany 195,699; China 105,300.
Alkaline-earth metals	861,401	199	Russia 449,000; Germany 284,375; Netherlands 52,000.
Aluminum:			
Ore and concentrate	metric tons	1,786,903	28 Guinea 1,524,147; Greece 110,455; China 74,601.
Oxides and hydroxides	do.	749,167	5,930 Suriname 298,163; Jamaica 235,784; Guinea 104,902.
Ash and residue containing aluminum		5,033,987	-- Netherlands 2,863,500; Germany 1,209,187; Lebanon 495,500.
Metal, including alloys:			
Scrap	metric tons	149,883	208 Germany 49,811; Belgium 23,735; United Kingdom 16,593.
Unwrought	do.	490,487	1,017 Norway 122,771; Netherlands 93,675; Germany 45,762.
Semimanufactures		561,919,678	5,593,491 Germany 136,701,986; Belgium 76,725,330; Spain 62,494,168.
Antimony:			
Ore and concentrate		6,250	1,250 Spain 5,000.
Oxides		1,971,615	1,875 Belgium 1,486,312; China 215,000; Kyrgyzstan 61,000.
Metal, including alloys, all forms		5,241,967	398 China 4,656,500; Russia 253,800; Serbia and Montenegro 250,199.
Arsenic, metal, including alloys, all forms		4,236	-- Netherlands 2,000; China 1,375; Belgium 597.
Beryllium, metal, including alloys, all forms		924,177	3,398 Germany 809,375; Russia 100,398; China 8,000.
Bismuth, metal, including alloys, all forms		629,174	-- Belgium 492,000; United Kingdom 106,601; Peru 19,601.
Cadmium, metal, including alloys, all forms		1,257,051	36,499 Belgium 673,437; United Kingdom 470,074; Germany 41,000.
Chromium:			
Ore and concentrate	metric tons	22,915	-- South Africa 12,631; Albania 4,919; Belgium 2,480.
Oxides and hydroxides	do.	11,523	68 United Kingdom 6,498; Kazakhstan 2,928; Germany 1,235.
Metal, including alloys, all forms		677,386	14,722 Russia 417,500; United Kingdom 95,698; Germany 93,854.
Cobalt:			
Ore and concentrate		9,159	-- Switzerland 5,187; Turkey 3,875; Italy 97.
Oxides and hydroxides	metric tons	536	13 United Kingdom 188; Netherlands 106; Germany 69.
Metal, including alloys, all forms		1,812,898	172,987 Canada 312,125; United Kingdom 220,698; Germany 170,124.
Columbium (niobium) and tantalum, metal, including all forms, tantalum			
		41,507	38,194 Germany 1,308; United Kingdom 593; Kazakhstan 398.
Copper:			
Ore and concentrate		68,350	-- Australia 38,000; Belgium 22,101; United Kingdom 6,687.
Matte and speiss, including cement copper		1,775,907	124,601 Belgium 1,641,288; Netherlands 8,625; Slovenia 597.
Oxides and hydroxides		774,214	76,101 Australia 405,375; Netherlands 84,699; Germany 77,898.
Sulfate		11,824,809	2,000 Uzbekistan 5,568,898; Russia 2,237,125; Italy 1,889,875.
Ash and residue containing copper		149,085	-- Tunisia 71,000; Belgium 57,898; unspecified 13,687.
Metal, including alloys:			
Scrap	metric tons	70,427	72 Algeria 15,573; United Kingdom 11,009; Germany 10,988.
Unwrought		586,967,414	192,575 Chile 323,744,704; Poland 91,484,325; Belgium 51,065,979.
Semimanufactures	metric tons	270,132	1,570 Germany 107,033; Italy 48,734; United Kingdom 32,973.
Germanium, metal, including alloys, all forms			
		3,456	25 Belgium 3,125; Israel 199; Germany 93.
Gold:			
Waste and sweepings		15,084	100 Netherlands 8,000; Hungary 3,400; United Kingdom 627.
Metal, including alloys, unwrought and partly wrought			
		31,098	1,104 United Kingdom 10,000; Italy 6,700; Germany 4,800.
Iron and steel:			
Iron ore and concentrate:			
Including roasted pyrite	metric tons	18,893,523	-- Brazil 10,344,546; Australia 4,231,967; Mauritania 2,886,157.
Excluding roasted pyrite	do.	18,890,175	-- Do.
Pyrite, roasted		3,348,398	-- Italy 3,300,000; Austria 48,398.
Metal:			
Scrap	metric tons	3,019,872	28 Germany 1,263,784; United Kingdom 473,435; Belgium 375,924.
Pig iron, cast iron, related materials		423,888,360	175,023 Russia 139,701,632; Germany 113,552,096; Belgium 23,091,159.

See footnotes at end of table.

TABLE 4--Continued  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity		Total	Sources	
			United States	Other (principal)
<b>METALS--Continued</b>				
<b>Iron and steel--Continued:</b>				
<b>Metal--Continued:</b>				
<b>Ferroalloys:</b>				
Ferrochromium	metric tons	260,234	10	South Africa 189,213; Kazakhstan 24,900; Sweden 17,879.
Ferromanganese	do.	46,048	--	South Africa 25,445; Norway 7,707; Belgium 3,084.
Ferromolybdenum	do.	4,643	--	United Kingdom 1,527; Belgium 1,128; Germany 600.
Ferronickel	do.	28,974	1	New Caledonia 8,743; Colombia 7,937; Venezuela 5,229.
Ferrosilicochromium		1,524,096	--	Belgium 1,073,375; Germany 224,898; Sweden 87,000.
Ferrosilicomanganese		73,362,080	5,375	Norway 23,174,200; Spain 19,312,700; Brazil 13,244,300.
Ferrosilicon		70,729,213	17,699	Germany 12,084,585; Ukraine 6,248,898; Russia 5,338,675.
Ferrotitanium and ferrosilicotitanium	metric tons	4,828	--	United Kingdom 2,437; Russia 738; Germany 573.
Ferrotungsten and ferrosilicotungsten		484,799	--	China 395,687; Germany 30,300; Japan 24,000.
Ferrovandium		1,063,238	5,000	South Africa 300,375; Netherlands 192,000; Austria 131,300.
Ferriobium		2,285,654	1,125	Brazil 827,187; Germany 763,875; Canada 618,000.
Silicon metal		15,872,474	97	Germany 3,935,000; Norway 1,278,500; unspecified 7,080,000.
Unspecified		16,291,786	1,312	Germany 6,159,300; Norway 2,667,875; Spain 2,168,875.
Steel, primary forms	metric tons	1,595,546	445	Germany 841,154; Luxembourg 481,324; United Kingdom 115,088.
<b>Semimanufactures:</b>				
<b>Flat-rolled products:</b>				
<b>Of iron or nonalloy steel:</b>				
Not clad, plated, coated	do.	4,482,446	16,902	Belgium 1,926,614; Germany 751,143; Italy 493,494.
Clad, plated, coated	do.	2,490,623	1,647	Belgium 884,224; Germany 593,765; Netherlands 243,333.
Of alloy steel	do.	1,461,216	20,370	Belgium 875,825; Germany 260,576; Sweden 75,941.
Bars, rods, angles, shapes, sections	do.	3,065,286	676	Germany 649,929; Luxembourg 532,989; Italy 529,099.
Rails and accessories	do.	48,497	31	United Kingdom 23,713; Luxembourg 6,145; Belgium 5,085.
Wire		460,333,034	514,421	Germany 130,855,057; Belgium 76,306,708; Italy 61,893,099.
Tubes, pipes, fittings		1,149,200	2,611	Italy 336,400; Germany 314,222; Spain 146,755.
<b>Lead:</b>				
Ore and concentrate		186,112	--	Morocco 145,000; Belgium 26,300; Germany 12,625.
Oxides		4,662,085	3,562	Germany 3,891,500; Austria 294,000; Netherlands 225,000.
<b>Metal, including alloys:</b>				
Scrap	metric tons	30,507	--	Netherlands 13,156; Germany 5,295; Austria 1,836.
Unwrought	do.	103,439	6,230	Germany 38,479; United Kingdom 27,198; Belgium 19,783.
Semimanufactures		18,191,274	17,037	Germany 7,005,998; Belgium 5,786,097; Netherlands 2,620,273.
Lithium, oxides and hydroxides		347,395	96,500	China 95,101; United Kingdom 89,398; Netherlands 28,300.
<b>Magnesium, metal, including alloys:</b>				
Scrap		1,104,311	--	China 799,500; Netherlands 124,800; Turkey 80,000.
Unwrought		9,118,123	20,000	China 2,682,000; Netherlands 1,371,312; Israel 1,237,625.
Semimanufactures		4,087,749	1,710	China 2,273,085; Austria 367,425; Russia 357,187.
<b>Manganese:</b>				
Ore and concentrate	metric tons	892,213	--	Brazil 429,512; Gabon 347,743; South Africa 102,619.
Oxides and hydroxides	do.	9,035	71	Netherlands 2,108; South Africa 1,977; Brazil 1,879.
Metal, including alloys, all forms		7,615,442	31,000	China 3,630,875; Spain 974,187; South Africa 699,000.
Mercury		23,016	296	Spain 19,898; Germany 898; Italy 898.
<b>Molybdenum:</b>				
<b>Ore and concentrate:</b>				
Roasted		1,517,401	--	Chile 420,000; Netherlands 381,500; China 239,300.
Unroasted		73,812	--	Germany 48,000; Sweden 23,000; Belgium 2,312.
Oxides and hydroxides		370,588	3,500	Netherlands 197,500; Germany 121,300; Belgium 26,101.
<b>Metal, including alloys:</b>				
Unwrought and scrap		80,230	597	Germany 61,476; Belgium 7,382; unspecified 4,394.
Semimanufactures		649,303	52,773	Germany 306,534; Austria 145,422; China 122,194.
<b>Nickel:</b>				
Ore and concentrate		178,995	--	Japan 149,000; New Caledonia 28,898; Luxembourg 898.
Matte and speiss		15,087,892	--	New Caledonia 15,044,101; Germany 24,979; Canada 11,687.

See footnotes at end of table.



TABLE 4--Continued  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS--Continued</b>			
<b>Nickel--Continued:</b>			
Oxides and hydroxides	117	--	All from Belgium.
<b>Metal, including alloys:</b>			
Scrap	2,210,113	69,199	Germany 751,687; United Kingdom 541,312; India 250,000.
Unwrought	34,187,960	2,045,812	Russia 17,244,898; Norway 3,758,625; Finland 2,968,875.
Semimanufactures metric tons	9,208	2,406	United Kingdom 2,435; Germany 2,239; Belgium 887.
<b>Platinum-group metals:</b>			
Waste and sweepings	342,491	246,200	Lithuania 79,200; Netherlands 6,800; unspecified 4,726.
<b>Metal, including alloys, unwrought and partly wrought:</b>			
Plalladium	15,166	1,000	Italy 11,300; Switzerland 1,600; United Kingdom 602.
Platinum	5,291	216	United Kingdom 1,800; Switzerland 1,100; Germany 900.
Rhodium value, thousands	\$7,878	--	Italy \$3,836; United Kingdom \$2,666; Germany \$1,131.
Iridium, osmium, ruthenium do.	\$623	\$31	United Kingdom \$296; Italy \$200; Luxembourg \$69.
Rare-earth metals, including alloys, all forms	282,529	3,250	China 105,898; Germany 67,500; Austria 39,898.
Selenium, elemental	72,471	97	Japan 24,500; Germany 22,500; United Kingdom 14,125.
Silicon, high-purity	618,574	136,101	Netherlands 174,800; Germany 100,500; Japan 63,898.
<b>Silver:</b>			
Ore and concentrate	800	--	Spain 400; Portugal 300; Italy 100.
<b>Metal, including alloys, unwrought and partly wrought</b>			
	970,621	25,800	Switzerland 261,100; Italy 156,600; Germany 121,000.
<b>Tin:</b>			
Ore and concentrate	41,398	--	All from Germany.
<b>Metal, including alloys:</b>			
Scrap	169,989	--	Italy 66,601; Germany 50,101; United Kingdom 22,726.
Unwrought	10,396,466	97	Indonesia 4,263,500; China 1,789,687; Belgium 1,524,273.
Semimanufactures	918,778	10,784	Netherlands 580,698; Germany 187,585; Belgium 43,377.
<b>Titanium:</b>			
Ore and concentrate	162,067,104	1,000	Canada 73,627,504; Australia 57,106,600; India 22,511,898.
Oxides	13,761,772	166,398	China 3,712,312; Slovenia 2,552,000; Germany 2,006,187.
<b>Metal, including alloys:</b>			
Scrap and unwrought	1,529,778	155,101	Kazakhstan 396,000; Ukraine 317,312; Russia 290,125.
Semimanufactures	4,166,312	1,651,574	Japan 913,312; United Kingdom 701,925; Russia 371,125.
<b>Tungsten:</b>			
Ore and concentrate	24,898	--	Belgium 23,898; China 1,000.
<b>Metal, including alloys:</b>			
Scrap and unwrought	278,679	38,468	Germany 118,398; Austria 63,000; Canada 24,398.
Semimanufactures	172,418	6,324	Germany 71,623; Spain 27,945; Belgium 11,190.
<b>Vanadium:</b>			
Oxides and hydroxides	496,219	210	China 210,000; South Africa 127,800; United Kingdom 117,800.
Metal, including alloys, all forms	35,482	765	Germany 24,300; United Kingdom 9,437; Belgium 898.
<b>Zinc:</b>			
Ore and concentrate	482,493,312	2,125	Belgium 395,610,816; Peru 40,491,000; Morocco 40,182,400.
Oxides	22,637,108	23,601	Netherlands 7,800,601; Belgium 5,143,300; Germany 3,318,625.
Blue powder metric tons	13,129	--	Belgium 12,836; United Kingdom 229; Germany 60.
Ash and residue containing zinc	49,919,585	--	Belgium 17,695,901; Spain 15,338,101; Italy 15,138,999.
<b>Metal, including alloys:</b>			
Scrap	8,203,197	--	Netherlands 3,749,312; Spain 3,555,187; Belgium 368,812.
Unwrought metric tons	150,371	5	Netherlands 39,427; Belgium 38,533; Germany 24,128.
Semimanufactures	24,891,492	1,097	Germany 14,779,073; Belgium 2,214,085; Italy 1,486,101.
<b>Zirconium:</b>			
Ore and concentrate metric tons	58,465	299	Australia 31,466; South Africa 23,084; Germany 1,384.
<b>Metal, including alloys:</b>			
Scrap and unwrought	21,417	4,625	Belgium 4,625; Germany 1,500; Italy 1,500.
Semimanufactures	266,407	129,125	Germany 67,288; United Kingdom 20,699; Canada 17,120.

See footnotes at end of table.

TABLE 4--Continued  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS--Continued</b>			
Other:			
Ore and concentrate	\$652,537	\$13,570	United Kingdom \$305,348; Germany \$97,259; Belgium \$42,975.
Oxides and hydroxides, base metals, and precious metals, excluding gold, silver and platinum-group metals	value, thousands \$3,234,863	\$179,913	Germany \$491,094; Russia \$406,193; Belgium \$296,754.
Ash and residue except iron or steel	100,533,976	476,375	Belgium 45,437,300; Italy 15,905,424; Spain 15,353,288.
<b>INDUSTRIAL MINERALS</b>			
Abrasives, n.e.s.:			
Natural: Corundum, emery, pumice, etc.	9,034,274	78,374	Germany 5,194,909; Italy 2,051,375; Mexico 576,000.
Artificial:			
Corundum	17,874,870	33,199	Germany 7,541,699; China 3,991,500; Italy 2,088,312.
Silicon carbide	22,115,652	13,500	Belgium 5,161,699; Germany 4,163,300; Romania 3,808,125.
Dust and powder of precious and semiprecious stones, including diamond	value \$4,551,967	\$1,214,614	Ireland \$1,832,101; Switzerland \$606,176; Germany \$391,299.
Grinding and polishing wheels and stones	14,744,188	61,175	Germany 3,702,307; Italy 3,267,299; Austria 1,683,217.
Asbestos, crude	3,000	--	Italy 2,000; United Kingdom 1,000.
Barite and witherite	23,009,172	23,101	China 6,165,398; Spain 5,361,699; Germany 4,603,101.
Boron materials:			
Crude natural borates	10,965,287	--	Italy 8,710,800; Sweden 1,362,312; Belgium 607,125.
Oxides and acids	23,749,156	13,198,199	Turkey 3,395,000; Russia 1,511,000; Bolivia 1,394,000.
Cement	metric tons 3,007,146	12	Belgium 964,472; Turkey 383,804; Spain 326,959.
Chalk	55,403,132	--	Germany 20,173,000; Spain 17,362,898; Austria 12,884,199.
Clays, crude:			
Bentonite	170,539,616	601,187	Greece 56,210,000; Turkey 24,840,300; Italy 22,561,500.
Chamotte earth and Dinas earth	metric tons 21,910	425	Germany 10,082; Czech Republic 5,807; Turkey 3,600.
Fire clay	8,761,790	--	Germany 4,312,601; Senegal 2,629,125; Netherlands 1,557,375.
Fuller's earth	3,701,021	69,398	Senegal 2,691,000; Spain 383,625; Germany 283,875.
Kaolin	metric tons 325,352	25,727	United Kingdom 145,456; Belgium 59,153; Brazil 50,236.
Diamond, natural:			
Gem, not set or strung	value, thousands \$213,370	\$14,486	Belgium \$77,308; Switzerland \$74,111; United Kingdom \$13,074.
Industrial stones	do. \$8,587	--	Belgium \$7,816; Netherlands \$379; United Kingdom \$285.
Dust and powder	value \$4,207,038	\$948,847	Ireland \$1,832,101; Switzerland \$591,474; Germany \$342,670.
Diatomite and other infusorial earth	12,192,592	390,687	Denmark 4,997,500; Germany 3,618,500; South Africa 1,000,000.
Feldspar	37,642,248	--	Germany 23,756,600; Italy 7,912,800; Turkey 3,095,000.
Fertilizer materials:			
Crude, n.e.s.	167,877,184	1,625	Belgium 100,107,688; Netherlands 33,201,898; Spain 24,713,700.
Manufactured:			
Ammonia	metric tons 735,561	31	Germany 167,178; Netherlands 127,786; Algeria 113,290.
Nitrogenous	do. 4,223,907	207	Belgium 931,935; Netherlands 785,661; Lithuania 528,980.
Phosphatic	do. 377,208	--	Tunisia 109,285; Netherlands 76,595; Belgium 75,469.
Potassic	do. 1,878,482	15,462	Germany 1,067,043; Spain 263,993; United Kingdom 212,704.
Unspecified and mixed			
Fluorspar	7,005,884	3,187	Mexico 2,299,500; Spain 1,842,187; South Africa 1,363,187.
Graphite, natural	11,159,461	50,648	Spain 5,317,112; Germany 1,890,875; China 1,469,000.
Gypsum and plaster	312,046,720	823,976	Germany 164,528,192; Spain 100,364,816; Thailand 18,585,000.
Iodine	1,563,851	3,187	Chile 762,375; Japan 534,625; Belgium 87,398.
Kyanite and related materials:			
Andalusite, kyanite, sillimanite	1,667,209	829,312	Luxembourg 109,898; Germany 76,199; free zones 634,000.
Mullite	1,742,748	11,812	Germany 982,125; Hungary 386,312; United Kingdom 176,199.
Lime	430,301,568	103,398	Spain 132,937,976; Belgium 118,872,440; Germany 108,184,096.
Magnesium compounds:			
Magnesite, crude	3,191,771	5,500	Italy 1,149,812; Germany 639,500; United Kingdom 453,875.
Oxides and hydroxides	149,467,696	3,265,687	Spain 44,138,700; Belgium 16,651,398; China 13,321,500.
Other	156,027,920	--	Germany 146,017,120; Belgium 9,722,101; Spain 162,000.

See footnotes at end of table.

TABLE 4--Continued  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
<b>Mica:</b>			
Crude, including splittings and waste	5,225,293	132,699	Germany 2,605,523; Spain 666,375; India 649,800.
Worked, including agglomerated splittings	357,058	7,000	Belgium 136,198; Austria 66,624; China 35,175.
Nitrates, crude	6,667,037	--	Germany 3,556,187; Belgium 2,149,500; Chile 370,125.
Phosphates, crude	773,858,368	--	Morocco 627,652,416; Algeria 122,425,504; Tunisia 9,800,000.
Phosphorus, elemental	1,529,813	296	China 820,000; Netherlands 699,812; Belgium 7,500.
Pigments, mineral, iron oxides and hydroxides, processed	31,024,424	587,812	Germany 10,971,999; China 5,894,500; Belgium 3,681,875.
Potassium salts, crude	1,806,898	--	Germany 1,685,000; Belgium 121,898.
<b>Precious and semiprecious stones other than diamond:</b>			
Natural value	\$58,482,424	\$2,265,245	Switzerland \$25,273,948; Thailand \$8,462,723; India \$3,009,395.
Synthetic value, thousands	\$16,101	\$444	Switzerland \$3,901; Mauritius \$3,432; Czech Republic \$3,112.
Pyrite, unroasted	3,359,389	--	Italy 3,155,187; Austria 172,601; Belgium 29,101.
Quartz crystal, piezoelectric value	\$622,003	\$14,702	Italy \$326,837; Russia \$127,794; Germany \$88,212.
Salt and brine	753,940,800	333,375	Spain 283,732,800; Germany 146,574,368; Belgium 84,602,000.
<b>Sodium compounds, n.e.s.:</b>			
Soda ash, natural and/or manufactured	305,045,376	100,925,872	Poland 44,918,700; Italy 35,395,300; Netherlands 28,468,398.
Sulfate, natural and/or manufactured	25,249,630	46,398	Spain 16,699,898; Austria 3,937,687; Germany 1,957,812.
<b>Stone, sand and gravel:</b>			
<b>Dimension stone:</b>			
Crude and partly worked	287,484,536	12,092	Brazil 41,882,694; Spain 41,698,122; Belgium 31,115,123.
Worked	633,998,224	214,242	Spain 311,020,714; Italy 63,924,212; Germany 53,149,786.
Dolomite, chiefly refractory-grade	446,676,416	2,812	Belgium 336,689,696; Italy 33,560,812; Germany 29,717,272.
Gravel and crushed rock metric tons	6,474,912	56	Belgium 4,684,124; Norway 710,760; Germany 410,536.
Limestone other than dimension	108,719,600	--	Belgium 97,859,128; Germany 9,603,101; Luxembourg 1,206,375.
Quartz and quartzite	275,988,864	450,097	Belgium 225,655,568; Brazil 10,793,074; Italy 9,695,210.
Sand other than metal-bearing metric tons	2,766,522	191,110	Belgium 1,976,830; United Kingdom 293,983; Germany 133,065.
Sand and gravel do.	9,241,434	191,166	Belgium 6,660,954; Norway 732,814; Germany 543,601.
<b>Sulfur:</b>			
<b>Elemental:</b>			
Crude, including native and byproduct do.	106,535	1	Germany 40,674; Netherlands 32,955; Belgium 12,466.
Colloidal, precipitated, sublimed	2,487,885	1,500	Spain 2,154,812; Belgium 217,199; United Kingdom 38,601.
Dioxide	5,092,997	--	Italy 2,851,312; Sweden 1,898,187; Germany 200,398.
Sulfuric acid	385,748,992	369,125	Belgium 227,323,312; Germany 43,750,000; Italy 39,445,600.
Talc, steatite, soapstone, pyrophyllite	40,644,912	720,625	Belgium 11,985,296; Netherlands 10,630,300; Austria 9,434,199.
Vermiculite, perlite, chlorite	79,742,608	--	Italy 22,763,600; South Africa 20,124,600; Turkey 18,324,898.
<b>Other:</b>			
Crude value, thousands	\$945,861	\$22,355	Belgium \$237,662; Germany \$140,028; Spain \$120,139.
Slag and dross, not metal-bearing metric tons	1,552,706	1,566	Germany 1,185,083; Belgium 177,981; Luxembourg 52,896.
<b>MINERAL FUELS AND RELATED MATERIALS</b>			
Asphalt and bitumen, natural	79,490,672	471,625	Italy 64,996,400; Belgium 5,071,699; Germany 2,411,625.
Carbon black	193,307,344	2,699,812	Egypt 39,483,500; Netherlands 36,171,600; Germany 35,288,000.
<b>Coal:</b>			
Anthracite metric tons	1,557,640	7	Australia 488,345; China 393,035; Russia 252,783.
Bituminous do.	14,824,490	2,108,620	Australia 4,038,606; South Africa 3,982,727; Colombia 2,139,776.
Briquets of anthracite and bituminous coal do.	48,375	--	Germany 30,854; Belgium 8,242; United Kingdom 5,433.
Lignite, including briquets	62,291,072	398	Belgium 720,875; Italy 26,601; free zones 100,500.
Coke and semicoke metric tons	1,520,208	9	China 908,503; Poland 167,465; Egypt 158,484.
Gas, manufactured value	\$22,614	--	Austria \$10,178; Switzerland \$4,523; Hungary \$3,392.
<b>Gas, natural:</b>			
Gaseous value, thousands	\$5,527,039	--	Norway \$1,896,795; Russia \$1,507,384; Belgium \$1,415,574.
Liquefied do.	\$1,496,449	\$2	Algeria \$1,406,955; Nigeria \$89,153; United Kingdom \$304.
Peat, including briquets and litter metric tons	673,454	13	Germany 288,115; Netherlands 125,806; Belgium 100,455.

See footnotes at end of table.

TABLE 4--Continued  
FRANCE: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2003<sup>1</sup>

(Kilograms unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
MINERAL FUELS AND RELATED MATERIALS--Continued:			
Petroleum:			
Crude	metric tons	84,181,901	6 Norway 15,962,981; Russia 14,567,817; Saudi Arabia 11,224,280.
Refinery products:			
Liquefied petroleum gas	do.	1,686,295	6,444 Algeria 639,461; United Kingdom 437,214; Norway 209,404.
Mineral jelly and wax	do.	98,095	36,288 Malaysia 25,379; United Kingdom 7,115; Netherlands 6,577.
Asphalt		724,098,048	6,495,800 Belgium 285,248,320; Spain 122,767,184; Germany 116,461,808.
Bitumen and other residues		860,933,120	30,316,698 Belgium 285,282,519; Germany 134,092,308; Spain 122,777,871.
Bituminous mixtures	metric tons	149,809	39 Belgium 43,988; United Kingdom 34,309; Germany 26,390.
Petroleum coke	thousand metric tons	1,440	806 United Kingdom 147; Netherlands 145; Germany 102.
Uranium:			
Ore and concentrate		185,100	-- All from Germany.
Oxides and other compounds		2,439,114	2 Netherlands 1,123,400; Russia 770,000; Germany 129,702.
Metal, including alloys, all forms:			
Uranium		25,536,444	3,237,500 Canada 9,112,100; Russia 5,069,300; Niger 2,776,700.
Thorium		1,480,983	-- Netherlands 1,028,700; Spain 204,000; Belgium 86,500.

-- Zero.

<sup>1</sup>Source: United Nations Statistics Division, Commodity Trade Statistics Database (COMTRADE), accessed November 3, 2005, at URL <http://unstats.un.org/unsd/comtrade/dqBasicQueryResults>.