



2009 Minerals Yearbook

ARGENTINA

THE MINERAL INDUSTRY OF ARGENTINA

By Susan Wacaster

In 2009, Argentina was estimated to be the world's second ranked producer of boron and the fourth ranked producer of lithium and strontium (from celestite). In terms of volume, Argentina's nonfuel mineral production was still dominated by industrial minerals; however, the base- and precious-metals mining sector had developed significantly since the late 1990s. Argentina revised its mining laws in 1993 to incorporate more investor-friendly measures, including 30-year tax stability for investors and a 3% ceiling on royalties. Further revisions to the mining laws were implemented in the late 1990s. Guided by World Bank development models, the country began to receive foreign investment after having aggressively advertised its relatively unexplored base- and precious-metals deposits to multinational mining companies. In 1990 through 1994, Argentina had produced only between about 900 kilograms per year (kg/yr) and 1,500 kg/yr of gold and between about 300 metric tons per year (t/yr) and 400 t/yr of copper. By 2009, about 14 major metals mining projects and (or) operations were active in Argentina; the country produced about 47,000 kilograms (kg) of gold and about 143,000 metric tons (t) of copper for the year and was estimated to be the third ranked gold producing country in Latin America behind Peru and Brazil. In 2002 and 2007, further revisions to mining tax laws resulted in conflicts among some mining companies that had been working in the country since the late 1990s. Also, in the past few years, protests in such Provinces as Cordoba, Mendoza, San Juan, and San Luis concerning the environmental impacts of mining reflected the mixed reactions to the advancement of mining among different sectors of the population, including environmental groups and those directly involved with the mining industry. For example, the Government of Mendoza Province banned the use of cyanide to protect its fertile grape growing and natural outdoor recreation areas; major concerns had been raised in San Juan Province regarding the protection of glaciers that exist where Barrick Gold Corp. of Canada would develop its Pascua Lama project on the border between Argentina and Chile; and Cordoba and San Luis Provinces passed bans on open pit mining. On the other hand, the Government, the mining industry, and other sectors of the population seemed to be united behind the idea of mine development (Kroll, 2009; Angulo, 2010; Jaskula, 2010).

Minerals in the National Economy

The mining and quarrying sector of the economy accounted for 3.5% of Argentina's gross domestic product (GDP) in 2009 compared with 3.4% in 2008. Between 1990 and 2009, the contribution of mining and quarrying to the GDP increased to 3.5% from about 2%. The mining industry had been able to maintain modest growth despite a national economic crisis in 2001-02 that resulted in the devaluation of the peso to between 25% and 30% of its previous worth, confusing changes to mining legislation, and the international economic crisis of 2008-09 that reduced the flow of investment capital into

Argentina and the demand for many of its primary commodities. Conversely, the 2001-02 crisis combined with still-favorable tax policies proved to be beneficial for mining investors as it became even less expensive to mine in the country (Boido, 2008; Instituto Nacional de Estadística y Censos, 2010).

Government Policies and Programs

Mineral resources in Argentina are the property of the Nation and the Provinces. Argentina's Mining Code [El Código de Minería] was enacted by the Argentine Congress on November 25, 1886. National laws govern the acquisition and maintenance of mining rights and the loss of those rights, and the Provinces enforce rules pertaining to such rights. The first major revisions to mining legislation, which were passed in 1993, prohibited the Government from exploiting the country's mineral resources. The new legislation guaranteed investors tax stability for 30 years, granted 100% deduction of exploration costs from income taxes, and capped the maximum royalty payment to the Government at 3%. The Mining Code underwent significant revisions in 1995 with the passage of law No. 24,498 (mining update), law No. 24,523 (national commercial mining), and law No. 24,585 (environmental protection), and in 1997 with the passage of law No. 25,225 (modifications). Passage of law No. 24,196 (mining investment) required the Provinces to regulate the terms and manner of calculation and payment of royalties. The procedures for exercising the rights provided by the Mining Code were to be set by the Provinces; however, national and regional initiatives would be implemented to create a more homogenous system. In 2002, a resolution was passed by the Government that would establish some amount of export taxes on companies that came to Argentina after that year. The royalties on mineral production established by the Provinces appeared not to be uniform, however, and in 2007, another resolution was passed that levied an export tax of either 5% if the commodity was exported with any value added (that is, somehow processed in country) or 10% if the commodity was to be exported as raw ore; the tax applied to all companies working in Argentina, including those that began doing business between 1996 and 2002. Reactions were varied among companies already invested in Argentina, but a main point of contention was that if a company had started doing business in, for example, 1997, but did not come into production until 2008, that company was going to be subject to different tax regime than it had agreed to and had expected throughout the years that it had worked to develop a project (Kroll, 2009; Secretaría de Minería de la Nación, 2009).

Production

Primary aluminum production increased by 4% in 2009 compared with that of 2008 to about 410,000 t owing to the continued ramping up of production to reach the expanded

smelter capacity of Aluar Aluminio Argentino S.A.I.C. Gold mine output increased by about 11% in 2009 compared with that of 2008 to about 47,000 kg from 42,000 kg owing to the startup of Yamana Gold, Inc. of Canada's Gualcamayo gold mine. Silver mine output increased by 17% to about 415,000 kg in 2009 owing to Silver Standard Resources Inc. of Canada having ramped up to commercial production at the Piriqutas Mine. Production of most industrial minerals decreased, which may have been the result of decreased exports into regional markets combined with the effects of the global recession. Production of boron decreased by 36% to about 500,000 t compared with that of 2008; however, the exact reason for the decrease was not determined. Production of most mineral fuels and refinery products decreased in 2009 compared with that of 2008 (table 1; Silver Standard Resources Inc., 2009, p. 8, 11; Yamana Gold, Inc., 2010, p. 19, 26).

Structure of the Mineral Industry

Argentina's Secretaría de Minería de la Nación [Mining Secretariat] was responsible for the administration, development, and promotion of mining and mining investment. The Dirección Nacional de Minería [National Directorate of Mining], the Dirección Nacional de Planificación Estratégica Regional [National Directorate of Regional Strategic Planning], and the Servicio Geológico Minero Argentino (SEGEMAR) [Geological and Mining Service of Argentina], the latter of which operated as a dependent decentralized agency, were under the authority of the Mining Secretariat. The mining industry in Argentina was composed primarily of domestic and foreign private companies. The Cámara Argentina de Emprendedores Mineros [Argentinian Chamber of Mining Companies] was a civil association dedicated to the development of a sustainable, prosperous mining industry. Table 2 is a list of major mineral industry facilities (Ministerio de Planificación Federal Inversión Pública y Servicios, 2009; Servicio Geológico Minero Argentino, 2009).

Mineral Trade

Argentina was a net exporter in 2009 in terms of total goods and services. Brazil was the leading recipient of Argentine exports followed by Chile, China, and the United States. Trade in 2009, however, suffered from the combination of export taxes levied upon not only the mining industry but also the agricultural sector and because of the global economic recession. Total exports from Argentina in 2009 were valued at about \$55.7 billion compared with about \$70 billion in 2008, which was a decrease of about 20%. Total imports to Argentina were valued at about \$38.8 billion compared with about \$57.5 billion in 2008, which was a decrease of about 33%. In 2009, mineral product (unspecified) exports increased, however, and accounted for about 13% of total exports in 2009 compared with 11% in 2008. Natural and (or) cultured pearls, precious and (or) semiprecious stones, precious metals, precious metal products, jewelry, and coins accounted for about 2% of total exports. Articles of stone, plaster, cement, asbestos, mica or similar materials, ceramic products, glass, and glass products

accounted for less than 1% of exports (Instituto Nacional de Estadística y Censos, 2010).

Commodity Review

Metals

Aluminum.—Argentina's only primary aluminum producer was Aluar Aluminio Argentino SAIC. The 4% increase in primary aluminum production brought production up to the smelter's new capacity of 410,000 t (Aluar Aluminio Argentino S.A.I.C., 2010).

Copper.—In July, a \$15 million upgrade was completed on the flotation circuit at Bajo de la Alumbrera Ltd.'s copper and gold processing plant to improve the plant's milling and metallurgical performance. The plant was owned by Xstrata plc of Switzerland (50%) and Canadian companies Goldcorp, Inc. (37.5%) and Yamana Gold (12.5%). A project to improve the crushing circuit at the plant was scheduled to be completed during 2010. The improvements were undertaken to maintain copper and gold recoveries as ore grades decline during the mine life. Xstrata continued to update a previous feasibility study at its wholly owned El Pachon project, the efforts of which resulted in a 41% increase in the resource estimate to 1.38 billion metric tons (Gt) of copper ore at a grade of 0.58% copper. As of July, El Pachon had estimated measured, indicated, and inferred resources of 190 million metric tons (Mt) of ore at a grade of 0.83% copper, 620 Mt at a grade of 0.59% copper, and 570 Mt at a grade of 0.5% copper, respectively. The deposit is also prospective for molybdenum and silver. El Pachon is located in San Juan Province. The ore body is a porphyry copper-molybdenum deposit (Xstrata plc, 2009a, p. 39; b; 2010, p. 69-73).

In 2009, Yamana Gold received the environmental license for its Agua Rica project in Catamarca Province. Agua Rica is a copper, gold, molybdenum, and silver deposit located near the Bajo de la Alumbrera copper and gold mine in which Yamana Gold owned a 12.5% interest. The company reported estimated proven and probable mineral reserves of about 180,000 kg of gold and almost 4 Mt of copper (Yamana Gold, Inc., 2010).

Gold.—AngloGold Ashanti Ltd. of South Africa produced about 6,400 kg of gold in 2009 from its Cerro Vanguardia Mine in Santa Cruz Province compared with about 5,000 kg in 2008. The Cerro Vanguardia Mine consists of multiple small open pits. The ore bodies comprise a series of hydrothermal vein deposits. The production increase was the result of resolving technical problems that the company attributed to reduced tonnages, poor grades, and sedimentation problems that were encountered in the processing. AngloGold had reported problems with agitators in leach tanks in 2008 (AngloGold Ashanti Ltd., 2010, p. 102-104).

Barrick Gold Corp. of Canada completed an expansion of a crusher at its Veladero operation in San Juan Province in late 2009, which increased the throughput of ore to 85,000 metric tons per day (t/d) from 50,000 t/d. Also, the company accessed relatively higher grade ores in the Amable and the Federico pits. As a result, production was expected to increase to between about 34,000 kg and 36,000 kg in 2010. As of December 31, estimated proven and probable gold reserves amounted to about 370,000 kg (Barrick Gold Corp., 2010, p. 13, 156).

In May, Barrick announced that it would proceed with construction on the Argentina side of the border with Chile at its Pascua Lama project after a cross-border tax agreement was reached between Chile and Argentina and after having received necessary permits that had been pending. The company reported that Pascua Lama was one of the largest undeveloped gold and silver deposits in the world and had close to 560,000 kg of gold in reserves and about 20 million kilograms (Mkg) of contained silver. The Pascua Lama deposit is located about 10 kilometers (km) from the Veladero Mine. Barrick expected that the mine would start production in the first quarter of 2013 and would produce between about 23,000 and 25,000 kg of gold in the first 5 years. To increase its available capital for development of the Pascua Lama project, Barrick entered into an agreement with Silver Wheaton Corp. of Canada to sell 25% of the life-of-mine silver production from the Pascua Lama project and 100% of the silver production from the Veladero Mine, as well as from the Lagunas Norte and Pierina Mines in Chile, until the completion of the Pascua Lama project. Controversy surrounded the Pascua Lama project, in part because it is located in a glacier-covered region on the border between Chile and Argentina inside a legally protected United Nations World Biosphere Reserve, as is Barrick's fully operational Veladero Mine (Boido, 2008; Barrick Gold Corp., 2010, p. 13, 17, 156).

About 2,400 kg of gold was produced from Hochschild Mining plc of Canada's San Jose Mine in 2009 compared with 1,700 kg in 2008. The increased production was attributable to plant expansion in 2008 that doubled capacity to 1,500 t/d from 750 t/d and also to the high-grade Kospi vein, which came into production in 2009. The company discovered two new vein systems at San Jose that were expected to increase the mine's resource estimates (Hochschild Mining plc, 2010).

In 2009, Yamana Gold poured its first gold bullion from its Gualcamayo Mine in San Juan Province and reached commercial production by midyear. The company reported production of about 4,500 kg of gold for the year and production in 2010 was expected to reach between 5,000 kg and 5,500 kg. The deposit was estimated to contain proven and probable reserves of about 71,500 kg and an additional 25,000 kg of measured and indicated gold resources. Exploration work on the western extension of the mineralization at Gualcamayo in 2009 led to a prefeasibility study that supported potential additional production of between 2,500 and 2,800 kg/yr (Yamana Gold Inc., 2010, p. 19, 26).

Silver.— In 2009, Coeur d'Alene Mines Corp. of the United States produced about 115,000 kg of silver compared with about 84,000 kg in 2008 at its Martha silver and gold mine in Santa Cruz Province. The production increase was the result of a 50% increase in silver grades in the third quarter of the year and a 78% increase in throughput at the processing plant compared with that of 2008. At yearend, the company estimated that its proven and probable reserves included about 39,000 kg of silver and that the measured and indicated silver resources were about 55,000 kg (Coeur d'Alene Mines Corp., 2009, p. 3; 2010 p. 4-5).

Pan American Silver Corp. of Canada started production in 2009 at its Manantial Espejo silver and gold mine in Santa Cruz Province. For the year, the mine produced about 118,000 kg of silver and about 2,000 kg of gold. Estimated proven and

probable reserves at Manantial Espejo as of December 31 included about 1.1 Mkg of silver and about 16,000 kg of gold. Estimated measured and indicated resources included about 300,000 kg of silver and about 3,000 kg of gold (Pan American Silver Corp., 2010, p. 32, 48).

In 2009, Silver Standard ramped up to commercial production at its Piriquitas silver and zinc project, which is located in Jujuy Province, and produced about 34,000 kg of silver for the year. The company expected to produce about 200,000 kg of silver in 2010 and projected that at full production it would average between about 250,000 kg and 300,000 kg of silver and 2,000 t of tin starting in 2011. Mineral reserves at Piriquitas were estimated to be about 2.1 Mkg. Measured and indicated silver resources were about 221,000 kg. The company owned another property in Argentina—the Diablillos silver and gold project in Salta Province—at which it had completed about 15,000 meters of drilling. The company reported that it had converted 70% of the silver and gold resources to the indicated category and that metallurgical tests demonstrated high percentages of metal recovery. A prefeasibility study was planned for 2010 (Silver Standard Resources, Inc., 2009, p. 8, 11).

Industrial Minerals

Lithium.—FMC Corp. of the United States produced about 17,600 t of lithium metal from its Fenix operation on the western half of the Salar del Hombre Muerto in Catamarca Province. In September, Lithium One Inc. of Canada acquired an option to earn a 100% interest in the Sal de Vida lithium brine project, which is also situated in the Salar del Hombre Muerto. Lithium One optioned the mining claims from Maktub Compañía Minera S.R.L. of Argentina. The Salar de Vida lithium brine project covers about 150 square kilometers on the eastern half of the salar (Lithium One, Inc., 2009).

Potash.—In January, Vale S.A. of Brazil announced that it had entered into a purchase and sale agreement to acquire potash assets from Rio Tinto plc of the United Kingdom for a total of \$850 million. Vale was to purchase 100% of the Rio Colorado project, which is located in Mendoza and Neuquen Provinces. The Rio Colorado Mine was expected to be developed with an initial capacity of 2.4 million metric tons per year (Mt/yr) of potash (which would be expanded to 4.4 Mt/yr), a 350-km railway spur, port facilities, and a powerplant (Vale S.A., 2010).

Mineral Fuels

Petroleum.—Crude petroleum production decreased by just 1% in 2009 compared with that of 2008 to about 227 million barrels. Nearly 50 companies were involved in production of petroleum in the country in 2009; however, seven of them accounted for 79% of the total output for the year. YPF S.A. (a subsidiary of Spain's Repsol YPF, S.A.) accounted for 34% of total production; Pan American Energy (Sucursal Argentina) LCC [an Argentinean subsidiary of BP p.l.c. of the United Kingdom (60%) and the Bridas Corp. of Argentina (40%)] accounted for 18%; Chevron Argentina S.R.L. accounted for 7%; Petrobras Energia S.A. (a subsidiary of Brazil's Petróleo Brasileiro S.A.) accounted for 6%; Petro Andina Resources, Ltd. (which was

acquired by Pluspetrol S.A. of Argentina at the end of 2009) and Tecpetrol S.A. of Argentina accounted for 4.5% each; and Total Austral S.A. (a subsidiary of France's Total S.A.) accounted for 3.5% (Instituto Argentino del Petroleo y del Gas, 2010).

Natural Gas.—Natural gas production decreased by about 35% in 2009 compared with that of 2008 to about 33 billion cubic meters. The leading producers were Repsol YPF and Total Austral S.A., which accounted for 31% and 30%, respectively, of the total. Pan American Energy (Surcusal Argentina) accounted for 15% of the total, Petrobras Energia S.A. accounted for 11%, Pluspetrol accounted for 5%, and Petrolera LF Co. S.R.L. of Argentina accounted for 4% (Instituto Argentino del Petroleo y del Gas, 2010).

Outlook

In 2009, Argentina had at least 30 base- and precious-metals projects that were in the resource development or feasibility stages, approximately 100 other projects that were under exploration, and about 400 mining projects in total (metal and nonmetal). Despite conflicting views about mining within the country and recent changes to mining legislation that could deter some new investment, it seems likely that continued growth of Argentina's mining industry is all but guaranteed. Argentina still has a way to go to overtake Brazil (the second ranked gold producer in Latin America) in terms of gold production, but that Brazil's production has been declining and Argentina is still just developing its precious-metals sector lends support to the possibility that Argentina would occupy that position in the medium term. At least seven gold and silver projects that are in the resource and development or feasibility stages are expected to come on line by 2015. The Government projects that mining investment may reach \$11.4 billion in that same timeframe (Kroll, 2009).

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TABLE 1
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2005	2006	2007	2008	2009 ^P	
METALS						
Aluminum, primary	270,714	272,942	286,386	393,900	410,200	
Antimony, refined, secondary	2,200	2,208	2,726	2,500	2,200 ^e	
Cadmium:						
Mine output, Cd content	124	122	111	124	131	
Refined	3	6	35	38	36	
Copper:						
Mine output, Cu content	187,317	180,144	180,223	156,893	143,084	
Refined, secondary ^c	16,000	16,000	16,000	16,000 ^r	16,000	
Gold, mine output, Au content	kilograms	27,904	44,131	42,021	42,046	46,588
Iron and steel:						
Metal:						
Pig iron	thousand metric tons	2,644	2,481	2,593	2,581 ^r	2,042
Sponge iron (direct reduction)	do.	1,823	1,947	1,810	1,847 ^r	807
Total	do.	4,467	4,428	4,403	4,428 ^r	2,849
Ferroalloys, electric furnace: ^c						
Ferrosilicomanganese		NA ^r	NA ^r	NA ^r	9,200 ^r	6,600
Ferrosilicon		25,700 ^r	24,400 ^r	15,000 ^r	10,400 ^r	11,300
Steel, crude	thousand metric tons	5,386	5,533	5,387 ^r	5,543	4,014
Semimanufactures	do.	4,925 ^r	5,308 ^r	5,173 ^r	5,210 ^r	3,749
Lead:						
Mine output, Pb content		10,683	12,064	17,045	20,788	24,753
Smelter, primary		10,607	12,064	11,568	13,482	12,558
Refined:						
Primary		10,607	12,064	11,568	13,482	12,558
Secondary ^c		35,000	37,000	49,000	59,000	70,000
Total ^c		45,600	49,100	60,600	72,500	82,600
Mercury		--	--	3,484	1,028	1,000 ^e
Molybdenum		--	--	--	228	200 ^e
Silver, mine output, Ag content	kilograms	263,766	245,124	255,567	355,596	415,235
Zinc:						
Mine output, Zn content		30,227	29,808	27,025	30,349 ^r	31,869
Metal, smelter:						
Primary		37,460	42,584	42,876	39,479	32,989
Secondary		2,997	3,407	3,430	3,158	2,639
Total		40,457	45,991	46,306	42,637	35,628
INDUSTRIAL MINERALS						
Asbestos		260	299	282	298	322
Barite		3,355	6,276	37,979	3,170	3,416
Boron materials, crude		632,792	533,535	669,578	785,553	500,433
Cement, hydraulic	thousand metric tons	7,595	8,929	9,602	9,703	9,385
Clays:						
Bentonite		247,101	246,165	250,260	256,182	148,099
Common		6,373,687	6,117,199	7,854,569	6,901,410 ^r	6,941,736
Kaolin		54,903	49,619	69,354	73,838 ^r	78,792
Diatomite		34,045	38,543	49,604	36,996	62,270
Feldspar		151,307	170,728	291,562	220,234	213,671
Fluorspar		7,502	8,278	9,735	15,098	13,424
Gypsum, crude		1,073,286	1,202,812	1,226,530	1,257,310	1,356,045
Lime ^c		1,500,000	1,800,000	1,800,000	1,500,000 ^r	1,200,000
Lithium: ²						
Carbonate		7,288	8,228	3,584 ^r	4,037	3,467
Chloride		8,416	8,416	3,107 ^r	2,746	1,549

See footnotes at end of table.

TABLE 1—Continued
 ARGENTINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2005	2006	2007	2008	2009 ^p
INDUSTRIAL MINERALS—Continued					
Mica	4,101	6,223	10,171	8,790	8,668
Nitrogen, N content of ammonia	654,786	726,969	726,000 ^e	725,000 ^r	720,000 ^e
Peat, agricultural (turba)	11,452	15,119	13,665	12,119 ^r	6,952
Perlite	21,991	25,146	35,838	26,545	21,802
Phosphate rock:					
Gross weight	225	65	--	--	--
P ₂ O ₅ content	67	20	--	--	--
Pozzolan	2,001	3,994	4,207	5,839	5,000 ^e
Pumice	15,361	17,665	16,200	6,500	7,020
Salt:					
Common	1,845,833	1,917,656	2,357,674	1,681,261	1,477,532
Rock	254	242	179	229	175 ^e
Sand and gravel:					
Sand:					
Construction	20,194,111	21,143,480	29,122,031	28,532,557	27,139,591
Silica sand (glass sand)	461,242	446,240	456,666	472,612	364,157
Gravel	10,078,475	10,832,689	19,423,869	20,383,579	19,591,112
Stone:					
Basalt	633,215	542,475	841,503	1,101,578 ^r	2,116,582
Calcareous:					
Calcite, nonoptical	49,700	57,800	131,357	139,119	138,788
Dolomite, including crushed	346,537	392,681	680,895	1,047,874	1,252,643
Limestone	12,267,049	12,993,352	16,757,861	15,631,899	15,746,676
Crushed, unidentified	11,533,468	12,269,384	22,586,494	23,851,939	20,000,000 ^e
Marble, onyx, travertine	148,192	160,535	151,306	151,889	143,605
Flagstone	193,308	550,529	268,662	237,684	197,877
Granite, in blocks	62,215	71,395	100,697	73,888	69,886
Quartz, crushed	170,668	206,282	287,138	220,979	217,857
Quartzite, crushed	784,900	854,560	959,053	1,017,938	946,682
Rhyolite	--	26,544	14,661	--	--
Rhodochrosite kilograms	118,200	78,832	50,593	136,371	122,117
Gemstones (agate, amethyst, and so forth) do.	81,579	54,505	12,745	89,675	119,650
Sandstone	69,001	22,452	15,000	--	--
Serpentine, crushed	1,500	1,725	184,480	150,470	142,000
Shell, marl	261,183	276,233	314,113	357,952	353,137
Tuff (toba) thousand metric tons	77,788	108,567	97,108	63,845	64,484
Strontium minerals, celestite	7,233	19,822	4,909	14,910	8,169
Sulfates, natural:					
Magnesium (epsomite)	1,440	1,440	1,730	1,730	1,626
Sodium (mirabilite)	51,190	43,854	27,957	21,222	18,267
Talc and related materials	21,073	23,113	24,836	22,218	22,894
Vermiculite	1,403	1,585	1,726	1,813	2,150
Zeolites	1,073,286	1,202,812	1,226,530	1,200,000 ^{r,e}	1,200,000 ^e
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bitumen:					
Natural (asphaltite)	923	1,475	6,758	6,190	6,210
Byproduct of refinery	675,102	658,389	680,821	675,000 ^r	641,420
Coal, bituminous thousand metric tons	320	295	220	208	181
Coke, all types, including breeze do.	1,496	1,191	1,200 ^e	1,474 ^r	1,413
Gas, natural:					
Gross million cubic meters	48,738	51,665	50,891	50,271 ^r	32,713
Marketed do.	45,600	46,100	44,800	44,100	40,000 ^e
Natural gas liquids thousand 42-gallon barrels	--	--	--	10,539	10,100

See footnotes at end of table.

TABLE 1—Continued
 ARGENTINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2005	2006	2007	2008	2009 ^b	
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	241,044	240,579	233,824	229,723	227,368
Refinery products:						
Liquefied petroleum gas	do.	11,624	11,464	11,027	11,000	9,168
Motor gasoline	do.	53,642	54,319	54,300 ^c	36,790 ^r	37,960
Aviation gasoline	do.	22	--	--	--	--
Jet fuel	do.	9,980	9,385	10,111	9,769 ^r	10,060
Kerosene	do.	191	178	167	63 ^r	87
Distillate fuel oil	do.	963	819	764	830 ^r	747
Residual fuel oil	do.	18,227	22,498	28,268	31,164 ^r	21,175
Lubricants	do.	2,443	2,435	2,150	2,000	2,456
Other	do.	30,170	34,823	137,059 ^r	154,949 ^r	188,993
Total	do.	127,262	135,921	243,846 ^r	246,565	270,646

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through October 22, 2010.

²In recent years, information available from Argentine sources prompted major revisions in how lithium production is reported.

TABLE 2
ARGENTINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ¹
Aluminum		Aluar Aluminio Argentino S.A.I.C. (private, 100%)	Abasto, Buenos Aires Province, and Puerto Madryn, Chubut Province	410.
Boron		Rio Tinto Minerals-Argentina (Rio Tinto Borax, 100%)	El Porvenir Mine and plant, Jujuy Province; Sije and Tincalayu Mines and plants, and Campo Quijano refinery, Salta Province	100.
Do.		Procesadora de Boratos Argentinos S.A. (Ferro Corp.)	Loma Blanca, Jujuy Province, and plant at Palpala, Jujuy Province	36.
Do.		Ulex S.A. (private, 100%)	Pastos Grandes, Salta Province	2.
Cement		Cementos Loma Negra C.I.A.S.A. (private, 100%)	Buenos Aires, Cordoba, Corrientes, Salta, Salta Juan, Mendoza, and Jujuy Provinces	6,000.
Do.		Cementos Avellaneda, S.A. (Corporación Uniland S.A. and C. Molins International S.A.)	La Caldera plant, San Luis Province, and Olavarría plant, Buenos Aires Province	2,800 cement, 220 lime.
Do.		Juan Minetti S.A. (Holcim Ltd., 100%)	Cordoba, Jujuy, and Mendoza Provinces	1,700.
Coal		Yacimientos Carbonífero Río Turbio S.A. (private, 100%)	Río Turbio, Santa Cruz Province	210.
Copper and gold ²		Bajo de la Alumbraera Ltd. (Xstrata plc, 50%; Goldcorp, Inc., 37.5%; Yamana Gold, Inc., 12.5%)	Bajo de la Alumbraera Mine, Catamarca Province	160 Cu, 13,000 Au.
Gold and silver	kilograms	Cerro Vanguardia S.A. (AngloGold Ashanti Ltd., 92.5%, and government of Santa Cruz Province, 7.5%)	Cerro Vanguardia Mine, Santa Cruz Province	100,000 Ag, 10,000 Au.
Do.	do.	Coeur d'Alene Mines Corp., 100%	Martha Mine, Santa Cruz Province	120,000 Ag, Au NA.
Do.	do.	Minera Santa Cruz (Hochschild Mining plc, 51%, and Minera Andes Inc., 49%)	San Jose, Santa Cruz Province	15,000 Ag, 2,400 NA.
Do.	do.	Minera Argentina Gold (Barrick Gold Corp., 100%)	Veladero Mine, San Juan Province	21,000 Au, 125,000 Ag.
Do.	do.	Pan American Silver Corp., 100%	Manantial Espejo, Santa Cruz Province	1,900 Au, 125,000 Ag.
Do.	do.	Silver Standard Resources Inc., 100%	Piriquitas, Jujuy Province	215,000 Ag.
Do.	do.	Yacimientos Mineros de Agua de Dionisio (Government, 100%)	Farallon Negro, Hualfin, and Belen, Catamarca Province	4,600 Au, 50,000 Ag.
Do.	do.	Yamana Gold, Inc., 100%	Gualcamayo, San Juan Province	5,000 Au.
Iron and steel		Siderar S.A.I.C. (Ternium S.A., 60.93%)	San Nicolas, Buenos Aires Province	2,880 steel, 4,500 semimanufactures.
Do.		Acindar S.A. (AcelorMittal Group, 65%)	Plant Nos. 1 and 3, Buenos Aires Province; and Plant No. 2, near Rio Parana, Santa Fe Province	1,350 steel, 1,000 DRI.
Do.		Metallurgical Corp. of China Ltd.	Sierra Grande, Rio Negro Province	320 iron ore.
Do.		Siderca S.A.I.C. (Techint Group)	Buenos Aires Province	900 steel, 670 DRI.
Lead and silver, refinery ³		Glencore International AG, 100%	Refinería Aguilar, Palpala Industrial Park, Jujuy Province	18,000 Ag. 15 Pb.
Lead, silver, and zinc ³		do.	Aguilar Mine, Jujuy Province	49,800 Ag, 24 Pb.
Lithium	metric tons	Minera del Altiplano S.A. (FMC Corp.)	Salar del Hombre Muerto, Salta Province	7,260 chloride, 11,350 carbonate.
Natural gas	million cubic meters	Repsol YPF, S.A.	Neuquen, Rio Negro, Salta, Santa Cruz, and Tierra del Fuego Provinces	18,000.

See footnotes at end of table.

TABLE 2—Continued
 ARGENTINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ¹
Petroleum	million 42-gallon barrels	Repsol YPF, S.A.	Chubut, Formosa, Jujuy, La Pampa, Mendoza, Neuquen, Rio Negro, Salta, Santa Cruz, and Tierra del Fuego Provinces	366.
Do.	do.	Pan American Energy (Sucursal Argentina) LLC (BP p.l.c., 60%, and Bidas Corp., 40%)	Offshore Chubut and Santa Cruz Provinces	100.
Do.	do.	Chevron Argentina S.R.L.	El Trapial Field, Neuquen Province and other concessions	46.
Do.	do.	Petrobras Energia S.A. (Petroleo Brasileiro S.A., 100%)	La Pampa, Mendoza, Neuquen, Rio Negro, Salta, and Santa Cruz Provinces	15.
Do.		Petro Andina Resources Ltd. (Pluspetrol S.A., 100%)	Neuquen Basin	10.
Do.	do.	Tecpetrol S.A.	Golfo San Jorge Basin, Neuquen Basin, Northeast Basin	10.
Do.	do.	Total Austral S.A. (Total S.A., 100%)	Neuquen Province	NA.
Zinc		Glencore International AG, 100%	Aguilar Mine, Jujuy Province	44.
Do.		Coeur d'Alene Mines Corp., 100%	Martha Mine, Santa Cruz Province	NA.
Do.		Silver Standard Resources Inc., 100%	Piriquitas, Jujuy Province	NA.
Zinc, refinery		Aguilar AR Zinc Group (Glencore International AG, 100%)	Rosario, Santa Fe Province	44.

⁸Estimated. Do., do. Ditto. NA Not available.

¹Abbreviations used in this table for commodities include the following: Ag—silver; Au—gold; Cu—copper; DRI—direct-reduced iron; and Pb—lead.

²Gold data reported in kilograms.

³Silver data reported in kilograms.