



2013 Minerals Yearbook

CANADA

THE MINERAL INDUSTRY OF CANADA

By Staff

Canada was one of the major mining countries in the world and ranked among the world's top five countries in the production of aluminum, mined cobalt, gem-quality diamond, indium, mined nickel, platinum-group metals ore, potash, and uranium ore (Bray, 2014; Jasinski, 2014; Kuck, 2014; Loferski, 2014; Olson, 2014; Shedd, 2014; Tolcin, 2014).

Minerals in the National Economy

Metals and industrial minerals were produced in all 10 Provinces and 3 Territories of Canada. Crude oil and natural gas were produced in the Provinces of Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Nova Scotia, Ontario, and Saskatchewan, and in the Northwest Territories.

In 2013, Canada's real gross domestic product increased by 2.0% after increasing by 1.7% in 2012. All major industrial sectors registered growth in 2013 with the exception of the manufacturing sector. In 2013, the output value of the mining and mineral fuels sector increased by 5.6%, and that of the agriculture sector increased by 12.6%. Significant declines were recorded in the manufacturing of fabricated metal products and nonmetallic mineral products and as a result, the output value of the manufacturing sector decreased by 1.6% (Statistics Canada, 2014a).

Government Policies and Programs

In general, Provincial governments are responsible for mining activity within their respective Provinces. Provincial legislatures make laws concerning matters for which they have jurisdiction, which include exploration, development, production, and conservation and management of most nonrenewable natural resources. Parliament makes laws for the entire country with respect to matters assigned to it by Canada's Constitution, and it has responsibility for the Territories. The Federal Government is responsible for the mineral activities of Federal Crown corporations; mineral activities on Federal lands and offshore; and, through the Canadian Nuclear Safety Commission, for uranium exploration, development, production, and waste disposal. Local and municipal governments promulgate laws on local matters, such as zoning regulations and the issuance of construction permits. The outcome of 2004 SCC 73 {also known as *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511} held that the Federal and Provincial governments (the Crown) had a duty to consult with Aboriginal groups (First Nations, Inuit, and Métis) with claims to lands and Aboriginal rights, prior to taking action (such as awarding exploration and road-construction permits) that may adversely affect those interests.

The Canadian Securities Administrators' National Instrument 43-101 sets the standards for all technical public disclosure for mineral projects. National Instrument 51-101 sets the standards for disclosure for oil and gas activities.

Production

Canada was virtually self-sufficient in most mineral commodities. In general, the level of mineral and metal production was about the same in 2013 as it was in 2012. Mineral commodities for which reported production increased in 2013 included aluminum, mined cobalt, mined and refined copper, mined gold, iron ore, and platinum-group metals. Notable production decreases included those of mined bismuth, pig iron, mined lead, mined molybdenum, and mined zinc (table 1).

Structure of the Mineral Industry

Canada was one of the world's most active mining countries, and it had numerous mineral exploration, mine development, and mining projects underway. Canada's mineral industry is characterized by free enterprise in which private companies are involved in exploration, mine development, mineral production, mineral processing, and marketing. Table 2 lists the structure of Canada's mineral industry by principal mineral commodities and major operating companies.

Mineral Trade

In 2013, Canada's total domestic exports amounted to about \$479 billion, which was about \$16 billion more than that of 2012. Exports of crude petroleum were valued at \$81 billion in 2013 compared with a revised \$73 billion in 2012, exports of natural gas were valued at about \$13 billion compared with a revised \$11 billion in 2012, and exports of refined petroleum products were valued at \$13 billion compared with a revised value of about \$14 billion in 2012. In 2013, exports of intermediate metal products were valued at \$43 billion, which was the same as in 2012; exports of industrial minerals were valued at about \$9 billion compared with \$10 billion in 2012; and exports of metal ores and concentrates were valued at about \$9.4 billion compared with a revised \$9.6 billion in 2012 (Statistics Canada, 2014b).

Canada's total domestic imports amounted to about \$486 billion in 2013 compared with a revised \$475 billion in 2012. Imports of intermediate metal products were valued at \$24 billion in 2013 compared with \$27 billion in 2012, and imports of metal ores and concentrates were valued at about \$10.7 billion in 2013 compared with a revised \$9.4 billion in 2012. Imports of crude petroleum were valued at about \$26 billion in 2013 compared with a revised \$31 billion in 2012, and imports of refined petroleum products were valued at about \$11 billion compared with \$10 billion in 2012 (Statistics Canada, 2014c).

Commodity Review

Additional information on other mineral commodities in Canada is available on the Web site for Natural Resources Canada's Canadian Minerals Yearbook at <http://www.nrcan.gc.ca/mining-materials/markets/canadian-minerals-yearbook/8360>.

Metals

Aluminum.—Production of primary aluminum increased by about 7% in 2013 to 2.97 million metric tons (Mt) compared with about 2.78 Mt in 2012. Rio Tinto Alcan Inc., which was a subsidiary of Rio Tinto plc, operated seven aluminum smelters with a total output capacity of 1.36 Mt and held shares in two aluminum operations, Becancour and Sept-Iles (Alouette), in Canada. In 2011, the Board of Rio Tinto Alcan had approved an additional \$2.7 billion to modernize the Kitimat smelter in British Columbia. The modernization would increase the output capacity to 420,000 metric tons per year (t/yr). Construction had begun, and the smelter was expected to become operational by midyear 2015. The smelter was designed to use AP40 smelting technology to operate at 400 kiloamperes (kA). The new prebaked smelter would replace the vertical stud Soderberg smelter built in 1954. The new smelter's capability to operate at higher amperage was expected to improve the facility's energy efficiency and labor productivity and reduce emissions and operating costs. Construction of Rio Tinto's 38-pot AP60 pilot plant at Saguenay-Lac-Saint-Jean, Quebec, was completed in December 2012. The 60,000-metric-ton-per-year-capacity smelter, which was designed to operate at 600 kA, started production in the third quarter of 2013. In November 2013, Rio Tinto shut down the Shawinigan aluminum operation in Quebec, which had been operating since 1942 (Rio Tinto Alcan Inc., 2014).

Orbite Aluminae Inc. (formerly Exploration Orbite VSPA Inc.) successfully completed the pilot-plant phase of its high-purity alumina (HPA) project at Cap-Chat, Quebec, and started commercial production. HPA is alumina with a grade of greater than 99.99% aluminum oxide (Al_2O_3). In December 2012, Orbite commissioned the HPA facility, and the plant produced 1 metric ton per day (t/d) of HPA in 2013. The company planned to increase the facility's output capacity to 3 t/d in 2015. Orbite's facility processed claystone and mudstone that were mined from the Grand-Vallee property, which was located about 100 kilometers (km) east of Cap-Chat. The HPA was expected to be used to produce industrial sapphire, which is a component of some types of light-emitting diodes. Orbite also planned to build a 540,000-metric-ton-per-year-capacity metallurgical-grade alumina plant at Cap-Chat. The metallurgical-grade alumina contained more than 99% Al_2O_3 by weight (Orbite Aluminae Inc., 2014).

Iron Ore.—Canada's production of iron ore was comparable in amount to that of Australia, Brazil, and China. The country's iron ore typically graded between 30% and 40% iron and required beneficiation to become a marketable product. Canadian iron ore producers used gravitational and magnetic concentration methods to produce concentrates with an iron content of about 65%. In Canada, ArcelorMittal Mines Canada Inc., Iron Ore Company of Canada

(IOC), Cliffs Natural Resources Inc., Tata Steel Minerals Canada Ltd., and Wabush Mines Ltd. were major iron-ore-producing companies and accounted for more than 90% of the country's total output. With limited ironmaking capacity in the country, these companies exported more than 50% of their iron ore output to overseas markets (tables 1 and 2).

In 2011, IOC, which was a subsidiary of Rio Tinto plc, announced that the company planned to expand the concentrator capacity at its operation in Labrador City, Newfoundland. The first-phase expansion was completed in 2012, and the output capacity increased to 22 million metric tons per year (Mt/yr); the second-phase expansion was aimed at improving the magnetite recovery circuit and was completed in 2012. A third-phase expansion would increase the concentrator capacity to 30 Mt/yr; it was scheduled to be completed in 2015. The company planned to develop two new deposits (Wabush 3 and Wabush 6). The Wabush 3 deposit is located within IOC's existing property boundaries and had iron ore resources of 744 Mt (measured and indicated). The company planned to develop an open pit that would have an estimated operating life of about 45 years, depending on the mining rate. The environmental impact statement for the development of the Wabush 3 open pit mine had been submitted for review to the Department of Environment and Conservation (Iron Ore Company of Canada, 2014, p. 3).

Alderon Iron Ore Corp. announced that the Federal Government of Canada had approved the environmental impact statement report for the development of the Kami iron ore project in western Labrador. Alderon acquired a 100% interest in the Kami project from Altius Minerals Corp., and Altius retained a 3% gross sale royalty on iron ore from the Kami project. In 2013, China's Hebei Iron and Steel Group Co. acquired a 25% interest in the Kami Ltd. Partnership, which was established for the Kami project. Hebei Iron and Steel agreed to purchase 60% of the annual production of 8 Mt of iron ore concentrates at a price quoted in Platts Iron Ore Index. The Kami project had iron ore resources of 1.27 billion metric tons (Gt) (measured and indicated) at a grade of 29.6% iron. Alderon planned to begin the construction of an open pit mine and processing plant in 2015 that would produce 8 Mt/yr of iron ore concentrates containing 65% iron (Alderon Iron Ore Corp., 2014, 2015).

Nickel.—All nickel mines in Canada were sulfide-type deposits and the majority of nickel supply was from the Sudbury Basin. Vale Canada Ltd. (a subsidiary of Vale SA of Brazil) and Xstrata Nickel were the major nickel producers in Canada and accounted for more than 80% of the country's total output.

In 2006, Vale decided to invest \$760 million to develop the Totten Mine, which was Vale's sixth mine in the Sudbury Basin; Totten is located in the Worthington region. The copper-nickel mine was explored by Inco Inc. in 1966 and had been kept on care-and-maintenance status since 1972; Vale gained control of the Totten Mine when it acquired Inco. Construction of the mine started in 2006 and it had been scheduled to reopen in 2011; however, owing to the global financial crisis of 2008 and 2009, Vale decided to delay opening the mine until February 2014. The mine had probable reserves of 7.89 Mt grading 2.07% copper, 1.47% nickel, and 0.04% cobalt, and it had a design capacity to produce 2,200 t/d of ore by 2016. The expected life of the Totten Mine was 20 years (Vale S.A., 2014).

Tungsten.—North American Tungsten Corporation Ltd. had two tungsten projects—Cantung and Mactung—in Yukon Territory. In 2013, the company milled about 364,700 t of ore and produced 287,000 t of tungsten concentrates at the Cantung Mine project. The level of operations at the Cantung Mine was similar in 2013 and 2012; however, the revenue decreased in 2013 because the average per ton salable price of tungsten decreased to \$266 in 2013 from \$367 in 2012. The company’s mill enhancement project started in 2013 and was expected to be completed in 2014. The planned throughput capacity would increase by 20% and would both improve the recovery rate and enhance flotation circuit productivity. North American Tungsten continued a surface and underground drilling program to increase the mine’s reserves and to extend the mine life beyond 2017. The Yukon Environmental and Socio-Economic Assessment Board issued its final screening report to allow the Mactung Mine project to proceed without further review. The Mactung property is located in the Selwyn Mountains Range and the area around Mount Allan. The company planned to design an underground mine to produce 2,000 t/d of ore; the ore would be processed by gravity and flotation processes to produce tungsten concentrates containing between 55% and 67% tungsten oxide. The mine had probable mineral reserves of 8.5 Mt grading 1.08% tungsten oxide. The company planned to produce 752,000 metric tons of tungsten oxide during the first 5 years of production (North American Tungsten Corporation Ltd., 2014, 2015).

Industrial Minerals

Diamond.—Canada’s diamond production in 2013 was 10,560,000 carats, which was an increase from the 10,451,000 carats produced in 2012. The value of diamond produced in 2013 was \$1.96 billion, which was slightly less than the value of about \$2 billion in 2012 (Natural Resources Canada, 2013, 2014).

Canada’s diamond was produced mainly in the Northwest Territories. Three major diamond producers—De Beers Canada Inc., Diavil Diamond Mines Inc., and Dominion Diamond Corp.—accounted for 90% of the country’s total output. In April, BHP Billiton announced that the company had completed the sale agreement with Dominion Diamond Corp. (formerly Harry Winston Diamond Corp.) on the Ekati Mine in the Northwest Territories for \$553 million. The Ekati Mine consisted of 282 mining leases that covered an area of 262,175 hectares. The area had 150 known kimberlites and had indicated mineral resources of 105.7 Mt containing an estimated 127.5 million carats of diamond (BHP Billiton plc, 2013a; Dominion Diamond Corp., 2013, p. 1).

Potash.—Canada was one of the leading potash-producing and exporting countries in the world. The majority of Canada’s potash operations were located in the Province of Saskatchewan, and Potash Corporation of Saskatchewan Inc. (Potash Corp.) was the leading potash producer in Canada.

In 2013, BHP Billiton Canada decided to invest \$2.6 billion to complete the excavation and lining of the production and service shafts at the Jansen potash project, which was located near Lanigan, Saskatchewan. The funding would also be used to

install essential surface infrastructure and utilities. The mineral resource (measured and indicated) was estimated to be 5.3 Gt grading 25.7% potassium oxide, and the inferred resource was about 1.3 Gt grading 25.7% potassium oxide. The underground mine was designed to produce 10 Mt/yr of potash for more than 50 years (BHP Billiton plc, 2013b).

K+S Potash Canada General Partnership (K+S Potash Canada), which was a subsidiary of K+S Group of Germany, invested \$4.1 billion to develop the Legacy potash mine and processing plant near Moose Jaw, Saskatchewan, in 2012. Construction of the mine continued in 2013 and was expected to be completed in 2016. The underground potash brine solution would be transported to the surface through two boreholes and then processed further. The processing plant was expected to reach full capacity of 2.86 Mt/yr by 2023. Further expansion to 4 Mt/yr of potassium chloride was expected after 10 years. The mine was designed to produce 2 Mt/yr of potash by the end of 2017 and to continue for 55 years (K+S Group, 2014).

Outlook

Canada’s mineral industry is primarily export oriented, and the United States is the main destination for Canada’s exported minerals. Canada’s mineral sector continues to be challenged by globalization of the industry, especially by developing countries with mineral resources that are less costly to develop. Canada’s mineral industry is well positioned to expand, based on its mineral resource base and its access to the markets of Asia (especially China and Japan), Europe, and North America.

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TABLE 1
CANADA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2009	2010	2011	2012	2013 ^P	
METALS						
Aluminum:						
Alumina, aluminum oxide (Al ₂ O ₃), smelter grade	1,125,000	1,301,000	1,363,000	1,397,000	1,333,000	
Metal:						
Primary	3,030,269	2,963,210	2,987,964	2,780,556	2,969,364	
Secondary ^c	40,000	40,000	50,000	40,000	40,000	
Total ^c	3,070,000	3,000,000	3,040,000	2,820,000	3,010,000	
Antimony ³	64	-- ^r	-- ^r	-- ^r	90	
Bismuth:						
Mine output, Bi content ^{3,4}	86	91	92	121	35	
Metal, refined ^c	150	150	150	145	100	
Cadmium:						
Mine output, Cd content ³	376	2,796	1,766	290 ^r	182	
Metal, refined	1,299	1,357	1,240	1,286	1,313	
Cobalt:						
Mine output, Co content ^{3,5}	3,919	4,636	6,836	6,676 ^r	6,916	
Metal, refined	4,918	4,711	6,038	5,993 ^r	4,789	
Copper:						
Mine output, Cu content ³	484,605	522,172	568,779	580,082 ^r	631,856	
Metal:						
Smelter:						
Primary, blister	316,510	318,006	304,724	287,051	254,509	
Secondary	29,733	31,815	25,214	23,362	28,743	
Total	346,243	349,821	329,938	310,413	283,252	
Refined:						
Primary ^c	311,000	290,000	244,000	246,000	286,000	
Secondary ^c	25,000	30,000	30,000	30,000	35,000	
Total	335,896	319,619	273,761	275,990	321,511	
Gold, mine output, Au content	kilograms	97,235	102,693	102,624	107,489 ^r	125,853
Indium, metal ^c	do.	50,000	67,000	64,000	65,000	64,000
Iron and steel:						
Iron ore and concentrate:						
Gross weight	thousand metric tons	31,704	37,001	33,573	39,457	41,841
Fe content ^c	do.	20,000	23,300	21,000	25,000	26,000
Metal:						
Pig iron ⁶	do.	5,000	7,666	7,323	7,654	6,100
Direct-reduced iron ⁶	do.	300	600	702 ^r	842 ^r	1,250
Ferroalloys, electric arc furnace: ^e						
Ferrosilicon	do.	26	37	31	32	32
Silicon metal	do.	30	30	30	30	30
Ferriobium	do.	7	7	8	8	8
Ferrovandium	do.	1	1	1	1	1
Total	do.	90	90	70	71	71
Crude steel	do.	9,245	13,003	12,891	13,507	12,415
Lead:						
Mine output, Pb content		68,839	64,845	67,505	64,116 ^r	20,188
Metal, refined:						
Primary		101,484	105,836	112,531	133,495	128,706
Secondary		157,370	167,101	170,059	141,966 ^r	159,595
Total		258,854	272,937	282,589	275,461 ^r	288,301
Molybdenum, mine output, Mo content		8,721	8,648	8,674	8,954 ^r	7,955

See footnotes at end of table.

TABLE 1—Continued
CANADA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2009	2010	2011	2012	2013 ^P
METALS—Continued					
Nickel:					
Mine output, Ni content ³	135,037	160,063	219,025	211,701 ^r	223,395
Refined ⁷	116,909	105,413	142,445	139,800	137,410
Niobium (columbium) and tantalum:					
Pyrochlore concentrate:					
Gross weight ^c	12,900	13,200	13,800	14,000	16,000
Nb content of ferroniobium	4,330	4,419	4,632	4,707	5,300
Tantalite concentrate:					
Gross weight ^c	110	--	40	80	40
Ta content (Ta ₂ O ₅)	30	--	10 ^e	20 ^e	10 ^e
Nb content	5	--	--	--	--
Platinum-group metals, mine output:					
Palladium ^c	7,000	6,200	14,300	14,200 ^r	16,000
Platinum ^c	4,000	3,500	8,000	8,500 ^r	9,200
Others (iridium/rhodium/ruthenium) ^c	400	400	800	800 ^r	1,100
Total	11,376	10,053	23,595	23,535 ^r	26,373
Selenium ⁸	173,000	79,000	35,000	144,000 ^e	150,000 ^e
Silver:					
Mine output, Ag content	617,777	591,482	661,089	685,253 ^r	645,976
Refined	1,287,659	1,640,612	1,555,855	1,675,998	1,745,638
Tellurium ^{4, 8}	16,000	8,000	6,000	11	12
Titanium, Sorelslag ^{®c, 9}	765,000	1,090,000	878,000	900,000	900,000
Tungsten, mine output, W content ⁴	1,964	420	2,368	2,194	2,128
Zinc:					
Mine output, Zn content	699,145	649,065	622,600	641,134 ^r	426,089
Metal, refined, primary	685,504	690,152	662,151	648,614	651,634
INDUSTRIAL MINERALS					
Asbestos ^c	150,000	100,000	50,000	--	--
Barite ⁴	15,000	22,000	22,000	22,000	22,000
Cement, hydraulic	10,985	12,431	12,001	12,465	11,612
Clay and clay products ¹⁰	\$135,613	\$156,554	\$139,595	\$135,921	\$122,718
Diamond	10,946	11,773	10,795	10,451	10,560
Diatomite ^c	8,000	8,000	8,000	8,000	8,000
Gemstones, includes amethyst and jade	49	22	42	26 ^e	139
Graphite ^c	15,000	20,000	25,000	24,000	24,000
Gypsum and anhydrite ¹¹	3,540	2,717	2,555	1,832 ^r	1,819
Lime ⁴	1,601	1,913	1,959	1,964 ^r	1,856
Lithium, spodumene ^c	10,000	--	--	--	--
Magnesite, dolomite, brucite ^c	140,000	150,000	150,000	150,000	150,000
Mica, scrap and flake ^c	18,000	19,000	21,000	22,000	22,000
Nepheline syenite	513	581	610	592 ^e	674
Nitrogen, N content of ammonia	3,611,000	3,620,000	3,946,000	3,942,000	3,942,000
Peat	1,131	1,262	1,122	973 ^e	1,295
Phosphate rock, P ₂ O ₅ content ^c	200	210	200	200	200
Potash, K ₂ O equivalent	4,318	9,788	11,055	8,984	10,211
Salt	14,651	10,537	12,625	10,845	12,210
Sand and gravel:					
Construction	216,170	205,804	206,974	225,208	225,208
Industrial (silica, quartz) ^{4, 11}	1,296	1,171	1,431	1,593	1,593

See footnotes at end of table.

TABLE 1—Continued
CANADA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2009	2010	2011	2012	2013 ^P	
INDUSTRIAL MINERALS—Continued						
Sodium compounds, including sodium sulfate, natural ^{e, 12}	thousand metric tons	210	210	200	200	200
Stone ^{11, 13}	do.	135,895	147,643	167,716	151,838	152,512
Sulfur, byproduct:						
Metallurgy	do.	890	900 ^e	609	638	699
Petroleum	do.	6,577	6,355	5,914	5,545	5,666
Total	do.	7,467	7,260	6,523	6,183	6,365
Talc, pyrophyllite, soapstone ^e	do.	44	96	147	154	175
MINERAL FUELS AND RELATED MATERIALS						
Carbon black ^e		120,000	130,000	130,000	130,000	130,000
Coal, run of mine:						
Bituminous and subbituminous ^e	thousand metric tons	52,500	57,000	57,100	57,000	59,000
Lignite ^e	do.	10,400	11,000	10,000	10,000	10,000
Total	do.	62,935	67,876	67,114	66,563	68,908
Coke, high-temperature ^e	do.	2,800	3,000	3,050	3,100	3,050
Natural gas:						
Gross (excluding gas flared or recycled)	million cubic meters	196,168	189,589	188,849	185,000	185,000
Marketed	do.	145,133	144,378	145,285	141,274	141,396
Natural gas liquids: ^e						
Gas plant liquids	thousand 42-gallon barrels	174,000 ¹⁴	168,000	172,000	170,000	170,000
Pentanes plus	do.	51,900 ¹⁴	46,000	45,000	44,000	44,000
Condensate	do.	9,500 ¹⁴	8,600	8,400	8,000	8,000
Total	do.	235,400 ¹⁴	223,000	225,000	220,000	220,000
Petroleum: ^e						
Crude ¹⁵	do.	933,000 ¹⁴	990,000	1,050,000	1,190,000	1,260,000
Refinery products:						
Propane and butane	do.	20,400 ¹⁴	21,600	20,300	18,000	18,000
Gasoline:						
Aviation	do.	550	500	400	300	300
Motor	do.	262,000	262,000	278,000	251,000	251,000
Petrochemical feedstocks	do.	20,000	34,000	28,000	30,000	30,000
Jet fuel	do.	30,000	30,000	37,000	28,000	28,000
Kerosene	do.	9,900	5,000	4,000	3,500	3,500
Diesel and light fuel oil	do.	220,000	225,000	210,000	230,000	230,000
Lubricants including grease	do.	7,000	7,200	6,900	8,100	8,100
Heavy fuel oil	do.	42,000	44,000	31,000	48,000	48,000
Asphalt	do.	25,000	27,000	26,000	27,000	27,000
Petroleum coke	do.	9,000	8,500	11,000	8,000	8,000
Other petroleum products	do.	35,000	34,000	19,000	26,000	26,000
Refinery fuel ¹⁶	do.	36,000	35,000	31,000	27,000	27,000
Refinery gains and losses	do.	5,100	5,200	5,600	24,000	24,000
Total	do.	720,000	740,000	710,000	681,000	681,000
Uranium oxide, U content		10,176	9,518	9,145	8,985	7,889

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

¹Table includes data available through February 11, 2015.

²In addition to the commodities listed, aluminum hydroxide Al(OH)₃ (hydrate), cesium, ilmenite, ore containing indium, pumice, silicon metal, and zeolites are produced, but available information is inadequate to estimate output.

³Metal content of concentrates produced.

⁴Producers' shipments and quantities used by producers.

⁵Cobalt content of all products derived from Canadian ores, which include cobalt oxide shipped to the United Kingdom for further processing and nickel-cobalt matte shipped to Norway for refining.

⁶Source of iron and steel data: World Steel Association (Worldsteel).

⁷Nickel contained in products of smelters and refineries in forms that are ready for use by consumers. Natural Resources Canada has revised all refined nickel figures to conform with International Nickel Study Group (INSG) guidelines.

⁸Includes metal refined from imports and secondary sources. Also includes metal content of exported concentrates.

TABLE 1—Continued
CANADA: PRODUCTION OF MINERAL COMMODITIES¹

⁹Refined Sorelslag® has been upgraded to 95% titanium oxide.

¹⁰Includes bentonite products from common clay, fire clay, stoneware clay, and other clays. Values are in current Canadian dollars. If necessary, values can be converted from Canadian dollars (CANS) to U.S. dollars (US\$) at an average rate of CANS1.074=US\$1.00.

¹¹Shipments; excludes shipments to Canadian cement, clay, and lime plants.

¹²Excludes byproduct production from chemical plants.

¹³Crushed, building, ornamental, paving, and similar stone.

¹⁴Reported figure.

¹⁵Includes synthetic crude from oil shale and (or) tar sands.

¹⁶Represents total production of still gas, which includes a small amount sold.

TABLE 2
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina:			
Smelter grade	Rio Tinto Alcan Inc. (Rio Tinto Group, 100%)	Vaudreuil refinery, Jonquiere, Quebec	1,400.
Specialty grade	do.	do.	55.
Do.	Axens Canada Specialty Aluminas Inc. (Axens S.A., 100%)	Alumina plant, Brockville, Ontario	18.
Aluminum			
Do.	Alcoa Ltd. (Alcoa Inc., 100%)	Smelter in Baie-Comeau, Quebec	385.
Do.	Aluminerie Alouette Inc. (Rio Tinto Alcan Inc., 40%; Aluminium Austria Metall Québec, 20%; Hydro Aluminum, 20%; Marubeni Québec Inc., 13.33%; Société générale de financement du Québec, 6.67%)	Smelter in Sept-Iles, Quebec	590.
Do.	Aluminerie de Bécancour Inc. (Alcoa Inc., 75%, and Rio Tinto Alcan Inc., 25%)	Smelter in Beacancour, Quebec	433.
Do.	Aluminerie Luralco Inc. (Alcoa Inc., 100%)	Smelter in Deschambault, Quebec	260.
Do.	Rio Tinto Alcan Inc. (Rio Tinto Group, 100%)	Smelter in Alma, Quebec	438.
Do.	do.	Smelter in Arvida, Jonquiere, Quebec	176.
Do.	do.	Smelter in Grande-Baie, Quebec	224.
Do.	do.	Smelter in Kitimat, British Columbia	184. ²
Do.	do.	Smelter in Laterriere, Quebec	239.
Do.	do.	Smelter in Shawinigan, Quebec	102.
Antimony:			
Ore	Xstrata Zinc	Brunswick Mine, about 25 kilometers southeast of Bathurst, New Brunswick ³	NA.
Metal	do.	Belledune lead smelter, Belledune, New Brunswick	NA.
Asbestos, fiber			
Do.	Jeffrey Mine Inc.	Jeffrey Mine, ³ Asbestos, Quebec	15.
Do.	LAB Chrysotile, Inc.	Lac d'Amiante Mine, ³ Thetford Mines, Quebec	160.
Bismuth:			
Ore	Xstrata Zinc	Brunswick Mine, about 25 kilometers southeast of Bathurst, New Brunswick ³	NA.
Metal	do.	Belledune lead smelter, Belledune, New Brunswick	NA.
Do.	Teck Resources Ltd.	Trail smelter and refinery complex, Trail, British Columbia	300.
Cement			
Do.	Ciment Québec Inc.	Saint-Basile, Quebec	1,571.
Do.	Colacem Canada Inc. (Colacem S.p.A.)	Grenville-sur-la-Rouge, Quebec	300.
Do.	ESSROC Canada Inc. (Italcementi Group)	Picton, Ontario	792.
Do.	Federal White Cement Ltd.	Woodstock, Ontario	544.
Do.	Holcim (Canada) Inc. (Holcim AG)	Joliette, Quebec	1,475.
Do.	do.	Mississauga, Ontario	2,000.
Do.	Lafarge Canada Inc. (Lafarge North America)	Bath, Ontario	1,176.
Do.	do.	Grinding plant, Stoney Creek, Ontario	814.
Do.	do.	Exshaw, Alberta	1,422.
Do.	do.	Kamloops, British Columbia	324.
Do.	do.	Richmond, British Columbia	1,319.
Do.	do.	St. Constant, Quebec	1,157.
Do.	do.	Brookfield, Nova Scotia	621.
Do.	Lehigh Inland Cement Ltd. (HeidelbergCement Group)	Edmonton, Alberta	1,380.
Do.	do.	Delta, British Columbia	1,356.
Do.	St. Marys Cement (Canada) Inc. (Votorantim Cimentos S.A.)	Bowmanville, Ontario	1,800.
Do.	do.	St. Marys, Ontario	645.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal:			
Bituminous:			
Coking	Grande Cache Coal Corp. (Marubeni Corp. and Winsway Coking Coal Holdings Ltd.)	Grande Cache Mine, near Grande Cache, Alberta	2,000.
Do.	Peace River Coal Limited Partnership (Anglo American plc, 100%)	Trend open pit mine, near Tumbler Ridge, British Columbia	2,000.
Do.	Teck Coal Partnership (Teck Resources Ltd., 100%)	Fording River open pit mine, near Elkford, British Columbia	8,900.
Do.	do.	The McLeod and the Prospect open pits, Cardinal River operations, near Hinton, Alberta	2,200.
Do.	do.	Coal Mountain open pit mine at Sparwood, British Columbia	2,700.
Do.	do.	Line Creek Mine, near Sparwood, British Columbia	3,200.
Do.	Teck Coal Partnership (Teck Resources Ltd., 95%; Nippon Steel Corp., 2.5%; POSCO Canada Ltd., 2.5%)	Elkview open pit mine, near Sparwood, British Columbia	6,000.
Do.	Teck Coal Partnership (Teck Resources Ltd., 80%, and POSCO Canada Ltd., 20%)	Greenhills open pit mine, near Elkford, British Columbia	5,100.
Do.	Western Canadian Coal Corp. (Walter Energy, Inc.)	Wolverine Creek open pit mine, near Tumbler Ridge, British Columbia	3,000.
Do.	do.	Brule Mine, near Chetwynd, British Columbia	2,000.
Do.	do.	Willow Creek Mine, ³ 45 kilometers from Chetwynd, British Columbia	1,700.
Steam	Pioneer Coal Ltd.	Stellarton Mine, near Stellarton, Nova Scotia	NA.
Do.	Coal Valley Resources Inc. (Sherritt International Corp.)	Coal Valley Mine, near Edson, Alberta	3,600.
Do.	do.	Obed Mountain Mine, Alberta	1,000.
Do.	Quinsam Coal Corp. (Hillsborough Resources Ltd.)	Quinsam underground mine, near Campbell River, British Columbia	500.
Lignite	Prairie Mines & Royalty Ltd. (Sherritt International Corp.)	Boundary Dam open pit mine, near Estevan, Saskatchewan	6,500.
Do.	do.	Poplar River open pit mine, near Coronach, Saskatchewan	4,000.
Do.	do.	Bienfait open pit mine, near Bienfait, Saskatchewan	2,800.
Subbituminous	do.	Highvale open pit mine, near Seba Beach, Alberta	13,000.
Do.	do.	Genesee open pit mine, near Warburg, Alberta	5,600.
Do.	do.	Sheerness open pit mine, near Hanna, Alberta	4,000.
Do.	do.	Paintearth open pit mine, near Forestburg, Alberta	3,500.
Copper:			
Ore, Cu content	Agnico-Eagle Mines Ltd.	LaRonde Mine, about 650 kilometers northwest of Montreal, Quebec	4.
Do.	Copper Mountain Mining Corp., 75%, and Mitsubishi Materials Corp., 25%	Copper Mountain Mine, British Columbia	45.
Do.	Highland Valley Copper Partnership (Teck Resources Ltd., 97.5%, and Highmont Mining Co., 2.5%)	Highland Valley Copper Mine, Kamloops, British Columbia	190.
Do.	Huckleberry Mines Ltd. (Imperial Metals Corp., 50%, and consortium composed of Mitsubishi Materials Corp., Marubeni Corp., Dowa Metals & Mining Co., Ltd., and Furukawa Co., Ltd., 50%)	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	39.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Copper—Continued:				
Ore, Cu content—Continued		HudBay Minerals Inc.	Trout Lake ³ and 777 Mines, Manitoba	57.
Do.		Mount Polley Mining Corp. (Imperial Metals Corp., 100%)	Mount Polley Mine at Williams Lake, British Columbia	18.
Do.		North American Palladium Ltd.	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	1.
Do.		Nyrstar NV	Langlois Mine, 313 kilometers northeast of Val-d'Or, Quebec	2.
Do.		do.	Myra Falls (Battle-Gap and H-W Mines), British Columbia	5.
Do.		Quadra FNX Mining Ltd.	Podolsky Mine, Ontario	13.
Do.		Capstone Mining Corp.	Minto Mine, Yukon	23.
Do.		Taseko Mines Ltd.	Gibraltar Mine, British Columbia	38.
Do.		Teck Resources Ltd.	Duck Pond Mine, about 100 kilometers southwest of Grand Falls-Windsor, Newfoundland and Labrador	15.
Do.		Vale Canada Ltd. (Vale S.A.)	Sudbury mines (includes the Coleman, Copper Cliff North, Copper Cliff South, ⁴ Creighton, Ellen, Garson, Gertrude, ³ Stobie and Totten Mines), Ontario	112.
Do.		Vale Newfoundland & Labrador Ltd. (Vale S.A.)	Voisey's Bay Mines (includes the Ovoid Mine), Newfoundland and Labrador	55.
Do.		Xstrata Nickel (Glencore Xstrata plc, 100%)	Kidd Creek Mine, about 20 kilometers north of Timmins, Ontario	53.
Do.		do.	Nickel Rim South Mine, Sudbury division, Sudbury, Ontario	39.
Do.		do.	Raglan Mine, Quebec	7.
Do.		Xstrata Zinc (Glencore Xstrata plc, 100%)	Brunswick Mine, 20 kilometers southwest of Bathurst, New Brunswick ³	7.
Do.		do.	Perseverance Mine, near Matagami, Quebec	10.
Smelter:				
Anode		Xstrata Copper (Glencore Xstrata plc, 100%)	Home smelter in Noranda, Quebec	194.
Nickel-copper matte		Vale Canada Ltd. (Vale S.A.)	Copper Cliff smelter in Sudbury, Ontario	500.
Do.		Xstrata Nickel (Glencore Xstrata plc, 100%)	Sudbury smelter, Ontario	131.
Refinery (Cu cathode)		Xstrata Copper (Glencore Xstrata plc, 100%)	CCR Refinery in Montreal-Est, Quebec	276.
Do.		Taseko Mines Ltd.	Gibraltar solvent extraction-electrowinning (SX-EW) facility, British Columbia	1.
Diamond	carats	Diavik Diamond Mines Inc. (Rio Tinto plc, 60%, and Dominion Diamond Corp., 40%)	Diavik open pit mine (includes the A154 North and the A154 South kimberlite pipes), northeast of Yellowknife region, Northwest Territories	11,900,000.
Do.	do.	Core Zone Joint Venture [Dominion Diamond Corp., 80%; C. Fipke Holdings Ltd., 10%; other (individual), 10%]	Ekati Mine (includes the Koala and the Panda underground mines and the Beartooth, Fox, Koala, and Misery open pit mines) in the Lac de Gras region, Northwest Territories	4,600,000.
Do.	do.	De Beers Canada Inc. (De Beers Group)	Snap Lake underground mine, 220 kilometers northeast of Yellowknife, Northwest Territories	1,400,000.
Do.	do.	do.	Victor open pit mine, 90 kilometers west of Attawapiskat, Ontario	600,000.
Do.	do.	Shear Diamonds Ltd.	Jericho Mine, ³ 430 kilometers northeast of Yellowknife, Nunavut Territory	500,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Gold, Au content of ore kilograms	Agnico-Eagle Mines Ltd.		Goldex Mine, Val-d'Or, Quebec	5,000.
Do.	do.	do.	Lapa Mine, about 60 kilometers west of Val-d'Or, Quebec	4,000.
Do.	do.	do.	LaRonde Mine, about 60 kilometers west of Val-d'Or, Quebec	5,600.
Do.	do.	do.	Meadowbank Mine, about 70 kilometers north of Baker Lake, Nunavut Territory	10,000.
Do.	do.	QMX Gold Corp.	Lac Herbin Mine, about 10 kilometers northeast of Val-d'Or, Quebec	1,000.
Do.	do.	Anaconda Mining Inc.	Pine Cove Mine, near Baie Verte, Newfoundland and Labrador	500.
Do.	do.	Aurizon Mines Ltd.	Casa Berardi Mine, about 95 kilometers north of La Sarre, Quebec	5,000.
Do.	do.	Barkerville Gold Mines Ltd.	QR Mine, British Columbia	400.
Do.	do.	Barrick Gold Inc.	Hemlo operation, includes David Bell underground mine and Williams open pit and underground mine, about 350 kilometers east of Thunder Bay, Ontario	7,100.
Do.	do.	Brigus Gold Corp.	Black Fox Mine, about 75 kilometers east of Timmins, Ontario	2,800.
Do.	do.	Capstone Mining Corp.	Minto Mine, about 240 kilometers northwest of Whitehorse, Yukon Territory	650.
Do.	do.	7918534 Canada Inc. (Sigma-Lamaque complex in receivership)	Sigma-Lamaque complex ³ (includes the Sigma Mine and the Lamaque Mine), Val-d'Or, Quebec	1,000.
Do.	do.	Claude Resources Inc.	Seabee operations (includes the Seabee Deep and the Santoy 8 Mines), Laonil Lake, Saskatchewan	1,500.
Do.	do.	Goldcorp Inc.	Musselwhite Mine, 480 kilometers north of Thunder Bay, Ontario	8,100.
Do.	do.	do.	Porcupine Mine, Timmins, Ontario	10,000.
Do.	do.	do.	Red Lake Mine (includes Red Lake and the Campbell complexes), 180 kilometers north of Dryden, Ontario	26,000.
Do.	do.	Golden Band Resources Inc.	EP Mine and Roy Lloyd Mine, Saskatchewan	1,500.
Do.	do.	Huckleberry Mines Ltd. (Imperial Metals Corp., 50%, and a consortium consisting of Mitsubishi Materials Corp., Marubeni Corp., Dowa Metals & Mining Co., Ltd., and Furukawa Co., Ltd., 50%)	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	110.
Do.	do.	Hudson Bay Mining and Smelting Company Ltd. (HudBay Minerals Inc., 100%)	777 and the Trout Lake ⁴ Mines, Flin Flon, Manitoba	1,400.
Do.	do.	do.	Chisel North ⁴ and the Lalor Mine, Snow Lake, Manitoba	170.
Do.	do.	IAMGOLD Corp.	Doyon division (includes the Doyon and the Mouska Mines), about 40 kilometers east of Rouyn-Noranda, Quebec	800.
Do.	do.	Kirkland Lake Gold Inc.	South Mine complex (Macassa Mine, Ontario)	2,400.
Do.	do.	Lake Shore Gold Corp.	Bell Creek Mine, northeast of Timmins, Ontario, and Timmins West Mine, 18 kilometers west of Timmins, Ontario	3,300.
Do.	do.	Metanor Resources Inc.	Bachelor Lake mine and mill (located about 225 kilometers northeast of Val-d'Or, Quebec)	1,000.
Do.	do.	Mount Polley Mining Corp. (Imperial Metals Corp.)	Mt. Polley Mine, 8 kilometers southwest of Likely, British Columbia	1,700.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold, Au content of ore—Continued	kilograms	North American Palladium Ltd.	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	700.
Do.	do.	do.	Sleeping Giant Mine, ⁴ about 80 kilometers north of Amos, Quebec	NA.
Do.	do.	NVI Mining Ltd. (Breakwater Resources Ltd.)	Myra Falls complex (Battle-Gap and H-W Mines), British Columbia	400.
Do.	do.	Osisko Mining Corp.	Canadian Malartic Mine, about 20 kilometers west of Val d'Or, Quebec	13,000.
Do.	do.	Quadra FNX Mining Ltd.	Levack complex (includes the McCreedy West Mine and Morrison deposit), near Levack, Ontario	100.
Do.	do.	do.	Podolsky Mine, Ontario	130.
Do.	do.	Richmont Mines Inc.	Beaufor Mine, about 21 kilometers northeast of Val-d'Or, Quebec	800.
Do.	do.	do.	Francoeur Mine, ⁴ Quebec	NA.
Do.	do.	do.	Island Gold Mine, near Dubreuilville, Ontario	1,600.
Do.	do.	San Gold Corp.	Hinge Mine and Rice Lake Mine, Manitoba	2,400.
Do.	do.	St. Andrew Goldfields Ltd.	Hislop Mine, Holloway Mine, and Holt Mine east of Timmins, Ontario	3,500.
Do.	do.	Vale Canada Ltd. (Vale S.A.)	Manitoba division (includes the Birchtree Mine and the Thompson Mine), Thompson, Manitoba	NA.
Do.	do.	do.	Ontario division, includes Garson Mine, Garson, Ontario; Coleman/McCreedy East Mine, near Levack, Ontario; and Stobie Mine, north of Sudbury, Ontario	NA.
Do.	do.	Wesdome Gold Mines Ltd.	Eagle River Mine, about 50 kilometers west of Wawa, Ontario	1,900.
Do.	do.	do.	Kiena Mine, about 10 kilometers west of Val-d'Or, Quebec	1,300.
Do.	do.	Xstrata Zinc (Glencore Xstrata plc, 100%)	Brunswick Mine, 20 kilometers southwest of Bathurst, New Brunswick ³	NA.
Indium	metric tons	Teck Resources Ltd.	Trail smelter and refinery complex, British Columbia	70.
Iron and steel:				
Iron ore:				
Ore		ArcelorMittal Mines Canada Inc. (ArcelorMittal)	Fire Lake and Mont-Wright open pit mines, Quebec	19,300.
Do.		Iron Ore Company of Canada (Rio Tinto Ltd., 58.72%; Mitsubishi Corp., 26.18%; Labrador Iron Ore Royalty Income Fund, 15.1%)	Carol Lake open pit mine, Labrador City, Newfoundland and Labrador	22,000.
Do.		Cliffs Natural Resources Inc., 75%, and Wugang Canada Resources Investments Ltd., 25%	Bloom Lake Mine, near Fermont, Quebec	8,000.
Do.		Tata Steel Minerals Canada Ltd. (Tata Steel Ltd., 80%, and New Millenium Iron Corp., 20%)	Direct Shipping Ore Project, near Schefferville, Quebec	2,000.
Do.		Wabush Mines Ltd. (Cliffs Natural Resources Inc.)	Scully (Wabash) Mine, near Wabush, Newfoundland and Labrador	5,600.
Magnetite for coal washing		Craigmont Mines Joint Venture	Reprocessed tailings near Merritt, British Columbia	NA.
Pellets		ArcelorMittal Mines Canada Inc. (ArcelorMittal)	Pelleting plant, Port Cartier, Quebec	9,000.
Do.		Cliffs Natural Resources Inc.	Pelleting plant, Pointe Noire, Quebec	5,200.
Do.		Iron Ore Company of Canada (Rio Tinto Ltd., 58.72%; Mitsubishi Corp., 26.18%; Labrador Iron Ore Royalty Income Fund, 15.1%)	Pelleting plant, Labrador City, Newfoundland and Labrador	13,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel—Continued:			
Steel, crude	AltaSteel Ltd. (Arrium Ltd.)	Edmonton, Alberta	320.
Do.	ArcelorMittal Dofasco Inc. (ArcelorMittal SA)	Hamilton, Ontario	4,100.
Do.	ArcelorMittal Montreal Inc. (ArcelorMittal SA)	Contrecoeur East and Contrecoeur West plants, Quebec	2,500.
Do.	Essar Steel Algoma Inc. (Essar Global Ltd.)	Sault Ste. Marie, Ontario	2,800.
Do.	Gerdau Steel North America Inc. (Gerdau S.A.)	Whitby, Ontario	790.
Do.	do.	Selkirk, Manitoba	430.
Do.	do.	Cambridge, Ontario	380.
Do.	Hamilton Speciality Bar (2007) Inc.	Hamilton, Ontario	360.
Do.	Ivaco Rolling Mills Inc.	L'Orignal, Ontario	450.
Do.	MMFX Steel of Canada Inc. (MMFX Technologies Corp.)	Welland, Ontario	120.
Do.	QIT-Fer et Titane Inc. (Rio Tinto Iron and Titanium Inc.)	Sorel, Quebec	500.
Do.	SSAB Svenskt Stål AB—IPSCO Division	Regina, Saskatchewan	1,500.
Do.	U.S. Steel Canada Inc. (United States Steel Corp.)	Lake Erie Works, Naticoke, Ontario	2,400.
Do.	do.	Hamilton Works, ⁴ Hamilton, Ontario	2,300.
Lead:			
Lead-zinc ore	Alexco Resources Corp.	Bellkeno Mine, Yukon	20.
Do.	Maple Minerals Corp.	Caribou underground mine, ⁴ 45 kilometers west of Bathurst, New Brunswick	700.
Do.	ScoZinc Ltd. (Selwyn Resources Ltd.)	Scotia open pit mine, ⁴ Gays River, Nova Scotia	600.
Do.	Xstrata Zinc Canada (Glencore Xstrata plc, 100%)	Brunswick Mine in Bathurst, New Brunswick	3,550.
Refined:			
Primary	Teck Resources Ltd.	Trail Operations (smelter and refinery complex), Trail, British Columbia	100.
Do.	Xstrata Zinc (Glencore Xstrata plc, 100%)	Belledune smelter and refinery, 35 kilometers north of Bathurst, New Brunswick	85.
Secondary, includes lead alloys	NovaPb Inc. (Newalta Corp.)	Ville Sainte Catherine, Quebec	100.
Do.	Tonolli Canada Ltd.	Mississauga, Ontario	35.
Do.	Metalex Products Ltd.	Richmond, British Columbia	8.
Molybdenum, ore, metric tons Mo content	Highland Valley Copper Partnership (Teck Resources Ltd., 97.5%, and Highmont Mining Co., 2.5%)	Highland Valley Copper Mine, Kamloops, British Columbia	3,600.
Do.	do. Huckleberry Mines Ltd. (Imperial Metals Corp., 50%, and a consortium composed of Mitsubishi Materials Corp., Marubeni Corp., Dowa Metals & Mining Co., Ltd., and Furukawa Co., Ltd., 50%)	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	40.
Do.	do. FortyTwo Metals Inc. (Roca Mines Inc., 100%)	Max Mine, ³ about 60 kilometers southeast of Revelstoke, British Columbia	1,800.
Do.	do. Taseko Mines Ltd.	Gibraltar Mine, British Columbia	600.
Do.	do. Joint venture of Thompson Creek Metals Company Inc., 75%, and Sojitz Moly Resources, Inc., 25%	Endako Mine, near Fraser Lake, about 160 kilometers northwest of Prince George, British Columbia	5,200.
Nickel:			
Ore, Ni content	Crowflight Minerals Inc.	Bucko Lake Mine, ⁴ near Wabowden, Manitoba	2.
Do.	First Nickel Inc.	Lockerby Mine, Sudbury district, Ontario	2.
Do.	Liberty Mines Inc.	McWatters Mine, ⁴ about 30 kilometers southeast of Timmins, Ontario, and the Redstone Mine, ⁴ about 25 kilometers southeast of Timmins, Ontario	3.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Nickel—Continued:			
Ore, Ni content—Continued	Quadra FNX Mining Ltd.	Levack complex (includes the McCreedy West Mine and Morrison deposit), near Levack, Ontario	5.
Do.	do.	Podolsky Mine, Ontario	1.
Do.	Vale Canada Ltd. (Vale S.A.)	Sudbury mines (includes the Coleman, Copper Cliff North, Copper Cliff South, ⁴ Creighton, Ellen, Garson, Gertrude, ⁴ Stobie and Totten Mines), Ontario	106.
Do.	do.	Manitoba division (includes the Birchtree Mine and the Thompson Mine), Thompson, Manitoba	45.
Do.	Vale Newfoundland & Labrador Ltd. (Vale S.A.)	Voisey's Bay Mines (includes the Ovoid Mine), Newfoundland and Labrador	80.
Do.	Xstrata Nickel (Glencore Xstrata plc, 100%)	Raglan Mine in Ungave, Quebec	28.
Do.	do.	Fraser Mine and Nickel Rim South Mine in the Sudbury district, Ontario	20.
Smelter	Vale Canada Ltd. (Vale S.A.)	Smelter in Sudbury, Ontario	110 (Ni oxide).
Do.	do.	Smelter in Thompson, Manitoba	82 (Ni anode).
Do.	Xstrata Nickel (Glencore Xstrata plc, 100%)	Sudbury smelter in Sudbury, Ontario	131 (Cu-Ni matte).
Refinery	The Cobalt Refinery Company Inc. (Moa joint venture of General Nickel S.A., 50%, and Sherritt International Corp., 50%)	Refinery in Fort Saskatchewan, Alberta	35 (Ni briquets and powder); 4 (Co briquets and powder).
Do.	Vale Canada Ltd. (Vale S.A.)	Refinery in Sudbury, Ontario	57 (Ni pellets and powder).
Do.	do.	Refinery in Thompson, Manitoba	NA.
Niobium (columbium) metric tons	IAMGOLD Corp.	Niobec Mine, Chicoutimi, Quebec	4,600 (Nb content).
Petroleum, refinery products ⁵ barrels per day	Chevron Canada Ltd. (Chevron Corp., 100%)	Burnaby refinery, Burnaby, British Columbia	55,000.
Do.	do.	Consumers' Co-operative Refineries Ltd. (Federated Co-operatives Ltd., 100%)	Regina, Saskatchewan
Do.	do.	Husky Energy Inc.	Prince George refinery, Prince George, British Columbia
Do.	do.	do.	Lloydminster asphalt refinery, Lloydminster, Alberta
Do.	do.	Imperial Oil Ltd. (Exxon Mobil Corp., 69.6%)	Dartmouth refinery, Halifax, Nova Scotia
Do.	do.	do.	Nanticoke refinery, 40 kilometers southwest of Hamilton, Ontario
Do.	do.	do.	Sarnia refinery, Sarnia, Ontario
Do.	do.	do.	Strathcona refinery, Edmonton, Alberta
Do.	do.	Irving Oil Ltd.	Irving refinery, Saint John, New Brunswick
Do.	do.	Moose Jaw Refinery (Gibson Energy ULC)	Moose Jaw asphalt refinery, Moose Jaw, Saskatchewan
Do.	do.	North Atlantic Refining Ltd. (Harvest Operations Corp.)	North Atlantic refinery, Come by Chance, Newfoundland and Labrador
Do.	do.	Nova Chemicals Corp.	Corunna petrochemical and refinery complex, Corunna, Ontario
Do.	do.	Shell Canada Ltd. (Royal Dutch Shell plc, 100%)	Scotford refinery, 40 kilometers northeast of Edmonton, Alberta
Do.	do.	do.	Sarnia manufacturing center (Corunna refinery), Sarnia, Ontario
Do.	do.	Suncor Energy Inc.	Edmonton refinery, Edmonton, Alberta
Do.	do.	do.	Montreal refinery, Montreal East, Quebec
Do.	do.	do.	Sarnia refinery, Sarnia, Ontario
Do.	do.	Ultramar Ltd. (Valero Energy Corp., 100%)	Jean Gaulin refinery, Levis, Quebec

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash (K ₂ O equivalent)	Agrium Products Inc.	Vanscoy, Saskatchewan	1,800.
Do.	Mosaic Potash Colonsay ULC (The Mosaic Co., 100%)	Colonsay, Saskatchewan	1,800.
Do.	Mosaic Potash Esterhazy Limited Partnership Ltd. [The Mosaic Co., 75%, and Potash Corp. of Saskatchewan Inc. (Potash Corp.), 25%]	Esterhazy, southeast Saskatchewan	5,300.
Do.	The Mosaic Co.	Belle Plaine, Saskatchewan	2,800.
Do.	Potash Corp. of Saskatchewan Inc. (Potash Corp.)	Lanigan, near Lanigan, Saskatchewan	3,900.
Do.	do.	Rocanville, southeast Saskatchewan	3,100.
Do.	do.	Allan division, Allan, Saskatchewan	1,900.
Do.	do.	Cory, near Saskatoon, Saskatchewan	1,400.
Do.	do.	Patience Lake, near Saskatoon, Saskatchewan	1,100.
Do.	do.	Sussex, New Brunswick	800.
Salt:			
Rock salt and brine operations	Canadian Salt Co. Ltd.	Rock salt mine at Ojibway, Ontario, and brine wells near Windsor, Ontario	2,600.
Do.	do.	Pugwash, Nova Scotia	1,400.
Do.	Potash Corp. of Saskatchewan Inc. (Potash Corp.)	Sussex, New Brunswick	700.
Rock salt	Sifco Canada Inc. (Compass Minerals Group Inc.)	Goderich Harbour, Ontario	6,500.
Do.	Seleine Mines Division of Canadian Salt Co. Ltd.	Iles-de-la-Magdalen, Quebec	1,625.
Do.	Mosaic Potash Esterhazy Limited Partnership Ltd. [The Mosaic Co., 75%, and Potash Corp. of Saskatchewan Inc. (Potash Corp.), 25%]	Esterhazy, southeast Saskatchewan	NA.
Do.	NSC Minerals Inc.	Salt recovery from potash tailings at Rocanville and Vanscoy, Saskatchewan	NA.
Brine	Nexen Inc. and Albchem Industries Ltd.	Plant near Bruderheim, Alberta	NA.
Do.	Dow Chemical Canada Inc.	Fort Saskatchewan, Alberta	NA.
Do.	Junex Solnat (Junex Inc.)	Becancour, Quebec	NA.
Do.	Saskatoon Chemicals Holdings, Inc.	Plant near Saskatoon, Saskatchewan	NA.
Do.	Sifco Canada Inc. (Compass Minerals Group Inc.)	Amherst, Nova Scotia	NA.
Do.	do.	Plant near Unity, Saskatchewan	NA.
Do.	Canadian Salt Co. Ltd.	Belle Plaine, Saskatchewan	NA.
Do.	do.	Lindberg, Alberta	NA.
Silicon, metal	Québec Silicon Ltd. (Globe Speciality Metals Inc., 51%, and Dow Corning Corp., 49%)	Plant at Becancour, Quebec	47.
Do.	Grupo FerroAtlántica S.A.	Plant ³ at Becancour, Quebec	4.
Tantalum, Ta ₂ O ₅ content	metric tons Cabot Corp.	Tanco Mine, Bernic Lake, Manitoba	80.
Titanium, TiO ₂ slag	Rio Tinto, QIT-Fer et Titane, Inc. (Rio Tinto Group, 100%)	Sorel-Tracy, Quebec	1,100 (Sorelslag [®]); 250 (UGS [™] slag); NA (RTCS [™] slag).
Tungsten, WO ₃ content	North American Tungsten Corporation Ltd.	Cantung Mine, Northwest Territories	3,500.
Uranium, oxide	metric tons Joint venture of Cameco Corp., 69.805%, and AREVA Resources Canada Inc., 30.195%	McArthur River Mine, Saskatchewan	8,500.
Do.	do. Joint venture of Cameco Corp., 83.33%, and AREVA Resources Canada Inc., 16.67%	Key Lake mill, Saskatchewan	6,300. ³
Do.	do. Cameco Corp.	Rabbit Lake operations, includes Eagle Point underground mine and Rabbit Lake mill, Saskatchewan	5,500.
Do.	do. Joint venture of AREVA Resources Canada Inc., 70%; Denison Mines Inc., 22.5%; OURD Canada Company Ltd., 7.5%	McClellan Lake Mine and mill, ^{4,6} Saskatchewan	5,400.
Wollastonite	Canadian Wollastonite (2005948 Ontario Ltd.)	St. Lawrence Mine, City of Kingston and the municipality of Leeds and the Thousand Islands, Ontario	NA.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Zeolites	HCA Mountain Minerals (Lethbridge) Ltd. (Heemskirk Canada Ltd.)	Processing plant at Lethbridge, Alberta	NA.
Do.	Heemskirk Canada Ltd. (Heemskirk Consolidated Ltd.)	Bromley Creek (Princeton) Mine, near Copper Mountain, British Columbia	NA.
Do.	do.	Z1 (Ranchlands) quarry, near Cache Creek, British Columbia	NA.
Do.	Industrial Mineral Processors Ltd.	Z2 quarry, near Cache Creek, British Columbia	NA.
Do.	do.	Processing plant at Ashcroft, British Columbia	NA.
Zinc:			
Lead-zinc ore	Agnico-Eagle Mines Ltd.	LaRonde Mine, 60 kilometers west of Val-d'Or, Quebec	55.
Do.	Maple Minerals Corp.	Caribou underground mine, ⁴ 45 kilometers west of Bathurst, New Brunswick	700.
Do.	ScoZinc Ltd. (Selwyn Resources Ltd.)	Scotia open pit mine ⁴ Gays River, Nova Scotia	600.
Do.	Trevali Mining Corp.	Halfmile Mine, New Brunswick	NA.
Do.	Xstrata Zinc Canada (Glencore Xstrata plc, 100%)	Brunswick Mine in Bathurst, New Brunswick ³	3,550.
Do.	Yukon Zinc Corp. (Jinduicheng Molybdenum Group Company Ltd.)	Wolverine Mine, Yukon	80.
Zinc ore	Hudson Bay Mining and Smelting Co., Ltd. (HudBay Minerals Inc., 100%)	777 and Trout Lake ³ Mines, Flin Flon, Manitoba	2,300.
Do.	do.	Chisel North ³ and the Lalor Mines, Snow Lake, Manitoba	330.
Do.	Nyrstar NV	Langlois Mine, 313 kilometers northeast of Val-d'Or, Quebec	39.
Do.	do.	Myra Falls Mine, British Columbia	32.
Do.	Teck Resources Ltd.	Duck Pond Mine, 90 kilometers south of Buchans, Newfoundland and Labrador	640.
Do.	Xstrata Copper (Glencore Xstrata plc, 100%)	Kidd Creek underground mine, 25 kilometers north of Timmins, Ontario	2,350.
Do.	Xstrata Zinc (Glencore Xstrata plc, 100%)	Perseverance Mine, near Matagami, Quebec	1,100.
Refined	Canadian Electrolytic Zinc Ltd. (CEZinc) (Noranda Income Fund)	Hydrometallurgical plant at Salaberry-de-Valleyfield, Quebec	290.
Do.	Hudson Bay Mining and Smelting Co., Ltd. (HudBay Minerals Inc., 100%)	Zinc plant (pressure leach and electrowinning) at Flin Flon, Manitoba	115.
Do.	Teck Resources Ltd.	Trail Operations (smelter and refinery complex), Trail, British Columbia	295.

Do., do. Ditto. NA Not available.

¹Abbreviations used in this table for commodities include the following: Au—gold; Co—cobalt; Cu—copper; K₂O—potassium oxide; Mo—molybdenum; Nb—niobium; Ni—nickel, Ta₂O₅—tantalum oxide, and TiO₂—titanium dioxide.

²Nameplate production capacity is 282,000 metric tons per year, but two potlines were closed in 2010 as part of the Kitimat modernization project.

³Closed in May 2013.

⁴Mine or facility closed or operations were suspended and placed on care-and-maintenance status.

⁵Does not include bitumen upgraders, which processed hydrocarbons from oil sands operations.

⁶Processes ore from the McArthur River Mine.