

Zinc

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HIGHLIGHTS

- Canada is an important producer and exporter of zinc and zinc products. Zinc metal production in Canada dates from the early 1900s when the Consolidated Mining and Smelting Company of Canada (now Teck Cominco Limited) started production at a small electrolytic zinc plant at Trail, British Columbia. Today, with a smelting capacity of 843 000 t/y from four metallurgical facilities located across the country, Canada produces roughly 7.0% of the world's total supply of refined zinc.
- Canada's newest producer, Xstrata's Perseverance mine, reached commercial production.
- In response to declining zinc prices, four Canadian mines closed during the year. Declining industrial output in most regions of the world has been somewhat offset by continued moderate growth in China.
- Historically high metal inventories should keep zinc prices in the US55¢-65¢/lb range into 2010, when demand is expected to increase.

INTRODUCTION

Zinc is a relative newcomer to the group of metals discovered and used by society. While the first use of copper predates recorded history and the discovery of tin goes back 5000 years, the first recovery of metallic zinc came much later. The production of metallic zinc was first described in India around 1200 A.D. By 1374, zinc was recognized as a new metal, the eighth to be discovered at that time, and a limited amount of commercial zinc production was under way. Although brass-making had developed much earlier, the zinc in brass was obtained by treating zinc ore to produce zinc vapour, which combined with granulated copper

World Data	2006	2007	2008	2008/07
		(000 t)		(% change)
Mine production	10 444	11 129	11 755	5.6
Refined production	10 655	11 356	11 683	2.9
Usage (consumption)	10 971	11 310	11 481	1.6
Refined balance	-317	46	202	n.a.
Refined stocks at year-end (1)	546	580	757	n.a.

Source: International Lead and Zinc Study Group.

n.a. Not applicable.

(1) Producer, consumer, and LME.

Zinc Prices	2006	2007	2008
Cash (US¢/lb)	148.27	147.10	85.00
Cash (US\$/t)	3 268.81	3 259.90	1 874.70
3 months (US\$/t)	3 246.16	3 253.82	1 897.80
15 months (US\$/t)	2 816.03	3 011.90	1 943.46
27 months (US\$/t)	2 385.91	2 751.27	1 963.43

Source: International Lead and Zinc Study Group.

Canadian Data	2006	2007	2008	2008/07
		(tonnes)		(% change)
Mine output (1)	637 956	630 485	682 487	8.2
Zinc refined production	824 464	802 103	764 312	-4.7
Zinc domestic shipments	179 189	171 655	162 621	-5.3
Zinc refined imports	12 277	13 514	8 314	-38.4
Apparent zinc usage (2)	191 466	185 169	170 935	-7.7

Source: Natural Resources Canada.

(1) Zinc content of ores and concentrates produced. (2) Domestic shipments and imports.

under heat. From India, zinc production was introduced to China sometime around 1600 A.D. and then began to be exported to Europe.

The first full-scale zinc smelting operation outside of Asia started in Bristol, England, about 1743. By the beginning of the 19th century, zinc production was established on the continent of Europe, notably in Belgium and parts of Eastern Europe. In the latter half of the century, large zinc industries developed rapidly in the United States and Germany.

HISTORY OF ZINC MINING IN CANADA

Zinc production in Canada dates back to the First World War when the Consolidated Mining and Smelting Company of Canada began operating a small electrolytic zinc plant at Trail, British Columbia, to help offset a critical wartime shortage of zinc in the United Kingdom. At that time, the Consolidated Mining and Smelting Company of Canada and The Anaconda Copper Mining Company in Montana were pioneering the production of zinc in North America by the electrolytic method.

The ores used at Trail came from the Sullivan mine near Kimberley, B.C., but production was hampered because the complex lead-zinc-iron ore was difficult to treat using existing methods. In 1920, however, the differential flotation method was successfully applied to separate the Sullivan ore into a lead concentrate, a zinc concentrate, and an iron by-product. This marked the beginning of significant zinc production in Canada. Today, the Trail operations are the world's largest fully integrated lead and zinc smelting and refining complex. Owned and operated by Teck Cominco Limited of Vancouver, the Trail facility has a zinc production capacity of 295 000 t/y.

In Manitoba, the discovery of significant zinc and copper ore with important quantities of gold in 1915 led to the development of the Flin Flon-Snow Lake mining camp, smelter complex, and dedicated power plant in the late 1920s. Since 1930, Hudson Bay Mining and Smelting Co. Limited, now a subsidiary of HudBay Minerals Inc., has owned and operated some 30 mines that have in turn fed the company's metallurgical complex at Flin Flon. The Flin Flon smelter and refinery complex has undergone significant capital improvements since it first commenced operations in 1930 with the introduction of zinc pressure leach technology in the early 1990s and a new tank house in 2000 that expanded zinc production capacity to 118 000 t/y.

The Kidd Creek orebody near Timmins, Ontario, was discovered in 1963 and Texasgulf Inc. began open-pit mining the deposit in 1966. The Kidd Creek zinc plant started production in 1972. In 1983, Kidd Creek started up a zinc pressure leaching facility. The mine and plant continued operation under Falconbridge until 2006. Today, Xstrata Copper owns and operates the Kidd Creek complex with a zinc metal production capacity of 150 000 t/y.

With the discovery of significant zinc-bearing ores in the Matagami region of northern Quebec in the late 1950s and early 1960s, Noranda Inc. began looking at options to build an electrolytic zinc plant. Construction began at Valleyfield, Quebec, west of Montréal, in 1962 and Canadian Electrolytic Zinc (CEZ) was brought into production in 1963. Xstrata Zinc has a 25% interest in the CEZ refinery held through the Noranda Income Fund. Plant capacity has increased steadily from its original 64 000 t/y at the time of opening to 280 000 t/y today.

CANADIAN PRODUCTION FACILITIES

In 2008, Canadian mines produced 682 487 t of zinc in concentrate, compared to 630 485 t in 2007, an 8.2% increase (Table 1). Refined metal production for 2008 was 764 312 t, compared to 802 103 t in 2007, a decrease of 4.7%. Table 4 shows zinc production and exports for the period 1988-2008.

Zinc is produced at eleven mines located in seven provinces (Figure 1). During the year, three new zinc mines started production. The trend in total Canadian zinc mine production for the period 1998-2008 is shown in Figure 2. Zinc metal is produced from domestic and foreign concentrates at four metallurgical sites in Quebec, Ontario, Manitoba, and British Columbia (Table 8). Refined zinc metal production for the period 1998-2008 is shown in Figure 3. Zinc oxide is produced at one plant located in Brampton, Ontario. Statistics on exports and imports of zinc concentrates, metal, and semi-fabricated products are provided in Table 2.

The following is a summary of Canadian zinc mines and metal production facilities in operation during 2008.

Newfoundland and Labrador

The **Duck Pond** mine, owned by **Teck Cominco Limited**, is located 90 km south of Buchans. During 2008, the mine produced 445 000 t of ore grading 4.9% zinc. A total of 19 000 t of zinc in concentrate was produced during the year (2008 Annual Report).

Nova Scotia

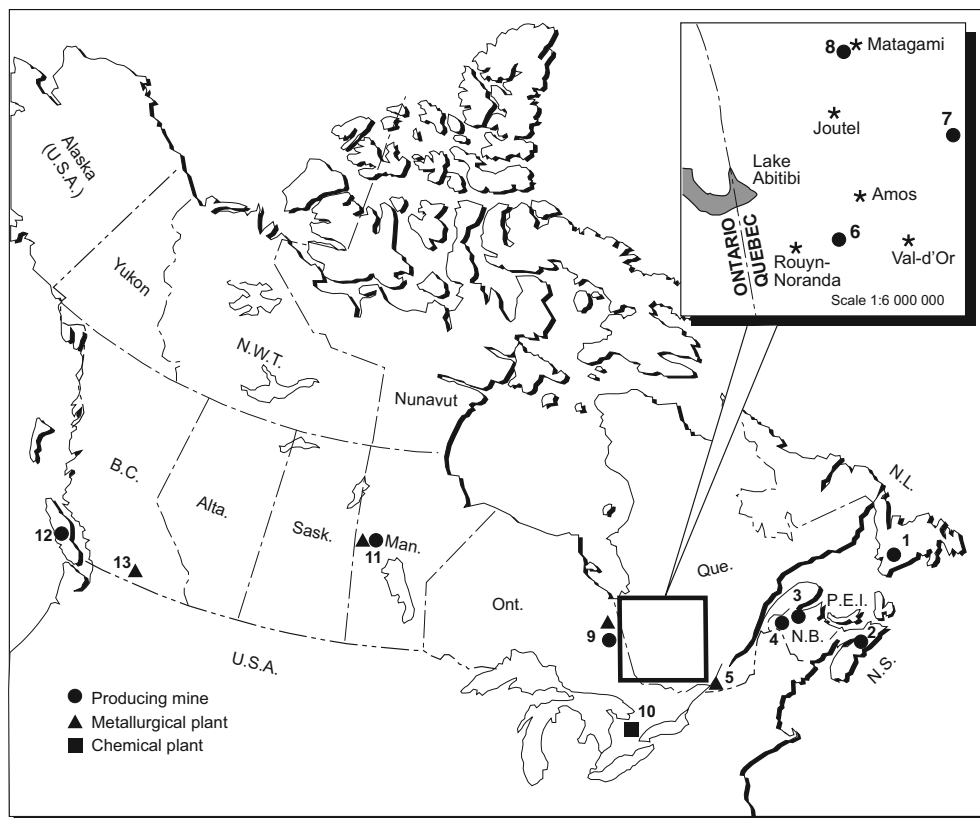
Acadian Mining Corporation commenced production at the **Scotia** open-pit mine in May 2007. The mine is situated at Gays River, 65 km north of Halifax. Metal production in 2008 was 27 729 t of zinc concentrate and 8535 t of lead concentrate (MD&A, December 2008). By year-end, the company had reduced staff at the mine in response to the dramatic drop in zinc and lead prices.

New Brunswick

Xstrata Zinc Canada owns the **Brunswick** zinc and lead mine located 21 km southwest of Bathurst. In 2008, the mine produced 3.31 Mt of ore, down from 3.43 Mt in 2007, resulting in the production of 242 478 t of zinc in concentrate, down from 251 795 t in 2007 (Production Report, December 2008). The mine is expected to close in 2010 or 2011 due to the depletion of ore reserves.

Blue Note Mining Inc. officially re-opened the **Caribou** and **Restigouche** lead-zinc mines located west of Bathurst in June 2008. In October, the company announced plans to close both operations due to falling zinc and lead prices.

Figure 1
Zinc Producers in Canada, 2008



Numbers refer to locations on map above.

ZINC-PRODUCING MINES

1. Duck Pond	Teck Cominco Limited
2. Scotia	Acadian Mining Corporation
3. Brunswick	Xstrata Zinc Canada
4. Caribou/Restigouche	Blue Note Mining Inc.
6. LaRonde	Agnico-Eagle Mines Limited
7. Langlois	Breakwater Resources Ltd.
8. Perseverance	Xstrata Zinc Canada
9. Kidd Creek	Xstrata Copper Canada
11. Trout Lake	HudBay Minerals Inc.
Chisel North	HudBay Minerals Inc.
777	HudBay Minerals Inc.
12. Myra Falls	Breakwater Resources Ltd.

WEB SITE

www.teckcominco.com
www.acadiangold.ca
www.xstrata.com
www.bluenotemetals.ca
www.agnico-eagle.com
www.breakwater.ca
www.xstrata.com
www.xstrata.com
www.hudbayminerals.com
www.hudbayminerals.com
www.hudbayminerals.com
www.breakwater.ca

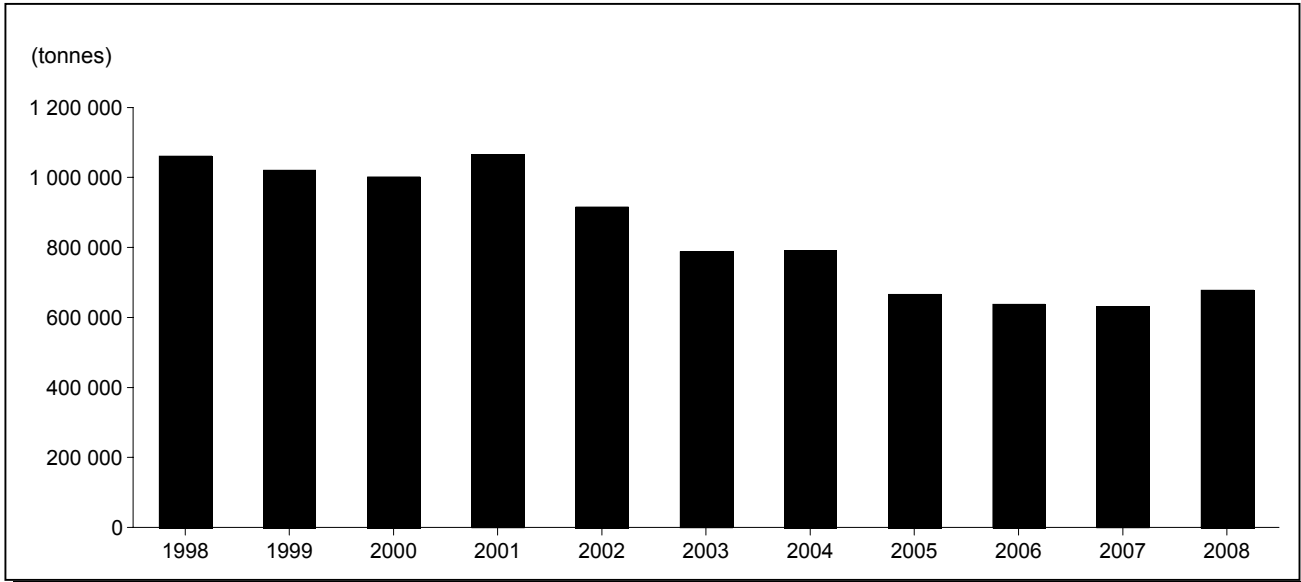
ZINC METALLURGICAL PLANTS

5. Valleyfield	Canadian Electrolytic Zinc Limited	www.norandaincomefund.com
9. Kidd Creek	Xstrata Copper Canada	www.xstrata.com
11. Flin Flon	HudBay Minerals Inc.	www.hudbayminerals.com
13. Trail	Teck Cominco Limited	www.teckcominco.com

ZINC OXIDE PLANTS

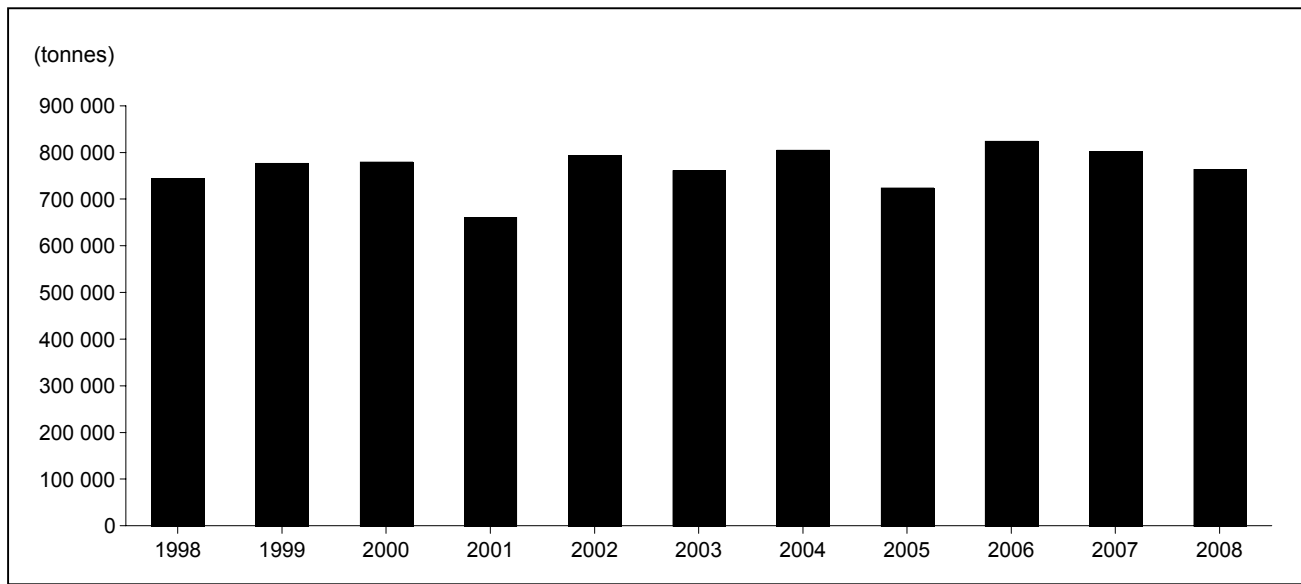
10. Zochem	HudBay Minerals Inc.	www.zochem.com
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Figure 2
Canadian Mine Production of Zinc, (1) 1998-2008



Source: Natural Resources Canada.
(1) Zinc content of ores and concentrates produced.

Figure 3
Canadian Refined Zinc Metal Production, 1998-2008



Source: Natural Resources Canada.

The Caribou concentrator milled 819 452 t of ore grading 5.26% zinc and 2.57% lead in 2008 (Fourth Quarter 2008 Report). Total metal production was 38 000 t of zinc in concentrate and 19 700 t of lead in concentrate.

Quebec

Zinc is produced at the **LaRonde** mine, owned by **Agnico-Eagle Mines Ltd**; the mine is situated about 60 km west of Val-d'Or. It is a gold-silver-copper-zinc orebody comprising massive to disseminated sulphide lenses within a regional shear zone. In 2008, the mine produced 65 753 t of zinc in concentrate from 2.63 Mt of ore milled at a grade of 3.27% zinc, whereas in 2007 the mine produced 71 577 t from 2.67 Mt of ore milled (2008 Annual Report).

Xstrata Zinc Canada commenced commercial mining of the **Perseverance** deposit at Matagami in July 2008. The capital cost of the project was \$130 million. The mine is accessed by ramp and the ore is being processed at Xstrata's 2600-t/d Matagami mill. During the year, the mine produced 511 000 t of ore resulting in the production of 60 265 t of zinc in concentrate. At full production, the mine is expected to produce about 115 000 t/y of zinc in concentrate over a five-year mine life.

The **Langlois mine** owned by **Breakwater Resources Ltd.**, which opened in July 2007, was put on care and maintenance in November 2008. The mine is located 213 km northeast of Val-d'Or. Production in 2008 was 514 444 t milled at an average grade of 8.1% zinc, producing 38 620 t of zinc in concentrate, up from 28 327 t in 2007.

The **CEZ zinc** plant is located in Salaberry-de-Valleyfield, just west of Montréal, and is owned by the Noranda Income Fund. Xstrata plc owns 25% of the fund units. The rated capacity of the plant is 280 000 t of refined zinc. In 2008, the plant produced 264 231 t of zinc metal from 508 000 t of zinc concentrate processed, compared to 262 133 t of zinc metal produced in 2007. The higher production was attributed to higher zinc concentrate grades and higher recoveries.

Ontario

Xstrata Copper operates the **Kidd Creek** copper-zinc mine, located about 25 km north of Timmins, as well as a copper smelter and zinc hydrometallurgical plant. The orebody was discovered in 1963 and open-pit mining commenced in 1966. Mining was later converted to underground and the mine is presently developed to a depth of 2773 m (9100 ft). The Kidd Creek mine produced 2.35 Mt of ore containing 116 300 t of zinc in concentrate in 2008.

The zinc hydrometallurgical plant located at Hoyle, 25 km east of Timmins, has a capacity of 150 000 t/y. In 2008, the plant produced 121 193 t of refined zinc, down from

142 549 t in 2007 (Production Report, December 2008). Metal production was negatively affected by a six-week labour dispute.

HudBay Minerals Inc. owns a zinc oxide production facility in Brampton. It is the third largest producer of zinc oxide in North America with a production capacity of 45 000 t/y. Production for 2008 was 33 982 t (consuming 26 155 t of zinc metal).

Manitoba

HudBay Minerals Inc. operates an integrated mining and smelting business through its wholly owned subsidiary, **Hudson Bay Mining and Smelting Co., Limited** (HBMS). It operates the **777** and **Trout Lake** mines and a smelter complex in Flin Flon, situated about 630 km northwest of Winnipeg. It also owns the **Chisel North** mine, located in Snow Lake 120 km east of Flin Flon. In addition, the company owns the **Balmat** mine in northern New York state, which closed in August due to higher-than-expected operating costs and falling zinc prices. The Flin Flon concentrator produced 155 132 t of zinc concentrates from ore mined at 777 and Trout Lake. The Snow Lake concentrator produced 43 812 t of zinc concentrates from ore mined at the Chisel North mine (2008 Year-End MD&A). The 777 mine produced 1.47 Mt of ore grading 4.37% zinc and 2.61% copper in 2008 while the Trout Lake mine produced 776 205 t of ore grading 3.7% zinc and 1.93% copper. The Chisel North mine produced 325 156 t of ore grading 7.4% zinc.

The zinc hydrometallurgical plant is situated at Flin Flon and employs two-stage pressure leaching and electrolysis technology to produce special high grade zinc. It has an annual capacity of 118 000 t of refined zinc metal. The plant produced 112 955 t of refined zinc in 2008, up from 110 520 t in 2007. This total can be broken down to 102 993 t from HudBay concentrates and 9962 t from purchased concentrates. Taking into account metal derived from the Balmat mine, the company produced 125 323 t of refined zinc in 2008, down slightly from 2007.

British Columbia

The **Myra Falls** zinc mine is owned and operated by **Breakwater Resources Ltd.** It is located within Strathcona Provincial Park on Vancouver Island, about 65 km southwest of Campbell River. On October 28, the company announced the temporary closure of the mine due to economic and market conditions. Production in 2008 was 35 762 t of zinc in concentrate (up from 29 845 t in 2007) from 592 072 t of ore milled.

The integrated zinc and lead smelting and refining complex at **Trail**, owned by **Teck Cominco Limited**, has a capacity of 295 000 t/y of refined zinc. The complex produces refined zinc and lead, as well as gold, silver, cadmium,

germanium, indium, sulphuric acid, and fertilizers. In 2008, production at Trail was 269 900 t of zinc, down from 291 900 t in 2007 (Fourth Quarter 2008 Report). In November, the company announced a reduction in zinc production of 4000-5000 t per month in response to poor market conditions.

RECENT DEVELOPMENTS

Slam Resources Ltd. continues to explore its **Nash Creek** property located 50 km northwest of Bathurst, New Brunswick. The deposit consists of massive sulphides hosted in a bi-modal volcanic-sedimentary sequence, possibly of the SEDEX (sedimentary exhalative) type. A National Instrument 43-101 (NI 43-101) report issued in July 2007 defined indicated resources of 3.24 Mt grading 4.67% zinc and 0.80% lead, and inferred resources of 2.69 Mt grading 2.65% zinc and 0.77% lead. The company expects to complete a new resource calculation that would include all drilling done to the end of 2008. The deposit has a strike length of 1400 m, extends over 300 m, and is up to 45 m thick.

Virginia Mines Inc. continues to obtain excellent drill results from its 100%-owned **Coulon** property situated 680 km northeast of Matagami, Quebec. Virginia purchased Breakwater's 50% interest in the property in December. Several lenses of copper-zinc mineralization have been delineated thus far. Of note in recent drilling is the further delineation of the **08 Lens**, which has been extended to a vertical depth of at least 500 m and has returned intersections such as 5.7 m grading 12.0% zinc and 0.86% copper. In addition, drilling of the **9-25 Lens** returned 6.3% zinc and 1.5% copper over 11.6 m at a vertical depth of over 600 m. This lens extends vertically for over 450 m and 275 m laterally.

Xstrata Zinc Canada and **Donner Metals Ltd.** continue to obtain excellent results from drilling at the **Bracemac-McLeod** deposit near Matagami, Quebec. The property is located only 5 km from Xstrata's 2600-t/d Matagami Lake mill complex. The mill is currently processing ore from Xstrata's Perseverance mine. A series of stacked massive sulphide lenses are being tested that occur along a marker horizon that was the site of 10 past producing mines in the Matagami camp, including the large Matagami Lake mine, which produced 25.6 Mt at 8.2% zinc and 0.56% copper. Xstrata is conducting a scoping study on the deposit.

Xstrata Copper announced an investment of \$121 million to deepen the underground **Kidd Creek** mine in Timmins, Ontario, from the present base of Mine D at 9100 ft to 9500 ft, extending the mine life to 2017. This expansion will provide an additional 3.4 Mt at a grade of 1.48% copper, 6.22% zinc, 0.28% lead, and 80 g/t silver.

HudBay Minerals Inc. released a NI 43-101 compliant mineral resource estimate for its **Lalor Lake** deposit,

located approximately 3 km from the company's Chisel North mine near Snow Lake, Manitoba. The discovery hole intersected 23.9 m grading 13.2% zinc and 0.19% copper. The resource estimate is based upon the drilling of 40 drill holes. The deposit is estimated to contain 3.4 Mt of indicated resources at 8.82% zinc and 13.2 Mt of inferred resources at 8.19% zinc. The mineralization is found in a series of stacked lenses of zinc-rich polymetallic sulphides between 570 m and 1170 m in depth. Recent drill results indicate the presence of gold-rich horizons within the deposit.

Redcorp Ventures Ltd. continued to work on infrastructure improvements at its **Tulsequah Chief** base-metal deposit in northwestern British Columbia. The company is proceeding with finalization of key permitting functions. A NI 43-101 compliant resource estimate shows 5.37 Mt of probable reserves grading 1.40% copper, 6.33% zinc, 1.20% lead, and 93 g/t silver. The deposit also contains indicated resources of 5.81 Mt grading 1.43% copper, 6.58% zinc, 1.25% lead, and 97 g/t silver.

Selwyn Resources Ltd. continues to explore its large land position in the **Howard's Pass** area of east-central Yukon. The company reports a new global mineral resource inventory comprising 154.3 Mt of indicated resources grading 5.35% zinc and 1.86% lead, and 231.5 Mt of inferred resources at 4.54% zinc and 1.42% lead (Third Quarter 2008 Report). Contained within this global resource is an underground target mineral resource estimate for four separate deposits that contain 16.1 Mt of indicated resources grading 10.25% zinc and 4.23% lead, and 23.2 Mt of inferred resources at 8.8% zinc and 2.8% lead. The company continues to work on various permitting and consultative issues.

In July, **Yukon Zinc Corporation** was purchased by Jinduicheng Molybdenum Group Ltd. and Northwest Nonferrous International Investment Company Ltd. after receiving approval from the company's shareholders and from the Supreme Court of British Columbia. Jinduicheng is a large molybdenum mining and smelting enterprise based in Shaanxi Province, China. Northwest Nonferrous, based in Xian City, Shaanxi Province, China, is a state-owned mining and exploration company. Yukon Zinc's main asset is the **Wolverine** zinc deposit located 175 km northwest of Watson Lake in the Yukon. The volcanogenic massive sulphide (VMS) deposit contains proven and probable reserves of 5.15 Mt grading 9.71% zinc, 0.93% copper, 1.26% lead, 284.2 g/t silver, and 1.36 g/t gold. Once in production at a daily rate of 1700 t, the mine is expected to produce 53 400 t of zinc in concentrate and 5860 t of lead in concentrate annually over a 10-year mine life.

Canadian Zinc Corporation carried out permitting activities to advance its **Prairie Creek** project located in the western Northwest Territories. The property consists of a partially developed mine with a 1000-t/d mill and related

infrastructure. Published resources include measured and indicated resources of 5.84 Mt grading 10.7% zinc, 9.9% lead, and 161 g/t silver, as well as inferred resources of 5.5 Mt at 13.5% zinc, 11.43% lead, and 215 g/t silver (October 2007 Technical Report). These resources are contained within a main quartz vein, stockwork, and strata-bound zones. The project is environmentally sensitive as it lies within the Nahanni River watershed and is close to the Nahanni National Park Reserve. During the year, the company signed memoranda of understanding with two First Nations and with Parks Canada with the intent of advancing the project to a production decision.

Tamerlane Ventures Inc. is proceeding with a development plan for its **Pine Point** area lead-zinc properties in the Northwest Territories. The company recently issued a NI 43-101 reserve report that has calculated proven and probable reserves of 7.8 Mt grading 6.16% zinc and 3.01% lead, as well as measured and indicated resources of 8.0 Mt grading 2.26% zinc and 1.13% lead. The reserves are contained within six separate deposits over a distance of 13 km.

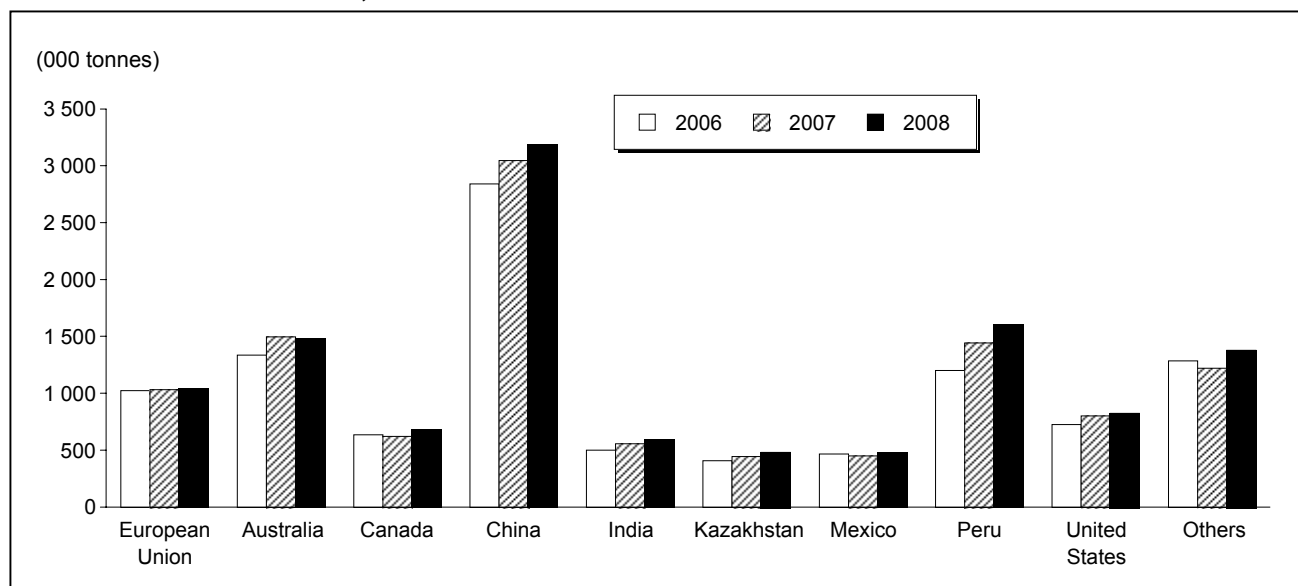
Sabina Silver Corporation owns the **Hackett River** silver-zinc deposit located in western Nunavut. A 2007 preliminary economic assessment announced an open-pit indicated resource of 25.6 Mt grading 4.07% zinc, 0.58% lead, and 126.4 g/t silver, and an inferred resource of 3.4 Mt grading 2.57% zinc, 0.37% lead, and 99.7 g/t silver. The company is proceeding with water licence and other permits as part of the environmental assessment process. The economic assessment estimates an operating mine could

produce 72 000 t/y of zinc, 8100 t/y of lead, and 12.4 million oz/y of silver over a 13-year mine life at a milling rate of 10 000 t/d. The deposit is located 75 km from tidewater and would require a road and port to be built to supply the mine and ship out concentrates.

WORLD PRODUCTION

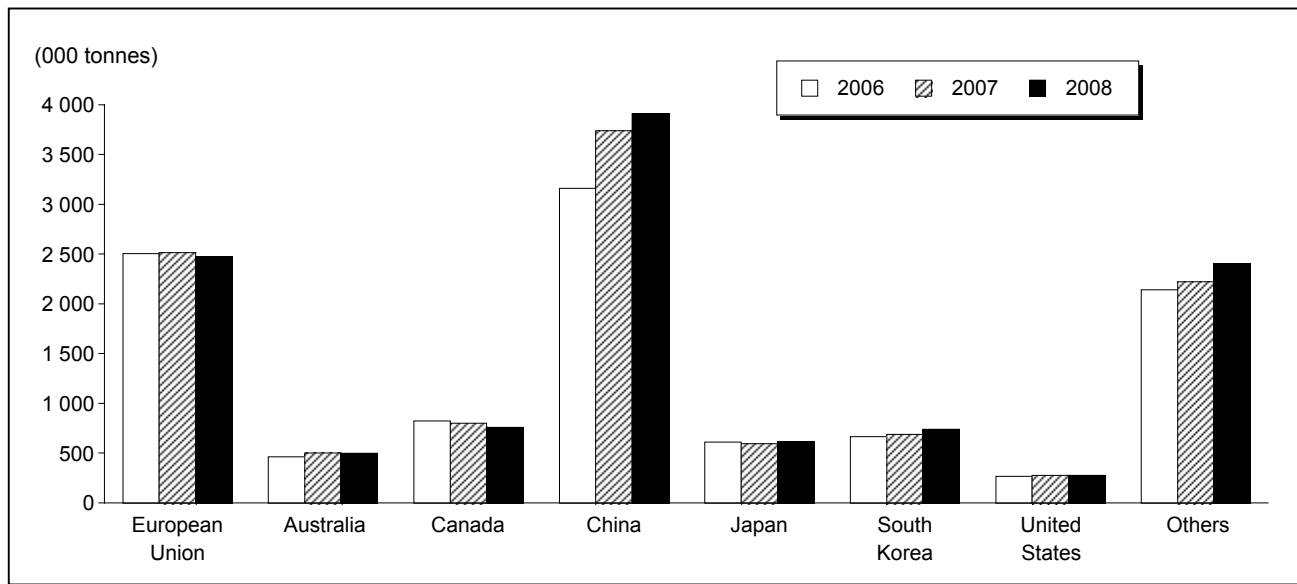
According to the International Lead and Zinc Study Group (ILZSG), world zinc mine production for 2008 was 11.76 Mt, up from 11.14 Mt the previous year, with the main increases coming from Bolivia, Peru, China, and Canada (Table 5). World refined zinc metal production was 11.69 Mt, up from 11.35 Mt in 2007, mostly due to increases in China and India (Table 6). In terms of mine production, Canada ranked fifth behind China, Peru, Australia, and the United States. The top five zinc metal-producing countries in 2008 were China, Canada, South Korea, India, and Japan. The top five zinc mining companies are Xstrata, Teck Cominco, Glencore, Zinifex, and Hindustan Zinc, which together account for 40% of world contained metal production. The top five zinc mines in terms of zinc in concentrate production in 2008 were: Red Dog in Alaska (515 000 t), Century in Australia (514 000 t), Rampura Agucha in India (489 000 t), Mt Isa in Australia (283 000 t), and Antamina in Peru (247 000 t). Figure 4 shows world zinc mine production for the period 2006-08 while Figure 5 shows refined metal production for the same period. The growth in mine output from China was 4.5% in 2008, compared to 18.3% for 2007.

Figure 4
World Zinc Mine Production, 2006-08



Source: International Lead and Zinc Study Group.

Figure 5
World Zinc Metal Production, 2006-08



Source: International Lead and Zinc Study Group.

INTERNATIONAL DEVELOPMENTS

OZ Minerals was formed in 2008 by the merger of Oxiana Limited and Zinifex Limited. The company has operating mines in Australia and Asia, and has an extensive portfolio of mineral properties around the world. In Canada, the company owns several zinc deposits, including the **Izok Lake**, **High Lake** and **Hood River** deposits, all located in the western Northwest Territories. The Izok Lake deposit contains indicated resources of 14.4 Mt at a grade of 12.9% zinc, 2.5% copper, and 1.3% lead. The High Lake deposit has an indicated resource of 17.3 Mt at 3.4% zinc, 2.3% copper, 0.3% lead, and 76 g/t silver.

Due to the rapidly declining zinc prices, several mining operations were closed during the year, including:

- Lennard Shelf in Western Australia (Teck, Xstrata);
- Pend Oreille in Washington State, United States (Teck);
- Gordonsville in Tennessee, United States (Strategic Resource Acquisition Corp.);
- Balmat in New York, United States (HudBay Minerals Ltd.);
- Aljustrel in Portugal (Lundin Mining); and
- the Coy, Young and Immel mines in Tennessee, United States (East Tennessee Zinc Company) (announced for 2009 closure).

Production cuts have also been announced at numerous operating mines, notably:

- Perilya Resources will cut output at its Broken Hill, Australia, mining complex resulting in a loss of 35 000 t/y of zinc;
- OZ Minerals will cut zinc production at its Golden Grove, Australia, mine by 55 000 t/y in 2009 and reduce production by 20 000 t/y at its Century mine in Australia; and
- Lundin Mining plans to cease zinc production at the Neves-Corvo copper-zinc mine in Portugal, representing 26 000 t/y of zinc.

Farallon Resources Ltd. is proceeding with the development of its **G-9** project at Campo Morado, Mexico, with full production at a rate of 1500 t/d slated for early 2009. The mine is scheduled to produce 26 500 t of zinc, 1300 t of lead, and 1.5 million oz of silver per year. The deposit contains measured and indicated resources of 2.18 Mt grading 11.0% zinc, 1.32% lead, and 209.2 g/t silver, as well as inferred resources of 1.60 Mt grading 9.0% zinc, 1.24% lead, and 178.0 g/t silver using a 5% zinc cut-off.

Australia's **Aim Resources** has suspended its **Perkoa** zinc project in Burkina Faso, West Africa. The deposit contains reserves of 6.3 Mt grading 14.5% zinc.

Terramin Australia Limited commenced production at its **Angas** base-metal mine located 60 km south of Adelaide.

The mine is expected to produce 45 000 t/y of zinc concentrates and 16 000 t/y of copper-lead concentrates.

In December, **Perilya Limited** entered into an agreement and strategic partnership with Shenzhen Zhongjin Lingnan Nonfemet Co. wherein Zhongjin would purchase shares in Perilya, raising A\$45 million. Perilya owns the historic **Broken Hill** lead-zinc mining complex in New South Wales.

Strategic Resource Acquisition Corp. announced the closure of the **Gordonsville** mine in Tennessee in October due to declining metal prices and a lack of sufficient financing. The mid-Tennessee mining complex included the former Gordonsville, Elmwood, and Cumberland mines, and had begun operation in April 2008. Production levels were expected to reach 3000 t/d from the Gordonsville and Cumberland mines. The company was also exploring the possibility of installing a circuit to recover valuable germanium and gallium, which it was selling to a third party in the form of a leachate.

USES

The greatest use for zinc is as a coating for iron and steel products to make them resistant to rust and corrosion. The application of a zinc coating, known as galvanizing, is accomplished electrolytically or by hot-dip methods. Galvanizing accounts for about 58% of the worldwide use of zinc.

The most commonly galvanized products are sheet and strip steel, tube and pipe, and wire and wire rope. The automobile industry is the largest user of galvanized steel. The desire to reduce weight and improve fuel efficiency has led to the increased use of galvanized steel by the automotive industry to protect the thinner gauges of steel from corrosion. Both hot-dipped and electro-galvanized steel are used, the thicker coating of hot-dipped steel giving more corrosion protection to unexposed surfaces and the thinner coating of electro-galvanized steel providing a smoother finish for exposed, painted surfaces.

Galvanized sheet and strip steel are also widely used by the construction industry for roofing and siding, and for heating and ventilation ducts, as well as for many other applications. Nails and other building materials are often hot-dip galvanized. Zinc and zinc-aluminum thermally sprayed coatings are used for the long-term corrosion protection of large steel structures such as bridges and hydro-electric transmission towers.

Another important use of zinc is in the manufacture of a vast range of die-cast products. Because it has a relatively low melting point and is very fluid, zinc diecast is easy to pour when melted. Therefore, it is well suited to rapid, assembly-line die-casting, particularly to produce small and intricate shapes.

A major use of die castings is in the automobile industry as trim pieces, grills, door and window handles, carburetors, pumps, and other components. However, with the trend toward lighter, more energy-efficient cars, zinc demand for this purpose has declined in recent years. Other familiar zinc die castings include small electrical appliances, business machines and other light equipment, tools, and toys.

Zinc is also an essential ingredient of brass, which is essentially an alloy of copper and zinc with the proportion of zinc ranging from 5 to 40%. The zinc brasses have good physical, electrical, and thermal properties, and are corrosion resistant. They are used in plumbing, heat exchange equipment, and a wide range of decorative hardware, to name a few applications. Rolled zinc metal is a basic component in dry-cell batteries, and zinc oxide is used as a catalyst in the manufacture of rubber and as a pigment in white paint. It is also used in agricultural products, cosmetics, and medicinal products.

Table 7 and Figure 6 show a breakdown of worldwide zinc use by geographic region for the period 2006-08, according to data from the ILZSG. Of note, zinc consumption in China increased 11.5% for the current year, compared to a 15.5% increase for 2007, while consumption in Europe declined by 7.9% in 2008. Table 3 and Figure 7 show a breakdown of zinc use in Canada for the period 2005-07. In Figure 7, other products include rolled and ribbon zinc and zinc oxides. The overall trend in total world zinc consumption for the period 1992-2008 is shown in Figure 8.

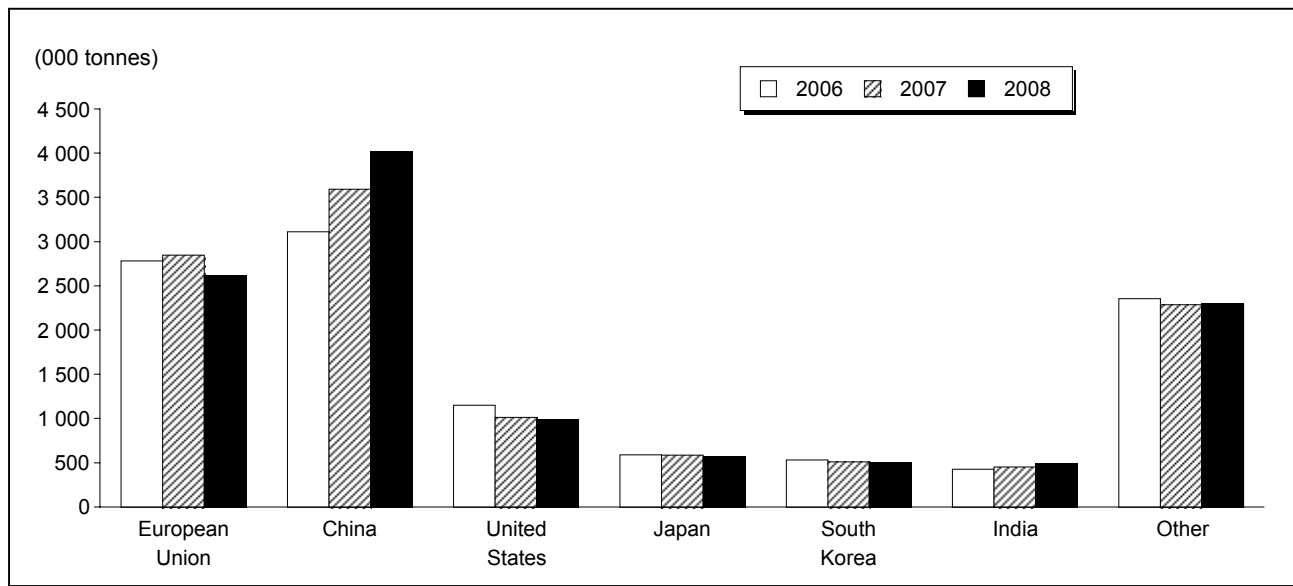
HEALTH AND ENVIRONMENT

Zinc plays an important role as a micro-nutrient in the development and health of a variety of plants and animals. In humans, zinc is a key element in the function of more than 200 enzymes, for the stabilization of DNA and the expression of genes, and for the transfer of nerve signals.

The human body contains 2-3 g of zinc. The recommended daily zinc intake is 10 mg for children, 12 mg for adult women, and 15 mg for adult men. Daily intake is not only dependent on food, but also on gender, age, and general health status. Growing infants, children, adolescents, women in pregnancy, and the elderly have a higher zinc requirement.

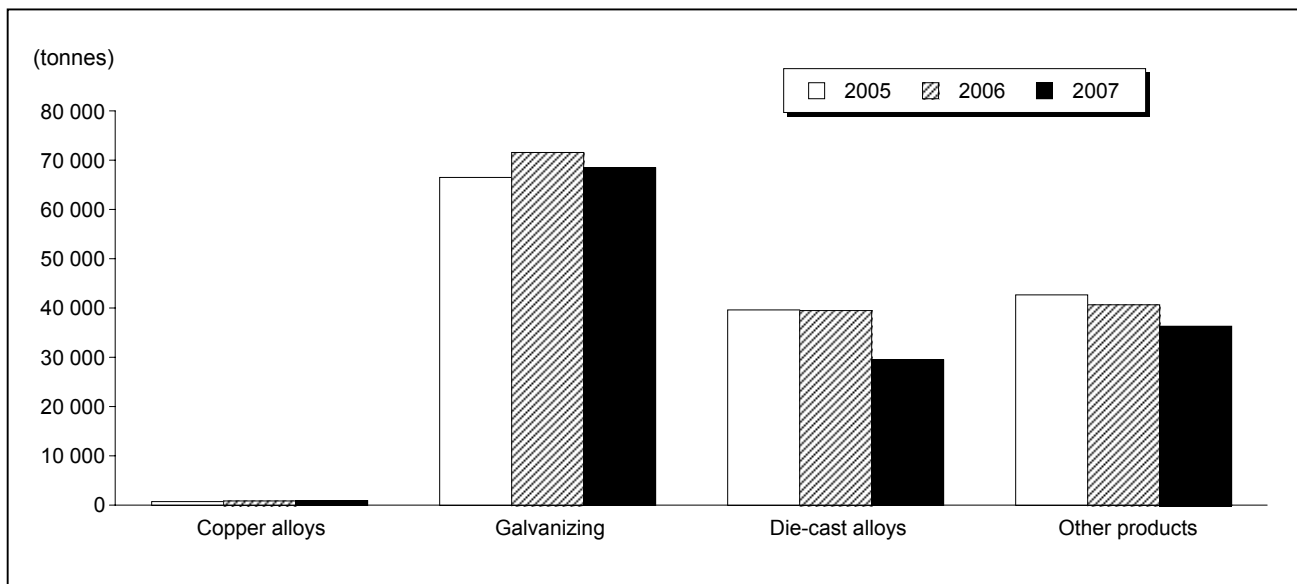
Food is the primary source of zinc for humans with only a small part coming from drinking water. Some dietary sources of zinc include red meat, nuts, poultry, and milk products. Zinc deficiency is the most common micro-nutrient deficiency affecting many agricultural areas in Asia, Africa, and the Middle East. The World Health Organization attributes 800 000 deaths worldwide each year to zinc deficiency. Zinc in fertilizers can significantly enhance the quality and yield of crops.

Figure 6
World Refined Zinc Use, 2006-08



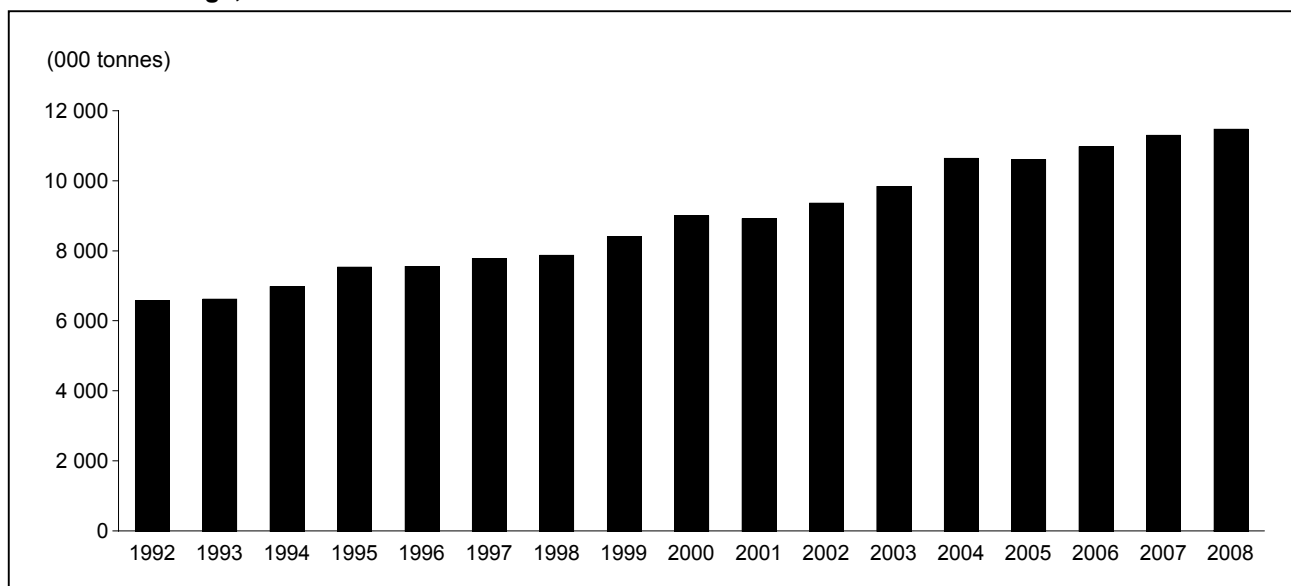
Source: International Lead and Zinc Study Group.

Figure 7
Canada, Zinc Use, 2005-07



Source: Natural Resources Canada.

Figure 8
World Zinc Usage, 1992-2008



Source: International Lead and Zinc Study Group.

INTERNATIONAL LEAD AND ZINC STUDY GROUP

The International Lead and Zinc Study Group (ILZSG) is an intergovernmental organization that regularly brings together 30 member countries in an international forum to exchange information on lead and zinc. Particular attention is given to providing regular and frequent information on supply, demand, and the outlook for lead and zinc prices and markets.

The Study Group, headquartered in Lisbon, Portugal, represents most of the world's major lead- and zinc-producing and using nations. The Group has an extensive information-gathering and dissemination role, and acts as an effective mechanism for increasing market transparency related to the production, use, and trade of lead and zinc. The Group is also an important forum for communication among governments, among industry, and between governments and industry. It holds a general session each year in October.

More information about the Group's activities can be obtained from its web site at www.ilzsg.org/static/home.aspx.

PRICES AND STOCKS

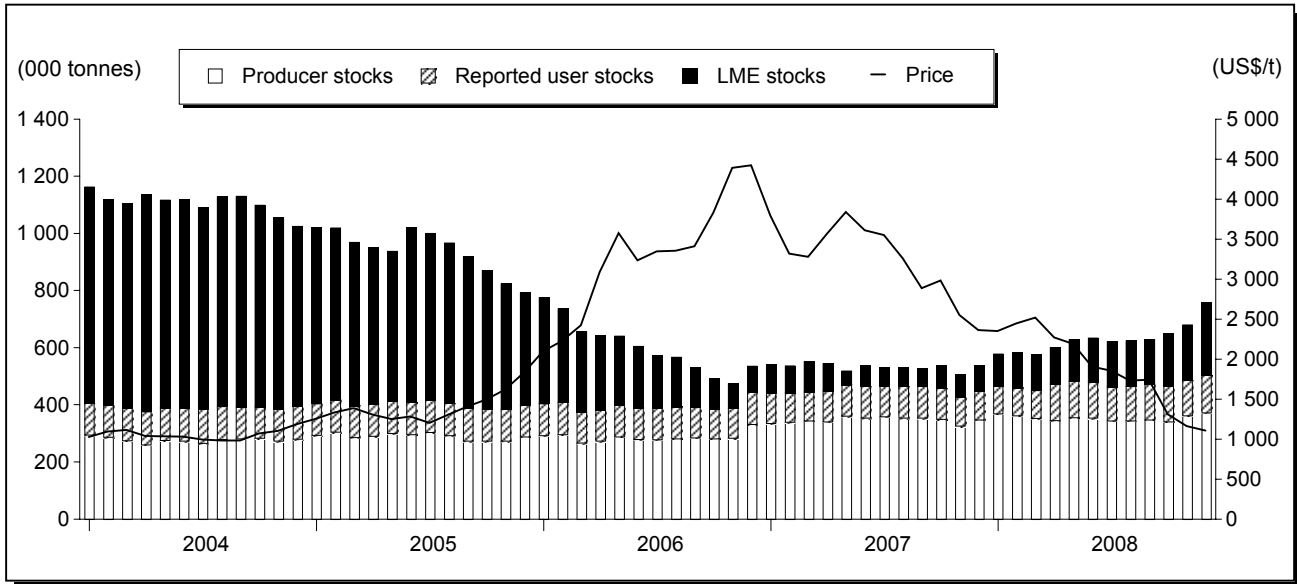
Figure 9 shows average monthly London Metal Exchange (LME) settlement prices for the period 2004-08, along with zinc metal stocks. Total stocks, comprising producers, con-

sumers, and LME stocks, stood at 757 000 t at the end of 2008. Producer and consumer stocks ended the year at 504 000 t, up 6% from the previous year. LME metal stocks increased substantially from 89 000 t at the end of 2007 to 253 000 t in December 2008. Monthly average settlement prices on the LME during 2008 decreased substantially from US\$2342/t to US\$1102/t. Annual average zinc prices for 1987-2008 are shown in Figure 10. Between October 1991 and June 2003, there was little fluctuation in price with an average for the period of US\$1036/t (US\$0.47/lb). Figure 11 shows the LME daily official cash settlement prices for 2008. The price started the year at US\$1.08/lb, reached a high on March 6 of US\$1.28/lb, and ended the year at US\$0.51/lb. Table 9 shows the monthly average zinc price for 2007 and 2008. The yearly average price dropped 42% from the 2007 level.

OUTLOOK

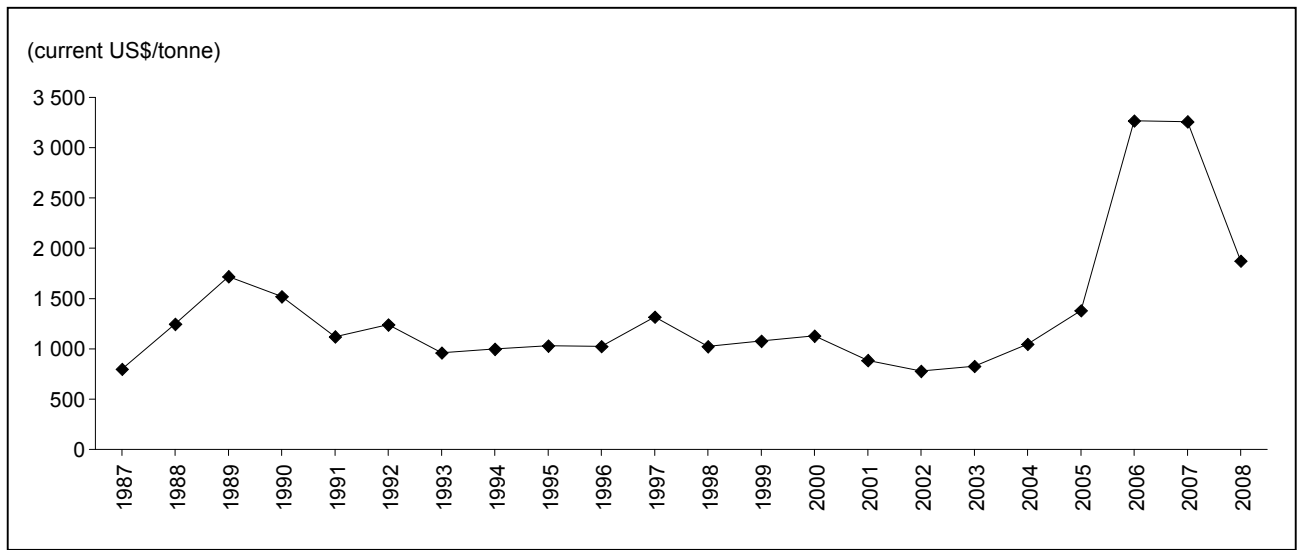
There were numerous production cutbacks and closures of zinc mines during the second half of 2008. It is expected that, with prices still near historic lows, more production cuts may be announced during 2009. As well, zinc inventories are still on the rise and demand remains soft. Prices will not show any long-term signs of recovery until metal stocks are reduced, which requires demand to increase. Difficulties in the automobile and construction sectors, which account for over 70% of zinc use, will not be resolved until probably 2010.

Figure 9
Zinc Prices and Stocks, (1) 2004-08



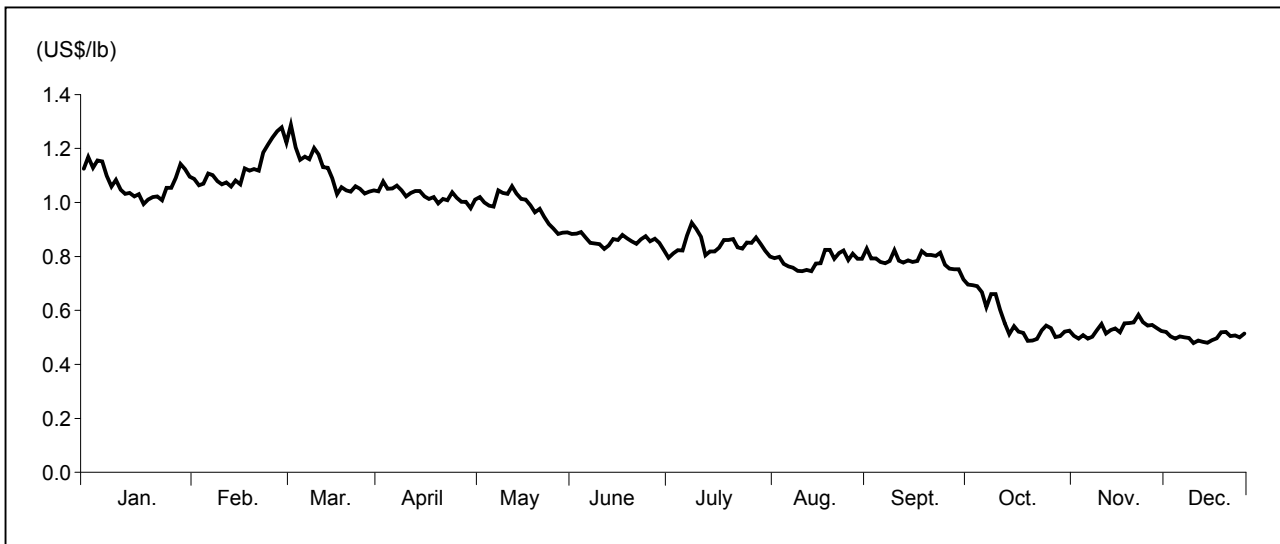
Source: International Lead and Zinc Study Group.
 (1) LME monthly average settlement prices and reported total stocks.

Figure 10
Average Cash Settlement Zinc Prices, 1987-2008



Source: International Lead and Zinc Study Group.

Figure 11
LME Daily Official Cash Settlement Prices, 2008



Source: International Lead and Zinc Study Group.

The ILZSG predicts that global zinc mine output for 2009 will be 11.08 Mt, a 6% reduction from the previous year. Smelters have responded to low prices by announcing reductions in output for 2009. Refined metal production, according to the ILZSG, should be 11.18 Mt, a decrease of 4%. The ILZSG expects that refined zinc metal usage will be 10.92 Mt in 2009, a decline of 4.9%. As a result of increased supply, there is expected to be a net surplus of 260 000 t of zinc in 2009, which should further weaken prices.

Zinc prices are expected to vary within the US\$1100-\$1550/t (US\$0.50-\$0.70/lb) range during 2009. If world metal stocks continue to be reduced, and if miners and smelters continue to operate at below capacity, prices in 2010 could recover to the US\$1750/t (US\$0.80/lb) range.

U.S. Geological Survey
<http://minerals.usgs.gov/minerals/pubs/commodity/zinc>
 World Bureau of Metal Statistics
www.world-bureau.com
 Zinc Information Centre
www.zincinfocentre.org
 North American Die Casting Association
www.diecasting.org

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 58. (2) Information in this review was current as of May 29, 2009. (3) This and other reviews, including previous editions, are available on the Internet at www.nrcan-rncan.gc.ca/mms-smm/busi-indu/cmy-amc/com-eng.htm.

OTHER SOURCES OF INFORMATION ON ZINC

American Galvanizers Association
www.galvanizeit.org
 American Zinc Association
www.zinc.org
 International Zinc Association
www.iza.com
 London Metal Exchange
www.lme.co.uk

NOTE TO READERS

The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

TARIFFS

Item No.	Description	Canada			United States	EU	Japan
		MFN	GPT	USA	Canada	Conventional Rate (1)	WTO (2)
2603.00.30	Copper ores and concentrates: zinc content	Free	Free	Free	Free	Free	Free
2607.00.30	Lead ores and concentrates: zinc content	Free	Free	Free	Free	Free	Free
2608.00.30	Zinc ores and concentrates: zinc content	Free	Free	Free	Free	Free	Free
2620.11	Slag, ash and residues (other than from the manufacture of iron or steel) containing metals, arsenic or their compounds: containing mainly zinc: hard zinc spelter	Free	Free	Free	Free	Free	Free
2620.19	Slag, ash and residues (other than from the manufacture of iron or steel) containing metals, arsenic or their compounds: containing mainly zinc: other	Free	Free	Free	Free	Free	Free
2817.00	Zinc oxide; zinc peroxide	Free-5.5%	Free	Free	Free	5.5%	4.3%
2827.39.40	Chlorides, chloride oxides and chloride hydroxides; bromides and bromide oxides; iodides and iodide oxides: other chlorides: other: of zinc	Free	Free	Free	Free	5.5%	3.9%
7901.11	Unwrought zinc: zinc, not alloyed: containing by weight 99.99% or more of zinc	Free	Free	Free	Free	2.5%	Free-4.30 yen/kg
7901.12	Unwrought zinc: zinc, not alloyed: containing by weight less than 99.99% of zinc	Free	Free	Free	Free	2.5%	Free-4.30 yen/kg
7901.20	Unwrought zinc: zinc alloys	Free	Free	Free	Free	2.5%	Free-4.30 yen/kg
7902.00	Zinc waste and scrap	Free	Free	Free	Free	Free	Free
7903.10	Zinc dust, powders and flakes: zinc dust	Free	Free	Free	Free	2.5%	3%
7903.90	Zinc dust, powders and flakes: other	Free	Free	Free	Free	2.5%	3%
7904.00	Zinc bars, rods, profiles and wire	Free	Free	Free	Free	5%	3%
7905.00	Zinc plates, sheets, strip and foil	Free	Free	Free	Free	5%	3%
7907.00	Other articles of zinc	Free-3%	Free-3%	Free	Free	5%	3%

Sources: Canadian *Customs Tariff*, effective January 2009, Canada Border Services Agency; *Harmonized Tariff Schedule of the United States*, 2009; *Official Journal of the European Union* (Tariff Information), September 19, 2008 edition; *Customs Tariff Schedules of Japan*, 2009.

(1) The customs duties applicable to imported goods originating in countries that are Contracting Parties to the General Agreement on Tariffs and Trade or with which the European Community has concluded agreements containing the most-favoured-nation tariff clause shall be the conventional duties shown in column 3 of the Schedule of Duties. (2) WTO rate is shown; lower tariff rates may apply circumstantially.

TABLE 1. CANADA, TOTAL ZINC PRODUCTION BY PROVINCE, 2006-08

	2006		2007		2008 (p)	
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
PRODUCTION						
(All Forms) (1)						
Newfoundland and Labrador	–	–	16 593	57 812	18 771	37 843
Nova Scotia	–	–	4 934	17 188	13 665	27 548
New Brunswick	260 045	943 704	244 251	850 969	224 347	452 282
Quebec	94 944	344 552	102 883	358 444	136 191	274 561
Ontario	107 842	391 358	89 700	312 513	110 486	222 739
Manitoba	105 251	381 957	105 602	367 916	98 299	198 172
Saskatchewan	541	1 964	–	–	–	–
British Columbia	32 858	119 242	30 151	105 047	27 416	55 271
Total	601 481	2 182 776	594 113	2 069 890	629 175	1 268 417
Mine output (2)	637 956	..	630 485	..	682 487	..
Refined (3)	824 464	..	802 103	..	764 312	..

Sources: Natural Resources Canada; Statistics Canada.

– Nil; .. Not available; (p) Preliminary.

(1) New refined zinc produced from domestic primary materials (concentrates, slags, residues, etc.) plus estimated recoverable zinc in ores and concentrates shipped for export. (2) Zinc content of ores and concentrates produced. (3) Refined zinc produced from domestic and imported ores.

Note: Numbers may not add to totals due to rounding.

TABLE 2. CANADA, ZINC TRADE, 2006-08

Item No.		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS							
2603.00.30	Zinc content in copper India	—	—	1	2	—	—
2607.00.30	Zinc content in lead China United States	— —	— —	— 31	— 12	50 —	221 —
	Total	—	—	31	12	50	221
2608.00.30	Zinc content in zinc ores and concentrates Belgium Norway China Spain Poland Finland South Korea Japan Other countries	26 717 6 540 — 11 738 18 435 — 17 246 17 838 10 913	66 131 15 566 — 21 560 40 112 — 50 868 32 385 37 615	35 671 9 375 — 33 944 8 575 — 11 432 17 199 12 815	105 840 21 935 — 84 164 28 446 — 19 815 38 365 31 786	69 484 35 364 31 238 42 336 15 621 26 564 23 692 9 116 23 613	90 160 40 872 39 914 36 171 34 812 20 613 19 887 10 047 25 655
	Total	109 427	264 237	129 011	330 351	277 028	318 131
2620.11	Ash and residues containing hard zinc spelter Germany Belgium Other countries	— — 811	— — 482	— — —	— — —	432 26 —	305 21 —
	Total	811	482	—	—	458	326
2620.19	Ash and residues containing mainly zinc, n.e.s. United States Malaysia Norway Belgium Other countries	11 302 128 — — 20	12 816 409 — — 39	11 631 379 — — 325	14 642 658 — — 569	8 293 190 158 180 23	7 725 309 251 171 41
	Total	11 450	13 264	12 335	15 869	8 844	8 497
2817.00	Zinc oxide; zinc peroxide United States Germany Brazil United Kingdom France Egypt Mexico India Sweden Other countries	49 093 1 106 1 000 219 971 370 85 372 6 1 610	145 195 2 586 2 548 465 2 438 849 140 1 144 22 3 401	47 510 835 1 368 466 1 488 761 170 380 496 1 659	169 966 1 497 3 631 962 3 815 1 790 368 436 1 447 3 666	40 404 1 217 1 100 810 530 545 372 437 421 1 117	97 099 4 225 2 924 2 332 1 604 1 433 1 302 1 119 1 042 2 840
	Total	54 832	158 788	55 133	187 578	46 953	115 920
2827.36	Other chlorides: of zinc Chile United States	4 8	3 28	— —	— —	— —	— —
	Total	12	31	—	—	—	—
2833.26	Zinc sulphate Cuba Netherlands United States	2 ... 5 129	3 ... 3 503	— — —	— — —	— — —	— — —
	Total	5 131	3 506	—	—	—	—
7901.11	Zinc, not alloyed, unwrought, containing by weight 99.99% or more of zinc United States Taiwan Malaysia Japan	458 382 10 562 6 542 —	1 201 985 36 167 22 521 —	442 871 2 721 4 766 3 979	1 451 127 10 497 16 606 14 956	356 412 4 393 4 017 2 618	784 917 9 596 7 018 5 614

TABLE 2 (cont'd)

Item No.		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS (cont'd)							
	North Korea	–	–	–	–	2 647	5 158
	Hong Kong	3 556	12 215	2 401	8 507	2 044	4 405
	South Korea	–	–	–	–	1 739	4 239
	Belgium	1 660	8 272	6 093	21 555	1 688	4 134
	Philippines	290	765	1 379	6 576	1 415	3 251
	Israel	2 793	8 714	2	6	1 441	3 031
	Costa Rica	–	–	683	1 980	787	2 005
	Other countries	7 427	19 808	6 298	22 909	609	1 390
	Total	491 212	1 310 447	471 193	1 554 719	379 810	834 758
7901.12	Zinc, not alloyed, unwrought, containing by weight less than 99.99% of zinc						
	United States	104 718	309 196	119 727	415 704	206 419	457 317
	Malaysia	871	3 049	2 598	10 069	4 898	10 748
	China	3 793	10 015	2 847	11 437	2 572	4 376
	Taiwan	4 301	15 431	207	909	1 759	3 898
	Indonesia	3 688	13 902	1 744	6 647	1 601	3 434
	Philippines	2 439	8 669	2 562	9 674	1 387	3 199
	Japan	1 517	3 706	2 187	8 103	310	854
	Other countries	14 427	52 814	7 906	29 928	713	1 308
	Total	135 754	416 782	139 778	492 471	219 659	485 134
7901.20	Zinc alloys, unwrought						
	China	35	189	1	3	4 584	10 277
	Hong Kong	–	–	–	–	2 991	7 141
	Thailand	–	–	–	–	1 025	2 232
	United States	668	2 479	596	2 321	430	1 140
	Other countries	75	219	289	1 152	269	514
	Total	778	2 887	886	3 476	9 299	21 304
7902.00	Zinc waste and scrap						
	United States	11 883	18 213	12 839	19 979	10 631	12 729
	Netherlands	–	–	–	–	195	360
	India	327	380	415	981	259	345
	Other countries	6 437	10 438	106	230	233	350
	Total	18 647	29 031	13 360	21 190	11 318	13 784
7903.10	Zinc dust						
	United States	6 263	26 772	6 057	29 570	6 951	21 307
	Italy	23	131	166	746	126	399
	Russia	–	–	–	–	66	214
	Other countries	144	450	183	636	20	67
	Total	6 430	27 353	6 406	30 952	7 163	21 987
7903.90	Zinc powders and flakes						
	United States	12 615	48 792	11 946	58 582	10 595	28 780
	Belgium	577	1 888	738	2 744	510	1 100
	Hong Kong	–	–	136	792	108	431
	Switzerland	61	254	188	647	124	295
	Other countries	189	784	47	189	59	213
	Total	13 442	51 718	13 055	62 954	11 396	30 819
7904.00	Zinc bars, rods, profiles and wire						
	United States	197	1 274	169	751	60	498
	Hong Kong	–	–	–	–	24	89
	Thailand	28	125	26	93	8	28
	Other countries	60	267	96	205	12	49
	Total	285	1 666	291	1 049	104	664

TABLE 2 (cont'd)

Item No.		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS (cont'd)							
7905.00	Zinc plates, sheets, strip and foil						
	Thailand	—	—	—	—	3	17
	United States	2	34	6	61	...	7
	Other countries	75	168	3	13	—	—
	Total	77	202	9	74	3	24
7906.00	Zinc tubes, pipes, and tube or pipe fittings (for example, couplings, elbows, sleeves)						
	United States	1 572	10 921	—	—	—	—
	Other countries	12	110	—	—	—	—
	Total	1 584	11 031	—	—	—	—
7907.00	Other articles of zinc						
	United States	2 167	17 305	3 869	33 588	2 971	27 240
	Singapore	1	2	121	430	1 001	2 350
	Indonesia	—	—	...	1	18	100
	United Kingdom	4	30	2	17	17	85
	Thailand	3	19	...	...	8	46
	Sweden	11	58	8	37	4	44
	Mexico	15	52	6	60	7	38
	Ireland	...	...	1	3	6	29
	Australia	1	4	1	5	4	27
	Other countries	13	59	108	222	29	116
	Total	2 215	17 529	4 116	34 363	4 064	30 075
	Total exports	852 087	2 308 954	845 605	2 735 060	976 149	1 881 644
IMPORTS							
2603.00.00.30	Zinc content in copper ores and concentrates						
	United States	18	25	1	2	—	—
	Germany	—	—	...	1	—	—
	Total	18	25	1	3	—	—
2607.00.00.30	Zinc content in lead ores and concentrates						
	United States	2 653	6 187	2 539	6 590	454	969
2608.00.00.30	Zinc content in zinc ores and concentrates						
	United States	182 821	418 861	194 535	551 559	210 099	282 803
	Peru	74 816	180 811	66 436	199 438	71 129	50 895
	Chile	2 927	5 279	9 094	20 480	9 178	13 591
	Other countries	17 574	29 260	12 137	27 689	5 309	7 690
	Total	278 138	634 211	282 202	799 166	295 715	354 979
2620.11	Ash and residues containing hard zinc spelter						
	United States	...	...	...	...	...	...
2620.19	Ash and residues containing mainly zinc, n.e.s.						
	United States	389	433	8 424	2 040	6 606	1 127
	Other countries	130	138	...	...	...	...
	Total	519	571	8 424	2 040	6 606	1 127
2817.00	Zinc oxide; zinc peroxide						
	United States	6 889	19 275	5 827	20 180	6 249	14 542
	Mexico	3 687	6 792	3 619	8 971	2 454	5 268
	Turkey	—	—	175	391	975	2 095
	Japan	52	80	31	153	49	235
	Netherlands	...	...	1	4	100	203
	Other countries	173	334	27	219	52	132
	Total	10 801	26 481	9 680	29 918	9 879	22 475

TABLE 2 (cont'd)

Item No.		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS (cont'd)							
2827.36	Other chlorides: of zinc						
	United States	955	1 212	—	—	—	—
	Other countries	61	134	—	—	—	—
	Total	1 016	1 346	—	—	—	—
2827.39.40.00	Other chlorides: other, of zinc						
	United States	—	—	803	1 347	652	1 029
	Belgium	—	—	54	153	74	185
	China	—	—	380	805	22	24
	Other countries	—	—	1	5	11	41
	Total	—	—	1 238	2 310	759	1 279
2833.26	Zinc sulphate						
	China	3 052	3 334	—	—	—	—
	United States	1 662	2 226	—	—	—	—
	Other countries	208	248	—	—	—	—
	Total	4 922	5 808	—	—	—	—
7901.11	Zinc, not alloyed, unwrought, containing by weight 99.99% or more of zinc						
	United States	434	1 498	445	1 788	704	1 270
	Canada	7	25	411	655	297	531
	Other countries	1 288	4 487	24	59	3	7
	Total	1 729	6 010	880	2 502	1 004	1 808
7901.12	Zinc, not alloyed, unwrought, containing by weight less than 99.99% of zinc						
	United States	258	376	259	575	248	624
	Japan	—	—	—	—	101	192
	Other countries	—	—	2	3	9	19
	Total	258	376	261	578	358	835
7901.20	Zinc alloys, unwrought						
	United States	10 015	29 531	12 363	49 391	6 934	18 336
	China	236	550	7	26	17	40
	Other countries	1	5	1	5	1	2
	Total	10 252	30 086	12 371	49 422	6 952	18 378
7902.00	Zinc waste and scrap						
	United States	1 050	1 060	915	1 430	284	571
	Other countries	2	2	...	...	2	5
	Total	1 052	1 062	915	1 430	286	576
7903.10	Zinc dust						
	Belgium	2 786	10 811	2 759	11 828	754	3 315
	United States	441	2 221	538	3 313	402	2 043
	Other countries	96	410	32	182	27	117
	Total	3 323	13 442	3 329	15 323	1 183	5 475
7903.90	Zinc powders and flakes						
	United States	2 502	5 141	621	1 395	189	707
	Germany	26	61	49	176	17	76
	Other countries	78	142	1	3	14	44
	Total	2 606	5 344	671	1 574	220	827

TABLE 2 (cont'd)

Item No.		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS (cont'd)							
7904.00	Zinc bars, rods, profiles and wire						
	United States	905	2 292	831	2 656	817	2 141
	China	560	1 747	640	1 957	449	1 913
	Finland	64	205	86	431	59	206
	India	207	583	42	150	48	170
	Other countries	10	43	38	134	19	62
	Total	1 746	4 870	1 637	5 328	1 392	4 492
7905.00	Zinc plates, sheets, strip and foil						
	France	326	1 312	430	1 948	238	1 274
	United States	408	1 500	320	1 228	249	1 002
	Germany	364	1 503	92	493	195	963
	China	13	50	18	80	62	300
	Other countries	12	38	32	133	23	107
	Total	1 123	4 403	892	3 882	767	3 646
7906.00	Zinc tubes, pipes, and tube or pipe fittings (for example, couplings, elbows, sleeves)						
	Canada	1 024	791	–	–	–	–
	China	172	769	–	–	–	–
	India	1 708	1 397	–	–	–	–
	Mexico	1 139	740	–	–	–	–
	United Kingdom	...	10	–	–	–	–
	United States	159	1 422	–	–	–	–
	Other countries	21	133	–	–	–	–
	Total	4 223	5 252	–	–	–	–
7907.00	Other articles of zinc						
	United States	2 158	9 129	3 162	14 903	2 083	9 700
	China	1 005	5 157	1 496	8 310	1 265	8 740
	Mexico	163	251	1 369	1 501	437	3 009
	Taiwan	492	2 402	468	2 680	559	2 638
	India	372	845	924	1 893	262	2 126
	Canada	74	375	3 038	1 925	247	1 233
	Germany	27	245	47	243	58	648
	Other countries	202	1 319	217	1 401	411	2 332
	Total	4 493	19 723	10 721	32 856	5 322	30 426
	Total imports	328 872	765 197	335 761	952 922	330 897	447 292

Sources: Natural Resources Canada; Statistics Canada.

– Nil; ... Amount too small to be expressed; n.e.s. Not elsewhere specified; (p) Preliminary.

Notes: HS Code change from 2827.36 to 2827.39.40 as of 2007. HS Code change from 2833.26 to 2827.39.40 and 2833.29.00.90 as of 2007. HS Code change from 7906.00 to 7907.00.20 and 7907.00.20.30 as of 2007. Numbers may not add to totals due to rounding.

TABLE 3. ZINC USE IN CANADA, 2005-07

	2005			2006			2007		
	Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total
	(tonnes)								
Zinc used (1,2) for or in the production of:									
Copper alloys (brass, bronze, etc.)	x	x	714	x	x	873	x	x	918
Electroplating	x	x	576	x	x	533	x	x	553
Galvanizing: electro	x	x	1 174	x	x	1 393	x	x	1 276
hot dip	x	x	64 792	x	x	69 688	x	x	66 595
Zinc die-cast alloys	x	x	39 659	x	x	39 541	x	x	29 218
Other products (including rolled and ribbon zinc, zinc oxides)	x	x	42 743	x	x	40 705	x	x	36 405
Total	147 992	1 666	149 658	149 798	2 934	152 732	132 866	2 100	134 966
User stocks, year-end	9 585	24	9 609	16 571	237	16 808	11 245	114	11 358

Sources: Natural Resources Canada; Statistics Canada.

x Confidential.

(1) User survey does not represent all Canadian users and is therefore consistently less than the apparent quantity used. (2) Due to confidentiality in some end-use categories, a breakdown of primary and recycled sources is not provided in order to be consistent.

Note: Numbers may not add to totals due to rounding.

TABLE 4. CANADA, ZINC PRODUCTION AND EXPORTS, (1) 1988-2008

	Production		Exports		Total
	All Forms (2)	Refined (3)	In Ores and Concentrates	Refined	
1988	1 370 000	703 206	816 885	551 521	1 368 406
1989	1 272 854	669 677	614 223	495 060	1 109 283
1990	1 179 372	591 786	716 185	452 251	1 168 436
1991	1 083 008	660 552	566 815	520 508	1 087 323
1992	1 195 736	671 702	678 172	509 744	1 187 916
1993	990 727	659 881	455 953	493 265	949 218
1994	976 309	690 965	450 320	551 168	1 001 488
1995	1 094 703	720 346	609 575	533 179	1 142 754
1996	1 162 720	716 467	670 790	581 608	1 252 398
1997	1 026 864	703 798	489 697	546 965	1 036 662
1998	991 584	745 131	425 340	576 925	1 002 265
1999	963 321	776 927	327 662	610 792	938 454
2000	935 713	779 892	318 752	602 626	921 378
2001	1 012 048	661 172	419 164	495 184	914 348
2002	923 931	793 410	409 343	598 251	1 007 594
2003	757 307	761 199	257 877	590 555	848 432
2004	734 035	805 438	228 181	614 060	842 241
2005	618 844	724 035	178 099	527 304	705 403
2006	601 481	824 464	109 426	626 965	736 391
2007	594 113	802 103	129 044	610 970	740 014
2008 (p)	629 175	764 312	277 079	599 469	876 548

Sources: Natural Resources Canada; Statistics Canada.

(p) Preliminary.

(1) Beginning in 1988, exports are based on the new Harmonized System and may not be in complete accordance with previous method of reporting. Ores and concentrates include HS class 2608.00.30, 2603.00.30, 2607.00.30 and 2616.10.30. Refined production includes HS class 7901.11 and 7901.12. (2) New refined zinc produced from domestic primary materials (concentrate, slags, residues, etc.) plus estimated recoverable zinc in ores and concentrates shipped for export. (3) Refined zinc produced from domestic and imported ores.

TABLE 5. WORLD MINE PRODUCTION OF ZINC, 2003-08

	2003	2004	2005	2006	2007	2008 (p)
	(000 tonnes)					
EUROPE						
Finland	39	37	41	36	39	28
Ireland	419	438	429	426	401	398
Poland	154	148	136	127	124	121
Russia	159	162	186	178	177	180
Spain	15	–	–	–	–	–
Sweden	188	199	216	210	214	199
Others	45	37	32	50	79	116
Subtotal	1 019	1 021	1 040	1 027	1 034	1 042
AFRICA						
Morocco	69	87	128	95	51	49
Namibia	108	202	232	208	196	196
South Africa	41	32	32	34	31	29
Others	41	36	22	3	3	4
Subtotal	259	357	414	340	281	278
OCEANIA						
Australia	1 447	1 298	1 329	1 338	1 498	1 479
AMERICAS						
Bolivia	145	146	159	173	194	362
Brazil	147	165	171	173	194	190
Canada	788	791	667	638	630	678
Mexico	472	462	476	469	452	487
Peru	1 369	1 209	1 202	1 202	1 444	1 603
United States	768	739	720	727	803	827
Others	106	96	4	121	117	119
Subtotal	3 795	3 608	3 496	3 503	3 834	4 266
ASIA						
China	2 029	2 391	2 547	2 844	3 048	3 186
India	305	340	446	503	558	598
Iran	111	135	167	166	75	86
Japan	45	48	41	7	–	–
Kazakhstan	392	404	405	410	446	482
North Korea	52	62	65	85	95	85
Thailand	31	40	43	42	42	40
Turkey	40	39	56	59	71	68
Others	53	49	62	119	154	158
Subtotal	3 058	3 508	3 832	4 235	4 489	4 703
Total world	9 579	9 792	10 110	10 443	11 136	11 768

Source: International Lead and Zinc Study Group.

– Nil; (p) Preliminary.

TABLE 6. WORLD ZINC METAL PRODUCTION, (1) 2003-08

	2003	2004	2005	2006	2007	2008 (p)
	(000 tonnes)					
EUROPE						
Belgium	244	257	222	238	240	212
Finland	266	285	282	282	306	298
France	253	260	209	120	125	109
Germany	388	358	335	317	295	292
Italy	123	118	121	109	102	105
Netherlands	223	225	228	238	219	239
Norway	142	139	148	161	157	145
Poland	154	154	137	134	142	146
Russia	253	241	211	248	263	270
Spain	519	523	500	507	509	493
Others	179	161	166	154	158	162
Subtotal	2 744	2 721	2 559	2 508	2 516	2 471
AFRICA						
Algeria	32	30	37	33	27	28
Namibia	47	119	133	134	150	144
South Africa	112	105	104	90	101	92
Zambia	2	2	–	–	1	2
Subtotal	194	257	274	257	279	266
AMERICAS						
Argentina	39	35	41	43	43	36
Brazil	258	266	267	272	265	260
Canada	761	805	723	824	802	764
Mexico	320	337	336	285	320	342
Peru	202	196	164	175	162	190
United States	350	354	350	269	279	274
Subtotal	1 930	1 993	1 881	1 868	1 871	1 866
ASIA						
China	2 319	2 720	2 776	3 163	3 743	3 913
India	280	272	302	415	459	636
Iran	84	96	140	139	125	110
Japan	651	635	638	614	598	616
Kazakhstan	279	323	357	365	358	366
South Korea	645	669	647	667	691	742
Thailand	107	103	93	84	99	100
Others	85	94	99	108	114	105
Subtotal	4 450	4 912	5 052	5 555	6 187	6 588
OCEANIA						
Australia	553	474	457	466	502	499
Total world	9 871	10 357	10 228	10 654	11 355	11 690

Source: International Lead and Zinc Study Group.

– Nil; (p) Preliminary.

(1) Total production by smelters and refineries of zinc in marketable form or used directly for alloying, including production on toll in the reporting country, regardless of the type of source material from which it is produced, i.e., whether ores, concentrates, residues, slag or scrap. Remelted zinc and zinc dusts are excluded.

TABLE 7. ZINC USE, (1) BY COUNTRY AND BY REGION, 2003-08

	2003	2004	2005	2006	2007	2008 (p)
	(000 tonnes)					
EUROPE						
Belgium	350	365	345	360	387	393
France	291	298	275	285	275	249
Germany	539	514	511	564	535	526
Italy	348	389	395	313	398	281
Netherlands	..	..	115	116	117	105
Russia	189	163	171	199	207	202
Spain	226	248	216	225	225	210
United Kingdom	188	185	175	172	174	158
Others	666	668	481	552	532	499
Subtotal	2 797	2 830	2 684	2 786	2 850	2 623
AFRICA						
South Africa	86	96	103	99	108	100
Others	88	97	101	100	102	99
Subtotal	174	193	204	199	210	199
OCEANIA						
Australia	254	250	239	255	202	195
New Zealand	13	13	14	12	12	12
Subtotal	267	263	253	267	214	207
AMERICAS						
Brazil	215	239	222	238	248	259
Canada	185	189	175	181	173	163
Mexico	236	240	244	250	250	252
United States	1 152	1 251	1 077	1 153	1 016	987
Others	162	204	186	200	196	200
Subtotal	1 950	2 123	1 904	2 022	1 883	1 861
ASIA						
China	2 155	2 690	3 041	3 115	3 597	4 014
India	339	362	394	430	455	491
Japan	619	623	602	594	588	564
South Korea	482	445	501	534	512	507
Taiwan	330	342	306	282	226	226
Thailand	116	129	117	104	105	109
Turkey	122	144	142	136	137	128
Others	497	512	495	502	533	552
Subtotal	4 660	5 247	5 598	5 697	6 153	6 591
Total world	9 848	10 657	10 641	10 971	11 310	11 481

Source: International Lead and Zinc Study Group.

.. Not available; (p) Preliminary.

(1) Total refined zinc use, including zinc used directly for the production of zinc alloys, regardless of the type of source material from which it is produced, i.e., ores, concentrates, residues, slags or scrap. Remelted zinc and zinc dusts are excluded.

TABLE 8. CANADA, ZINC METAL CAPACITY, 2008

Company and Location	Annual Rated Capacity
	(000 tonnes of slab zinc)
PRIMARY	
Canadian Electrolytic Zinc Limited Salaberry-de-Valleyfield, Quebec	280
Xstrata Zinc Canada Timmins, Ontario	150
HudBay Minerals Inc. Flin Flon, Manitoba	118
Teck Cominco Limited Trail, British Columbia	295
Total primary, Canada	843

Source: Natural Resources Canada.

TABLE 9. MONTHLY AVERAGE ZINC PRICES, 2007 AND 2008

	LME Special High Grade Settlement
	(US\$/t)
2007	
January	3 786.7
February	3 309.5
March	3 271.3
April	3 557.5
May	3 830.3
June	3 603.3
July	3 546.9
August	3 252.5
September	2 881.4
October	2 975.3
November	2 541.3
December	2 353.1
Yearly average	3 242.4
2008	
January	2 340.1
February	2 438.1
March	2 511.5
April	2 263.8
May	2 182.1
June	1 894.5
July	1 852.4
August	1 723.3
September	1 735.5
October	1 302.1
November	1 152.6
December	1 100.6
Yearly average	1 874.7

Source: International Lead and Zinc Study Group.