

Zinc

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1996 mine production: \$1.7 billion
World rank: First
Exports: \$1.5 billion

Canada	1996	1997 ^e	1998 ^f
(000 tonnes)			
Mine production	1 235	1 110	1 250
Metal production	716	705	745
Consumption	149	165	170
Exports (conc.)	707	650	700
Exports (metal)	582	540	590
Imports (conc.)	182	150	180
Imports (metal)	2	6	4

^e Estimated; ^f Forecast.

Zinc is used in the automotive and construction industries for the galvanization of steel and manufacture of die-cast alloys, in the production of brass, in semi-manufactures such as rolled zinc, and in chemical applications. Promising new applications for zinc are in the manufacture of zinc-air batteries and in galvanized steel studs as an alternative to wood in residential construction. Secondary zinc has become an increasingly important source of the metal in

ANNUAL AVERAGE PRICES, LONDON METAL EXCHANGE FOR SPECIAL HIGH GRADE ZINC

1993	1994	1995	1996	1997 ^e
(US\$/lb)				
43.7	45.3	46.8	46.5	59.0

^e Estimated; ^f Forecast.

recent years. Secondary zinc includes high-purity refined zinc, remelted zinc of a purity less than 98.5% zinc, and zinc scrap used in the production of zinc alloys. Canada currently produces only a minor amount of secondary zinc, mostly from secondary feeds such as galvanizing drosses. However, refined zinc from the processing of electric arc furnace dusts or from the de-zincing of galvanized steel scrap may become important in the future.

CANADIAN OVERVIEW

- Cambior closed its Gonzague Langlois mine in December 1996 due to low zinc prices and to make changes to the mining plan and ore handling system. The mine re-opened on July 1, 1997.
- Anvil Range's Faro mine in the Yukon closed in December 1996, but stockpiled ore was milled until the end of March 1997. With improving metal prices, the mine re-opened in October.
- HBM&S closed its Westarm mine at Flin Flon, Manitoba, in January due to the exhaustion of reserves.
- Breakwater opened its Caribou and Restigouche lead-zinc mines in New Brunswick in July.
- Noranda re-opened its Gallen zinc mine near Rouyn/Noranda, Quebec, in September to partially offset delays in development of the Bell Allard zinc-copper mine, also in Quebec.
- Inmet Mining brought on stream the Pick Lake zinc-copper orebody at its Winston Lake mine in Ontario to replace the Winston Lake orebody, which is nearing depletion.
- Agnico-Eagle continues to develop zinc-rich lenses at its polymetallic LaRonde gold mine near Cadillac, Quebec. The company plans to produce 52 000 t/y of zinc in concentrate by 2000.
- Cominco announced the planned re-opening of the Sa Dena Hes zinc-lead mine in the Yukon in 1998, which it owns with Korea Zinc and Teck Corp.

- A number of zinc projects continue to be evaluated, including Kudz Ze Kayah (Cominco) and Wolverine (Westmin) in the Yukon, Tulsequah Chief (Redfern) in British Columbia, Prairie Creek (San Andreas) in the Northwest Territories, Konuto Lake (HBM&S) in Manitoba, and Scotia (Savage) in Nova Scotia.

WORLD OVERVIEW

- BHP began production at its Cannington lead-zinc mine in Australia with first concentrate shipments scheduled for early 1998. The mine will produce 50 000 t/y of zinc in concentrate.
- Pasminco purchased the Century zinc-lead project from Rio Tinto after Australian Aboriginal groups agreed in May to its development. The A\$820 million project is expected to produce 450 000 t/y of zinc in concentrate by 2001.
- Western Metals began development of its Pillara (formerly Blendevale) zinc-lead project, also in Australia. The mine is expected to come on stream in mid-1998 and to produce 100 000 t/y of zinc in concentrate by 1999.
- Cominco announced in April the planned expansion of its Red Dog zinc-lead mine in Alaska after exploration success that increased its ore reserve base. The planned expansion would increase zinc production by 170 000 t/y to a total of 500 000 t/y of zinc in concentrate by 1999.
- Cominco began a 20 000-t/y expansion at its Cajamarquilla zinc refinery in Peru, which will bring zinc production to 120 000 t/y. The company also approved in September a further 120 000-t/y expansion at Cajamarquilla to be completed by 2000 at a cost of US\$300 million, subject to government agreements and permits.
- Hindustan Zinc began expansion of its open-pit Rampura Agucha zinc-lead mine in India. The expansion, to be completed late in 1997, will raise capacity from 90 000 t/y to 141 000 t/y of zinc in concentrate.
- Construction began on Minorco/Ivernia West's Lisheen zinc-lead mine in Ireland. Commercial production is scheduled for early 1999 with a capacity of 175 000 t/y of zinc in concentrate.
- Korea Zinc completed a 70 000-t/y expansion of its Onsan zinc refinery in the Republic of Korea. The expansion brings capacity at Onsan to 270 000 t/y of refined zinc. The company also began construction of its 170 000-t/y zinc refinery in Australia, which is scheduled for completion in late 1999.

- In Finland, Outokumpu began a 55 000-t/y expansion of its Kokkola refinery. Outokumpu will use its new direct leaching process to bring capacity to 225 000 t/y of refined zinc by 1999.
- China exported large quantities of refined zinc to the London Metal Exchange (LME) to cover metal sold forward in late 1996 for delivery in August and September 1997. Despite rising LME zinc stocks in September, zinc prices remained buoyant on speculative activity until a strong downward adjustment occurred at the end of September.

LEADING WORLD ZINC PRODUCERS

Producers Zinc in Concentrate		1997 ^e	Producers Zinc Metal		1997 ^e
		(000 tonnes)			(000 tonnes)
China	1 120		China		1 200
Canada	1 110		Canada		705
Australia	943		Japan		602
Peru	863		United States		380
United States	635		Spain		374

Source: International Lead and Zinc Study Group.

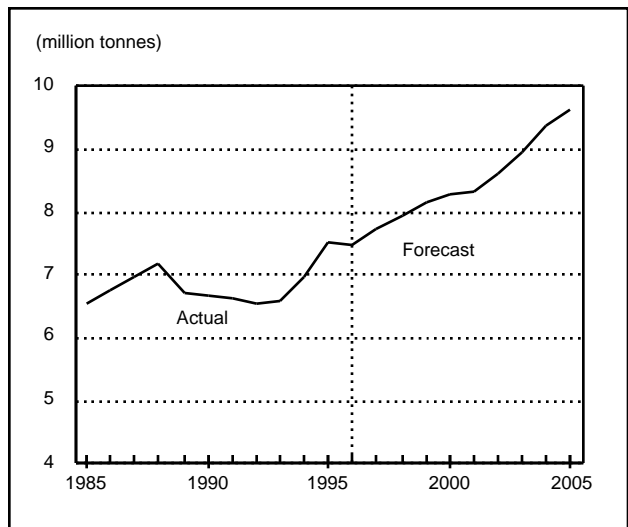
^e Estimated.

CONSUMPTION OUTLOOK

An increase of 2.4% in world zinc consumption in 1998 to 7 930 000 t is forecast, following an estimated 2.5% increase in 1997. Continued economic growth in North America should result in increased zinc demand of over 5% in 1997 with Europe also showing a slight increase. In Asia, continued strong demand in China and Taiwan and a slight improvement in Japan will likely be somewhat offset by lower demand in Thailand and some other Southeast Asian economies as a result of weakening currencies. In 1998, the growth in North America and Europe should continue, while in Asia overall demand should strengthen further despite a decline in Japan due to weakness in the automotive sector.

Beyond 1998, world zinc consumption is forecast to grow by an average 2.8%/y to 2005 despite an economic downturn just after the turn of the century. Galvanizing will remain the dominant end use of zinc and exhibit the largest increase in consumption during the forecast period, followed by brass and die-cast alloys.

Figure 1
World Zinc Consumption, 1985-2005

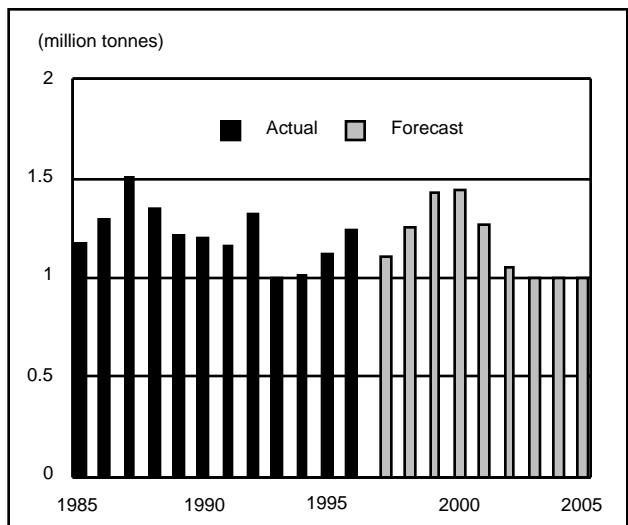


Source: Natural Resources Canada.

CANADIAN PRODUCTION OUTLOOK

Canada's mine production of zinc is expected to reach 1 110 000 t in 1997, a decrease of 10% compared to 1996, mainly due to the closure of Anvil Range's Faro mine for much of the year and the closure of Cambior's Gonzague Langlois mine for the first six months of 1997. These losses will likely be partially offset by the re-opening of Breakwater's Caribou mine and the opening of the nearby Restigouche mine, both in July. Canada's mine production of zinc is forecast to rebound to 1 250 000 t in 1998 as mines that opened in

Figure 2
Canadian Mine Production of Zinc, 1985-2005



Source: Natural Resources Canada.

1997 complete a full year's production. Beyond 1998, production is predicted to remain at a level between 1 300 000 and 1 400 000 t/y to the year 2001. Mine production is then expected to gradually decrease as older mines become exhausted unless exploration, including that within existing mine infrastructures, leads to additional mineable reserves.

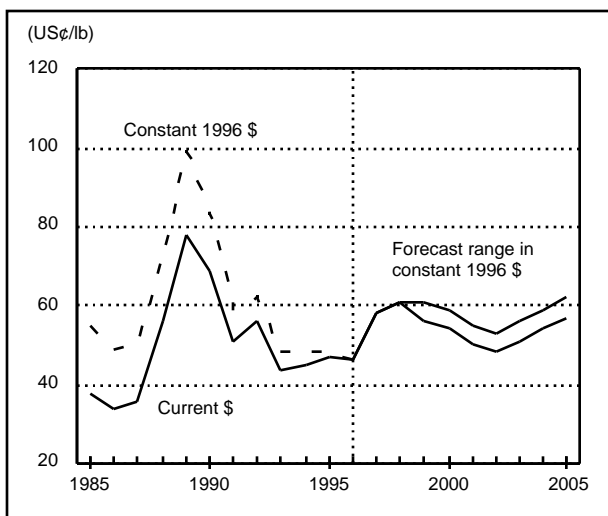
PRICE OUTLOOK

Zinc demand is expected to remain strong throughout the rest of 1997 with limited additional Western World smelter capacity for increased metal production. Thus, a zinc metal deficit is forecast despite high levels of Chinese exports in the latter half of the year. Zinc prices should remain relatively strong for the remainder of 1997 and average US59¢/lb for the year.

For 1998, much will depend on China and its ability to export zinc metal to the West. However, the zinc market is expected to remain fairly balanced. Additional reductions in LME stocks toward a critical level of five weeks of consumption should further strengthen zinc prices to an average of US63¢/lb (money of the day) for 1998.

Beyond 1998, investments made in the zinc industry in recent years will result in large increases in mine and smelter capacity near the turn of the century. This situation, combined with a cyclical economic downturn, is expected to lead to weakening zinc prices ranging from US56¢-61¢/lb in 1999 to 48¢-53¢/lb in 2002 (in constant 1996 cents). A gradual recovery is expected in the remainder of the forecast period with zinc prices rising to US57¢-62¢/lb by 2005.

Figure 3
Zinc Prices, 1985-2005
Annual LME Settlement



Source: Natural Resources Canada.