

# Aluminum

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1999 primary metal production: \$4.8 billion<sup>P</sup>  
 World rank: Fourth  
 1999 exports (unwrought): \$4.1 billion  
 Installed capacity: 2.3 Mt/y

Canada	1999	2000 <sup>e</sup>	2001 <sup>f</sup>
	(000 tonnes)		
Production	2 390	2 500	2 700
Apparent consumption	860	975	1 100

<sup>e</sup> Estimated; <sup>f</sup> Forecast; <sup>P</sup> Preliminary.

Aluminum, in both its pure and alloyed form, is used to make a wide variety of products for the consumer and capital goods markets. Aluminum's largest markets are transportation (29%), packaging (18%), building and construction (19%), electrical (9%), consumer goods (7%), and machinery and equipment (6%). North America is the largest consuming region in the world, accounting for 30% of total world demand. Asia accounts for 27% and Europe accounts for another 25%.

## AVERAGE (THREE-MONTH) ALUMINUM PRICES, LONDON METAL EXCHANGE

1997	1998	1999	2000 <sup>e</sup>
(US\$/t)			
1 619	1 379	1 389	1 555

<sup>e</sup> Estimated.

## CANADIAN OVERVIEW

- Alcan Aluminium Limited's new 400 000-t/y smelter at Alma, Quebec, was more than 90% completed by November 2000. This plant replaces the 75 000-t/y Isle-Maligne smelter, which closed in early 2000. The Alma smelter started producing metal in October 2000 and is expected to reach full production capacity in the fall of 2001.
- The Alcan-Alusuisse-Lonza Group Limited (algroup) of Switzerland merger was completed in October 2000. The new Alcan has combined revenues of US\$12.4 billion and 53 000 employees in 37 countries. Additional information on the new company can be obtained on the Internet at <http://www.alcan.com>.
- KAI Technology & Development, an independent consulting firm, is working on a feasibility study for a possible new 360 000-t/y smelter that would be located near Port Alberni, British Columbia.
- The Aluminium Association of Canada links the Canadian aluminum industry, aluminum users, the public and government. Further information and links to web sites of Canadian primary aluminum producers can be found on the Association's site at <http://aia.aluminium.qc.ca/english/index.html>.

## WORLD OVERVIEW

- Two greenfield primary smelters started up in 2000, which will add 575 000 t/y of capacity in 2001. In addition to the Alcan Alma smelter, Billiton Plc announced that the US\$1.3 billion Mozal smelter located in Mozambique had cast its first metal. The smelter is expected to reach its full capacity of 250 000 t/y early in 2001. The company has started a prefeasibility study on expanding both this and its Hillside smelter in South Africa.
- Hydro Aluminum a.s. announced that it would expand the Sunndal smelter in Norway by 234 000 t/y to a capacity of 321 000 t/y. In addition to a number of other smaller brownfield

expansions, a number of studies for new smelters have been announced for several countries, including Argentina, Bahrain, China, Russia, Ukraine and the United States.

- Alcoa Inc. and Reynolds Metals Company Limited completed their merger after receiving regulatory approval, which was conditional on the sale of assets in a number of locations. Additional information can be obtained from Alcoa's web site at <http://www.alcoa.com>.
- Kaiser Aluminum & Chemical Corporation expected to restart production by year-end at its Gramercy, Louisiana, alumina refinery, which closed after an explosion in mid-1999. The company expected that the plant would be in full operation in early 2001. More information can be obtained on Kaiser's web site at <http://www.kaiseral.com>.
- Power costs soared in the western United States in mid-2000, resulting in extra costs for smelters without long-term contracts. About 600 000 t of annual capacity had been affected from mid-summer to late fall 2000. As new Bonneville Power Administration contracts will be for less power than currently consumed by the smelters, new sources of power will be required if aluminum production in the region is to be maintained at capacity.

## CONSUMPTION OUTLOOK

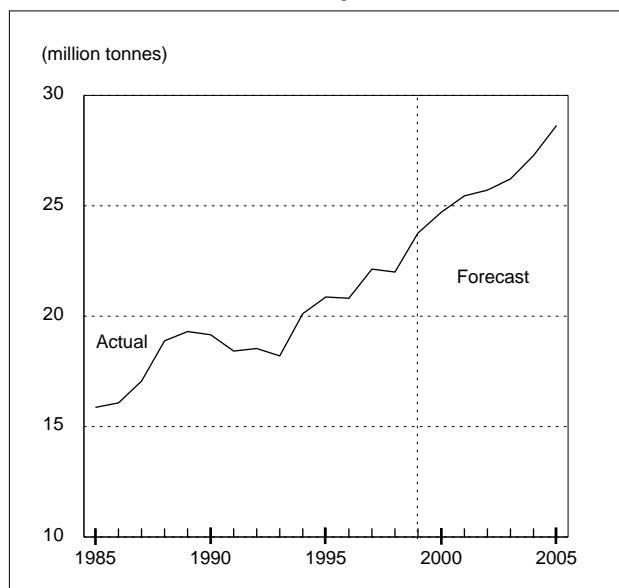
World apparent consumption of primary aluminum is estimated to be 24.5 Mt in 2000, approximately 4% higher than the 23.8 Mt recorded in 1999. Western World demand is also expected to increase by approximately 4% to 20.0 Mt in 2000. In 2001, world demand for aluminum is expected to increase approximately 3% from 2000, maintaining a long-term trend of just under 3% annual growth. In the longer term, annual growth of 1-3% is forecast for the early part of this decade. The transportation and packaging markets are expected to lead the increase in demand for aluminum to the year 2005 and perhaps beyond.

Canada's apparent consumption of primary aluminum increased strongly in 1999 to 0.86 Mt and is expected to increase to 0.9 Mt in 2000. In the longer term, consumption is expected to increase at a rate of about 5-6% annually.

## CANADIAN AND WORLD PRODUCTION OUTLOOK

Canadian installed capacity for the production of primary aluminum is 2.3 Mt/y and is set to increase to more than 2.7 Mt/y in 2001 with the completion of Alcan's new smelter at Alma.

**Figure 1**  
World Aluminum Consumption, 1985-2005



Source: Natural Resources Canada.

Canada is expected to produce 2.4 Mt of primary aluminum in 2000 and 2.7 Mt in 2001. Production in 1999 was 2.39 Mt valued at an estimated \$4.8 billion, ranking it fourth after the United States, Russia and China. Canadian monthly production statistics can be obtained from Natural Resources Canada's web site at <http://www.nrcan.gc.ca/ms/efab/datadefault.html>.

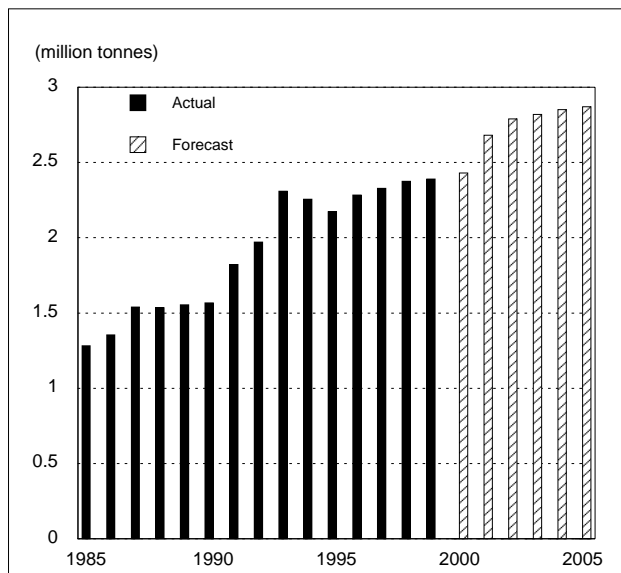
Other smelter expansion projects in Quebec (at Alouette, A.B.I. and Lauralco) are dependent on the negotiation of new long-term power supply contracts with Hydro-Québec. Decisions on possible new capacity in British Columbia are still pending.

World production of primary aluminum increased to 23.7 Mt in 1999, up from 22.6 Mt in 1998, and is expected to increase to over 24.5 Mt in 2000. Western World production is expected to increase to over 17.5 Mt in 2000, up from 17.2 Mt in 1999. Primary aluminum production in 2000 is expected to be 3.5 Mt in the United States, 3.9 Mt in Western Europe and 3.3 Mt in Russia.

Increased production throughout the world has made up for the initial U.S. reductions. The International Primary Aluminium Institute (IPAI) indicates that the world daily average primary aluminum production to October was 58 100 t/d, up 800 t/d from October 1999. Additional information can be obtained from the IPAI's web site at <http://www.world-aluminium.org>.

Although IPAI inventories of unwrought aluminum have remained around 1.8 Mt, primary aluminum

**Figure 2**  
Canadian Primary Aluminum Production,  
1985-2005



Source: Natural Resources Canada.

inventories at the London Metal Exchange (LME) have marked a large decrease throughout the year. Primary aluminum inventories started the year at approximately 775 000 t and peaked at 860 000 t in February, but steadily decreased during the year to almost 300 000 t late in the year. Various authors have suggested that this represents a fundamental long-term change resulting from the electronic trading of metals.

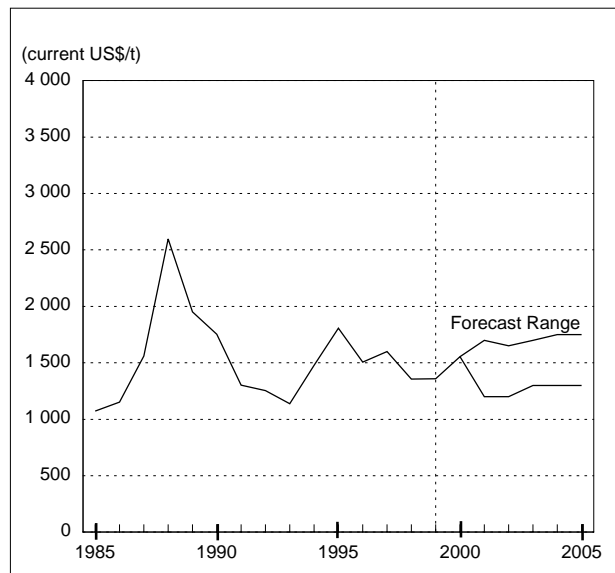
## PRICE OUTLOOK

Cash prices for primary grade aluminum remained volatile through the year. LME cash prices started the year at approximately US\$1600/t (73¢/lb), increased to above US\$1745/t (79¢/lb) in late January, drifted lower to about US\$1400/t (64¢/lb) in April before returning to above US\$1600/t (73¢/lb) in September, and have since been trading generally lower to below US\$1500/t (68¢/lb) in November.

The alumina market weakened during the year as expansions and increased utilization of capacity in existing plants countered the effect of lost production at Gramercy and increases in aluminum production capacity. The *Metal Bulletin* reports that spot prices for metallurgical-grade alumina have declined to US\$165-\$175/t from over US\$400/t in early 2000.

For 2001, aluminum price volatility is expected to continue during the early part of the year. Prices are expected to fluctuate in the mid-to-lower part of their

**Figure 3**  
Aluminum Prices, 1985-2005  
Annual LME Settlement



Source: Natural Resources Canada.

longer-term price range of between US\$1200 and US\$1800/t (55¢ and 82¢/lb). Should metal shortfalls result from ongoing decreased production in the United States and increased consumption in China and elsewhere, prices could rise later in 2001 as any shortage works its way through the system. Daily metal prices can be obtained from various news services, journals and newspapers, as well as from the LME web site at <http://www.lme.co.uk> and from <http://metalprices.com>.<sup>1</sup>

*Note: Information in this article was current as of December 1, 2000.*

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<sup>1</sup> Please note the caveats on using these metals prices published here and from sources such as those mentioned above. Readers should verify and confirm that the data are appropriate for their use.