Aluminum

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What started out to be a rather positive year for aluminum markets in the first three quarters of 1997 turned somewhat negative in the last quarter as the turmoil in Southeast Asian currency markets put a damper on business confidence worldwide. Despite the downturn in Southeast Asian economies, which only account for about 3% of total aluminum consumption, overall world demand was strong in aluminum's major markets. Increased prices and lower stock levels compared to 1996 reflected this underlying market strength. Average production rates were higher in 1997, reflecting the decisions by some producers to restart idled capacity and to add new capacity at several existing smelters.

Aluminum cash settlement prices increased 6.2% to average US$1599/t (US73¢/lb) on the London Metal Exchange (LME) compared to an average of $1505/t (68¢/lb) in 1996. Primary aluminum stocks on the LME started the year at about 955 000 t and declined steadily until August when they reached about 620 000 t. They then began to rise, peaking at 744 000 t in mid-October before resuming a downward trend to end the year at about 622 000 t. The International Primary Aluminium Institute (IPAI) reported that unwrought aluminum inventories held by IPAI members decreased slightly over the year to 1.636 Mt in December 1997 compared to 1.691 Mt in December 1996. Together the aggregated unwrought IPAI and LME stock figures ended the year at their lowest level since July of 1991.

Canadian Developments

The production of primary aluminum increased by 1.9% to 2.327 Mt in 1997, compared to 2.282 Mt in 1996, ranking Canada third after the United States and Russia in terms of world production. Canadian exports of primary smelter products in 1997 also rose to 1.884 Mt valued at $4.5 billion, compared with 1.817 Mt valued at $4.1 billion in 1996. Of this amount, exports to the United States totalled 1.410 Mt valued at $3.4 billion, compared to 1.326 Mt valued at $3.0 billion in 1996. Canada is the second largest aluminum-exporting country in the world after Russia.

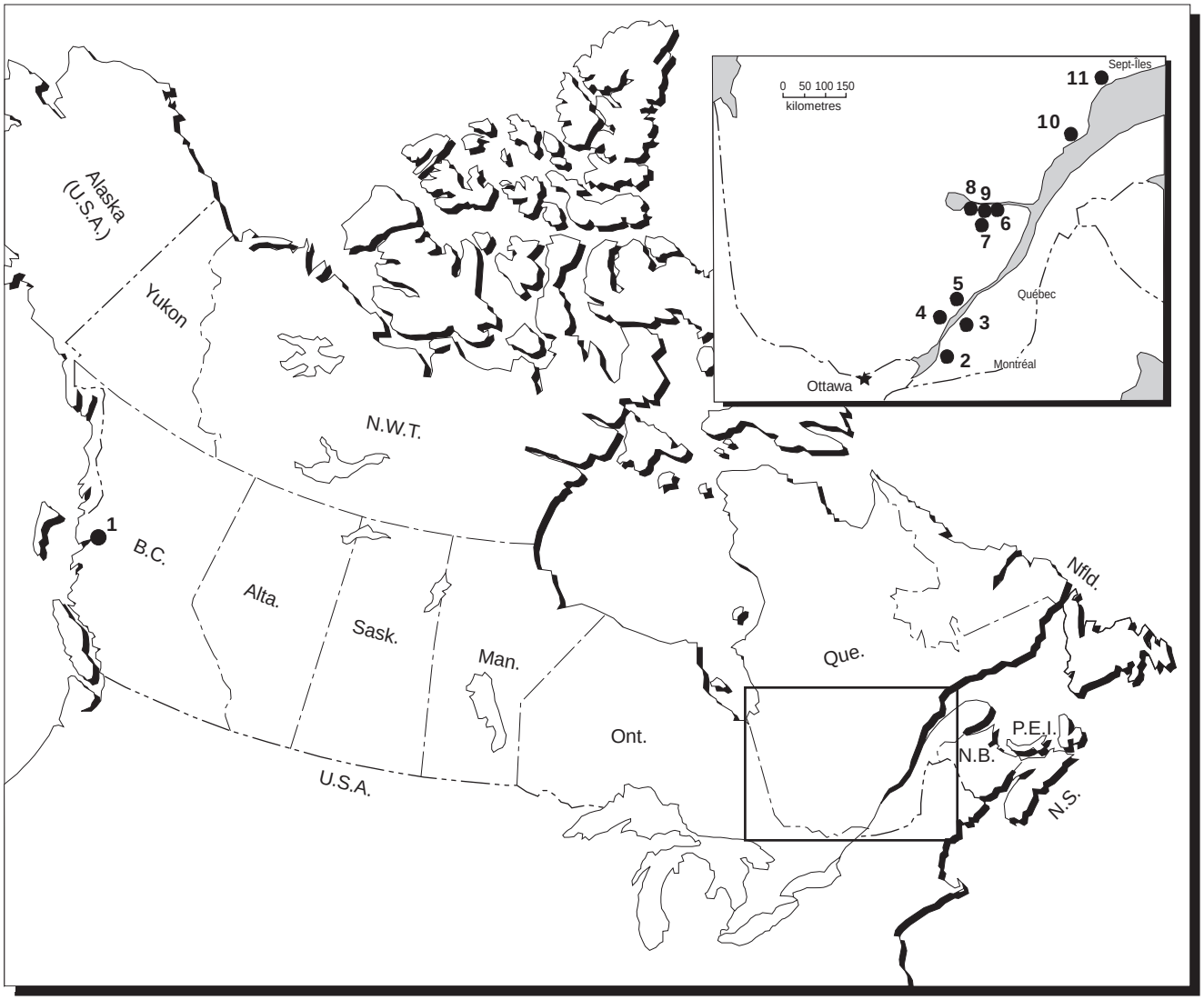
In August, Alcan and the Government of British Columbia announced a final settlement agreement that resolves all outstanding issues related to the cancellation of the Kemano Completion Project (KCP) in northern B.C. As a result of the settlement, Alcan confirmed its intention, subject to economic and market conditions, to build a new $1.2 billion aluminum smelter in Kitimat with a production capacity of 225 000 t/y. The new smelter could begin operations as early as January 1, 2003, and no later than January 1, 2010. The agreement ended Alcan's court action against the Province in which the company was claiming damages for the losses it incurred as a result of the decision to cancel the KCP. Alcan also restored its existing 272 000-t/y smelter at Kitimat to full capacity with the start-up of 22 000 t of capacity that had been idle since January 1994.

Alcan Aluminium Limited is expected to decide early in 1998 whether or not to proceed with a new 370 000-t/y smelter at Alma, Quebec. Public hearings on the project's potential environmental impact were completed and filed with the Ministry of Environment in October. Engineering studies are reportedly nearing completion.

Elsewhere in Quebec, Alcan announced that it would spend $4 million to install a second casting furnace at its Beauharnois Works near Montréal. An additional $6 million will be invested to maintain assets, increase productivity and enhance environmental performance.

Aluminerie Alouette Inc. completed a $100 million project to install graphitized cathodes at its smelter in Sept-Îles, Quebec. The change to graphitized cathodes has increased the smelter's production capacity to 230 000 t/y, up from its original 215 000 t/y when it opened in 1992. Plans to expand the smelter's production capacity to 509 000 t/y are still on hold while feasibility studies continue. A decision by the five consortium partners on when to go ahead with the expansion project is not expected before the end of 1998.

Figure 1
Aluminum Smelters, 1997



SMELTER	COMPANY	CAPACITY (t/y)
1. Kitimat	Alcan	272 000
2. Beauharnois	Alcan	48 000
3. Bécancour	A.B.I.	372 000
4. Shawinigan	Alcan	84 000
5. Lauralco	Lauralco	225 000
6. Grande-Baie	Alcan	180 000
7. Laterrière	Alcan	204 000
8. Isle-Maligne	Alcan	73 000
9. Arvida	Alcan	232 000
10. Baie-Comeau	Reynolds	400 000
11. Alouette	Alouette	230 000

Several of the Reynolds Metals Company's Canadian subsidiaries were put up for sale and sold either completely or partially as part of Reynolds' announced portfolio review to improve the company's focus and profitability, thereby increasing its shareholder value. In July, Reynolds and the Société générale de financement du Québec (SGF) entered into a joint-venture partnership (Reycan) to operate Reynolds' Cap-de-la-Madeleine (Quebec) aluminum rolling mill and its Weston Road (Toronto, Ontario) aluminum coil-coating facility. Each company will maintain a 50% interest in the joint venture. The new joint venture will fund an expansion of the rolling mill to increase slab homogenizing capacity, coil size, and light-gauge rolling and finishing capacity.

In September, Reynolds announced that Tredegar Industries had agreed in principle to acquire two of Reynolds' Canadian aluminum extrusion and fabrication plants located in Sainte-Thérèse, Quebec, and Richmond Hill, Ontario. Both plants manufacture products used primarily in the building construction, transportation, electrical, machinery and equipment, and consumer durables markets. In October, Reynolds announced that it had completed the sale of the assets of its construction products distribution business in Canada to Royal Group Technologies Limited. Royal assumed the operation of seven distribution warehouses located across Canada.

Elsewhere within the Reynolds group of companies, Reynolds' rod mill at Bécancour, Quebec, obtained ISO 9002 registration early in 1997.

Aluminerie Lauralco Inc., a 100% subsidiary of Alumax Inc. of the United States, operates a 225 000-t/y smelter at Deschambault, west of Québec City. Lauralco became the first aluminum smelter in Canada to obtain the ISO 14001 Environmental Management System (EMS) standards certification.

WORLD DEVELOPMENTS

World production of primary and secondary aluminum reached an estimated 29.0 Mt in 1997, of which 21.7 Mt were primary material. Total Western World smelter production reached an estimated 16.3 Mt in 1997, up from 15.6 Mt in 1996. Among IPAI members, the primary aluminum daily production rate increased from an average of 52 600 t in January to 54 500 t in December. The average rate for all of 1997 was 53 400 t/d compared with 50 900 t/d in 1996.

United States

The United States, which is the world's largest producer of primary and secondary aluminum, produced a total of 3.603 Mt of primary aluminum in 1997, up from 3.577 Mt in 1996. In addition to primary production, secondary aluminum production totalled 3.559 Mt in 1997, representing roughly 48% of the total secondary aluminum produced worldwide.

Noranda Aluminum, Inc. awarded a US$3 million contract to ICF Kaiser International Inc. to provide engineering and design services for a US$54 million modernization program at the company's 220 000-t/y New Madrid aluminum smelter. The project includes upgrades to the smelter's anode production technology and other upgrades that are expected to result in improved smelter efficiency and a capacity increase of about 33 000 t/y. The project is expected to be completed by mid-summer 1998.

Reynolds Metals Company announced that it would begin preparations to restart its carbon plant and a limited number of reduction cells at its 121 000-t/y smelter at Troutdale, Oregon. Aluminum production is expected to begin by March 1998 at a rate of about 25 000 t/y. The Troutdale smelter has been shut down since December 1991. Its remaining capacity will be restarted when market conditions warrant. In July, Reynolds announced a major restructuring program. The company will maintain its primary aluminum business, along with its distribution facility, specialty building products, and aluminum wheels. Reynolds sold its interests in residential construction products and the general extrusion business.

In October, Alcoa World Alumina and Chemicals (AWAC) began preparations to restart its St. Croix (U.S. Virgin Islands) alumina refinery to fill customer orders for 1998. The refinery has an operating capacity of 600 000 t/y. AWAC purchased the St. Croix refinery from the Virgin Islands Alumina Corp. (Vialco), a unit of Glencore International AG, in July 1995. The refinery has been idle since 1994. AWAC is a joint-venture partnership between Aluminum Company of America (Alcoa) and WMC Limited of Australia.

Jamaica

Two of Jamaica's major bauxite-refining operations announced plans to consolidate their mining operations. Jamalco (a joint venture between the Jamaican government and Alcoa) and Alumina Partners of Jamaica (Alpart) (a joint venture between the government and Kaiser Aluminum & Chemical Corporation) will be equity partners in the new mining venture. The new venture will mine bauxite in south-central Jamaica in an area with estimated reserves of 100 Mt. Jamalco and Alpart have been granted mining leases within an 11-km radius of one another, which contributed to the decision to mine the areas jointly rather than separately. Jamalco and Alpart will continue to individually process and ship from their respective plants and port facilities.

South America

Alcan announced plans to invest US$350 million over the next three years to expand and modernize its aluminum rolling operations in Brazil to serve the rapidly growing South American market for aluminum beverage cans. In a two-phase expansion

program, Alcan's Brazilian subsidiary, Alcan Aluminio do Brasil S. A. (Alcanbrasil), will more than double production capacity at its Pindamonhangaba aluminum sheet-rolling facility to 250 000 t/y from the current 100 000 t/y. It is expected that the expanding beverage can market will also lead to increased opportunities for the recycling of used beverage cans. As part of the expansion project, Alcanbrasil will construct a 30 000-t/y recycling facility, making Alcan the largest used beverage can recycler in South America.

In Chile, Empresa Nacional de Electricidad SA (Endesa) announced that talks with Noranda Inc. on building a new US$1.6 billion Alumysa project have been suspended because of aluminum market conditions. The project involves the construction of two hydro-electric power plants and a 270 000-t/y aluminum smelter. Last year, Comalco Limited withdrew from its option to buy into the project with Noranda. Despite Comalco's withdrawal, Noranda Aluminum Inc. announced in March that it intended to continue to work on the project and to seek a joint-venture partner.

Work began on an expansion project at Aluar's aluminum smelter in Argentina that will increase capacity from its current 186 000 t/y to 258 000 t/y by May of 1999. The project involves the addition of two 72-cell potlines as well as improvements to the anode ovens and an extra coke silo.

Europe

Alcoa acquired the main sectors of the aluminum businesses of Inespal, S.A., Spain's state-owned integrated aluminum producer, under an agreement signed with Inespal's owner, the State Entity for Industrial Participations (SEPI). Alcoa paid US$410 million for substantially all of Inespal's businesses. Under the agreement, Alcoa acquired an alumina refinery at San Ciprian with a capacity of 1.1 Mt/y; three primary aluminum smelters at San Ciprian, La Coruna and Aviles with a combined capacity of 365 000 t/y; three rolling mills at Amorebieta, Alicante and Sabinanigo with a combined capacity of 220 000 t/y; two extrusion plants at Noblejas and La Coruna with a combined capacity of 29 000 t/y; an administrative centre in Madrid; and related sales offices in Europe.

The French aluminum producer Pechiney announced plans to restart all of its 125 000 t of idled production capacity by the end of 1998, including 40 000 t by the end of 1997, to meet increased world demand. Its production had been reduced in 1994 in response to the world oversupply of aluminum and persistently weak prices. Pechiney announced that it would begin increasing capacity at its most competitive facilities, including at the Bécancour smelter in Canada in which it holds a 25% share.

In Norway, Hydro Aluminium, a division of Norsk Hydro ASA, announced in February that it would gradually restart idled production capacity of primary aluminum to meet increased demand and increased metal requirements from the company's fabrication activities in Norway. In 1994, Norsk Hydro reduced its production capacity by about 70 000 t/y. During the first quarter of 1997, some 20 000 t of idled capacity was restarted. In mid-September, Hydro Aluminium started operating the first of its 66 new electrolytic reduction pots at its Karmøy smelter. The new system adds 35 000 t of annual production capacity, making it the largest in Western Europe with a capacity of 267 000 t/y. Hydro Aluminium is also planning to increase capacity at its 145 000-t/y Sunndal smelter to 165 000 t/y. Work is expected to begin in 1998 with full capacity to be reached by 2000.

In October, a new third potline was inaugurated at the Icelandic Aluminium Co. Ltd. (ISAL) smelter at Straumsvik, Iceland. ISAL is a wholly owned part of the Aluminium Division of the Alusuisse - Lonza Group. Construction of the new third potline raised the smelter's capacity to 162 000 t/y from 100 000 t/y.

Elsewhere in Iceland, the Icelandic government announced in August that it had signed the final agreements with Nordic Aluminum Corporation of Iceland (Nordurál), a subsidiary of U.S. Columbia Ventures Corporation, for a new 60 000-t/y aluminum smelter. The smelter, which is already under construction at Grundartangi in western Iceland, is scheduled to start production in mid-1998 with plans to expand to 90 000 t/y by the year 2000.

Russian Federation

AluminProduct ImpEx Ltd., a joint-venture company formed by Reynolds Metals Company and Sayansk Aluminium Zavod (SaAZ), signed an agreement to supply primary aluminum to Samara Metallurgical Co. (SAMECO) for conversion into beverage can stock. The agreement calls for AluminProduct to supply primary aluminum to SAMECO's rolling plant in Russia where it will be manufactured initially into aluminum can end, tab and body stock for customers in Asia and the Middle East. Reynolds' relationship with SaAZ dates back to 1989 when Reynolds entered into a joint venture to build an aluminum foil production and converting operation in Siberia.

Middle East

Aluminium Bahrain B.S.C. (Alba) completed a US$130 million expansion project and upgrading of the company's smelter in March. The expansion added an additional 36 500 t/y to the smelter's production capacity of 460 000 t/y.

Dubai Aluminium Company Limited (Dubal) completed a major expansion project in March that

increased the smelter's capacity by over 50% to 375 000 t/y. The US$503 million Falcon project involved the addition of a 240-cell potline, two new gas turbines and changes to the carbon plant, including a second green anode production line and a third anode baking kiln. It also involved the construction of a new casthouse and modifications to the existing one, including another ingot-casting machine, a third direct chill caster, and a second continuous homogenizing plant.

In Iran, the first phase of the new US$700 million Al-Mahdi aluminum smelter was officially inaugurated near the port of Bandar Abbas in June. The smelter will have an initial production capacity of 110 000 t/y. Its design and infrastructure could allow for a future expansion to 330 000 t/y. Elsewhere in Iran, Prime International's Qeshmalum aluminum smelter is expected to start up sometime next year with an initial output of about 2000 t, increasing to 28 000 t/y by 2000. Both operations are targeting the export market for most of their production.

Asia

Alcan Aluminium Limited and China National Nonferrous Metals Industry Corporation (CNNC) signed a Memorandum of Understanding in November to complete a detailed feasibility study for a proposed aluminum smelter and power complex at Hejin City in China's Shanxi Province. The study on the 240 000-t/y smelter and power complex is expected to take 12 to 18 months to complete.

A new aluminum smelting project in China's northern Shanxi Province began operating in 1997. The first phase of the project, which is owned by Yuncheng Shanhe Aluminium Co., was expected to produce 12 500 t/y.

Daewoo Corporation signed a letter of intent with Vietnam Minerals Corp. (VIMICO) to develop a bauxite mine in Daklak Province and build an alumina refinery. The mine and refinery would be developed by 2000 if the feasibility study is positive. Daewoo said it also plans to build an aluminum smelter if the company receives infrastructure support for the project from the Vietnamese government.

Africa

South Africa's Gencor Ltd. and Industrial Development Corp. (IDC) announced their intention to invest US$125 million each for the construction of a 245 000-t/y primary aluminum smelter in southern Mozambique. Gencor and IDC will each take a 50% equity share in the Mozal project. The remaining US$250 million of equity capital will be sourced from international partners, with the Mozambican government providing support. The project will have access to long-term competitively priced power offered by South African utility Eskom together with Electricidade de Mocambique (EDM) and the Mozambique Electricity Supply Authority; it will also be granted free zone status by the Mozambican government.

Aluminium Smelter Company of Nigeria's (ALSCON) new Ikot Abasi aluminum smelter, with an eventual capacity of 180 000 t/y, began operations at the end of October. The project, which started in 1990, is a joint venture between Nigeria, which has a 70% equity share, and Ferrostaal AG of Germany and U.S.-based Reynolds International who share the rest of the equity.

Insufficient rainfall in Ghana resulted in a notification by the Volta River Authority (VRA) that it will reduce the electric power allocation to Kaiser Aluminum's 90%-owned Volta Aluminium Company Limited (Valco) smelter effective January 1, 1998. As a result of the reduced power, Kaiser will operate three potlines at Valco in 1998, compared to the four potlines it operated in 1997.

Egypt's only aluminum producer, The Aluminium Company of Egypt (Egyptalum), completed the installation of a new 50 000-t/y potline in the fourth quarter of 1997. The project to expand the Nag Hammadi smelter's capacity from 180 000 t/y to 230 000 t/y began in 1995. Following completion of the project, the company will begin to focus its efforts on upgrading the smelter's existing Soderburg line to its own prebake technology. In addition to the work being undertaken in the potrooms, Egyptalum is also installing a new anode paste baking and storage facility under contract with Pechiney of France.

Australia

Alcan announced plans to invest $130 million in a new bauxite mine at Ely in North Queensland, Australia. The mine will have an initial output of 2.5 Mt/y and will be owned and operated by Alcan's Australian subsidiary Alcan South Pacific Pty Ltd. By bringing this new mine into production, Alcan expects to reduce the company's bauxite cost for its alumina refinery at Gladstone in Queensland and at other refineries around the world.

Alcoa World Alumina and Chemicals began a 444 000-t/y expansion project at its Wagerup alumina refinery in Western Australia. The A$257.5 million expansion will increase the refinery's production capacity to 2.19 Mt/y by mid-1999. This is the first phase of a planned expansion project that will eventually see the refinery produce 3.3 Mt/y.

Worsley Alumina Pty Ltd. approved plans for an A$800 million expansion of its bauxite and alumina refining facilities in Western Australia. Bauxite production at the Boddington mine will increase to about 10 Mt/y from the current 6 Mt/y, and the alumina refinery's capacity will increase to 3.1 Mt/y from the current 1.88 Mt/y. Work is expected to be completed

by the second quarter of 2000. Worsley Alumina is a joint venture between Reynolds Australia Alumina Ltd. (56%), Billiton Australia Pty Limited (30%), Kobe Alumina Associates (Australia) Pty Ltd. (10%), and Nissho Iwai Alumina Pty Limited (4%).

Comalco Limited completed an A$1 billion expansion project to nearly double aluminum production capacity at its Boyne Island smelter to 490 000 t/y. The installation of a third potline of 264 cells at the smelter was the last in a series of upgrades of the company's aluminum smelter capacities at Bell Bay in Tasmania, Tiwai Point in New Zealand, and the Boyne Island smelter in Queensland. The Boyne Island smelter expansion involved the construction of a new reduction line of 264 cells, a carbon baking furnace, additional metal-casting facilities, and auxiliary equipment.

Tomago Aluminium Company Pty Limited announced that a program to increase its production capacity by 10% to 440 000 t/y was on schedule to be completed by early 1999. Production at the smelter will be increased by expanding a third potline. Tomago Aluminium is a joint venture between Gove Aluminium Finance Limited (36.05%), Pechiney Pacific Pty Limited (36.05%), VAW Australia Pty Limited and VAW of America Inc. (12.4%), and TOA Pty Limited (15.5%).

In May, the Australian Senate voted to end export controls on bauxite, alumina and mineral sands. The decision by the Australian federal government brings to an end all export controls on resource commodities except uranium. Export controls had been put in place to give the government the authority to approve prices, but the program was found to be ineffective.

RECYCLING

Secondary aluminum production continues to increase worldwide. Western World production of secondary aluminum reached 6.83 Mt in 1996, compared to 6.75 Mt in 1995. Production in the first nine months of 1997 was about 5.50 Mt, and was expected to reach over 7.0 Mt by year-end. The increase in secondary production can be attributed to continuing improvements in scrap collection systems and increased recycling rates.

The recycling of aluminum requires less than 5% of the energy used to make the original metal. As a result, energy represents only 2% of a secondary aluminum smelter's operating cost, compared to about 26% for a primary smelter. The automotive industry is the largest consumer of secondary aluminum, consuming some 80% of secondary production either through direct sales or to casters who supply the automotive industry. As requirements for lighter vehicles increase, it is likely that demand for secondary aluminum will also increase significantly.

In 1996, the largest secondary aluminum producers were the United States at 3.21 Mt, Japan at 1.19 Mt, and Germany at 0.42 Mt. Consumption of aluminum metal (excluding the direct use of scrap) for the production of secondary aluminum in Canada decreased to 136 762 t in 1996 from 146 987 t in 1995.

In Canada, about 1.5 billion scrap aluminum cans are recovered and exported annually to the United States to be recycled. There are no facilities in Canada to recycle aluminum beverage cans. Cans are collected and then shipped to the United States for recycling into can sheet.

The most important sources of aluminum scrap in the United States are from the packaging (principally used beverage containers) and transportation sectors. The U.S. recycling rate of aluminum cans rose 1.3% in 1996 to 63.5% of can shipments. Some 99 billion cans were produced in 1996, of which 62.6 billion were recycled. In July, the U.S. Aluminum Association announced that it had endorsed a 75% recycling rate goal. No date was given for when member companies hoped to reach the new target.

European aluminum producers hope to raise the beverage can recycling rate in Europe to at least 50% by the year 2000 from the current overall rate of 35%. While recycling rates are high in countries like Sweden (90%), much work remains to be done in other countries where recycling rates are considerably lower, such as in Italy (28%) and the United Kingdom (24%). Japan's rate of aluminum can recycling reached a record high of 70.2% in the business year ended March 1997, up from 65.7% in the previous year, and reflected efforts by local governments to promote recycling.

CONSUMPTION AND USES

Total world consumption of primary aluminum is expected to be an estimated 21.7 Mt in 1997, about 4% higher than the 20.8 Mt recorded in 1996. Western World demand is expected to have increased by about 4% to 18.6 Mt in 1997. Total reported Canadian consumption of aluminum metal at the first processing stage, including secondary aluminum, was 686 969 t in 1996, up from 635 402 t in 1995.

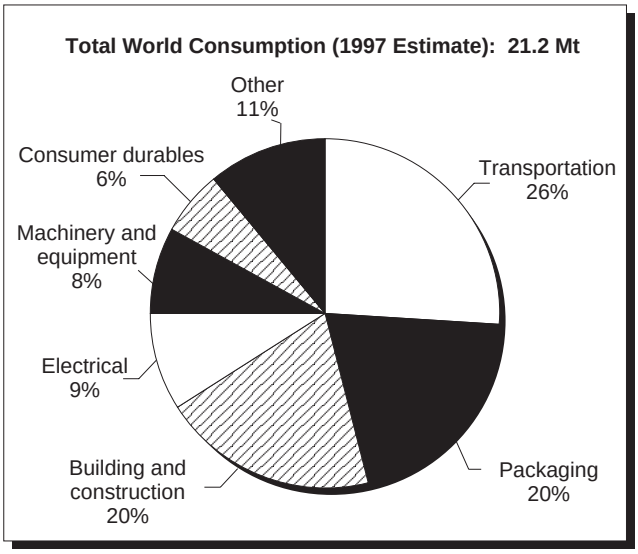
Aluminum is the most abundant metal in the earth's crust. Unlike most of the other major metals, aluminum does not occur in its native state, but mainly as an oxide. When combined with water and other impurities, it produces the main ore of aluminum known as bauxite. Pure aluminum is a silver-white, malleable, ductile metal with one third the density of steel. Aluminum's dull lustre results from a thin coating of oxygen that forms when it is exposed to air. It is this characteristic that accounts for aluminum's resistance to corrosion. Aluminum is an excellent conductor of electricity. Gram for gram, aluminum

has twice the electrical conductance of copper. It is also an efficient conductor of heat and a good reflector of light and radiant heat.

Combining aluminum with other metals to produce alloys enhances its characteristics and increases its versatility. The most common metals used in combination with aluminum are copper, magnesium, manganese, silicon and zinc. Aluminum's tensile strength, hardness, corrosion resistance, and heat-treatment properties improve when alloyed with one or more of these metals. Some copper-aluminum alloys, for example, can exceed the tensile strength of mild steel by as much as 50%.

In both its pure and alloyed forms, aluminum is used to make a variety of products for the consumer and capital goods markets. The largest markets for aluminum are transportation (26%), building and construction (20%), packaging (20%), electrical (9%), machinery and equipment (8%), and consumer goods (6%). Geographically, North America is the largest consuming region accounting for 33% of total Western World consumption, followed by Europe at 25% and Asia at 26%.

Figure 2
Aluminum Markets, 1997



Source: Natural Resources Canada.

HEALTH, SAFETY AND THE ENVIRONMENT

Aluminum is a naturally occurring element that is found ubiquitously in the environment as silicates, oxides and hydroxides in combination with other elements such as sodium and fluorine, and as complexes with organic matter. It is redistributed throughout the environment by both natural processes and anthropogenic (human) activities. Igneous rocks can contain between 0.1% and 21% aluminum oxide (Al_2O_3). Aluminum silicates (clay minerals) are a major component of soils.

Natural processes far outweigh the direct anthropogenic redistribution of aluminum in the environment. The mobility and subsequent transportation of aluminum is dependent on a number of factors, including chemical speciation, hydrological pathways, soil-water interaction, and the composition of the underlying bedrock. Mobilization of aluminum in the environment by humans is usually the result of indirect activities and can occur as the result of emissions of acidifying agents. In general, a lowering of pH results in the increased mobility of some forms of aluminum.

In May, three Canadian aluminum smelting companies announced plans to conduct a feasibility study for the construction and operation of a $90 million recycling facility for spent potlining in Jonquière, Quebec. Alcan Smelters and Chemicals Limited, Aluminerie Lauralco Inc. and Pechiney Bécancour Inc. are participating in the study.

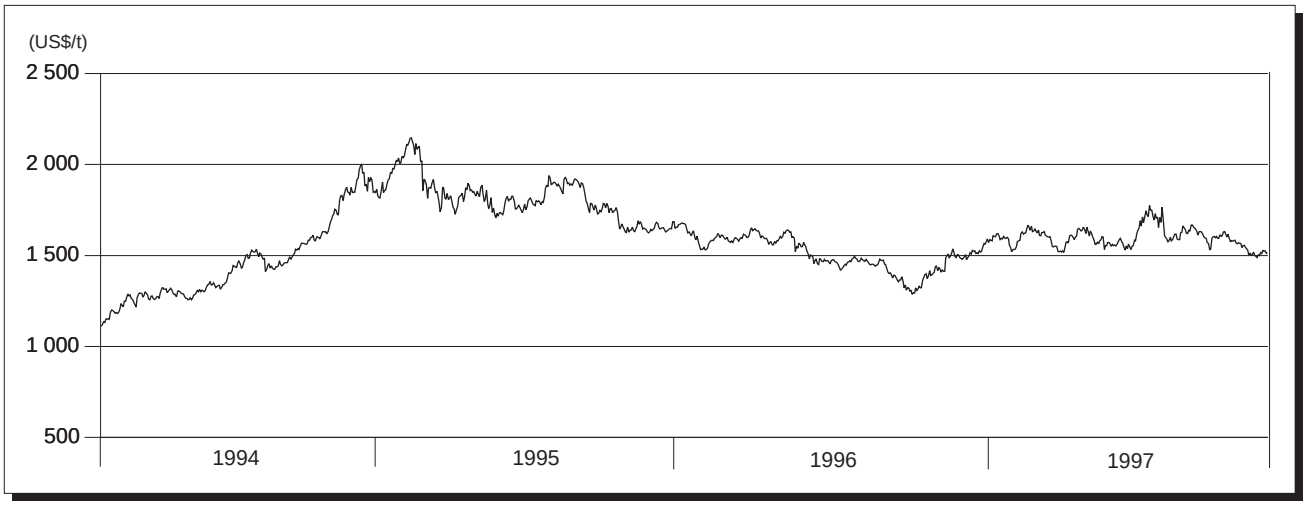
PRICES AND STOCKS

Cash settlement LME prices started the year low at US$1508/t (US68¢/lb), rising to a peak of $1776/t in August, only to fall back in the third quarter to end the year at around $1500/t, for an average of $1599.74/t (73¢/lb). The mid-year rise in prices was largely attributed to speculative buying by fund managers; however, the underlying strength in the fundamentals also contributed to the rise. The turmoil in Southeast Asian currency markets put a damper on business confidence worldwide in the last quarter of the year. Despite the downturn in Southeast Asian economies, which only account for about 3% of world consumption, world demand for aluminum remained strong in its major markets.

The International Primary Aluminium Institute reported that Western World primary aluminum inventories decreased to 1.636 Mt at the end of December 1997, compared to 1.691 Mt in December 1996. Total stocks, including all forms of aluminum scrap, primary and secondary ingot, and metal in process, totalled 3.163 Mt at the end of 1997, compared with 3.138 Mt at the end of 1996. Primary stocks on the LME followed a steady decline from about 955 000 t at the start of the year to a minimum of 620 000 t in August before rising again to peak at 744 000 t in mid-October. The stocks then resumed their steady decline in November and December to end the year at just over 622 000 t.

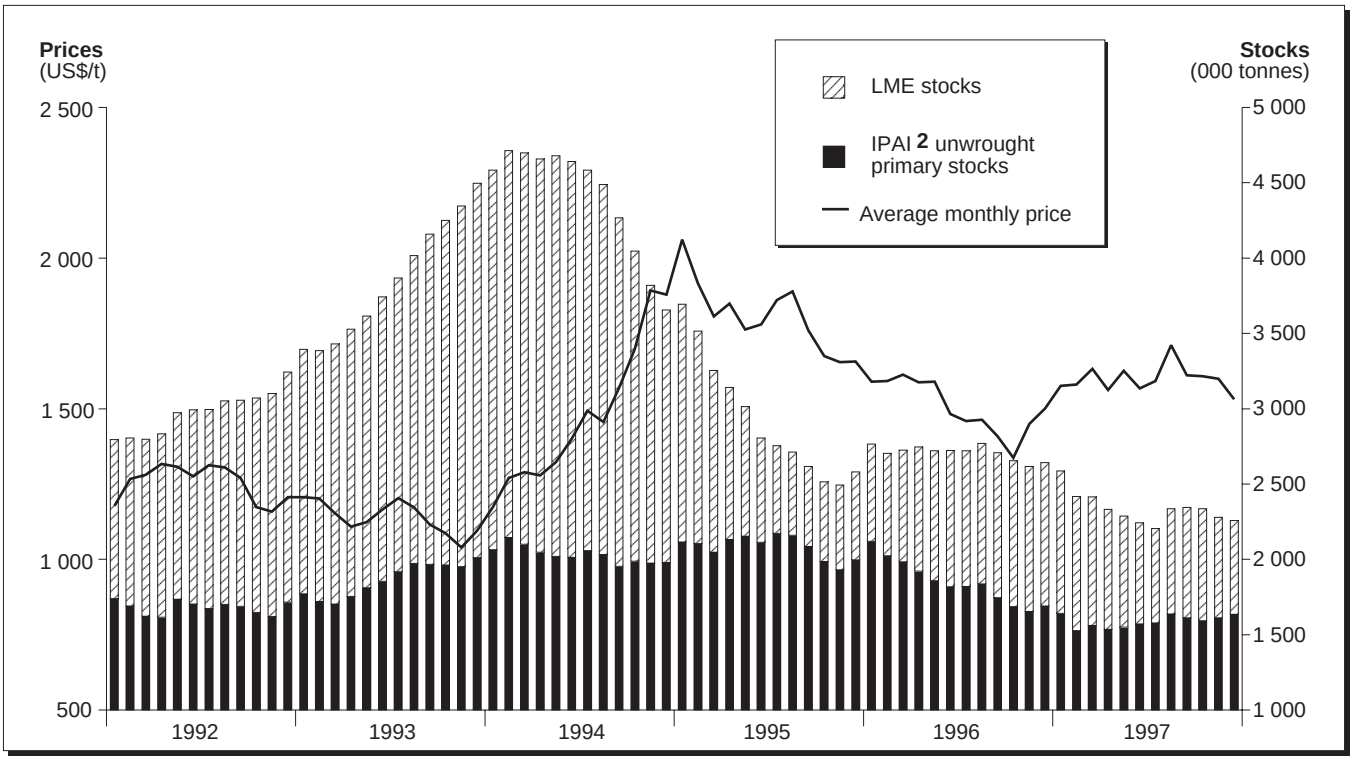
Prices on the LME for aluminum alloy traded relatively flat in 1997. Aluminum alloy settlement prices started trading at US$1385/t (US62.8¢/lb), rising to a high of $1545/t in January, and then traded in the

Figure 3
London Metal Exchange Aluminum Prices, 1994-97
Daily Official Settlement Prices



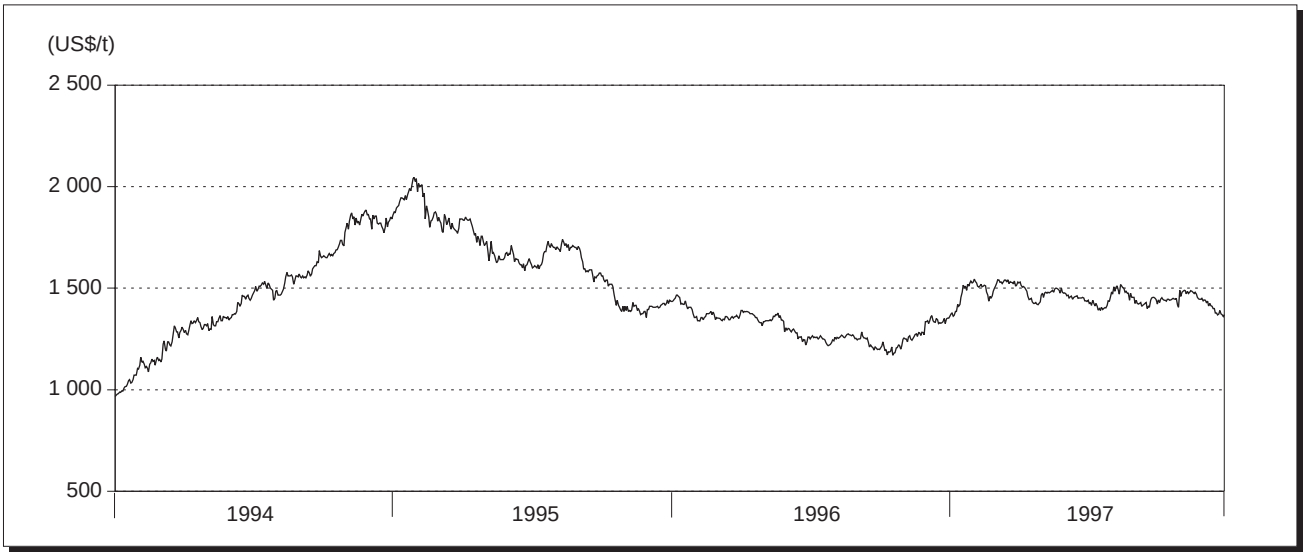
Source: Natural Resources Canada.

Figure 4
Aluminum Prices and Stocks, 1992-97
LME[1] Settlement Prices and Primary Stocks



Source: Natural Resources Canada.
[1] London Metal Exchange. [2] International Primary Aluminium Institute.

Figure 5
London Metal Exchange Aluminum Alloy Prices, 1994-97
Daily Settlement Prices



Source: Natural Resources Canada.

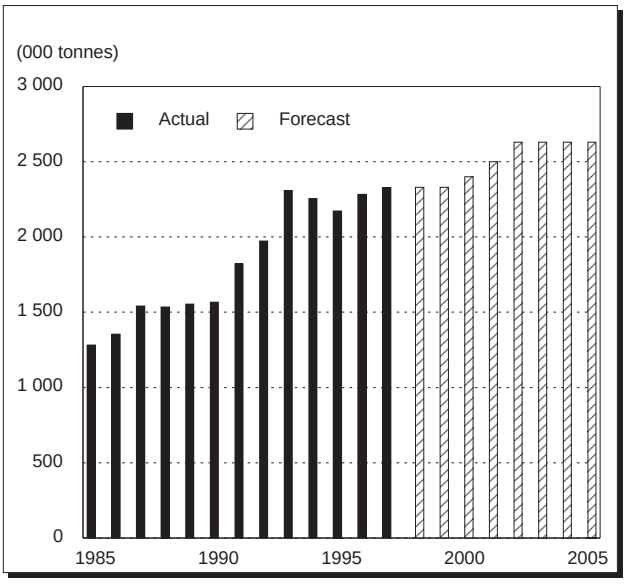
$1450-$1500/t range for most of the year until following the same downward trend as other metals on the LME to end the year weaker at $1380/t (62.6¢/lb). For 1997, alloy prices averaged $1463.35/t (66.4¢/lb), compared to an average of $1302.84/t (59.1¢/lb) in 1996. LME aluminum alloy stocks started the year at 74 480 t and declined steadily throughout to end the year at 42 640 t.

Trading in metallurgical-grade alumina markets was described as thin for most of the year, with prices quoted at about US$230/t (f.o.b.) for Australian alumina and between US$200 and $210/t for Caribbean material. Spot prices for alumina are expected to be somewhat lower in 1998 as the current tightness in the market eases with the re-introduction of idled capacity.

OUTLOOK

Canada is forecast to produce about 2.315 Mt of primary aluminum in 1998. Canada produced 2.327 Mt in 1997 valued at an estimated $5.1 billion, ranking it third after the United States and Russia. Canadian aluminum production capacity increased substantially during the latter half of the 1980s; however, Canadian production capacity is forecast to increase at a slower rate to the year 2005. Apart from the proposed projects by Alcan at Alma and Kitimat, a number of other smelter expansion projects in Quebec (at Alouette, A.B.I. and Lauralco) are dependent on new power supply contracts to be negotiated with Hydro-Québec. World aluminum production is expected to increase to 21.7 Mt in 1997 from

Figure 6
Canadian Primary Aluminum Production, 1985-2005



Source: Natural Resources Canada.

20.8 Mt in 1996. Western World production will increase to 16.3 Mt from 15.6 Mt in 1996. Aluminum production in 1997 is expected to reach 3.8 Mt in the United States, 3.4 Mt in Western Europe, and 2.7 Mt in Russia. The increases in Western World capacity that are expected in 1998 will come primarily from smelter expansions in Australia, Norway and Iceland,

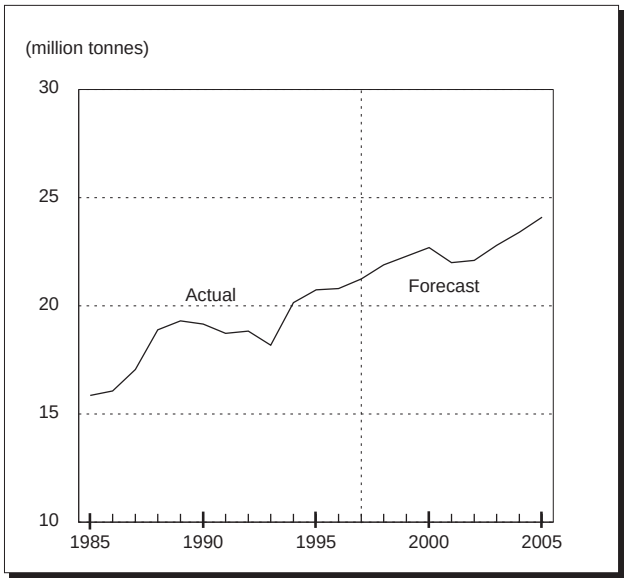
and from new smelter projects in Nigeria, Iceland and Iran.

Total world consumption of primary aluminum is expected to reach an estimated 21.7 Mt in 1997, about 4% higher than the 20.8 Mt recorded in 1996. Western World demand is also expected to have increased by about 4% to 18.6 Mt in 1997. In 1998, demand for primary aluminum is expected to be 2.4% higher in the United States, 2.5% higher in Europe, and 2.0% higher in Japan. Total world demand for aluminum is expected to increase between 2 and 3% to 22.2 Mt in 1998. Strong annual growth of about 3% is forecast for the remainder of the decade. The transportation and packaging markets are expected to lead the increase in demand for aluminum to the year 2005. Canadian consumption of aluminum in 1997 is expected to remain strong at about 600 000 t.

For 1998, prices are forecast to average between US$1650 and $1750/t. In the longer term, prices are expected to average between $1650 and $1850/t (75¢ and 85¢/lb) in constant 1996 dollars.

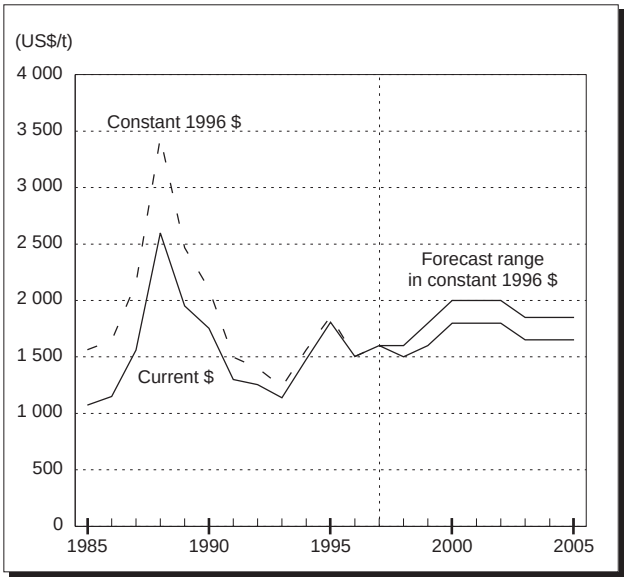
Note: Information in this review was current as of February 13, 1998.

Figure 7
World Aluminum Consumption, 1985-2005



Source: Natural Resources Canada.

Figure 8
Aluminum Prices, 1985-2005
Annual London Metal Exchange Settlement Prices



Source: Natural Resources Canada.

TARIFFS

Item No.	Description	Canada			United States	EU	Japan[1]
		MFN	GPT	USA	Canada	MFN	WTO
2606.00.00	Aluminum ores and concentrates	Free	Free	Free	Free	Free	Free
2818.20.00	Aluminum oxide, other than artificial corundum	Free	Free	Free	Free	4.7%	Free
7601.10	Unwrought aluminum, not alloyed	Free	Free	Free	Free	6%	0.4%
7601.20	Unwrought aluminum alloys	Free	Free	Free	Free	6%	0.4%
7602.00	Aluminum waste and scrap	Free	Free	Free	Free	Free-1.3%	Free
76.03	Aluminum powders and flakes	3.5-5%	Free	Free	Free	5.1-5.5%	4.1%
76.04	Aluminum bars, rods and profiles	Free-5%	Free	Free	Free	8.5%	9.1-9.6%
76.05	Aluminum wire	Free-4%	Free	Free	Free	8.5%	9.1-9.6%
76.06	Aluminum plates, sheets and strip, of a thickness exceeding 0.2 mm	Free-6.5%	Free-5%	Free	Free	8.5%	Free-2.4%
76.07	Aluminum foil not exceeding 0.2 mm	Free-6.5%	Free-5%	Free	Free	8.5-10%	9.6%
76.08	Aluminum tubes and pipes	Free-5%	Free	Free	Free	Free-8.5%	9.6%
7609.00	Aluminum tube or pipe fittings	5.5%	3%	Free	Free	7%	4.1%
76.10	Aluminum structures (excluding prefabricated buildings of heading no. 94.06) and parts of structures, aluminum plates, rods, profiles, tubes and the like, prepared for use in structures	6.5%	5%	Free	Free	6.4-7%	2-3.8%
7611.00	Aluminum reservoirs, tanks, vats and similar containers, for any material	Free-6.5%	Free-5%	Free	Free	6.4%	4.1%
76.12	Aluminum casks, drums, cans, boxes and similar containers, for any material	6.5%	2.5-5%	Free	Free	6.4%	4.1%
7613.00	Aluminum containers for compressed or liquefied gas	6.5%	5%	Free	Free	6.4%	4.1%
76.14	Stranded wire, cables, plaited bands and the like, of aluminum, not electrically insulated	4.5%	3%	Free	Free	6.4%	5%
76.15	Table, kitchen or other household articles and parts thereof, of aluminum	6.5%	Free-5%	Free	Free	6.4%	2%
76.16	Other articles of aluminum	Free-6.5%	Free-5%	Free	Free	6.4%	3.8%

Sources: Customs Tariff, effective January 1998, Revenue Canada; Harmonized Tariff Schedule of the United States, 1998; Worldtariff Guidebook on Customs Tariff Schedules of Import Duties of the European Union (37th Annual Edition: 1997); Custom Tariff Schedules of Japan, 1997.

[1] WTO rate is shown; lower tariff rates may apply circumstantially.

TABLE 1. CANADA, ALUMINUM PRODUCTION AND TRADE, 1996 AND 1997

Item No.		1996		1997p	
		(tonnes)	($000)	(tonnes)	($000)
PRODUCTION		2 283 212	. .	2 327 188	. .
IMPORTS					
2606.00	Aluminum ores and concentrates				
	Brazil	1 385 148	51 062	1 374 412	48 091
	Guinea	609 700	24 391	734 472	25 261
	Australia	181 160	9 355	641 062	19 024
	Guyana	265 506	9 790	217 638	7 092
	United States	82 338	8 648	62 325	5 249
	China	34 491	2 696	49 690	4 135
	Other countries	15 863	991	55 349	1 610
	Total	2 574 206	106 933	3 134 948	110 462
2620.40	Ash and residues containing mainly aluminum	3 305	1 951	1 727	1 339
2818.20	Aluminum oxide (excluding artificial corundum)				
	Australia	1 716 573	464 223	1 507 469	368 969
	United States	878 144r	238 210r	864 837	281 654
	Jamaica	829 389	201 454	768 695	220 168
	Japan	30 952	8 736	35 346	10 148
	Switzerland	1	3	13 120	3 901
	Ireland	10 431	2 840	12 379	3 494
	Other countries	107 084	36 465	10 072	8 052
	Total	3 572 574r	951 931r	3 211 918	896 386
2818.30	Aluminum hydroxide	14 321	7 165	14 855	8 173
7601.10	Unwrought aluminum, not alloyed				
7601.10.10	Billets, blocks, ingots, notched bars, pigs, slabs and wire bars				
	United States	21 869	55 696	17 356	46 599
	Russia	75	160	387	761
	Other countries	19	68	569	977
	Total	21 963	55 924	18 312	48 337
7601.10.91	Aluminum granules, unwrought, not alloyed, cut from ingots, for use in the manufacture of cleaning compounds				
	United States	–	–	. . .	. . .
	Total	–	–	. . .	. . .
7601.10.99	Other	1 602	4 133	2 770	6 668
7601.20	Unwrought aluminum, alloyed				
7601.20.10	Billets, blocks, ingots, notched bars, pigs, slabs and wire bars				
	United States	95 622r	163 769r	130 591	252 128
	Russia	4 957r	7 624r	4 601	8 995
	Netherlands	138	540	2 134	4 853
	United Kingdom	428	1 773	789	1 982
	Other countries	60	249	691	1 773
	Total	101 205r	173 955r	138 806	269 731
7601.20.91	Granules, cut from ingots, for use in the manufacture of cleaning compounds	1	3	7	22
7601.20.99	Other	15 484	31 280	15 723	36 018
7602.00	Aluminum waste and scrap	67 624r	90 584r	90 599	136 692
76.03	Aluminum powders and flakes	1 773	7 002	2 063	8 100
76.04	Aluminum bars, rods and profiles				
7604.10	Of aluminum, not alloyed				
	United States	5 099	20 980	7 726	29 864
	Belgium	546	2 849	566	3 054
	Australia	10	40	487	1 127
	Other countries	120	781	231	1 602
	Total	5 775	24 650	9 010	35 647

TABLE 1 (cont'd)

Item No.		1996		1997p	
		(tonnes)	($000)	(tonnes)	($000)
IMPORTS (cont'd)					
7604.21 to 7604.29	Of aluminum alloys				
	United States	21 112r	115 621r	23 852	126 115
	Sweden	25	309	448	4 118
	Germany	112	830	160	1 144
	France	145	974	212	1 120
	Other countries	748	4 951	703	4 066
	Total	22 142r	122 685r	25 375	136 563
76.05	Aluminum wire	3 463	16 473r	4 560	22 003
76.06	Aluminum plates, sheets and strip, of a thickness exceeding 0.2 mm	342 657r	1 152 252r	374 175	1 307 603
76.07	Aluminum foil not exceeding 0.2 mm	31 424r	141 095r	41 057	176 497
76.08	Aluminum tubes and pipes	6 875r	35 760r	8 599	42 064
76.09	Aluminum tube or pipe fittings	. .	22 057r	. .	27 296
		(number 000)		**(number 000)**	
76.10	Aluminum structures (excluding prefabricated buildings of heading no. 94.06) and parts of structures, aluminum plates, rods, profiles, tubes and the like, prepared for use in structures	. .	56 445r	. .	66 401
76.11	Aluminum reservoirs, tanks, vats and similar containers	. . .	521	. . .	1 065
76.12	Aluminum casks, drums, cans, boxes and similar containers	710 553r	90 453r	875 834	134 353
76.13	Aluminum containers for compressed or liquefied gas	393r	12 114r	122	14 377
		(tonnes)		**(tonnes)**	
76.14	Stranded wire, cables, plaited bands and the like, of aluminum, not electrically insulated	280	839	1 909	4 239
76.15	Table, kitchen or other household articles and parts thereof, of aluminum	. .	71 937r	. .	83 271
76.16	Other articles of aluminum	. .	158 090r	. .	201 856
EXPORTS					
2606.00	Aluminum ores and concentrates				
	Switzerland	214	112	184	71
	United States	6 172	1 226	372	53
	Total	6 386	1 338	556	124
2620.40	Ash and residues containing mainly aluminum	10 762	6 972	13 020	8 369
2818.20	Aluminum oxide (excluding artificial corundum)				
	United States	72 588	55 645	59 547	48 025
	Norway	35	38	354	388
	Other countries	386r	511r	1 101	1 365
	Total	73 009r	56 194r	61 002	49 778
7601.10	Unwrought aluminum, not alloyed				
	United States	632 166r	1 383 463r	626 950	1 460 685
	Netherlands	170 221	332 817	165 893	342 711
	Japan	33 938	66 087	34 187	69 414
	Korea, Republic of	30 167	66 964	25 367	61 445
	United Kingdom	14 560	28 599	19 742	36 209
	Other countries	39 639r	76 459r	18 247	42 354
	Total	920 691r	1 954 389r	890 386	2 012 818

TABLE 1 (cont'd)

Item No.		1996		1997p	
		(tonnes)	($000)	(tonnes)	($000)
EXPORTS (cont'd)					
7601.20	Unwrought aluminum alloys				
	United States	694 184r	1 638 868r	783 366	1 974 526
	Japan	123 915	280 163	127 384	285 085
	Korea, Republic of	32 579	76 084	35 540	87 447
	Israel	15 077	37 967	11 394	30 645
	Netherlands	7 527	17 322	9 487	23 047
	Italy	5 900	13 258	6 493	19 338
	United Kingdom	3 959	10 091	4 366	11 942
	Lebanon	5 027	13 070	3 921	10 714
	Ireland	1 035	2 762	3 598	10 595
	Other countries	7 648	19 149	7 850	20 818
	Total	896 7851r	2 108 734r	993 399	2 474 157
7602.00	Aluminum waste and scrap				
	United States	220 146	363 387	242 574	436 426
	Japan	5 690	13 451	9 973	24 029
	Netherlands	775	1 576	5 066	12 064
	Korea, Republic of	2 017	2 539	4 172	8 851
	Other countries	12 848r	20 916r	9 320	12 090
	Total	241 476r	401 869r	271 105	493 460
76.03	Aluminum powders and flakes	1 103	2 294	1 475	3 368
76.04	Aluminum bars, rods and profiles	42 723r	175 912r	63 941	281 559
76.05	Aluminum wire	77 671r	201 939r	82 026	226 974
76.06	Aluminum plates, sheets and strip, of a thickness exceeding 0.2 mm	253 268r	735 033r	261 190	812 111
76.07	Aluminum foil not exceeding 0.2 mm	27 532r	127 472r	30 209	149 853
76.08	Aluminum tubes and pipes	4 604	21 896	5 666	28 725
76.09	Aluminum tube or pipe fittings	. .	12 509r	. .	12 591
76.10	Aluminum structures (excluding prefabricated buildings of heading No. 94.06) and parts of structures, aluminum plates, rods, profiles, tubes and the like, prepared for use in structures	. .	110 263r	. .	135 192
		(number 000)		**(number 000)**	
7611.00	Aluminum reservoirs, tanks, vats and similar containers	6	1 190r	2	1 006
76.12	Aluminum casks, drums, cans, boxes and similar containers	1 255 302r	131 380r	681 255	89 440
7613.00	Aluminum containers for compressed or liquefied gas	1 056r	2 622r	1 523	3 689
		(tonnes)		**(tonnes)**	
76.14	Stranded wire, cables, plaited bands and the like, of aluminum, not electrically insulated	2 713	8 380	8 491	20 709
76.15	Table, kitchen or other household articles and parts thereof, of aluminum	. .	35 595r	. .	56 731
76.16	Other articles of aluminum	. .	102 824r	. .	128 423

Sources: Natural Resources Canada; Statistics Canada.
– Nil; . . Not available or not applicable; . . . Amount too small to be expressed; p Preliminary; r Revised.
Note: Numbers may not add to totals due to rounding.

TABLE 2. CANADA, ALUMINUM SMELTER CAPACITY

Company	As of December 31, 1997
	(tonnes/year)
Alcan Aluminium Limited	
Quebec	
Grande-Baie	180 000
Arvida, Jonquière	232 000
Isle-Maligne, Alma	73 000
Shawinigan	84 000
Beauharnois	48 000
Laterrière	204 000
British Columbia	
Kitimat	272 000
Total Alcan capacity	1 093 000
Canadian Reynolds Metals Company, Limited	
Quebec	
Baie-Comeau	400 000
Aluminerie de Bécancour Inc.	
Quebec	
Bécancour	372 000
Aluminerie Alouette Inc.	
Quebec	
Sept-Îles	230 000
Aluminerie Lauralco Inc.	
Quebec	
Deschambault	225 000
Total Canadian capacity	2 320 000

Source: Natural Resources Canada.

TABLE 3. CANADA, CONSUMPTION[1] OF ALUMINUM METAL[4] AT FIRST PROCESSING STAGE, 1994-96

	1994[a]	1995[a]	1996
		(tonnes)	
CASTINGS			
Permanent mould	83 589[r]	80 943[r]	86 777[r]
Sand	2 533	2 663	2 732[r]
Die and other	95 217[r]	100 671[r]	120 793[r]
Total	180 339[r]	184 277[r]	210 301[r]
WROUGHT PRODUCTS			
Sheet, plate, coil and foil	169 847	164 221	191 754
Extrusions, including tubing	117 396	110 084	111 363[r]
Other wrought products (including rods, forgings and slugs)	125 489	138 836	139 245
Total	412 732	413 141	442 362[r]
OTHER USES			
Destructive uses (deoxidizer), non-aluminum base alloys, powder and paste and other uses	41 953	37 984	34 306[r]
Total consumed	635 024[r]	635 402[r]	686 969[r]
Aluminum metal used for the production of secondary aluminum ingot[2]	145 661	146 987	138 762[r]

	Metal Entering Plant			On Hand December 31		
	1994	1995	1996	1994	1995	1996
Primary aluminum ingot and alloys	525 733	526 205	560 233[r]	18 255	16 986	16 452[r]
Secondary aluminum	117 685	113 607	120 470[r]	5 930	4 351	5 176[r]
Scrap originating outside plant	164 667[r]	162 275[r]	146 198[r]	9 022[r]	5 763[r]	3 958[r]
Total	808 085[r]	802 087[r]	826 901[r]	33 207[r]	27 101[r]	25 586[r]
Aluminum shipments[3]				23 324	25 804	2 829

Source: Natural Resources Canada.
[r] Revised.
[a] Increase in number of companies being surveyed; therefore, closing inventory of previous year does not equal opening inventory of current year.
[1] Available data as reported by consumers. [2] Aluminum metal used in the production of secondary aluminum is not included in consumption totals. [3] Aluminum metal shipped without change. Does not refer to shipments of goods of own manufacture. [4] Aluminum metal refers to primary aluminum ingot and alloys, purchased secondary aluminum ingot, and outside aluminum scrap.
Note: Numbers may not add to totals due to rounding.

TABLE 4. AVERAGE ALUMINUM PRICES

Year	Month	LME Cash[1]	*Metals Week* U.S. Markets[1]
		(US$/t)	(US¢/lb)
ANNUAL AVERAGES[2]			
1987		1 560.9	72.3
1988		2 597.8	110.1
1989		1 951.5	87.8
1990		1 751.8	75.0
1991		1 302.7	59.5
1992		1 254.6	57.5
1993		1 139.4	53.3
1994		1 477.2	71.2
1995		1 806.1	85.9
1996		1 506.0	71.3
1997		1 599.7	77.1
MONTHLY AVERAGES			
1996	January	1 589.80	75.1
	February	1 592.00	74.6
	March	1 612.90	75.8
	April	1 587.60	75.0
	May	1 589.69	74.8
	June	1 482.88	69.9
	July	1 459.11	69.1
	August	1 463.74	69.4
	September	1 407.70	66.9
	October	1 336.70	64.4
	November	1 449.90	69.0
	December	1 500.63	72.3
1997	January	1 576.05	76.1
	February	1 580.43	76.4
	March	1 623.71	79.6
	April	1 561.77	75.6
	May	1 625.65	78.7
	June	1 567.90	75.5
	July	1 592.37	76.3
	August	1 711.18	80.1
	September	1 611.00	77.0
	October	1 608.30	76.7
	November	1 599.38	78.1
	December	1 530.93	74.8

Sources: Natural Resources Canada; *Metals Week*.
1 Highest grade sold. **2** Primary ingots, minimum 99.7% purity; prior to October 1988, minimum 99.5% purity.

TABLE 5. AVERAGE ALUMINUM ALLOY (SECONDARY) PRICES

Year	Month	LME Alloy[1] Cash
		(US$/t)
ANNUAL AVERAGES		
1993		1 005.2
1994		1 452.9
1995		1 656.0
1996		1 302.8
1997		1 461.0
MONTHLY AVERAGES		
1996	January	1 394.57
	February	1 356.79
	March	1 363.98
	April	1 345.50
	May	1 326.90
	June	1 253.63
	July	1 244.40
	August	1 258.33
	September	1 222.50
	October	1 210.63
	November	1 294.43
	December	1 346.59
1997	January	1 491.25
	February	1 497.20
	March	1 523.09
	April	1 454.20
	May	1 481.68
	June	1 447.43
	July	1 425.34
	August	1 475.94
	September	1 426.64
	October	1 442.59
	November	1 470.28
	December	1 396.40

Source: *Metals Week.*
[1] Alloy ingots meeting LME specifications.

TABLE 6. WORLD MINE PRODUCTION OF BAUXITE, 1993-96

	1993	1994	1995	1996p
	(000 tonnes)			
Australia	41 320.0	41 646.0	42 655.0	43 063.0
Brazil	9 668.6	8 673.3	10 214.1	10 997.5
China	6 468.2	6 621.3	8 255.5	10 000.0
France	151.0	128.0	131.0	165.0
Ghana	423.7	426.1	513.0	473.2
Greece	2 205.5	2 196.4	2 200.2	2 230.0
Guinea	17 040.0	14 833.4	17 733.3	18 392.6
Guyana	2 124.6	1 911.1	2 028.1	2 260.0
Hungary	1 561.3	835.7	1 014.6	1 043.6
India	5 276.8	4 809.1	5 240.0	5 757.5
Indonesia	1 320.4	1 342.2	899.0	842.0
Irane	100.0	100.0	100.0	100.0
Italy	90.1	23.4	11.2	–
Jamaica	11 306.6	11 563.5	10 857.5	11 828.6
Kazakstan	2 911.0	2 584.0	3 318.5	3 346.0
Malaysia	68.8	161.9	184.4	218.7
Mozambique	6.0	9.6	11.2	10.0
Pakistan	4.8	4.6	3.1	4.1
Romania	186.6	184.1	175.0	175.2
Russia	4 364.0	3 633.0	3 706.0	3 928.0
Serbia and Montenegro	251.7	1.3	60.0	323.0
Sierra Leone	1 122.0	699.3	–	–
Surinam	3 156.1	3 803.1	3 578.7	3 695.5
Turkey	538.4	445.0	232.3	200.0
United States	55.0	100.0	100.0	100.0
Venezuela	2 530.3	4 419.2	5 022.0	5 600.0
Total world	114 251.5	111 154.8	118 243.7	124 753.5

Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.
– Nil; e Estimated; p Preliminary.

TABLE 7. WORLD PRODUCTION OF ALUMINA (HYDRATE), 1993-96

	1993	1994	1995	1996p
	(000 tonnes)			
Australia	12 598.0	12 792.0	13 147.0	13 349.0
Azerbaijan	106.0	70.0	27.0	–
Bosnia	–	–	25.0	25.0
Brazil	1 853.2	1 867.5	2 142.9	2 759.0
Canada[1]	1 182.0	1 170.0	1 064.0	1 060.0
China	1 894.5	1 846.9	2 222.7	2 490.0
France	476.0	438.2	525.0	542.0
Germany[1]	1 110.0	950.7	994.0	700.0
Greece	648.5	607.5	629.7	619.8
Guinea	642.3	648.4	630.4	622.0
Hungary	447.3	243.4	353.5	358.7
India	1 489.5	1 455.8	1 672.0	1 706.0
Ireland	1 103.3	1 140.0	1 186.0	1 234.0
Italy	840.1	852.1	857.0	881.0
Jamaica	2 989.4	3 221.2	3 030.2	3 199.5
Japan	704.1	674.6	743.2	718.9
Kazakstan	1 091.0	822.0	1 022.0	1 080.0
Romania[1]	293.2	301.6	322.8	258.5
Russia	2 568.0	2 168.4	2 254.0	2 142.0
Serbia and Montenegro	70.0	60.9	35.3	104.0
Slovak Republic	90.2	90.0	65.0	65.0
Spain	1 060.0	1 070.6	1 094.8	1 101.0
Surinam	1 506.6	1 498.1	1 588.8	1 600.0
Turkey	169.2	155.3	172.0	159.3
Ukraine	1 236.0	1 081.0	1 198.0	1 161.0
United Kingdom	120.0	110.0	108.0	100.0
United States[1]	5 290.0	4 860.0	4 533.0	4 700.0
Venezuela	1 562.9	1 551.5	1 742.0	1 775.0
Total world	43 141.3	41 747.2	43 385.3	44 510.7

Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.
– Nil; p Preliminary.
1 Calcined.

TABLE 8. WORLD PRODUCTION OF ALUMINUM, 1994-97

	1994	1995	1996p	1997e
	(000 tonnes)			
Argentina	175.0	185.5	185.9	185.0
Australia	1 310.8	1 292.6	1 370.3	1 490.0
Azerbaijan	10.0	11.0	–	–
Bahrain	451.9	453.9	464.5	490.0
Brazil	1 184.6	1 188.1	1 197.4	1 189.0
Canada	2 254.7	2 172.0	2 283.2	2 327.0
Cameroon	81.1	79.3	82.3	91.0
China	1 462.2	1 676.1	1 776.1	2 045.0
Dubai	246.9	248.1	260.0	380.0
Egypt	181.5	180.3	176.7	178.0
France	384.1	364.5	380.1	399.0
Germany	505.0	575.2	576.4	572.0
Ghana	140.7	135.4	137.0	151.0
Greece	138.0	130.9	130.9	132.0
Hungary	30.7	34.9	33.5	23.0
Iceland	98.6	100.2	103.4	123.0
India	472.0	536.5	530.6	540.0
Indonesia	221.9	228.1	221.2	216.0
Iran	116.0	117.0	80.1	92.0
Italy	175.6	177.8	184.4	187.0
Japan	17.0	18.0	17.0	17.0
Mexico	–	10.4	61.5	76.0
Netherlands	219.4	215.6	227.0	231.0
New Zealand	268.0	273.3	284.5	310.0
Norway	858.2	846.7	862.3	918.0
Poland	49.5	55.7	52.1	52.0
Romania	119.6	140.5	140.9	165.0
Russia	2 670.5	2 790.0	2 874.2	2 900.0
Serbia and Montenegro	10.6	26.0	51.0	80.0
Slovak Republic	33.0	59.0	110.0	110.0
Slovenia	74.3	70.2	65.8	74.0
South Africa	172.7	233.3	617.0	676.0
Spain	338.1	361.9	361.8	360.0
Surinam	26.7	28.1	28.0	24.0
Sweden	83.9	94.5	98.3	98.0
Switzerland	24.2	20.7	26.6	27.0
Tadjikistan	236.5	237.0	198.3	190.0
Turkey	59.7	61.5	62.1	62.0
Ukraine	102.0	95.1	90.7	100.0
United Kingdom	231.2	237.9	240.0	247.0
United States	3 298.5	3 375.1	3 577.2	3 603.0
Venezuela	585.4	627.9	634.9	640.0
Total world	19 120.3	19 765.8	20 855.2	21 770.0

Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.
– Nil; e Estimated; p Preliminary.

TABLE 9. WORLD CONSUMPTION OF ALUMINUM, 1994-97

	1994	1995	1996p	1997e
	(000 tonnes)			
Albaniae	1.0	1.0	1.0	1.0
Algeria	5.0	5.0	5.0	5.0
Argentina	108.2	84.0	86.4	87.0
Australia	352.8	351.8	324.4	330.0
Austria	145.0	150.0	155.0	145.0
Bahrain	132.9	135.0	137.0	137.0
Bangladeshe	10.0	10.0	10.0	10.0
Belgium/Luxembourg	328.7	340.0	320.0	328.0
Brazil	414.1	499.8	497.0	500.0
Bulgaria	6.5	6.0	5.0	5.0
Canada	565.1	611.9	620.1	630.0
Cameroon	16.9	21.0	18.0	18.0
Chilee	14.3	15.0	13.9	14.0
Chinae	1 484.1	1 874.9	2 033.1	2 100.0
Colombia	35.3	33.3	35.0	35.0
Cuba	1.0	1.0	1.0	1.0
Czech Republic	43.0	58.9	53.0	53.0
Denmark	26.0	27.6	28.5	29.0
Egypt	80.4	77.4	79.2	80.0
Finland	19.0	31.0	31.3	32.0
France	747.5	750.0	693.0	700.0
Germany	1 420.0	1 510.0	1 400.0	1 500.0
Ghana	15.8	16.1	16.1	16.0
Greece	143.0	162.8	165.0	165.0
Hong Kong	41.6	116.6	149.4	200.0
Hungary	143.1	120.6	155.8	157.0
India	474.0	581.0	550.0	575.0
Indonesiae	179.1	147.7	155.0	150.0
Irane	116.0	120.0	120.0	120.0
Iraqe	1.0	1.0	1.0	1.0
Ireland	8.0	3.3	3.8	4.0
Israel	41.3	43.1	45.0	45.0
Italy	660.0	631.0	585.1	600.0
Japan	2 344.8	2 336.4	2 392.6	2 500.0
Korea, D.P.R.e	20.0	20.0	20.0	20.0
Korea, Republic of	603.9	675.3	674.3	625.0
Lebanon	7.0	7.0	10.0	10.0
Malaysia	66.3	114.0	150.0	120.0
Mexico	78.8	43.8	94.7	95.0
Netherlands	145.0	150.0	145.0	145.0
New Zealand	40.0	38.6	39.0	40.0
Nigeria	7.0	7.0	7.0	7.0
Norway	212.0	157.0	159.4	160.0
Pakistan	10.0	13.0	15.0	15.0
Perue	3.0	4.5	5.0	5.0
Philippines	25.0	30.0	30.0	30.0
Poland	67.0	88.3	90.4	90.0
Portugal	64.2	66.7	58.1	60.0
Romania	20.1	34.3	35.6	35.0
Russia	550.0	476.0	443.6	445.0
Saudi Arabia	25.0	30.0	30.0	30.0
Serbia and Montenegro	9.0	9.0	17.3	17.0
Singapore	30.3	39.2	30.0	35.0
Slovak Republic	25.0	25.0	25.0	25.0
Slovenia	54.2	56.9	47.5	50.0
South Africa	123.0	119.7	101.6	120.0
Spain	352.0	350.0	360.0	370.0
Sweden	131.0	116.0	117.8	135.0
Switzerland	155.1	143.3	140.2	155.0
Taiwan	355.2	362.5	310.3	350.0
Thailand	183.4	253.5	220.2	225.0

TABLE 9 (cont'd)

	1994	1995	1996p	1997e
		(000 tonnes)		
Turkey	115.2	144.0	136.0	140.0
United Arab Emirates	19.3	24.6	30.0	30.0
United Kingdom	570.0	620.0	600.0	650.0
United States	5 657.1	5 300.0	5 400.0	5 460.0
Venezuela	152.1	183.0	206.9	195.0
Vietnam[e]	5.5	13.9	15.0	15.0
Other	66.8	59.7	66.9	65.0
Total world	20 142.5	20 734.2	20 797.8	21 242.0

Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.
e Estimated; **p** Preliminary.

TABLE 10. WESTERN WORLD PRODUCTION OF SECONDARY ALUMINUM,[1] 1993-96

	1993	1994	1995p	1996e
		(000 tonnes)		
Argentina	14.4	14.4	14.4	14.0
Australia	34.8	55.0	55.0	55.0
Austria	43.3	52.5	46.8	47.0
Brazil	76.8	91.0	116.7	117.0
Canada	90.0	95.0	97.0	100.0
Croatia	26.0	26.0	30.9	33.0
Denmark	14.0	14.0	14.0	14.0
Finland	29.9	31.0	31.0	31.0
France	222.4	253.4	222.0	225.0
Germany	408.1	438.1	418.8	415.0
Iran	15.1	26.0	26.0	26.0
Italy	346.1	375.5	412.3	428.0
Japan	1 005.6	1 173.5	1 180.5	1 192.0
Mexico	69.9	125.3	128.6	129.0
Netherlands	139.1	150.0	150.2	150.0
New Zealand	7.3	8.2	8.2	9.0
Norway	55.8	49.2	71.9	60.0
Portugal	2.0	3.0	3.0	3.0
Spain	99.7	103.5	107.0	107.0
Sweden	19.0	20.0	19.0	20.0
Switzerland	4.2	6.2	10.7	11.0
Taiwan	64.0	64.0	67.0	67.0
United Kingdom	279.0	248.9	282.0	285.0
United States	2 994.9	2 958.8	3 188.0	3 200.0
Venezuela	34.8	31.9	27.5	28.0
Other	28.0	28.0	28.0	28.0
Total world	6 124.2	6 442.4	6 756.5	6 794.0

Sources: Natural Resources Canada; World Bureau of Metal Statistics.
e Estimated; **p** Preliminary.
1 Excluding the direct use of aluminum in the form of scrap.