ALUMINUM

By Patricia A. Plunkert

Domestic primary aluminum production decreased significantly in 1994 to its lowest level in 7 years. Thirteen companies operated 22 primary aluminum reduction plants and 1 plant remained temporarily closed. Montana, Oregon, and Washington accounted for 36% of the production; Kentucky, North Carolina, South Carolina, and Tennessee, 20%; and other States, 44%. The value of primary metal produced domestically in 1994 was estimated at $5.2 billion. In response to continued rising inventories and depressed prices during the first half of the year, the domestic primary aluminum smelters continued to announce temporary shutdowns in production capacity.

Aluminum recovered from purchased scrap, however, increased 5% to approximately 3.1 million metric tons. Fifty- one percent of this recovered metal came from new (manufacturing) scrap and 49% from old scrap (discarded aluminum products). The recycling rate for aluminum used beverage can (UBC) scrap increased to 65.4%.

Aluminum consumption, by an estimated 25,000 firms, was centered in the East Central United States. In quantity, transportation edged out the packaging and container industry as the dominant domestic market for aluminum products in 1994. Transportation and packaging each accounted for an estimated 28% of domestic consumption; building, 17%; electrical and consumer durables, 8% each; and other uses, 11%.

U.S. imports for consumption continued to increase dramatically in 1994. The level of imported ingot from the former U.S.S.R. continued to increase. Total exports also increased in 1994, reversing a 2-year downward trend.

The price of primary aluminum ingot trended upward during the year on the domestic and world markets. Prices in the aluminum scrap markets paralleled the general trend of primary ingot prices.

World inventory levels at the end of the year were mixed. By yearend, inventories on the London Metal Exchange (LME) had decreased by nearly one-third to approximately 1.7 million tons; whereas inventories held by producers, as reported by the International Primary Aluminium Institute (IPAI), showed a slight increase.

Primary aluminum was produced in 43 countries in 1994. The United States was the largest producer with 17% of the world total, followed by Russia with 14%, and Canada with 12%. World metal production decreased 3% compared with that of the previous year. Many of the announced production reductions took effect during the year.

In January, discussions begun in late 1993 among several major aluminum-producing countries culminated in the signing of a Memorandum of Understanding Concerning the Aluminum Market. (See Legislation and Government Programs.)

Legislation and Government Programs

Representatives of the authorities of Australia, Canada, the European Union, Norway, the Russian Federation, and the United States met in Brussels in January 1994. Following governmental consultations, these representatives, on January 28, 1994, subscribed to a Memorandum of Understanding (MOU), which recognized that the world aluminum industry was facing a grave, exceptional, and unforeseeable situation involving a considerable excess global supply of primary aluminum. In their assessment, these structural problems were due to an unanticipated combination of political and economic developments, which was unlikely to reoccur. They considered that the principal response to this situation should be by way of worldwide market oriented commercial decisions by companies on an individual basis. In the agreement, the Russian Federation agreed to reduce production of primary aluminum by 500,000 tons per year (to be composed of a first stage decrease of 300,000 tons per year within 3 months of February 1, 1994, and 200,000 tons per year within the following 3 months).

The participants also considered that unilateral trade actions were not the preferred response to the aluminum market problems and that any such actions would be inconsistent with this MOU. The participants considered that the aluminum industry should operate on the basis of fair competition and high environmental standards. With a view to furthering restructuring of the Russian aluminum industry, participants considered that all means should be examined in order to provide technical and other assistance to the Russian Federation to facilitate modernization, the improvement of environmental standards, and the development of internal aluminum consumption. The participants considered that this MOU would apply for 24 months at the maximum.

In a follow-up meeting in Canada in March, the participants to the MOU decided to establish a Working Group of Experts (the Group) to be composed of members representing those governments and authorities to the MOU. The Group's purpose was to provide a forum for the collection, exchange, and review of publicly available and nationally aggregated information, in order to improve the transparency of the aluminum market. In July, at a MOU meeting in Canberra, Australia, the Group released the first set of data from the members on production and trade. These data have continued to be released to the public on a monthly basis.[1]

Production

Primary.—Domestic primary aluminum production, totaling 3,298,504 tons, decreased 11% compared with 1993 production. Production data were obtained by surveying the 13 domestic producers, all of whom responded to the U.S. Bureau of Mines survey.

During the year, several companies announced temporary reductions in primary aluminum metal production capacity. By the end of the year, domestic capacity had been reduced by a total of 1,012,000 tons, 24% of engineered capacity levels.

Ravenswood Aluminum Corp. announced that Marc Rich & Co. AG had acquired full ownership of the West Virginia aluminum smelting and rolling complex.[2] Later in the year, Marc Rich & Co. announced that it was changing its name to Glencore International AG.[3] *(See tables 1 and 2.)*

Secondary.—Metal recovered from both new and old scrap reached an historic high of approximately 3.1 million tons in 1994, according to data derived by the U.S. Bureau of Mines from its "Aluminum Scrap" survey. Of the 95 companies and/or plants to which monthly or annual survey requests were sent, 79 responded, representing 90% of the total scrap consumed shown in table 4.

According to figures released by the

Aluminum Association Inc., the Can Manufacturers Institute, and the Institute of Scrap Recycling Industries Inc., a record 64.7 billion aluminum beverage cans were recycled in the United States during 1994. The recycling rate, based on the number of cans shipped during the year, was 65.4%, more than 2% higher than the 1993 recycling rate of 63.1%. According to the organizations' joint-press release, every aluminum beverage can produced in 1994 had an average of 54.1% post-consumer recycled content, a far higher percentage than any other beverage container. *(See tables 3, 4, and 5.)*

Consumption

The container and packaging industry, which had dominated the U.S. aluminum market since the mid-1970's, was no longer dominant in 1994; the transportation industry became the largest consumer of aluminum products. The use of aluminum by the transportation industry, especially the automotive sector, has been growing over the last several years, and, if announcements of new aluminum applications by the automotive industry are any indication of future trends, the growth should continue into the future. *(See tables 6 and 7.)*

Stocks

Inventories of aluminum ingot, mill products, and scrap at reduction and other processing plants, as reported by the U.S. Department of Commerce, increased from a revised 1.98 million tons at yearend 1993 to 2.07 million tons at yearend 1994.

The LME reported that its U.S. warehouses held a total of about 16,500 tons of primary aluminum metal ingot at yearend 1994, a dramatic decrease from the approximately 168,000 tons of metal reportedly held in these warehouses at yearend 1993. The LME also reported that aluminum alloy ingot held at its U.S. warehouses at yearend 1994 increased to 1,100 tons, a slight increase from the 980 tons of alloy held at yearend 1993.

There were no releases of aluminum metal from the National Defense Stockpile during the year, and the inventory level remained at 57,000 tons.

Prices

The monthly average U.S. market price of primary aluminum metal, as reported by Platt's Metals Week, followed a general upward trend throughout the year. The monthly average price began the year at a low of 56.0 cents per pound and posted a high of 92.05 cents per pound in November. The average price for the year was 71.165 cents per pound, a dramatic increase compared with the 1993 average annual price of 53.326 cents per pound. The LME cash price for high-grade primary aluminum ingot followed the same general trend as the U.S. market price. The 1994 average annual LME cash price was 66.986 cents per pound.

Purchase prices for aluminum scrap, as quoted by American Metal Market (AMM), fluctuated during the year and closed the year at significantly higher levels than those at the beginning of the year. The yearend price ranges for selected types of aluminum scrap were as follows: mixed low-copper-content aluminum clips, 69 to 70 cents per pound; old sheet and cast, 63 to 65 cents per pound; and clean, dry aluminum turnings, 64 to 65 cents per pound. Prices for UBC's also trended upward and closed at approximately twice the level of those at the beginning of the year. Aluminum producers' buying price range for processed and delivered UBC's, as quoted by AMM, began the year at 33 to 37 cents per pound. The price range at the end of the year narrowed and increased to 70 to 72 cents per pound.

The yearend indicator prices, as published by AMM, for selected secondary aluminum ingots also increased compared with those of the previous year and were as follows: alloy 380 (1% zinc content), 98.98 cents per pound; alloy 360 (0.6% copper content), 102.79 cents per pound; alloy 413 (0.6% copper content), 102.51 cents per pound; and alloy 319, 102.30 cents per pound. Metals Week published an annual average U.S. price of 74.71 cents per pound for A-380 alloy (3% zinc content). The average annual LME cash price for a similar aluminum 380 alloy was 65.90 cents per pound.

Foreign Trade

Total exports of aluminum from the United States increased in 1994, reversing a downward trend that began in 1992. Although crude metal and alloys exports decreased compared with those of the previous year, exports of semifabricated materials and scrap showed a marked improvement compared with those of 1993.

Imports for consumption (excluding manufactured products) continued to increase dramatically, to a record high approaching 3.4 million tons. Imports in all three subcategories shown in table 11 increased significantly compared with those of the previous year; however, the most dramatic increase, 35%, occurred in the crude metal and alloys category. Shipments from most countries increased from those of the previous year. Canada remained the major shipping country to the United States; however, shipments of aluminum ingot from Russia, Latvia, Tajikistan, and Ukraine continued to increase dramatically. Combined imports from these countries exceeded 700,000 tons, a 60% increase compared with the ingot imports from these countries in 1993. *(See tables 8, 9, 10, and 11.)*

World Review

World production of primary aluminum metal decreased in 1994. During the year, several companies announced temporary cuts in production capacity totaling approximately 1.2 million tons. Increased world economic activity and a reduction in excess world inventory levels, especially those inventories held by the LME, helped to move the supply/demand situation into a more balanced condition. World metal prices began to rise, reversing the trend of the previous year. Large quantities of Russian metal continued to flow onto the world market. However, the world market began to adjust to these increased shipments, and their impact on the market appeared to have lessened.

Primary aluminum inventories held by members of the IPAI, which represent the bulk of stocks held outside the former centrally planned economy countries and the LME, increased from a revised 2.01 million tons at yearend 1993 to 2.06 million tons at yearend 1994. IPAI reported that total metal inventories, including secondary aluminum, held by its members increased from a revised 3.54 million tons at yearend 1993 to 3.58 million tons at yearend 1994.

Inventories of primary aluminum metal held by the LME reached record levels in mid-1994. At the beginning of the year, LME inventories totaled 2.49 million tons. By the end of May, the total had reached 2.66 million tons. Inventories then began to decrease dramatically, and, by the end of the year, close to 1 million tons of excess stocks had been removed from LME warehouses, and the inventory level had dropped to 1.68 million tons. *(See table 12.)*

Outlook

Demand for aluminum in the United States showed signs of slowing during the first quarter of 1995 following the significant growth evident in 1994. It was unclear whether this decrease was a reaction to a general slowing of the U.S. economy or to a work-off of stocks built up in the latter half of 1994 in anticipation of rising aluminum prices. Prices both in the U.S. and world markets appeared to have stabilized in the first quarter of 1995. The excess inventories, especially those stored in

LME warehouses, that overhung the market in 1994 have diminished rapidly. As of the date of this report, LME inventories had dropped below the 1 million ton level, a decrease of more than 1.5 million tons in about 1 year.

While some of the temporarily closed primary aluminum metal production capacity had come back on-line, most of the major world producers had yet to announce any restarts. Growth in worldwide aluminum demand was anticipated to continue but at a much slower pace than in 1994.

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[1]Excerpts from text of Memorandum of Understanding Concerning the Aluminum Market, January 28, 1994, and excerpts from various Chairman's Press Statements at follow-up MOU meetings.

[2]American Metal Market. Marc Rich Owns All Ravenswood. V. 102, No. 70, Apr. 13, 1994, p. 1.

[3]———. Marc Rich Name Missing From the Firm He Founded. V. 102, No. 148, Aug. 8, 1994, p. 2.

OTHER SOURCES OF INFORMATION

U.S. Bureau of Mines Publications

Aluminum. Ch. in Mineral Commodity Summaries, annual.
Bauxite. Ch. in Mineral Commodity Summaries, annual.
Aluminum. Mineral Industry Surveys, monthly.
Bauxite and Alumina. Mineral Industry Surveys, quarterly.
Bauxite Mines Worldwide.
Primary Alumina Plants Worldwide, biennial.
Primary Aluminum Plants Worldwide, biennial.

Other Sources

Aluminum Association Inc. Aluminum Statistical Review, annual.
American Metal Market (daily paper).
CRU. Aluminum Metal Monitor (monthly).
Metal Bulletin.
Metals Week.

TABLE 1
SALIENT ALUMINUM STATISTICS 1/

(Thousand metric tons and million dollars unless otherwise specified)

	1990	1991	1992	1993	1994
United States:					
Primary production	4,048	4,121	4,042	3,695	3,299
Value	$6,600	$5,400	$5,130	$4,340	$5,180
Price: (average cents per pound)					
U.S. market (spot)	74.0	59.5	57.5	53.3	71.2
Inventories (December 31)					
Aluminum industry	1,820	1,780	1,880	1,980 r/	2,070
LME stocks in U.S. warehouses	--	168	214	168	16
National Defense Stockpile	2	2	57	57	57
Secondary recovery 2/	2,390	2,290	2,760	2,940	3,080
New scrap	1,030	969	1,140	1,310	1,580
Old scrap	1,360	1,320	1,610	1,630	1,500
Exports (crude and semicrude)	1,660	1,760	1,450	1,210	1,370
Imports for consumption (crude and semicrude)	1,510	1,490	1,730	2,540	3,380
Aluminum industry shipments 3/	6,590	6,400	6,810	7,300	8,160
Supply, apparent 4/	6,300	6,010	6,870	7,920 r/	8,460
Consumption, apparent 5/	5,260	5,040	5,730	6,600 r/	6,880
World: Production	19,300	19,600	19,500	19,700 r/	19,100 e/

e/ Estimated. r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits, except "Prices" and "Primary production"; may not add to totals shown.

2/ Metallic recovery from purchased, tolled, or imported new and old scrap expanded for full industry coverage.

3/ Shipped to domestic industry.

4/ Defined as domestic primary metal production + secondary recovery + imports - exports + adjustments for Government and industry stock changes.

5/ Apparent supply less recovery from purchased new scrap.

TABLE 2
PRIMARY ANNUAL ALUMINUM PRODUCTION CAPACITY IN THE UNITED STATES, BY COMPANY 1/

Company	Yearend capacity (thousand metric tons)		1994 ownership (percent)
	1993	1994	
Alcan Aluminum Corp.:			
Sebree, KY	180	180	Alcan Aluminium Ltd., 100%.
Alumax Inc.:			
Ferndale, WA (Intalco)	275	275	Alumax Inc., 75%; Mitsui & Co., 11%; Toyo Sash, 7%; Yoshida Kogya K.K., 7%.
Frederick, MD (Eastalco)	170	170	Do.
Mount Holly, SC	184	184	Alumax, 73%; Clarendon Ltd., 27%.
Total	629	629	
Aluminum Co. of America: 2/			
Alcoa, TN	210	210	Aluminum Co. of America, 100%.
Badin, NC	115	115	Do.
Evansville, IN (Warrick)	300	300	Do.
Massena, NY	125	125	Do.
Rockdale, TX	315	315	Do.
Wenatchee, WA	220	220	Do.
Total	1,290	1,290	
Columbia Aluminum Corp.:			
Goldendale, WA	168	168	Columbia Aluminum Corp., 70%; employees, 30%.
Columbia Falls Aluminum Co.:			
Columbia Falls, MT	168	168	Montana Aluminum Investors Corp., 100%.
Kaiser Aluminum & Chemical Corp.:			
Mead, WA (Spokane)	200	200	MAXXAM Inc., 100%.
Tacoma, WA	73	73	Do.
Total	273	273	
NSA:			
Hawesville, KY	186	186	Southwire Co., 100%.
Noranda Aluminum Inc.:			
New Madrid, MO	215	215	Noranda Mines Ltd., 100%.
Northwest Aluminum Corp.:			
The Dalles, OR	82	82	Private interests, 100%.
Ormet Corp.:			
Hannibal, OH	245	245	Ohio River Associates Inc., 100%.
Ravenswood Aluminum Corp.:			
Ravenswood, WV	168	168	Glencore International AG, 100%
Reynolds Metals Co.:			
Longview, WA	204	204	Reynolds Metals Co., 100%.
Massena, NY	123	123	Do.
Troutdale, OR	121	121	Do.
Total	448	448	
Vanalco Inc.:			
Vancouver, WA	116	116	Vanalco Inc., 100%.
Grand total	4,160	4,160	

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Individual plant capacities are U.S. Bureau of Mines estimates based on company reported total.

TABLE 3
U.S. CONSUMPTION OF AND RECOVERY FROM PURCHASED NEW
AND OLD ALUMINUM SCRAP 1/, BY CLASS 2/

(Metric tons)

Class	Consumption	Calculated recovery	
		Aluminum	Metallic
1993			
Secondary smelters	1,130,000	882,000	946,000
Intergrated aluminum companies	1,340,000	1,120,000	1,190,000
Independent mill fabricators	608,000	524,000	559,000
Foundries	89,900	74,300	79,900
Other consumers	9,560	9,560	9,560
Total	3,190,000	2,610,000	2,790,000
Estimated full industry coverage	3,360,000	2,750,000	2,940,000
1994			
Secondary smelters	1,150,000	887,000	951,000
Intergrated aluminum companies	1,340,000	1,120,000	1,190,000
Independent mill fabricators	728,000	628,000	670,000
Foundries	103,000	83,700	90,100
Other consumers	10,900	10,900	10,900
Total	3,340,000	2,730,000	2,910,000
Estimated full industry coverage	3,530,000	2,880,000	3,080,000

1/ Excludes recovery from other than aluminum-base scrap.
2/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

TABLE 4
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP 1/ AND SWEATED PIG IN 1994 2/

(Metric tons)

Class of consumer and type of scrap	Stocks, Jan. 1	Net receipts 3/	Consump-tion	Stocks, Dec. 31
Secondary smelters:				
New scrap:				
Solids	4,252	167,291	166,820	4,723
Borings and turnings	3,966	187,632	187,111	4,487
Dross and skimmings	5,204	150,268	152,470	3,002
Other 4/	6,118	197,170	198,441	4,847
Total	19,540	702,361	704,842	17,059
Old scrap:				
Castings, sheet, clippings	14,955	294,220	292,407	16,768
Aluminum-copper radiators	1,099	9,055	9,338	816
Aluminum cans 5/	1,468 r/	100,636	100,426	1,678
Other 6/	254	41,391	41,192	453
Total	17,776 r/	445,302	443,363	19,715
Sweated pig	298	2,787	2,581	504
Total secondary smelters	37,614 r/	1,150,450	1,150,786	37,278
Integrated aluminum companies, foundries, independent mill fabricators, other consumers:				
New scrap:				
Solids	12,790 r/	701,340	694,535	19,595
Borings and turnings	291	37,289	37,215	365
Dross and skimmings	14	13,565	13,490	89
Other 4/	11,286	232,247	234,215	9,318
Total	24,381 r/	984,441	979,455	29,367
Old scrap:				
Castings, sheet, clippings	7,489	379,705	378,110	9,084
Aluminum-copper radiators	163	2,612	2,404	371
Aluminum cans	10,669	815,392	803,420	22,641
Other 6/	737 r/	11,143	11,725	155
Total	19,058 r/	1,208,852	1,195,659	32,251
Sweated pig	335	10,265	10,207	393
Total intergrated aluminum companies, etc.	43,774 r/	2,203,558	2,185,321	62,011
All scrap consumed:				
New scrap:				
Solids	17,042 r/	868,631	861,355	24,318
Borings and turnings	4,257	224,921	224,326	4,852
Dross and skimmings	5,218	163,833	165,960	3,091
Other 4/	17,404	429,417	432,656	14,165
Total new scrap	43,921 r/	1,686,802	1,684,297	46,426
Old scrap:				
Castings, sheet, clippings	22,444	673,925	670,517	25,852
Aluminum-copper radiators	1,262	11,667	11,742	1,187
Aluminum cans	12,137 r/	916,028	903,846	24,319
Other 6/	991 r/	52,534	52,917	608
Total old scrap	36,834 r/	1,654,154	1,639,022	51,966
Sweated pig	633	13,052	12,788	897
Total of all scrap consumed	81,388 r/	3,354,008	3,336,107	99,289

r/ Revised.

1/ Data rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Includes imported scrap. According to reporting companies, 9.69% of total receipts of aluminum-base scrap, or 323,000 metric tons, was received on toll arrangements.

3/ Includes inventory adjustment.

4/ Includes data on foil, can stock clippings, and other miscellaneous.

5/ Used beverage cans toll treated for primary producers are included in secondary smelter tabulation.

6/ Includes municipal wastes (includes litter) and fragmentized scrap (auto shredder).

TABLE 5
PRODUCTION AND SHIPMENTS OF SECONDARY ALUMINUM ALLOYS BY
INDEPENDENT SMELTERS IN THE UNITED STATES 1/

(Metric tons)

	1993		1994	
	Production	Net shipments 2/	Production	Net shipments 2/
Diecast alloys:				
13% Si, 360, etc. (0.6% Cu, maximum)	45,500	44,700	50,500	51,200
380 and variations	518,000	517,000	559,000	560,000
Sand and permanent mold:				
95/5 Al-Si, 356, etc. (0.6% Cu, maximum)	85,100	84,400	86,400	85,900
No. 12 and variations	W	W	W	W
No. 319 and variations	67,400	65,700	70,500	71,200
F-132 alloy and variations	24,000	25,800	29,000	29,000
Al-Mg alloys	639	641	639	639
Al-Zn alloys	3,220	3,470	3,530	3,530
Al-Si alloys (0.6% to 2.0% Cu)	10,800	11,000	10,800	10,700
Al-Cu alloys (1.5% Si, maximum)	1,740	1,730	1,680	1,710
Al-Si-Cu-Ni alloys	1,360	1,400	1,180	1,230
Other	3,790	3,810	2,830	2,860
Wrought alloys: Extrusion billets	80,900	84,900	151,000	152,000
Miscellaneous:				
Steel deoxidation	--	--	--	--
Pure (97.0% Al)	--	--	--	--
Aluminum-base hardeners	93	93	93	93
Other 3/	34,200	35,200	35,700	35,000
Total	877,000	880,000	1,000,000	1,000,000
Less consumption of materials other than scrap:				
Primary aluminum	79,600	--	86,000	--
Primary silicon	39,200	--	67,500	--
Other	4,600	--	5,880	--
Net metallic recovery from aluminum scrap and sweated pig consumed in production of secondary aluminum ingot 4/	753,000	XX	843,000	XX

W Withheld to avoid disclosing company proprietary data; included with "Sand and permanent mold: Other." XX Not applicable.
1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Includes inventory adjustment.
3/ Includes other die-cast alloys and other miscellaneous.
4/ No allowance made for melt-loss of primary aluminum and alloying ingredients.

TABLE 6
DISTRIBUTION OF END-USE SHIPMENTS OF ALUMINUM PRODUCTS IN THE UNITED STATES,
BY INDUSTRY 1/

Industry	1993		1994	
	Quantity (thousand metric tons)	Percent of grand total	Quantity (thousand metric tons)	Percent of grand total
Containers and packaging	2,180	26.0	2,280	24.4
Building and construction	1,240	14.7	1,400	15.0
Transportation	1,970 r/	23.5	2,310	24.7
Electrical	609	7.3	677	7.2
Consumer durables	563	6.7	647	6.9
Machinery and equipment	477	5.7	572	6.1
Other markets	259	3.1	276	2.9
Total to domestic users	7,300 r/	87.0 r/	8,160	87.2
Exports	1,090 e/	13.0 r/	1,200 e/	12.8
Grand total	8,390 r/	100.0	9,360	100.0

e/ Estimated. r/ Revised.
1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

Source: The Aluminum Association Inc.

TABLE 7
U.S. NET SHIPMENTS 1/ OF ALUMINUM WROUGHT AND CAST PRODUCTS, BY PRODUCERS 2/

(Thousand metric tons)

	1993	1994 p/
Wrought products:		
Sheet, plate, foil	4,030	4,740
Rod, bar, pipe, tube, and shapes	1,300 r/	1,440
Rod, wire, cable	297	356
Forgings (including impacts)	82 r/	92
Powder, flake, paste	59	63
Total	5,770 r/	6,700
Castings:		
Sand	103	NA
Permanent and semipermanent mold	225	NA
Die	645	NA
Other	20	NA
Total	994	NA
Grand total	6,770	NA

r/ Revised. p/ Preliminary. NA Not available.
1/ Net shipments derived by subtracting the sum of producers' domestic receipts of each mill shape from the domestic industry's gross shipments of that shape.
2/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

Source: U.S. Department of Commerce.

TABLE 8
U.S. EXPORTS OF ALUMINUM, BY COUNTRY 1/

Country	Metals and alloys, crude		Plates, sheets, bars, etc. 2/		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
1993:								
Brazil	61	$158	8,410	$24,500	707	$779	9,170	$25,400
Canada	80,700	114,000	320,000	690,000	46,500	47,300	448,000	852,000
France	922	1,570	5,350	12,100	582	785	6,860	14,500
Germany	209	485	10,800	20,700	85	217	11,100	21,400
Hong Kong	5,090	6,300	3,490	13,000	7,970	5,620	16,500	25,000
Japan	220,000	280,000	15,900	71,700	92,300	94,800	328,000	447,000
Korea, Republic of	20,700	26,700	11,200	34,600	8,160	9,810	40,100	71,200
Mexico	33,800	56,500	67,000	202,000	18,300	20,000	119,000	278,000
Netherlands	203	445	3,590	8,850	272	305	4,060	9,600
Philippines	3,050	3,940	186	795	135	129	3,370	4,860
Russia	--	--	184	1,760	--	--	184	1,760
Saudi Arabia	19	40	20,100	43,900	--	--	20,100	44,000
Singapore	69	244	3,840	12,200	718	900	4,630	13,400
Taiwan	22,900	26,700	15,800	40,300	16,300	11,600	55,000	78,600
Thailand	7,030	8,820	5,300	11,400	1,030	1,130	13,400	21,300
United Kingdom	512	2,310	17,600	47,000	229	424	18,300	49,700
Venezuela	85	349	16,400	38,700	8	55	16,500	39,100
Other r/	4,820	11,400	69,000	203,000	18,300	17,500	92,100	232,000
Total	400,000	541,000	594,000	1,480,000	212,000	211,000	1,210,000	2,230,000
1994:								
Brazil	194	464	11,800	31,400	631	868	12,700	32,800
Canada	114,000	182,000	366,000	850,000	57,900	61,200	537,000	1,090,000
France	21	214	5,110	25,300	33	211	5,160	25,700
Germany	237	699	8,550	23,700	189	144	8,980	24,600
Hong Kong	2,670	4,090	5,420	18,100	19,200	22,000	27,300	44,200
Japan	141,000	204,000	16,800	74,700	105,000	130,000	263,000	409,000
Korea, Republic of	19,000	29,700	16,000	55,800	16,100	20,700	51,100	106,000
Mexico	33,700	66,400	84,100	256,000	24,000	30,500	142,000	353,000
Netherlands	19	181	992	4,840	212	389	1,220	5,410
Philippines	1,170	1,530	154	1,710	37	21	1,360	3,270
Russia	--	--	86	929	65	107	151	1,040
Saudi Arabia	8	41	33,200	58,900	--	--	33,200	58,900
Singapore	138	357	4,080	11,600	242	232	4,460	12,100
Taiwan	15,500	24,900	24,100	59,700	56,100	50,700	95,600	135,000
Thailand	7,880	12,900	3,700	8,850	1,530	2,610	13,100	24,300
United Kingdom	163	1,170	21,200	62,000	52	45	21,400	63,200
Venezuela	37	244	16,400	40,200	111	49	16,600	40,500
Other	3,120	6,700	102,000	259,000	25,700	27,700	130,000	294,000
Total	339,000	536,000	719,000	1,840,000	307,000	348,000	1,370,000	2,730,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Includes castings, forgings, and unclassified semifabricated forms.

Source: Bureau of the Census.

TABLE 9
U.S. EXPORTS OF ALUMINUM, BY CLASS 1/

Class	1993		1994	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude and semicrude:				
Metals and alloys, crude	400,000	$541,000	339,000	$536,000
Scrap	212,000	211,000	307,000	348,000
Plates, sheets, bars, strip, etc.	571,000	1,350,000	683,000	1,680,000
Castings and forgings	6,060	55,800	5,610	62,400
Semifabricated forms, n.e.c.	17,600	75,200	30,000	105,000
Total	1,210,000	2,230,000	1,370,000	2,730,000
Manufactures:				
Foil and leaf	53,200	153,000	77,800	193,000
Powders and flakes	5,080	18,400	5,610	22,000
Wire and cable	40,200	98,700	54,600	136,000
Total	98,500	270,000	138,000	352,000
Grand total	1,310,000	2,500,000	1,500,000	3,080,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 10
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY CLASS 1/

Class	1993		1994	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude and semicrude:				
Metals and alloys, crude	1,840,000	$2,150,000	2,480,000	$3,480,000
Plates, sheets, strip, etc., n.e.c. 2/	344,000	712,000	375,000	804,000
Pipes, tubes, etc.	5,340	29,000	7,550	36,500
Rods and bars	50,900	96,300	125,000	241,000
Scrap	309,000	276,000	390,000	436,000
Total	2,540,000	3,260,000	3,380,000	5,000,000
Manufactures:				
Foil and leaf 3/	35,900	128,000	47,300	158,000
Flakes and powders	1,660	4,310	1,630	3,910
Wire	18,500	30,600	51,300	83,300
Total	56,000	163,000	100,000	245,000
Grand total	2,600,000	3,420,000	3,480,000	5,240,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Includes plates, sheets, circles, and disks.
3/ Excludes etched capacitor foil.

Source: Bureau of the Census.

TABLE 11
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY COUNTRY 1/

Country	Metals and alloys, crude		Plates, sheets, bars, etc. 2/		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
1993:								
Australia	1	$2	1,150	$2,070	300	$196	1,450	$2,270
Bahrain	--	--	7,890	14,700	--	--	7,890	14,700
Belgium	275	399	7,170	15,500	372	515	7,820	16,400
Brazil	52,300	65,600	4,370	8,980	4	14	56,700	74,600
Canada	1,220,000	1,490,000	244,000	452,000	179,000	166,000	1,650,000	2,110,000
France	2,430	4,910	10,500	31,600	2,010	1,470	14,900	37,900
Germany	2,370	6,000	18,600	68,900	9,190	9,770	30,200	84,700
Japan	542	954	15,400	53,700	250	499	16,200	55,100
Mexico	63	134	2,630	7,440	46,500	38,000	49,200	45,600
Netherlands	4,230	4,300	4,310	12,700	4,930	6,120	13,500	23,100
Norway	184	1,340	1,900	2,950	--	--	2,090	4,290
Russia	421,000	446,000	9,620	13,600	18,600	18,200	450,000	478,000
South Africa, Republic of	247	667	3,350	6,060	21	4	3,620	6,730
Spain	3,120	2,990	18,000	28,100	390	408	21,600	31,500
Tajikistan	18,100	17,400	--	--	--	--	18,100	17,400
Ukraine	--	--	--	--	110	698	110	698
United Arab Emirates	2,990	3,960	--	--	--	--	2,990	3,960
United Kingdom	4,420	6,120	6,460	23,200	4,730	4,620	15,600	33,900
Venezuela	63,700	70,200	15,700	25,100	25,700	16,900	105,000	112,000
Other r/	37,300	27,900	28,800	71,000	16,600	12,700	82,700	112,000
Total	1,840,000	2,150,000	400,000	838,000	309,000	276,000	2,540,000	3,260,000
1994:								
Australia	576	862	580	1,280	999	883	2,160	3,030
Bahrain	--	--	9,430	17,800	--	--	9,430	17,800
Belgium	20	63	8,080	18,800	254	244	8,350	19,100
Brazil	143,000	192,000	4,890	8,800	8	23	148,000	201,000
Canada	1,430,000	2,080,000	307,000	606,000	214,000	248,000	1,950,000	2,930,000
France	6,560	12,700	10,900	33,700	1,510	1,770	18,900	48,200
Germany	3,480	8,230	21,400	76,000	12,500	15,200	37,400	99,400
Japan	386	837	11,000	37,700	779	1,040	12,100	39,600
Latvia	7,630	9,090	--	--	--	--	7,630	9,090
Mexico	404	647	4,190	9,930	68,500	76,100	73,100	86,700
Netherlands	13,300	19,700	4,630	14,000	4,800	5,720	22,700	39,500
Norway	164	1,200	769	1,500	--	--	933	2,700
Russia	643,000	858,000	33,600	51,400	13,700	19,100	690,000	928,000
South Africa, Republic of	396	840	3,430	6,370	495	170	4,320	7,380
Spain	6,130	7,370	25,200	42,000	616	658	32,000	50,000
Tajikistan	53,400	45,700	--	--	--	--	53,400	45,700
Ukraine	3,730	4,840	(3/)	4	190	147	3,920	5,000
United Arab Emirates	1,890	2,440	--	--	184	246	2,070	2,690
United Kingdom	4,630	6,530	9,510	32,300	13,500	14,700	27,700	53,600
Venezuela	126,000	161,000	27,700	46,800	35,800	32,600	190,000	241,000
Other	43,300	66,800	24,900	77,400	21,700	19,200	89,900	163,000
Total	2,480,000	3,480,000	507,000	1,080,000	390,000	436,000	3,380,000	5,000,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Includes circles, disks, rods, pipes, tubes, etc.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 12
ALUMINUM, PRIMARY: WORLD PRODUCTION, BY COUNTRY 1/ 2/

(Thousand metric tons)

Country	1990	1991	1992	1993	1994 e/
Argentina e/	166 3/	165	165	165	165
Australia	1,230	1,230	1,240	1,380 r/	1,320 3/
Austria	89	80	33	--	--
Azerbaijan e/	XX	XX	25	20	15
Bahrain	213	227	292	447 r/	450
Bosnia and Herzegovina e/ 4/	XX	XX	30	15	10
Brazil	931	1,140	1,190 r/	1,170 r/	1,200
Cameroon	93	83	82 e/	82 e/	82
Canada	1,570	1,820	1,970	2,310	2,250 3/
China e/	850	963	1,100	1,220	1,450
Croatia e/ 4/	XX	XX	20	20	20
Czechoslovakia e/ 5/ 6/ 7/	70	68	68	XX	XX
Egypt	179	178	178	180 r/	180
France	326	286	418	426 r/	400
Germany:					
Eastern states	20	XX	XX	XX	XX
Western states	720	XX	XX	XX	XX
Total	740	690	603	552	503 3/
Ghana	174	175	180	175	141 3/
Greece	150	152	153	148 r/	138 3/
Hungary	75	63	27	28	29
Iceland 8/	87	89	89	94 r/	99 3/
India 7/	433	504	496 r/	466 r/	441 3/
Indonesia 7/	186	187	173	206 r/	220
Iran e/	60	80	92	90 r/	116
Italy	232	206	161	156 r/	160
Japan 9/	34	32	19	18	17 3/
Korea, Republic of 7/	2	--	--	--	--
Mexico 7/	68	51	25	-- r/	--
Netherlands	270	264	235	232 r/	219 3/
New Zealand	260	258	243	277 r/	271 3/
Norway	845	833	813	887 r/	857 3/
Poland 10/	46	46	44	47	47
Romania 11/	168	113	112	112 e/	112
Russia	XX	XX	2,700	2,820 r/	2,670 3/
Serbia and Montenegro 4/	XX	XX	67 r/	26 r/	7 3/
Slovakia 6/ 7/	XX	XX	XX	60 e/	60
Slovenia 4/	XX	XX	85	80 e/	80
South Africa, Republic of	159	169	173	175	173
Spain	353	355	359	356 r/	340
Suriname	32	29	32	32 r/	34
Sweden	96	97	77	82 r/	83
Switzerland	72	66	52	36 r/	31 3/
Tajikistan e/	XX	XX	400	250 r/	250
Turkey	61	56	59	59	60
U.S.S.R. 12/	3,520	3,250	XX	XX	XX
Ukraine e/	XX	XX	90	90	85
United Arab Emirates: Dubai	174	239	245 r/	242 r/	250
United Kingdom	294	294	244	239 r/	230
United States	4,050	4,120	4,040	3,700	3,300 3/
Venezuela	590	601	561	570 e/	580
Yugoslavia 7/ 13/	349	315	XX	XX	XX
Total	19,300	19,600	19,500	19,700 r/	19,100

e/ Estimated. r/ Revised. XX Not applicable.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ The U.S. Bureau of Mines defines primary aluminum as "The weight of liquid aluminum as tapped from pots, excluding the weight of any alloying materials as well as that of any metal produced from either returned scrap or remelted materials." International reporting practices vary from country to country, some nations conforming to the foregoing definition and others using different definitions. For those countries for which a different definition is given specifically in the source publication, that definition is provided in this table by footnote. Table includes data available through May 22, 1995.

3/ Reported figure.

4/ Primary ingot plus secondary ingot.

5/ Dissolved Dec. 31,1992.

6/ All production in Czechoslovakia from 1990-92 came from Slovakia.

7/ Primary ingot.

8/ Ingot and rolling billet production.

9/ Excludes high-purity aluminum containing 99.995% or more as follows, in metric tons: 1990--16,300; 1991--19,700; 1992--19,600; 1993--20,300; 1994--23,800.

10/ Primary unalloyed ingot plus secondary unalloyed ingot.

11/ Primary unalloyed metal plus primary alloyed metal, thus including weight of alloying material.

12/Dissolved in Dec. 1991.

13/Dissolved in Apr. 1992.