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ALUMINUM

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Aluminum

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During 2011, domestic primary smelters produced 1.99 million metric tons (Mt) of aluminum metal, 15% more than the amount in 2010. Production was valued at $5.08 billion, 28% more than the value of 2010 production. Smelters east of the Mississippi River accounted for about 75% of production. At yearend, 5 companies were operating 10 primary aluminum smelters in 7 States. An additional five smelters were temporarily idle. About 35% [1.11 million metric tons per year (Mt/yr)] of domestic primary aluminum smelting capacity (table 2), including idle potlines at operating smelters, was not being used.

Aluminum recovered from purchased scrap increased by 11% to 3.1 Mt. Of this, 53% came from new (manufacturing) scrap, and 47% came from old (discarded aluminum products) scrap. Aluminum used beverage cans (UBCs) accounted for 45% of the reported old scrap consumed in 2011 and 19% of total scrap consumed.

Apparent consumption of aluminum increased by 3% compared with that in 2010. The United States and Canadian transportation industries accounted for 28% of metal shipments by United States and Canadian producers; containers and packaging, 21.8%; building and construction, 10.1%; electrical, 7.6%; machinery and equipment, 6.5%; consumer durables, 5.6%; and other uses, 3.3%. Exports accounted for 17.1% of shipments from producers in Canada and the United States in 2011 (table 6).

The 2011 annual average U.S. market price of primary aluminum ingot increased by 11% to $1.161 per pound from $1.044 per pound in 2010. The monthly average price rose from $1.163 per pound in January to $1.283 per pound in March before gradually declining for the rest of the year, to a low of $0.982 per pound in December.

At yearend 2011, total (unwrought, scrap, in-process metal, and semifabricated shapes) world inventories of aluminum, as reported by the International Aluminium Institute (IAI) (2012), were 2.39 Mt, 5% lower than those at yearend 2010. Combined inventories of aluminum metal and alloys held by the London Metal Exchange Ltd. (LME), however, increased by 18% to 5.28 Mt.

Primary aluminum was produced in 43 countries in 2011. China, Russia, Canada, and the United States, in decreasing order of metal produced, accounted for 61% of total world production. World primary metal production increased by 8% compared with that of 2010 owing to increased production in China (1.9 Mt), the United Arab Emirates [400,000 metric tons (t)], the United States (260,000 t), Qatar (200,000 t), and several other nations. Commissioning of new smelters and brownfield expansions, as well as restarted capacity closed owing to the financial crisis and to power shortages, accounted for the increased production. These increases were partially offset by decreased production in Brazil (95,700 t), France (22,000 t), and Ukraine (18,000 t). High power prices were cited for shutdowns of a smelter in Brazil at yearend 2010 and another smelter in Ukraine at the beginning of 2011, while technical issues at a smelter in Brazil and another smelter in France led to decreased production. The United States became the fourth leading producer of primary aluminum, slightly surpassing Australia, which slipped to the fifth leading producer from fourth in 2010.

Production

Primary.—New power supply contracts at favorable prices enabled Alcoa Inc. (Pittsburgh, PA) to restart production during the first quarter of 2011 at a smelter in Massena, NY, as well as from idle potlines at smelters in Ferndale and Wenatchee, WA. The Massena East smelter had a capacity of 125,000 metric tons per year (t/yr), and was shut down in May 2009 when prices and demand for aluminum declined. The restarted potline at the Ferndale smelter had a capacity of approximately 33,000 t/yr and brought operating capacity to approximately 220,000 t/yr out of the total smelter capacity of 279,000 t/yr. The potline had been closed since November 2008 because of low aluminum prices. The restarted potline at the Wenatchee smelter had a capacity of 42,000 t/yr and had been closed since 2001 because of high power prices. With the restart, 142,000 t/yr of capacity at the 184,000-t/yr Wenatchee smelter was in production (Alcoa Inc., 2011c, e, f; Riley, 2011a; Stark, 2011).

Century Aluminum Co. (Monterey, CA) restarted a potline at its 244,000-t/yr smelter in Hawesville, KY, during the first quarter of 2011. The restart was originally scheduled to be completed in early 2011, but at yearend, the potline was not producing at full capacity owing to issues related to training new employees (Century Aluminum Co., 2011a, b; 2012b; McDonnell, 2011).

Ormet Corp. (Hannibal, OH) reported that shipments of primary aluminum during the first quarter of the year were 31% higher than those in the first quarter of 2010 following restart of one potline in December 2011 and a second potline on January 31 at its 260,000-t/yr smelter. Both potlines were producing near full capacity by the end of the first quarter of 2011 (Ormet Corp., 2011a, p. 2; 2011b). A 5-year labor contract between Ormet and nearly 900 hourly employees represented by the United Steelworkers union at the Hannibal smelter was ratified by the employees on June 8. Production had continued after the previous contract expired on May 31 (American Metal Market, 2011).

Rio Tinto plc (London, United Kingdom) was increasing capacity of the Sebree, KY, smelter to 210,000 t/yr from 196,000 t/yr and expected to complete the expansion by yearend 2012 (Platts Metals Week, 2012). A new furnace for baking anodes was also under construction (Rio Tinto Alcan Inc., 2011b).

Noranda Aluminum Holding Corp. (Franklin, TN) continued work on expanding the New Madrid smelter capacity to

279,000 t/yr of aluminum from 263,000 t/yr. The project, which had been started in mid-2008 but was put on hold in early 2009 during the financial crisis, was expected to be completed by the beginning of 2013 (Noranda Aluminum Holding Corp., 2011).

Secondary.—Bermco Aluminum Co. (Birmingham, AL) was reconsidering plans to relocate its secondary smelter to Lincoln, AL, from Birmingham. Instead, Bermco was considering building a new secondary smelter in Bessemer, AL, adjacent to a scrap yard it owned. The new smelter, which would have a capacity of 110,000 t/yr, double that of the Birmingham smelter, would produce die-cast and foundry alloys used by auto parts manufacturers and other consumers. If built, construction was expected to take about 1 year (Tomberlin, 2011).

Novelis Inc. (a subsidiary of Hindalco Industries Ltd.) (Mumbia, India) announced plans to add 200,000 t/yr of rolling capacity at its rolling mill in Oswego, NY, to produce aluminum sheet for the automobile industry in response to increased fuel efficiency standards. The expansion, expected to be completed in mid-2013, did not include increasing the scrap melting capacity (Novelis Inc., 2011a).

Wise Alloys LLC (Muscle Shoals, AL) was expanding its UBC melting capacity in Muscle Shoals by 55% to 225,000 t/yr of aluminum. The expansion was expected to be completed in early 2012 (Platts Metals Week, 2011l; Wise Alloys LLC, 2012).

Global Scrap Management Inc. (Milford, OH) was constructing a secondary aluminum smelter in Batavia, OH, which would produce casting ingot for foundries. Initial production was expected in late 2011 and full capacity to melt 33,000 t/yr of scrap was expected in early 2012 (Platts Metals Week, 2011i).

Aleris International Inc. (Cleveland, OH) was installing two new rotary furnaces and a holding furnace at its Morgantown, KY, secondary smelter. The expansion was expected to be completed in early 2012 (Davidson, 2011a).

Magnode Corp. (Trenton, OH) announced it would permanently shut down its 15,000-t/yr billet casthouse in Trenton and purchase billet from Norsk Hydro ASA (Oslo, Norway) for its extrusion plant owing to high costs. Norsk Hydro was upgrading its billet casthouse in Henderson, KY, to make 11-inch and 14-inch billets used by Magnode. The shift in production was expected to be completed in January 2012 (Waite, 2011).

Huntington Aluminum LLC (Huntington, IN) opened a secondary smelter in Huntington to produce remelt ingots from scrap in July. Capacity of the smelter was not disclosed (West, 2011).

Sapa Extrusions Inc. continued work on a billet casting house at its extrusion plant in Cressona, PA, that would have a capacity of 545,000 t/yr of billet, produced mainly from scrap. Completion of the casthouse, previously scheduled for September, was delayed until January 2012 (Sapa Group, 2012).

Consumption

Apparent consumption of aluminum in the United States increased by 3% in 2011 compared with that in 2010. Shipments of aluminum by United States and Canadian producers to their combined domestic markets increased by 6% in 2011 compared with the amount shipped in 2010. Shipments of aluminum to the building and construction sector and for containers and packaging decreased by 3% and 2%, respectively, compared with those in 2010. Shipments to the consumer durables, electrical products, machinery, and transportation sectors increased by 2%, 12%, 14%, and 16%, respectively.

The increase in shipments of aluminum to the transportation sector resulted primarily from an increase in automobile production. In North America, production of automobiles and light trucks rose by 11% from production in 2010 to 5.62 million units. Heavy truck manufacturing also increased by 11% compared with 2010 production, to 7.85 million units in 2011 (Ward's Automotive Group, 2012).

Aluminum content in automobiles continued to increase as automakers substituted aluminum for steel in order to increase fuel efficiency. General Motors Corp. (GM) (Detroit, MI) expected that its vehicles sold in the United States in 2012 would contain an average of 168 kilograms (370 pounds) of aluminum. In 2011, aluminum accounted for 90% of engine blocks and all cylinder heads, up from 10% and 35% respectively in 1994. Within a few years, GM expected to make all vehicle hoods from aluminum (Platts Metals Week, 2011j).

The Boeing Co. (Chicago, IL) reported that its deliveries of commercial aircraft were 3% higher than in 2010, accounting for some of the increase in aluminum shipments to the transportation sector. A slight decrease in deliveries of the single-aisle 737–800 aircraft was offset by a 22% increase in double-aisle aircraft deliveries. The first nine 747–8 Freighter aircraft and the first three 787 Dreamliner aircraft were delivered in 2011. The 747–8 Freighter was designed to carry more cargo while being easier to load and unload compared with prior cargo jets. Composite materials were used to construct the fuselage and wings of the 787 Dreamliner instead of aluminum (Boeing Co., The, 2012, p. 25, 122, 123). Boeing announced that it would upgrade the 737–800 aircraft by installing newer engines that would be more fuel efficient than the current 737 model and its competitors. The fuselage, tail section, and wings of the new 737 Max would be made with aluminum instead of the composite materials previously considered by Boeing. Deliveries of the 737 Max were projected to begin in 2017 (Haflich, 2011).

The decrease in aluminum shipments for use in building and construction was a result of reduced nonresidential and residential construction. The U.S. Census Bureau and the U.S. Department of Housing and Urban Development jointly reported that housing starts increased by 3.4% in 2011 compared with starts in 2010. The number of houses completed, however, was 10.4% fewer than in 2010 (U.S. Census Bureau, 2012b). Total construction spending during 2011 decreased by 2% compared with that in 2010, which was attributed to decreased spending on public construction (6.5%) and residential construction (1.1%). These decreases were partially offset by spending on nonresidential construction, which increased by 2.4% compared with that in 2010 (U.S. Census Bureau, 2012a).

Stocks

According to data reported by the Aluminum Association Inc. (2011; 2012), United States and Canadian producers' combined inventories of aluminum ingot, mill products, and scrap increased by 5% to 1.06 Mt at yearend 2011 from

1.01 Mt at yearend 2010. The LME reported that primary aluminum metal ingot stocks at its U.S. warehouses increased by 5% to 2.2 Mt at yearend 2011 from 2.09 Mt at yearend 2010. At yearend 2011, LME warehouses in the United States also held 142,000 t of North American special aluminum alloy contract (NASAAC) metal ingot, a 103% increase from the 70,000 t held at yearend 2010.

Prices

The monthly average U.S. market price of primary aluminum metal, as reported by Platts Metals Week, started the year at $1.163 per pound of aluminum and gradually rose to a peak of $1.283 per pound in April. The monthly average price declined gradually throughout the remainder of the year, averaging $0.982 per pound in December. The annual average price in 2011 increased to $1.161 per pound from $1.044 per pound in 2010. The LME monthly average cash prices for primary aluminum ingot followed the same general trend as the U.S. market price, and the 2011 annual average LME cash price increased to $1.088 per pound from $0.986 per pound in 2010. The indicator prices for selected secondary aluminum ingots and scrap, as published in American Metal Market, followed the same trend as primary ingot prices (table 8).

Foreign Trade

In 2011, total net imports of aluminum-base materials decreased by 20% compared with net imports in 2010 (tables 10 and 12). Imports for consumption of crude aluminum increased by 7%, while imports of semifabricated aluminum materials (plates, sheet, and bars) decreased by 9%, and scrap imports increased by 15%. Canada remained the leading source country, accounting for 60% of the total (crude, semifabricated, and scrap) imports in 2011, while the United Arab Emirates (6%) and Russia (5%) were the second and third ranked suppliers. Imports of crude metal and alloys from Canada accounted for 44% of all aluminum imports during 2011 (table 12).

Total exports of aluminum increased by 13% during 2011 compared with those of 2010 (table 10). Exports of crude aluminum (metal and alloys) increased by 11%; exports of semifabricated aluminum materials increased by 14%; and exports of scrap increased by 12%. About 79% of total U.S. exports of unmanufactured aluminum (crude, semifabricated, and scrap) in 2011 were collectively shipped to Canada, China, and Mexico. The aluminum shipped to China was 97% scrap and accounted for 42% of all aluminum exports during 2011 (table 10).

Mergers and Acquisitions

In February, Vale S.A. (Rio de Janeiro, Brazil) completed the sale of bauxite, alumina, and aluminum assets in Brazil to Norsk Hydro for $1.1 billion in cash plus $3.8 billion in stock of Norsk Hydro. As a result of the transaction, Vale received 22% of Norsk Hydro's stock; Norsk Hydro received 51% of the 460,000-t/yr Albras smelter; and Norsk Hydro increased its share of the 6.3-Mt/yr Alunorte refinery to 91% from 34% and of the 1.86-Mt/yr Companhia de Alumina do Para refinery project to 81% from 20%. Norsk Hydro also gained 60% ownership of the Paragominas bauxite mine (9.9 Mt/yr capacity) and planned to purchase the remaining 40% of the mine by yearend 2015 (Vale S.A., 2011).

Rio Tinto restructured 12 assets in its aluminum product group prior to selling them at an appropriate time in the future. Rio Tinto's interests in six Australian and New Zealand assets were transferred into a new business unit called Pacific Aluminium that was managed and reported separately from the Rio Tinto Alcan product group prior to divestment. The Pacific Aluminium group included the 8-Mt/yr bauxite mine and 3.8-Mt/yr alumina refinery at Gove, Australia; a powerplant at Gladstone, Australia; the Bell Bay (160,000 t/yr), Boyne (550,000 t/yr), and Tomago (525,000 t/yr) smelters in Australia; and the 350,000-t/yr Tiwai Point, New Zealand, smelter. A second group of six noncore assets, including the 196,000-t/yr smelter at Sebree, KY, continued to be managed by Rio Tinto Alcan while it further investigated divestment options. Other assets for sale that continued to be managed by Rio Tinto Alcan included a powerplant associated with a 169,000-t/yr smelter at Lynemouth, United Kingdom, which was scheduled to be permanently shut down in 2012; a 700,000-t/yr alumina refinery at Gardanne, France; and specialty alumina refineries at Beyrede and La Bathie, France, and Teutschenthal, Germany (Rio Tinto plc, 2011c).

Florida Extruders International Inc. (FEI) (Sanford, FL) filed for bankruptcy protection in April and was sold to Benada Aluminum Products LLC (Hialeah, FL) in June. FEI had operated a secondary smelter used to make 17,000 t/yr of extrusion billets as well as three extrusion presses in Sanford. Lack of demand for extrusion products for residential construction, competition by imports from China, and rising prices for raw materials were cited for the bankruptcy (Riley, 2011b).

In August, Arco Aluminum Inc. (Louisville, KY) was sold by BP plc to a consortium of Japanese-based investors comprised of Sumitomo Light Metal Industries Ltd. (40%), Furukawa Sky Aluminum Corp. (35%), Sumitomo Corp. (20%), Itochu Metals Corp. (3%), and Itochu Corp. (2%). Arco's main asset was its 60% share of the Logan Aluminum Inc. rolling mill and recycling plant in Russelville, KY, a joint venture with Novelis (40%). The company was renamed Tri-Arrows Aluminum (Allagh and others, 2011; Platts Metals Week, 2011e).

World Industry Structure

Production.—World primary aluminum production increased by 8% in 2011 compared with that of 2010 owing to smelter reopenings and expansions as prices recovered from the lows during the 2008–09 financial crisis. China, Russia, Canada, and the United States, in decreasing order of production, accounted for 61% of total world primary aluminum production. China was the leading producer and accounted for 41% of global production.

During the fourth quarter of 2008 and early 2009, many primary smelters announced shutdowns in response to declining prices, as demand for aluminum receded in the face of the financial crisis. Throughout 2010, most of these shutdowns continued, although several restarts were announced in the second half of the year. In 2011, more restarts were announced as prices and demand for aluminum increased, and world production increased by 12% from that in 2008.

Stocks.—As aluminum prices recovered from the lows during the financial crisis in 2009, smelter restarts during late 2010 and early 2011 led to increased aluminum inventories. Yearend 2011 inventories of primary aluminum metal held by the LME increased by 16% to 4.98 Mt from 4.27 Mt at yearend 2010; aluminum alloy inventories increased by 103% to 142,000 t from 70,000 t. Primary aluminum metal ingot stocks at U.S. LME warehouses increased by 5% to 2.2 Mt at yearend 2011 from 2.09 Mt at yearend 2010. At yearend 2011, LME warehouses in the United States also held about 157,000 t of NASAAC metal ingot, an 18% increase from the 134,000 t held at yearend 2010 (London Metal Exchange Ltd., 2010; 2011).

The increased inventories at LME warehouses were slightly offset by decreases in IAI total aluminum inventories, which decreased by 5% to 2.39 Mt at yearend 2011 from 2.52 Mt at yearend 2010. Total aluminum includes unwrought aluminum plus unprocessed scrap, metal in process, and finished semifabricated (mill) products. Unwrought aluminum inventories held by member producers of the IAI were unchanged at 1.40 Mt at yearend 2011 from yearend 2010. Unwrought aluminum is defined by the IAI as aluminum in its basic form made from primary metal or from scrap and that is metallurgically unworked (International Aluminium Institute, 2012).

World Review

Argentina.—Aluminio Argentino S.A.I.C. (Aluar) completed the expansion of the capacity of its Puerto Madryn smelter to 455,000 t/yr from 425,000 t/yr (CRU Aluminum Monitor, 2011a). Aluar shut down approximately 10% of production capacity at its smelter on November 6 because of damage caused by flooding and expected that full production would be restored by the end of February 2012 (Metal Bulletin, 2011; Platts Metals Week, 2011c).

Australia.—Shipments of aluminum from Rio Tinto's 550,000-t/yr Boyne smelter were disrupted during flooding of roads and railroads between the smelter and Brisbane in January. The port of Brisbane was also closed during the flooding but production from the smelter was not affected (Rio Tinto plc, 2011a; d, p. 16).

Azerbaijan.—Det. AL Group (Detal) (Baku, Azerbaijan) started production from its new 100,000-t/yr Ganja smelter in the fourth quarter of 2011. Output was expected be at about 50% of capacity during the first year of production. Detal was planning to restart its 60,000-t/yr Sumgait smelter at an unspecified date and was in the process of restarting its 450,000-t/yr alumina refinery in Sumgait during the fourth quarter of the year. The Sumgait smelter and the refinery were shut down in 2009 because of declining prices for aluminum (Platts Metals Week, 2011h).

Bahrain.—Aluminum Bahrain BSC (Alba) completed feasibility studies on upgrading two potlines and constructing a new potline. The upgrade would increase the capacity of the smelter to 970,000 t/yr from 880,000 t/yr and was to be completed by yearend 2012. The additional potline would add 400,000 t/yr of capacity when completed in 2014. Total production for the year increased 4% compared with 2010 production (Aluminum Bahrain BSC, 2012a, b).

Brazil.—Production at Companhia Brasileira de Alumínio's (CBA) (a subsidiary of Votorantim Group), 400,000-t/yr smelter at Sorocaba, decreased owing to technical issues that started in January and continued through November. Total production for CBA during the year was 13% less than that of 2010 (Associação Brasileira do Alumínio, 2011a; Votorantim Group, 2011).

Brazil recycled 97.6% of all aluminum beverage cans sold in the country during 2010, slightly lower than the record rate of 98.2% achieved in 2010. Brazil collected and recycled 239,100 t of UBCs, the equivalent of 17.7 billion aluminum cans. For the 10th consecutive year, Brazil had the highest aluminum can recycling rate among countries that do not have mandatory recycling laws. Sales of aluminum beverage cans increased by 21% during 2010 compared with the number sold during 2009, and the volume of UBCs collected increased by 20.3% compared with that of 2009 (Associação Brasileira do Alumínio, 2011b).

Novelis announced it would expand its recycling facility and rolling mill in Pindamonhangaba to 390,000 t/yr from 200,000 t/yr by yearend 2013. The recycling center processed UBCs and other scrap, and the rolling mill produced can sheet and other rolled products (Novelis Inc., 2011d).

Canada.—Rio Tinto was moving forward with construction of the new smelter in Saguenay, Quebec. The first phase of the smelter would have a capacity of 60,000 t/yr and was expected to start production in February 2013. Progress also continued on the Kitimat, British Columbia, smelter modernization project that would expand capacity of the smelter to 420,000 t/yr from 277,000 t/yr by replacing the Soderberg pots with prebaked pots in order to increase efficiency and reduce emissions. Production from the new potlines was expected to start in the first half of 2014. Because two potlines with a combined capacity of 67,000 t/yr were permanently shut down in August 2010, aluminum production was 9% lower in 2011 than in 2010 (Rio Tinto plc, 2012a, p. 5, 16; b, p. 41).

Production at Rio Tinto's 100,000-t/yr smelter at Shawinigan, Quebec, was cut by one-half after a power failure on December 29. Rio Tinto planned to gradually restart the two potlines and the smelter was expected to resume production at full capacity by the end of March 2012. The smelter was scheduled to be shut down permanently by December 2014 (American Metal Market, 2012; Rio Tinto Alcan Inc., 2012b).

A labor contract between Rio Tinto and employees at the 438,000-t/yr Alma smelter in Saguenay-Lac-Saint-Jean, Quebec, expired on December 31, 2011, when negotiations between Rio Tinto and the union representing 755 employees failed to reach an agreement for a new contract. The employees were locked out, and two-thirds the smelter's capacity was shut down in January 2012. The company planned to keep the remaining potlines operating for the duration of the labor dispute (Rio Tinto Alcan Inc., 2012a; Waite, 2012).

Alcoa announced modernization projects at its smelters in Quebec. The Baie-Comeau smelter would replace 160,000 t/yr of Soderberg pots with a new 160,000-t/yr prebaked potline by 2015. Capacity at the Deschambault smelter would increase by 25,000 t/yr to 285,000 t/yr by 2016 through increased power efficiency. Alcoa and the government of Quebec also signed a 25-year power supply contract for the Baie-Comeau, Becancour, and Deschambault smelters (Alcoa Inc., 2011b).

Aluminerie Alouette Inc. signed a memorandum of understanding with the government of Quebec for

500 megawatts (MW) of power to supply an expansion of the smelter in Sept-Iles, Quebec. A feasibility study was being conducted to expand the smelter's capacity to 930,000 t/yr from 575,000 t/yr by 2016 or 2017. Aluminerie Alouette was a joint venture between Rio Tinto (40%), Aluminium Austria Metall AG (20%), Norsk Hydro (20%), Societe Generale de Financement du Quebec, (13.3%), and Marubeni Quebec Inc. (6.7%) (CRU Aluminum Monitor, 2011j; Norsk Hydro ASA, 2011a).

China.—Primary aluminum production in China increased by 12% compared with that in 2010. Capacity expansions and restarts of temporary closures outweighed decreases from closures of inefficient smelters and from reduced output owing to power shortages at others.

The Government of China announced a policy to permanently shut down 600,000 t/yr of primary aluminum smelting capacity that used obsolete technology. The stated purpose of the policy was to remove the least efficient potlines, limit energy consumption, reduce pollution emissions, and reduce oversupply. The closures were expected to be offset by newly opened smelters and expansions. Approximately 270,000 t/yr of capacity was specifically identified for elimination. In Hubei Province, 47,000 t/yr of capacity at the Hubei Huasheng Aluminum-Electric Co. Ltd. smelter in Qianjiang and 60,000 t/yr of capacity at the Huangshi Yangxin Hongjun Aluminum Co. Ltd. smelter were ordered to shut down. In Liaoning Province, Aluminum Corp. of China (Chinalco) was ordered to shut down 30,000 t/yr of capacity at the Fushun smelter. In Shaanxi Province, Jinyuan Aluminum Co. Ltd. was ordered to eliminate 20,000 t/yr of capacity at its smelter in Weinan. Shutdowns in Shanxi Province would include 17,500 t/yr at Shanhe Aluminum Co. Ltd.; 51,000 t/yr at Shanxi Guanlv Aluminum Co. Ltd.; 10,000 t/yr at Shuangshan Jiaolv Co. Ltd.; and 19,600 t/yr at Shanxi Yangquan Aluminum Co. Ltd. Yunnan Province would have 13,000 t/yr of capacity shutdown. Henan Province also planned to eliminate 30,500 t/yr of smelting capacity, and 170,000 t/yr of capacity would be shut in Lanzhou, Gansu Province (China Metal Market—Alumina and Aluminum, 2011c, i, j; CRU Aluminum Monitor, 2011b, d, e).

Several Chinese Government agencies took action to stop construction of 23 aluminum smelter projects which would have had a combined capacity of 7.74 Mt/yr. The action was taken to prevent overcapacity of aluminum smelters as well as to limit power consumption and pollution (CRU Aluminum Monitor, 2011g). The National Development and Reform Commission announced a policy prohibiting local governments from establishing preferential power rates for energy-intensive industries including aluminum smelting and alumina refining (China Metal Market—Alumina and Aluminum, 2011o).

The Provincial government in Qinghai announced that it would not approve new smelter projects in an effort to curb power shortages and reduce pollution. The policy also prohibited powerplants from supplying unapproved businesses. The policies also affected cement, ferroalloy, and soda ash projects. The provincial government of Jiangxi announced similar restrictions on new energy-intensive projects. The policy prohibited financing and real estate transactions supporting energy-intensive projects (China Metal Market—Alumina and Aluminum, 2011l, q).

Qinghai Province ordered four companies to shut down outdated smelting technology. The companies affected were Jinyuan Aluminum Co. Ltd., Qinghai Minhe Aluminum Co. Ltd., Tongren Aluminum Co. Ltd., and Yinglu Aluminum Co. Ltd. The total amount of capacity affected by this policy was unclear (China Metal Market—Alumina and Aluminum, 2011p).

Chinalco shut down the remaining obsolete pots having a capacity of 140,000 t/yr at its Liancheng smelter in Gansu Province. One potline was shut down in August and the second was shut down in October (China Metal Market—Alumina and Aluminum, 2011d; CRU Aluminum Monitor, 2011h). Chinalco replaced the obsolete capacity with three new potlines. Production from the first new potline began in March, the second potline in the middle of the year, and the third potline started production in November to reach the smelter's full capacity of 388,000 t/yr by yearend (China Metal Market—Alumina and Aluminum, 2011b; CRU Aluminum Monitor, 2011e, j).

Meishan Aostar Aluminum Co. Ltd. restarted idle capacity that had been shut down at its smelter in Meishan, Sichuan Province (CRU Aluminum Monitor, 2011h). Faxiang Aluminum Co. Ltd. restarted 30,000 t/yr of capacity at its 100,000-t/yr smelter during the first quarter of the year, which had been closed in 2010 owing to power shortages (CRU Aluminum Monitor, 2011c). In April, Jiaozhuo Wanfang Aluminum Co. Ltd. restarted 140,000 t/yr of smelting capacity that had been shut down during the fourth quarter of 2010 at its 420,000-t/yr smelter owing to power shortages (China Metal Market—Alumina and Aluminum, 2011m).

China Power Investment Co. Ltd. started production from the new potline in March that doubled capacity to 500,000 t/yr at its Qinghai Xinye smelter (CRU Aluminum Monitor, 2011c).

Xichuan Xinyuan Aluminum Co. Ltd. started production from its smelter in Henan during the first quarter of the year. The 200,000-t/yr smelter was completed in 2010 but power shortages delayed the start of production (CRU Aluminum Monitor, 2011c).

Full capacity production was reached in March at a recently completed potline at the East Hope Group Ltd. smelter in Baotou, Inner Mongolia, which increased capacity to 800,000 t/yr from 500,000 t/yr (China Metal Market—Alumina and Aluminum, 2011g).

Huanghe Xinye Aluminum Co. Ltd. started production in March from a new potline at its smelter in Xining, Qinghai Province that increased production capacity to 500,000 t/yr from 250,000 t/yr (China Metal Market—Alumina and Aluminum, 2011f).

Qingmai Aluminum Co. Ltd. completed an expansion of its smelter in Yinchuan, Ningdong County, Ningxia Province, and started production in July. The project increased capacity to 580,000 t/yr from 270,000 t/yr. The new potline was producing at full capacity by November (CRU Aluminum Monitor, 2011g, j).

Shaanxi Yulin Co. Ltd. completed construction of a 650,000-t/yr aluminum smelter in October and started production from one 160,000-t/yr potline in September. Full production from the smelter was expected in early 2012. The project in Yulin, Shaanxi Province, also included a 1,500-MW coal-fired powerplant (China Metal Market—Alumina and Aluminum, 2011r; CRU Aluminum Monitor, 2011h).

Gansu Dongxing Aluminum Co. Ltd. completed the expansion of its smelter in Dingxi, Gansu Province, to

190,000 t/yr from 110,000 t/yr in January, and an additional expansion increasing capacity to 270,000 t/yr was completed in September and put into production in October. Another expansion to increase capacity to 360,000 t/yr was reportedly being considered (China Metal Market—Alumina and Aluminum, 2011h; CRU Aluminum Monitor, 2011i).

Shandong Yili Aluminum & Power Co. Ltd. completed a 400,000-t/yr smelter in Longkou, Shandong Province, in October. Production started in November and was expected to reach full capacity in early 2012 (China Metal Market—Alumina and Aluminum, 2011t).

East Hope started construction of an 800,000-t/yr smelter in Jimsar County, Xinjiang Province, in March (CRU Aluminum Monitor, 2011e).

Chinalco received approval to modernize the Guizhou smelter by replacing 180,000 t/yr of capacity with more efficient pots (China Metal Market—Alumina and Aluminum, 2011n). Chinalco shut down approximate 25,000 t/yr of capacity at its 400,000-t/yr Guizhou smelter in September citing power shortages (CRU Aluminum Monitor, 2011i).

Datang Shaanxi Power Co. Ltd., Jinyauan Aluminum Co. Ltd., and Qusheng Power Co. Ltd. announced that they would build a 200,000-t/yr smelter with a 750-MW powerplant in Chengcheng County, Shaanxi Province. Coal would be supplied from a 5-Mt/yr mine in the Province to be constructed as part of the project (China Metal Market—Alumina and Aluminum, 2011e).

Shandong Innovation Group (a subsidiary of Shandong Weiqiao Group) obtained approval to construct an 800,000-t/yr smelter in Huoligele, Inner Mongolia Province. Construction of the first phase was scheduled to start in May 2012. The second phase of the smelter was expected to be completed at yearend 2015 (China Metal Market—Alumina and Aluminum, 2011s).

Beijing Songjuehuarong Investment Co. Ltd. and Chongqing Wujiang Electric Power Co. Ltd. received approval to construct an aluminum complex in Qianjiang district, Chongqing Province. The project would include a 200,000-t/yr smelter, a rolling mill, an anode furnace, and a 600-MW coal-fired powerplant (China Metal Market—Alumina and Aluminum, 2011a).

France.—Transformer failures took place in May and August at the 262,000-t/yr Dunkerque smelter causing production to decrease by 10% from that in 2010 (Rio Tinto plc, 2012a, p. 5, 16).

Germany.—Novelis completed a 50,000-t/yr double chamber furnace at Neuss in November. The expansion would supply ingot to the Alunorf rolling mill, a joint venture between Novelis and Norsk Hydro (Novelis Inc., 2011b).

Ghana.—Volta Aluminum Co. Ltd. (Valco) restarted production from one 40,000-t/yr potline at its 200,000-t/yr smelter in January. Valco had shut down the smelter in 2003 because of power shortages caused by low water levels at the Akosombo hydroelectric powerplant (Volta Aluminum Co. Ltd., 2011).

Iceland.—Rio Tinto started an expansion and modernization project of the ISAL smelter in Straumsvik, which was expected to be completed by July 2014. The capacity of the smelter would increase to 230,000 t/yr from 190,000 t/yr. The project would also include a billet casthouse (Rio Tinto Alcan Inc., 2011a).

Century resumed limited construction on the Helguvik smelter and was awaiting finalization of a power contract to resume full-scale work. Once completed, the smelter would have a production capacity of 360,000 t/yr. Construction of the project originally started in June 2008 but was delayed during the financial crisis in late 2008 (Century Aluminum Co., 2012a, p. 2, 3, 10, 11).

Alcoa canceled plans for a new smelter at Bakki, citing insufficient available power to operate the smelter at optimal capacity. The proposed smelter would have had a capacity of 250,000 t/yr (Alcoa Inc., 2011d).

India.—In September, National Aluminium Co. Ltd. (Nalco) temporarily shut down 10% of capacity at its 460,000-t/yr Angul smelter. Shortages of coal for its captive powerplant and declining aluminum prices were cited for the shutdown (National Aluminium Co. Ltd., 2012). Nalco expected to complete upgrading smelting pots in 2012 that would increase capacity to 560,000 t/yr (National Aluminium Co. Ltd., 2011, p. 14).

In June, a power failure forced Vedanta Resources plc to shutdown 170 pots at the 500,000-t/yr Jharsuguda I smelter. The pots, with a total capacity of approximately 160,000 t/yr, were restarted by yearend (Vedanta Resources plc, 2011, 2012b). Vedanta was upgrading the capacity at the Jharsuguda I smelter to 550,000 t/yr with a project scheduled for completion by the end of June 2013. Vedanta was also progressing on construction of the 1.25-Mt/yr Jharsuguda II smelter, with completion expected by yearend 2013. Construction of the 325,000-t/yr Korba III smelter was also progressing, with initial production expected in the fourth quarter of 2012 (Vedanta Resources plc, 2012a, p. 6, 18, 38).

Full production was restored at the beginning of 2011 at Hindalco's Hirakud smelter after a power failure caused by lightning shut down production in July 2010 (Hindalco Industries Ltd., 2011c). Expansion of the smelter to 161,000 t/yr from 155,000 t/yr was completed in the first quarter of 2011. Another expansion to increase capacity to 213,000 t/yr was expected to be completed in early 2012, and a further expansion to 360,000 t/yr was being considered (Hindalco Industries Ltd., 2011a). Construction of the 359,000-t/yr Mahan smelter and 900-MW captive powerplant was progressing but the completion date was revised to early 2012 from September 2011 owing to rising costs (Hindalco Industries Ltd., 2011a, b). Work on the 359,000-t/yr Aditya smelter and 900-MW captive powerplant was underway with completion projected in the first quarter of 2013 (Hindalco Industries Ltd., 2011b, c). Acquisition of land and environmental permits for the proposed 359,000-t/yr Jharkhand smelter and 900-MW captive powerplant was progressing after having been deferred in 2009. Expected completion of the project was revised from 2013 to mid-2015 (Hindalco Industries Ltd., 2011c).

Iran.—Salco and China Non-ferrous Metal Industry's Foreign Engineering and Construction Co. (NFC) signed a contract to construct a 276,000-t/yr smelter (CRU Aluminum Monitor, 2011b). NFC also signed a contract with ALPHACONFC of Iran to construct an aluminum smelter with an initial capacity of 155,000 t/yr and the option to expand the smelter to 310,000 t/yr (China Metal Market—Alumina and Aluminum, 2011k). Chinese lenders would finance both projects. The location of the smelters and construction schedules were not available.

Italy.—Novelis announced it would construct a continuous cast line, including a 15,000-t/yr double chamber furnace at Pieve Emanuele. The expansion, expected to be completed at yearend 2012, would produce rolled products from scrap (Novelis Inc., 2011c).

Japan.—An earthquake, tsunami, and subsequent meltdowns of nuclear powerplant reactors in March, had a significant effect on aluminum consumption by the domestic automotive industry. Although primary aluminum production in Japan was not affected substantially, the loss of power and damage to factories and infrastructure forced the closure of several automobile parts manufacturers in Japan. The shortage of parts from Japan forced some assembly lines in Japan and the United States to close or slow production for several months, which resulted in decreased consumption of secondary aluminum in China and the United States by automobile parts manufacturers (Davidson, 2011b; McDonnell and Watanabe, 2011; Watanabe, 2011).

Kazakhstan.—Construction of an anode plant at the 250,000-t/yr Pavlodar smelter was progressing, with completion expected in 2012 (Eurasian Natural Resources Group Inc., 2011, p. 7).

Korea, Republic of.—Novelis announced it would expand its recycling facility and rolling mill in Yeongju. The expansion of the recycling facility would increase capacity by approximately 220,000 t/yr by yearend 2012. The expansion of the rolling mill was expected to be completed in late 2013 and produce can sheet and other rolled products for automotive and electronics manufactures (Novelis Inc., 2011e).

Montenegro.—Central European Aluminum Co. completed a modernization project of the Podgorica smelter in the second quarter of 2011 that increased capacity of the smelter to 156,000 t/yr from 120,000 t/yr. The project increased smelter efficiency and also upgraded the anode furnace (Central European Aluminum Co., 2011).

Netherlands.—At yearend, Zalco [a subsidiary of Klesch Group Ltd. (London, United Kingdom)] shut down its 275,000-t/yr smelter in Vlissingen. Klesch had been unable to find a buyer for the smelter and was not able to secure financing to continue operating during bankruptcy proceedings (Platts Metals Week, 2011d).

Nigeria.—In December, the Nigerian Senate voted to repeal the sale of the 96,000-t/yr smelter at Ikot Abasi to United Company Rusal because the sale of the smelter and other assets had not complied with privatization laws. Rusal purchased 85% of the smelter in 2007, with the Government of Nigeria retaining 15%. The repeal required approval by the President before taking effect (Bala-Gbogbo, 2011).

Norway.—In June, Norsk Hydro restarted 15,000 t/yr of smelting capacity at the 360,000-t/yr Sunndal smelter. Norsk Hydro had temporarily shut down 100,000 t/yr of capacity at the smelter in May 2009 as aluminum prices dropped. Increasing prices early in 2011 enabled the restart of part of the idle capacity but plans to restart the remaining pots were canceled when prices started to decline in the second half of 2011 (Norsk Hydro ASA, 2011d).

Oman.—Sohar Aluminum Co. was considering an expansion project at its smelter that would double capacity to 740,000 t/yr. The expansion would be contingent upon availability of natural gas to fuel the powerplant. Construction was projected to take 3 years after approval (CRU Aluminium Monitor, 2011d).

Qatar.—Qatar Aluminium Ltd. (Qatalum) announced that production from its 585,000-t/yr smelter in Qatar reached full capacity in September. The smelter was commissioned in December 2009, but a power failure on August 9, 2010, forced a shutdown of all pots in production. Production was restarted on September 15, 2010, but issues with the powerplant slowed the restart process. Qatalum was a joint venture between Norsk Hydro and Qatar Petroleum Ltd. (Doha) (Norsk Hydro ASA, 2011b, c).

Russia.—The collapse of a railway bridge over the Abakan River disrupted deliveries of supplies to Rusal's Sayanogorsk and Khakas smelters during May and June. Production from the 542,000-t/yr Sayanogorsk smelter decreased by 7% compared with production in 2010, and production from the 297,000-t/yr Khakas smelter decreased slightly (United Company RUSAL, 2011b; 2012).

Rusal completed a modernization and expansion of the 80-year-old Volkhov smelter at the end of 2011. The project upgraded emissions control systems and increased capacity to 32,000 t/yr from 24,000 t/yr (United Company RUSAL, 2011c).

Rusal resumed construction of the Boguchansky smelter. The first phase of the project, projected to be completed in 2013, would have a capacity of 147,000 t/yr and expansion to 600,000 t/yr was planned. A 3,000-MW powerplant was being built on the Angara River to power the smelter. Rusal continued work on the Taishet smelter, including infrastructure in the area near the smelter. The first phase of the project would have a capacity of 375,000 t/yr when completed in late 2012 or early 2013, and a proposed second phase, projected to be completed in late 2012 or early 2013, would increase production capacity to 750,000 t/yr. Work on both projects started in 2007 but was put on hold in 2009 during the financial crisis (United Company RUSAL, 2011a, d).

Saudi Arabia.—Saudi Arabian Mining Co. (Ma'aden) and Alcoa continued constructing the 740,000-t/yr Raz as Zawr smelter and 380,000-t/yr rolling mill. The project, expected to be completed in 2013, also included a 4-Mt/yr bauxite mine at Al Ba'itha and a 1.8-Mt/yr alumina refinery in Raz as Zawr that were expected to be completed in 2014. Ma'aden owned 74.9% of the joint venture and Alcoa owned 25.1% (Alcoa Inc., 2011a).

Turkey.—Eti Aluminyum A.S. announced plans to increase capacity of its smelter in Seydisehir to 95,000 t/yr from 65,000 t/yr. A construction schedule was not available (Hurriyet Daily, 2011).

Ukraine.—Rusal shut down the Zaporozhye smelter in March. During 2010, the 114,000-t/yr smelter had produced only 25,000 t of aluminum and was producing at that same rate until the closure. High power costs were cited for the production cuts in recent years (United Company RUSAL, 2012).

United Arab Emirates.—In January, Emirates Aluminium Ltd.'s (EMAL) 750,000-t/yr smelter at Al Taweelah reached full production after having been started in December 2009. EMAL was upgrading the smelter to increase capacity to 800,000 t/yr with completion expected by yearend 2012. In September, EMAL started construction of a new potline that would increase capacity to 1.3 Mt/yr by yearend 2014. EMAL was a partnership between Dubai

Aluminium Co. Ltd. and Mubadala Development Co. (Emirates Aluminium Ltd., 2011; 2012).

United Kingdom.—Rio Tinto announced that it would close the 169,000-t/yr smelter at Lynemouth. The smelter, which started production in 1972, would be permanently shut down in early 2012, and options to sell the associated powerplant were being explored. Higher compliance costs associated with emerging regulatory requirements were cited as the reason for the shutdown (Rio Tinto plc, 2011b). In December, a power failure at the Lynemouth smelter resulted in the shutdown of about two-thirds of its capacity. Rio Tinto had previously identified the Lynemouth smelter and powerplant as assets to be divested as part of a restructuring of its aluminum business (Rio Tinto plc, 2012a, p. 5).

Venezuela.—Power shortages continued to cause shutdowns that started in mid-2010 at the Alcasa and Venalum smelters. Further disruptions to production in February and May were caused by short-term strikes to protest unpaid benefits and disputes between rival unions. Production from the 170,000-t/yr Alcasa smelter was reduced to a rate of 90,000 t/yr during April as a result of shortages of raw materials including aluminum fluoride, cryolite, and petroleum coke. Financing problems were cited for the lack of raw materials. At yearend, the 430,000-t/yr Venalum smelter was producing at a rate of approximately 280,000 t/yr (Platts Metals Week, 2011a, b, g, k). A modernizing project of the Alcasa smelter was awarded to Chinalco. The project would update technology of the two potlines and would also include an extrusion plant on the site where two potlines had been permanently closed in 2010 (Platts Metals Week, 2011f).

Outlook

Aluminum prices stabilized during the first half of 2012 after declining during the second half of 2011. As of June 1, 2012, about 33% (1.05 Mt/yr) of domestic primary aluminum smelting capacity was not being used. World demand for aluminum in 2012 was expected to increase slightly compared with demand in 2011 as economic expansion in China offsets declines of aluminum consumption in Europe. However, policies aimed at slowing growth in China could reduce demand growth for aluminum in that nation.

Consumer credit issues in Western Europe were expected to continue through 2012. The continuing uncertainty about the impact of sovereign debt issues in Europe also raised concerns about consumer demand. The impact of the European debt crises was being felt as automobile sales declined during the early part of 2012 compared with sales in the same period of 2011. In the United States, consumption of aluminum was expected to gradually increase during 2012 compared with consumption in 2011, led by as increasing sales of automobiles.

Although easing of credit to aluminum companies was expected to enable more expansion projects to progress in many parts of the world, some projects that had been proposed prior to the financial crisis have been postponed indefinitely, and plans for some others are expected to be abandoned. Relatively high electricity prices in parts of the United States diminished the likelihood of some domestic smelters reopening in the near-term. In the first quarter of 2012, Alcoa announced that the temporary closures of the 215,000-t/yr Alcoa, TN, smelter and 76,000 t/yr of capacity at the Rockdale, TX, smelter would be made permanent. Alcoa also announced that the 150,000-t/yr Portovesme, Italy, smelter would be permanently closed and the 93,000-t/yr Aviles and 87,000-t/yr La Coruna smelters in Spain would be temporarily shutdown. These actions would be completed during the first half of 2012 (Alcoa Inc., 2012a, b). Other smelter shutdowns in Europe and Australia were announced in the early part of 2012, citing costs of power, low aluminum prices, and costs associated with proposed regulations on emissions of greenhouse gases. Concerns have been cited by the owners of smelters in Hawesville, KY; Mount Holly, SC; and Sebree, KY, about high costs for power when current supply contracts expire in coming years. The owner of the smelter in Columbia Falls, MT, was negotiating a power supply contract that would enable a restart of production (CRU Aluminum Monitor, 2011f, g, h). New smelters constructed where power costs are relatively low were expected to continue to replace production at high-cost smelters in the United States and other locations.

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TABLE 1
SALIENT ALUMINUM STATISTICS [1]

(Thousand metric tons unless otherwise specified)

		2007	2008	2009	2010	2011
United States:						
Primary production:						
Quantity		2,554	2,658	1,727	1,726	1,986
Value	millions	$6,880	$7,062	$3,025	$3,975	$5,083
Price, average, U.S. market, spot	cents per pound	122.2	120.5	79.4	104.4	116.1
Inventories (December 31):						
Aluminum industry[2]		1,400	1,220	937	1,010	1,060
London Metal Exchange, U.S. warehouses[3]		463	1,290	2,200	2,230	2,360
Secondary recovery:[4]						
New scrap		2,450	2,130	1,570	1,540 r	1,650
Old scrap		1,660	1,500	1,260	1,250 r	1,450
Total		4,120	3,630	2,820	2,790 r	3,110
Exports, crude, semicrude, and scrap		2,840	3,280	2,710	3,040	3,420
Imports for consumption, crude and semicrude[5]		4,020	3,710	3,680	3,610	3,710
Supply, apparent[6]		7,620	6,070	4,890	5,000	5,200
Consumption, apparent[7]		5,170	3,940	3,320	3,460	3,550
World, production		37,900 r	39,700 r	37,100 r	41,200 r	44,400 e

eEstimated. rRevised.

[1]Data are rounded to no more than three significant digits except "Primary production: Quantity" and "Price, average, U.S. market, spot."

[2]Data from the Aluminum Association Inc.; includes ingot, semifabricated material, and scrap inventory levels for United States and Canadian producers.

[3]Includes aluminum alloyed material.

[4]Metallic recovery from purchased, tolled, or imported new and old scrap expanded for full industry coverage.

[5]Excludes scrap.

[6]Defined as domestic primary metal production plus secondary recovery plus imports (excluding scrap) minus exports plus adjustments for London Metal Exchange (U.S. warehouses) and industry stock changes.

[7]Apparent supply less recovery from purchased new scrap.

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

Company and location	Yearend capacity (thousand metric tons) 2010	2011	Ownership in 2011
Alcoa Inc.:			
Alcoa, TN[2]	215	215	Alcoa Inc., 100%.
Evansville, IN (Warrick)	269 r	269	Do.
Ferndale, WA (Intalco)	279	279	Do.
Massena, NY (St. Lawrence)	125	125	Do.
Massena, NY	130	130	Do.
Mount Holly, SC	229	229	Alcoa Inc., 50.3%; Century Aluminum Co., 49.7%.
Rockdale, TX[2]	267	267	Alcoa Inc., 100%.
Wenatchee, WA	184	184	Do.
Total	1,700 r	1,700	
Century Aluminum Co.:			
Hawesville, KY	244	244	Century Aluminum Co., 100%.
Ravenswood, WV[2]	170	170	Do.
Total	414	414	
Columbia Falls Aluminum Co., Columbia Falls, MT[2]	168	168	Glencore International AG, 100%.
Goldendale Aluminum Co., Goldendale, WA[2]	160	160	Private interest, 60%; employees, 40%.
Noranda Aluminum Holding Corp., New Madrid, MO	263	263	Noranda Aluminum Holding Corp., 100%.
Ormet Primary Aluminum Corp., Hannibal, OH	260 r	260	Ormet Corp., 100%.
Rio Tinto Alcan Inc., Sebree, KY	196	196	Rio Tinto Alcan Inc., 100%.
Grand total	3,160 r	3,160	

rRevised. Do. Ditto.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Temporarily idle.

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

(Metric tons)

Class	Consumption	Calculated recovery Aluminum	Metallic
2010:			
Secondary smelters	1,600,000 r	1,140,000 r	1,220,000 r
Independent mill fabricators[3]	1,450,000	1,240,000	1,320,000
Foundries	50,700	41,400	44,200
Other consumers	6,290	6,290	6,290
Total	3,110,000 r	2,430,000	2,590,000
Estimated full industry coverage	3,360,000 r	2,620,000	2,790,000 r
2011:			
Secondary smelters	2,070,000	1,400,000	1,500,000
Independent mill fabricators[3]	1,470,000	1,250,000	1,330,000
Foundries	50,700	41,400	44,300
Other consumers	5,770	5,770	5,770
Total	3,590,000	2,700,000	2,880,000
Estimated full industry coverage	3,880,000	2,910,000	3,110,000

rRevised.
[1]Excludes recovery from other than aluminum-base scrap.
[2]Data are rounded to no more than three significant digits; may not add to totals shown.
[3]Includes plants previously categorized as "Integrated aluminum companies."

TABLE 4
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2011 [1, 2]

(Metric tons)

Class of consumer and type of scrap	Stocks, January 1	Net receipts[3]	Consumption	Stocks, December 31
Secondary smelters:				
New scrap:				
Extrusions	16,900 r	302,000	300,000	18,900
Can stock clippings	4,520	75,200	71,700	8,060
Other wrought sheet and clippings	2,390 r	206,000	204,000	4,640
Casting	1,460 r	56,400	55,700	2,150
Borings and turnings	3,220 r	109,000	109,000	3,840
Dross and skimmings	7,100 r	641,000	632,000	15,900
Total	35,600 r	1,390,000	1,370,000	53,400
Old scrap:				
Castings	4,110 r	116,000	117,000	2,530
Extrusion	4,400 r	140,000	137,000	7,650
Aluminum cans[4]	7,060	162,000	161,000	8,010
Other wrought products	5,110 r	186,000	182,000	9,170
Auto shredder scrap	1,500 r	98,000	98,100	1,360
Total	22,200 r	701,000	695,000	28,700
Sweated pig	89	356	390	55
Grand total secondary smelters	57,800 r	2,090,000	2,070,000	82,200
Integrated aluminum companies, foundries, independent mill fabricators, other consumers:				
New scrap:				
Extrusion	3,110 r	210,000	212,000	731
Can stock clippings	1,530	206,000	205,000	2,660
Other wrought sheet and clippings	3,950	219,000	214,000	8,770
Casting	243	17,100	17,100	243
Borings and turnings	367	12,600	12,600	414
Dross and skimmings	462	4,780	4,750	487
Total	9,670 r	669,000	665,000	13,300
Old scrap:				
Castings	5,570	114,000	116,000	3,750
Extrusion	416 r	16,200	15,800	831
Aluminum cans[4]	13,700	540,000	535,000	19,100
Other wrought products	381	189,000	189,000	381
Auto shredder scrap	82	556	536	102
Total	20,100 r	861,000	857,000	24,100
Grand total integrated aluminum companies, etc.	29,800 r	1,530,000	1,520,000	37,400
All scrap consumed:				
New scrap:				
Extrusion	20,000 r	512,000	512,000	19,600
Can stock clippings	6,050	281,000	277,000	10,700
Other wrought sheet and clippings	6,340 r	425,000	418,000	13,400
Casting	1,700 r	73,500	72,800	2,390
Borings and turnings	3,590 r	122,000	121,000	4,250
Dross and skimmings	7,560 r	646,000	637,000	16,300
Total	45,200 r	2,060,000	2,040,000	66,700
Old scrap:				
Castings	9,680 r	230,000	234,000	6,280
Extrusion	4,820 r	156,000	153,000	8,480
Aluminum cans[4]	20,700	702,000	696,000	27,100
Other wrought products	5,490 r	375,000	371,000	9,550
Auto shredder scrap	1,580 r	98,500	98,600	1,470
Total	42,300 r	1,560,000	1,550,000	52,800
Sweated pig	89	356	390	55
Grand total of all scrap consumed	87,600 r	3,620,000	3,590,000	120,000

See footnotes at end of table.

TABLE 4—Continued
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2011[1, 2]

[r]Revised.
[1]Includes imported scrap. According to reporting companies, 2.61% of total receipts of aluminum-base scrap, or 98,000 metric tons, was received on toll arrangements.
[2]Data are rounded to no more than three significant digits; may not add to totals shown.
[3]Includes inventory adjustment.
[4]Used beverage cans toll treated for primary producers are included in secondary smelter tabulation.

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

(Metric tons)

	2010		2011	
	Production	Net shipments[2]	Production	Net shipments[2]
Diecast alloys:				
13% Si, 360, etc. (0.6% Cu, maximum)	37,500	37,100	47,600	46,400
380 and variations	214,000	215,000	242,000	236,000
Sand and permanent mold:				
95/5 Al-Si, 356, etc. (0.6% Cu, maximum)	39,100	39,200	51,000	50,000
No. 12 and variations	943	943	998	998
No. 319 and variations	80,600	81,100	68,200	66,100
F-132 alloy and variations	9,380	8,880	4,770	5,260
Al-Mg alloys	7,240	7,240	7,830	8,010
Al-Zn alloys	1,650	1,650	1,530	1,710
Al-Si alloys (0.6% to 2.0% Cu)	3,190	3,190	3,450	3,500
Al-Cu alloys (1.5% Si, maximum)	445	445	2,070	1,950
Al-Si-Cu-Ni alloys	6,620	6,620	2,550	3,240
Other	136	136	--	18
Wrought alloys, extrusion billets	482,000 [r]	480,000 [r]	511,000	513,000
Miscellaneous:				
Steel deoxidation	22,300	22,100	41,700	41,800
Pure (97.0% Al)	W	W	W	W
Aluminum-base hardeners	W	W	W	W
Other[3]	38,400	38,700	36,200	43,500
Total	943,000 [r]	942,000 [r]	1,020,000	1,020,000
Less consumption of materials other than scrap:				
Primary aluminum	152,000 [r]	XX	153,000	XX
Primary silicon	20,800	XX	24,600	XX
Other	12,700	XX	16,300	XX
Net metallic recovery from aluminum scrap and sweated pig consumed in production of secondary aluminum ingot[4]	757,000 [r]	XX	827,000	XX

[r]Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous, other." XX Not applicable. -- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes inventory adjustment.
[3]Includes other diecast alloys.
[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 AND CANADA, BY INDUSTRY [1]

Industry	2010[r]		2011[p]	
	Quantity (thousand metric tons)	Percentage of grand total	Quantity (thousand metric tons)	Percentage of grand total
Containers and packaging	2,200	23.9	2,160	21.8
Building and construction	1,030	11.3	997	10.1
Transportation	2,390	26.0	2,770	28.0
Electrical	668	7.3	750	7.6
Consumer durables	547	6.0	559	5.6
Machinery and equipment	564	6.1	645	6.5
Other markets	318	3.5	322	3.3
Total	7,720	84.1	8,210	82.9
Exports[e]	1,460	15.9	1,700	17.1
Grand total	9,180	100.0	9,900	100.0

[e]Estimated. [p]Preliminary. [r]Revised.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: The Aluminum Association Inc.

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

(Thousand metric tons)

	2009	2010[r]	2011[p]
Wrought products:[3]			
Sheet, plate, foil	4,050	4,460	4,640
Pipe, tube, extruded shapes	1,070	1,450	1,410
Rod, bar, wire, cable	514	741	862
Forgings (including impacts)	73	89	103
Powder, flake, paste	45	46	46
Total	5,750	6,780	7,070
Castings:			
Sand	160	147	178
Permanent and semipermanent mold	377 [r]	475	494
Die	691	949	1,010
Other	6	5	9
Total	1,230 [r]	1,580	1,690
Grand total	6,990 [r]	8,360	8,760

[p]Preliminary. [r]Revised.

[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]Data are rounded to no more than three significant digits; may not add to totals shown.

[3]Wrought products data series includes net shipments in both the United States and Canada.

Source: The Aluminum Association Inc.

TABLE 8
ALUMINUM PRICES

(Dollars per pound)

Material	2010	2011
Primary aluminum, average:[1]		
U.S. market	1.044	1.161
London Metal Exchange cash price	0.986	1.088
NASAAC cash price, average[2]	0.949	1.079
Secondary alloy, average:[3]		
A319 (3% Cu)	1.113	1.233
A356 (0.2% Cu)	1.167	1.255
A360 (0.6% Cu)	1.144	1.245
A380 (3% Zu)	1.055	1.175
A413 (0.6% Cu)	1.144	1.247
Scrap, average:[3]		
Clean, dry turnings	0.660	0.757
Mixed low-copper-content clips	0.726	0.819
Old sheet and castings	0.678	0.767
Used beverage cans	0.742	0.867

[1]Source: Platts Metals Week.

[2]North American Special Aluminum Alloy Contract (NASAAC).

[3]Source: American Metal Market.

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

	2010		2011	
Class	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude and semicrude:				
Metals and alloys, crude	284,000	$709,000	314,000	$891,000
Scrap	1,910,000	3,190,000	2,140,000	4,050,000
Plates, sheets, bars, strip, etc.	786,000	3,230,000	907,000	4,080,000
Castings and forgings	20,000	250,000	20,900	317,000
Semifabricated forms, n.e.c.	36,200	269,000	36,100	296,000
Total	3,040,000	7,650,000	3,420,000	9,640,000
Manufactures:				
Foil and leaf	79,600	376,000	122,000	527,000
Powders and flakes	5,520	31,400	4,660	27,700
Wire and cable	43,200	163,000	43,900	187,000
Total	128,000	570,000	171,000	741,000
Grand total	3,170,000	8,220,000	3,590,000	10,400,000

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 10
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)
2010:								
Brazil	1,080	$2,830	14,300	$79,600	4,890	$9,060	20,300	$91,500
Canada	88,800	217,000	361,000	1,360,000	125,000	233,000	575,000	1,810,000
China	3,910	8,590	32,600	200,000	1,220,000	2,030,000	1,250,000	2,240,000
France	1,480	5,180	11,200	80,300	932	1,840	13,600	87,300
Germany	3,170	8,780	9,680	70,600	498	1,600	13,300	81,000
Hong Kong	109	311	10,800	47,900	53,000	83,000	63,800	131,000
Italy	36	261	2,490	28,600	19	66	2,540	28,900
Japan	1,810	7,430	8,730	106,000	23,800	49,100	34,300	162,000
Kazakhstan	--	--	6	279	--	--	6	279
Korea, Republic of	454	2,140	15,100	107,000	155,000	230,000	171,000	339,000
Mexico	174,000	425,000	258,000	1,040,000	153,000	323,000	586,000	1,790,000
Netherlands	190	629	733	8,680	448	838	1,370	10,200
Philippines	3	25	336	4,760	--	--	339	4,780
Russia	1	8	90	900	--	--	91	908
Saudi Arabia	9	49	16,800	60,100	9	17	16,900	60,100
Singapore	726	2,790	2,820	26,700	426	629	3,970	30,100
South Africa	9	80	346	2,750	--	--	355	2,830
Taiwan	2,080	5,400	5,960	32,400	107,000	125,000	115,000	163,000
Thailand	30	214	1,390	13,000	5,070	8,380	6,490	21,600
Ukraine	--	--	(3)	6	--	--	(3)	6
United Kingdom	639	2,370	9,780	89,000	598	1,260	11,000	92,600
Venezuela	6	74	547	4,600	--	--	553	4,670
Other	5,270	19,600	78,900	393,000	66,700	90,900	151,000	504,000
Total	284,000	709,000	842,000	3,750,000	1,910,000	3,190,000	3,040,000	7,650,000
2011:								
Brazil	42	598	8,960	67,700	4,290	9,240	13,300	77,600
Canada	90,800	251,000	372,000	1,550,000	139,000	313,000	602,000	2,120,000
China	4,490	12,300	32,800	230,000	1,450,000	2,740,000	1,480,000	2,980,000
France	1,700	6,900	15,600	116,000	109	400	17,400	124,000
Germany	4,150	13,400	11,000	81,000	723	1,640	15,900	96,100
Hong Kong	25	123	3,070	21,300	34,500	61,500	37,600	82,900
Italy	44	186	3,510	43,200	182	353	3,740	43,800
Japan	2,190	8,680	16,500	187,000	15,600	35,200	34,400	231,000
Kazakhstan	--	--	3	60	37	83	40	143
Korea, Republic of	984	4,540	18,800	132,000	198,000	305,000	218,000	442,000
Mexico	195,000	544,000	291,000	1,260,000	131,000	299,000	617,000	2,110,000
Netherlands	145	466	1,100	18,100	826	1,800	2,070	20,400
Philippines	14	44	289	3,690	--	--	303	3,740
Russia	4	10	228	1,320	--	--	232	1,330
Saudi Arabia	3	53	50,900	187,000	(3)	6	50,900	187,000
Singapore	776	2,170	3,890	34,700	501	805	5,160	37,700
South Africa	39	197	159	2,130	--	--	198	2,330
Taiwan	2,500	7,910	10,000	56,700	62,900	91,500	75,400	156,000
Thailand	431	1,060	1,150	14,100	5,840	10,400	7,420	25,500
Ukraine	2	6	3	43	--	--	5	49
United Kingdom	2,000	9,070	16,400	135,000	914	1,700	19,300	145,000
Venezuela	3	11	2,810	13,400	--	--	2,810	13,400
Other	8,740	27,900	103,000	529,000	102,000	184,000	214,000	741,000
Total	314,000	891,000	964,000	4,690,000	2,140,000	4,050,000	3,420,000	9,640,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes castings, forgings, and unclassified semifabricated forms.

[3]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 11

U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY CLASS [1]

Class	2010 Quantity (metric tons)	2010 Value (thousands)	2011 Quantity (metric tons)	2011 Value (thousands)
Crude and semicrude:				
Metals and alloys, crude	2,650,000	$6,110,000	2,830,000	$7,390,000
Plates, sheets, strip, etc., n.e.c.[2]	666,000	2,270,000	739,000	2,760,000
Pipes, tubes, etc.	27,500	210,000	26,600	232,000
Rods and bars	274,000	899,000	114,000	531,000
Scrap	504,000	763,000	579,000	1,020,000
Total	4,120,000	10,300,000	4,290,000	11,900,000
Manufactures:				
Foil and leaf[3]	126,000	497,000	138,000	585,000
Powders and flakes	10,100	45,100	11,500	48,000
Wire	145,000	387,000	166,000	491,000
Total	281,000	930,000	316,000	1,120,000
Grand total	4,400,000	11,200,000	4,600,000	13,100,000

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes circles, disks, plates, and sheets.

[3]Excludes etched capacitor foil.

Source: U.S. Census Bureau.

TABLE 12
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)
2010:								
Argentina	138,000	$288,000	3	$38	--	--	138,000	$288,000
Australia	28,400	68,600	119	1,040	103	$141	28,600	69,800
Bahrain	--	--	16,600	47,400	6	3	16,600	47,400
Belgium	102	379	2,000	9,820	1	5	2,110	10,200
Brazil	57,300	131,000	14,200	38,700	282	506	71,800	171,000
Canada	1,920,000	4,490,000	316,000	1,100,000	343,000	519,000	2,580,000	6,110,000
China	1,220	3,680	272,000	782,000	77	248	273,000	786,000
France	1,610	9,740	2,940	25,900	53	392	4,590	36,000
Germany	970	3,710	68,600	331,000	231	862	69,800	336,000
Italy	199	427	3,560	24,500	227	169	3,980	25,100
Japan	901	2,000	7,110	44,800	693	1,520	8,710	48,300
Korea, Republic of	2,490	6,840	2,240	11,500	143	385	4,880	18,700
Mexico	24,100	84,000	22,000	110,000	107,000	156,000	153,000	351,000
Netherlands	390	1,490	1,920	12,900	553	885	2,870	15,300
Norway	2,100	4,750	80	457	128	223	2,300	5,430
Panama	502	1,010	14	50	2,320	3,890	2,840	4,950
Russia	203,000	449,000	14,700	68,800	--	--	218,000	518,000
Slovenia	--	--	2,990	13,800	--	--	2,990	13,800
South Africa	14,300	29,500	49,000	158,000	--	--	63,300	187,000
Spain	235	940	105	997	--	--	340	1,940
Ukraine	--	--	2	45	40	66	42	111
United Arab Emirates	81,700	195,000	5	20	71	125	81,800	195,000
United Kingdom	437	1,940	7,250	32,400	7,890	13,400	15,600	47,700
Venezuela	123,000	251,000	2,480	5,230	1,940	3,340	127,000	260,000
Other	41,700	88,700	161,000	566,000	40,100	62,400	243,000	717,000
Total	2,650,000	6,110,000	967,000	3,380,000	504,000	763,000	4,120,000	10,300,000
2011:								
Argentina	106,000	267,000	14	221	--	--	106,000	267,000
Australia	33,700	94,000	72	758	38	72	33,800	94,800
Bahrain	40	130	19,300	63,400	--	--	19,300	63,500
Belgium	340	1,970	1,480	8,910	284	513	2,100	11,400
Brazil	36,300	90,900	20,300	63,600	74	143	56,700	155,000
Canada	1,880,000	4,930,000	312,000	1,190,000	357,000	625,000	2,550,000	6,750,000
China	1,550	5,500	144,000	480,000	121	410	146,000	486,000
France	4,160	12,900	4,840	42,800	--	--	9,000	55,700
Germany	1,370	6,340	80,600	406,000	1,250	2,840	83,200	416,000
Italy	571	1,230	5,200	37,300	467	434	6,240	39,000
Japan	628	1,470	7,420	53,100	517	1,330	8,570	55,900
Kazakhstan	7	186	--	--	--	--	7	186
Korea, Republic of	8,540	13,700	3,190	18,300	208	312	11,900	32,300
Mexico	19,800	70,900	29,100	160,000	136,000	235,000	185,000	466,000
Netherlands	522	2,240	1,170	8,350	446	757	2,140	11,400
Norway	1,760	4,020	84	1,130	26	108	1,870	5,260
Panama	886	1,880	--	--	2,780	5,160	3,660	7,030
Russia	221,000	570,000	13,700	64,300	--	--	235,000	634,000
Slovakia	--	--	5	50	--	--	5	50
Slovenia	--	--	3,390	18,000	--	--	3,390	18,000
South Africa	14,100	36,600	51,800	192,000	--	--	65,900	228,000
Spain	451	2,010	138	959	--	--	589	2,970
Tajikistan	4,450	11,500	--	--	--	--	4,450	11,500
Ukraine	--	--	1	71	--	--	1	71
United Arab Emirates	242,000	662,000	2	33	1,030	1,920	243,000	664,000
United Kingdom	15,600	35,200	5,250	28,100	9,100	16,700	29,900	80,000
Venezuela	141,000	330,000	978	2,670	2,070	4,370	144,000	337,000
Other	89,900	239,000	176,000	684,000	67,600	126,000	333,000	1,050,000
Total	2,830,000	7,390,000	880,000	3,520,000	579,000	1,020,000	4,290,000	11,900,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes circles, disks, pipes, rods, tubes, etc.

Source: U.S. Census Bureau.

TABLE 13
ALUMINUM, PRIMARY: WORLD PRODUCTION, BY COUNTRY [1, 2]

(Thousand metric tons)

Country	2007	2008	2009	2010	2011[e]
Argentina	271	394	410	412 [r]	440
Australia	1,957	1,974	1,943	1,928	1,945 [3]
Azerbaijan	39	40	-- [r]	-- [r]	4
Bahrain	865	872	848	851 [r]	881 [3]
Bosnia and Herzegovina[4]	122	123 [e]	96	118 [e]	131 [3]
Brazil	1,655	1,661	1,536	1,536	1,440 [3]
Cameroon	87	91	73	76	69 [3]
Canada	3,083	3,120	3,030	2,963	2,984 [3]
China[e]	12,600	13,200	12,900	16,200	18,100
Egypt	258	260	265	266 [e]	265
France	428	389	345	356	334 [3]
Germany	551	606	292	402 [r]	433 [3]
Ghana	--	--	--	--	35
Greece	166	160	130	130 [e]	132
Iceland[5]	398	787	785	780 [e]	800
India[6]	1,028 [r]	1,402 [r]	1,598 [r]	1,607 [r]	1,667 [3]
Indonesia[6]	242	243	250	252 [e]	255
Iran[e]	216	248	250	270 [r]	300
Italy	183	180 [e]	171	168 [e]	168
Japan[7]	57 [r]	59 [r]	39 [r]	54 [r]	56
Kazakhstan	--	106	127	227	249
Montenegro	124	107	64	80 [e]	80
Mozambique	564	536	545	557	562 [3]
Netherlands	301	301 [e]	300	300 [e]	300
New Zealand	353	316	271	344	357
Nigeria	--	11	13	21	18
Norway	1,357	1,358	1,130	1,060 [r]	1,070
Oman	--	49	351	367	375 [3]
Poland[8]	54	48	--	--	--
Qatar	--	--	10	190 [e]	390
Romania[9]	283	265	201	241 [r]	261 [3]
Russia	3,955	4,190	3,815	3,947	3,992 [3]
Slovakia[6]	160	163	150	163 [e]	165
Slovenia[4]	111	83	35	40	40
South Africa	899	811	809	807	809 [3]
Spain	408	408 [e]	360	340 [e]	365
Sweden	98	112	70	93	111 [3]
Tajikistan	419	339	359	349	355
Turkey[e]	65	65	35	60	60
Ukraine[9]	113	113	50	25	7 [3]
United Arab Emirates	890	948	1,010	1,400 [e]	1,800
United Kingdom	365	326	253	186	213 [3]
United States	2,554	2,658	1,727	1,726	1,986 [3]
Venezuela[e]	610	610	410	335	355
Total	37,900 [r]	39,700 [r]	37,100 [r]	41,200 [r]	44,400

[e]Estimated. [r]Revised. -- Zero.

[1]World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Primary aluminum is defined 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 of remelted material." 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, the definition is provided in this table by a footnote. Table includes data available through May 14, 2012.

[3]Reported figure.

[4]Primary ingot plus secondary ingot.

TABLE 13—Continued
ALUMINUM, PRIMARY: WORLD PRODUCTION, BY COUNTRY [1, 2]

[5]Ingot and rolling billet production.

[6]Primary ingot.

[7]Excludes high purity aluminum containing 99.995% or more as follows, in metric tons: 2007—50,777; 2008—52,000; 2009—33,000; 2010—49,000 (revised); and 2011—50,000 (estimated).

[8]Primary unalloyed ingot plus secondary unalloyed ingot.

[9]Primary unalloyed metal plus primary alloyed metal, thus including weight of alloying material.