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ALUMINUM [ADVANCE RELEASE]

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Aluminum

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During 2016, total aluminum production (primary plus aluminum recovered from scrap) in the United States decreased by 14% to 4.4 million metric tons (Mt), whereas apparent consumption decreased by 4% to 5.09 Mt compared with that of 2015 (table 1). Increased net imports and a drawdown of inventories compensated for decreased production. Net imports of crude metal in 2016 were 3.97 Mt, 900,000 metric tons (t) more than in 2015, an increase of 29%. In 2015, the United States had net imports of semifabricated aluminum products of 22,800 t, whereas, in 2016, the United States had net exports of semifabricated products of 2,900 t (tables 10, 12). Total aluminum inventories in the United States stored in London Metal Exchange Ltd. (LME)-registered warehouses and by industry decreased by 6% at yearend 2016 compared with those at yearend 2015 (table 1).

Domestic primary aluminum smelters produced 818,000 t of aluminum metal, 48% less than that in 2015. The value of production, based on the average U.S. market price, decreased by 53% to $1.45 billion owing to the lower production and lower unit values. At yearend, two companies were operating a total of five primary aluminum smelters in four States. Three smelters were temporarily idled during the year, and one additional smelter remained on care-and-maintenance status throughout 2016. About 45% [900,000 metric tons per year (t/yr)] of U.S. primary smelting capacity was shut down in 2016. About 58% [(1.17 million metric tons per year (Mt/yr)] of domestic primary aluminum smelting capacity, including idle potlines at operating smelters, was idle at yearend (table 2). Aluminum prices increased during the last 2 months of the year after being range-bound since the middle of 2015 as consumption stabilized, and increased global production from new smelting capacity was balanced with decreases in production from shutdowns of obsolete and high-cost capacity. Combined world inventories of aluminum metal and alloys held by LME-registered warehouses decreased by 22% to 2.31 Mt from 2.95 Mt (London Metal Exchange Ltd., 2015, 2016). World primary production increased slightly to 58.9 Mt (table 13).

The aluminum price on the LME averaged $0.727 per pound, 4% less than that in 2015, and the 2016 annual average U.S. market price of primary aluminum ingot decreased by 9% to $0.804 per pound from $0.882 per pound in 2015. The U.S. market price premium to the LME price averaged 11% in 2016, compared with 17% in 2015, 24% in 2014, and 13% in 2013. The monthly average price premium was 14% in January, decreased to a low of 8% in August, and increased to 10% in December (table 8).

Aluminum recovered from purchased and tolled scrap was 3.58 Mt in 2016, essentially the same as that in 2015 (table 3). Of this recovered metal, 56% came from new (manufacturing) scrap, and 44% came from old (obsolete aluminum products) scrap (table 1). Aluminum used beverage cans (UBCs) accounted for 44% of the old scrap consumed in 2016 and 19% of total scrap consumed (table 4).

Apparent consumption of aluminum in the United States decreased by 4% compared with that in 2015. Owing to lower domestic primary production that was only partially offset by decreased consumption, the U.S. net import reliance for aluminum as a percentage of apparent consumption increased to 53% in 2016 from 41% in 2015 and was at its highest level since 2005. Producers of unwrought and semifabricated aluminum products in the United States and Canada reported that they shipped 88.2% of their products to markets in the United States and Canada and 11.8% to external markets (table 6).

Primary aluminum was produced in 42 countries in 2016. China (54%), Russia (6%), Canada (5%), India (5%), and the United Arab Emirates (4%), in decreasing order of metal produced, accounted for 74% of primary world production. World primary metal production increased slightly compared with that of 2015. Increases in Canada, China, India, and Malaysia were partially offset by a 769,000-t decrease of production in the United States. The United States was the 11th-ranked producer of primary aluminum in 2016; it had been 7th in 2015, 6th in 2014, and 4th in 2013 (table 13).

Legislation and Government Programs

At the request of the U.S. House of Representatives Committee on Ways and Means, the U.S. International Trade Commission (USITC) launched an investigation to examine the aluminum industry. The USITC was to report on the factors affecting competition in major unwrought and wrought aluminum producing and exporting countries, including the United States, and to examine industry characteristics, recent trade trends, competitive strengths and weaknesses, factors related to increased capacity, and the effect of Government policies on production and trade of aluminum. The USITC also was to assess the impact of foreign Government policies in select countries on their domestic production, consumption, exports, and prices of aluminum as well as their impact on the U.S. aluminum industry and global aluminum markets. The USITC held a public hearing concerning this investigation on September 29 in which representatives of domestic producers, the China Nonferrous Metals Industry Association, and other industry participants made statements. No decision to take action was reached by yearend (McBeth, 2016a, b; U.S. International Trade Commission, 2016).

Production

Primary.—Primary aluminum production in the United States was 818,000 t, 48% less than that in 2015. Domestic production data were based on information compiled from U.S. Geological

Survey (USGS) monthly surveys sent to eight primary aluminum smelters owned by three companies, all of which responded.

On January 7, Noranda Aluminum Holding Corp. (Franklin, TN) temporarily shut down two of the three potlines at the 263,000-t/yr New Madrid, MO, smelter following an electrical supply circuit failure. A month later, the company filed for Chapter 11 bankruptcy protection citing high power prices and low prices for aluminum and the bauxite from its mine in Jamaica that it sells to a major customer. On March 11, Noranda shut down the last operating potline at the New Madrid smelter as part of the bankruptcy (Matyi, 2016d; Noranda Aluminum Holding Corp., 2016a, b, c).

In January, Alcoa Inc. (New York, NY) temporarily shut down the 184,000-t/yr smelter in Wenatchee, WA, and in March, temporarily shut down the 269,000-t/yr Warrick smelter in Evansville, IN. The shutdown of the Warrick smelter was originally announced as permanent, but in July 2017 it was reclassified as temporary. The adjacent rolling mill and powerplant at Warrick would continue to operate. Alcoa cited high power prices and low aluminum prices for the two shutdowns (Alcoa Inc., 2016d; Maltais, 2016f; Alcoa Corp., 2017a, p. 18; 2017b).

In May, Alcoa and the Bonneville Power Administration signed a power supply contract for the Intalco smelter in Ferndale, WA, that would extend from July 1, 2016, through February 14, 2018. In November 2015, Alcoa had announced plans to close the 279,000-t/yr smelter, citing high power prices and low aluminum prices, but would operate the casthouse by melting ingot from other sources. Prior to the power contract being signed, Alcoa postponed the scheduled shutdown, citing changes in energy and raw materials costs that made it more cost effective in the short term to use molten metal from the smelter instead of melting ingot. The new power contract enabled the smelter to remain open (Alcoa Inc., 2016c, e).

In July, Century Aluminum Co. (Chicago, IL) extended its power supply contract with Santee Cooper (the South Carolina Public Service Authority) through 2018 for its 231,000-t/yr Mount Holly, SC, smelter. The smelter was operating at only one-half of capacity at the time of the extension (Maltais, 2016e).

Secondary.—Domestic secondary aluminum production was 3.59 Mt, essentially the same as that in 2015. Domestic production data were based on information compiled from USGS monthly and annual surveys sent to 53 secondary aluminum facilities. In 2016, responses were received from 33 of the facilities.

On June 29, an explosion injured five employees and shut down the casthouse of Bonnell Aluminum Inc.'s (Newnan, GA) extrusion plant in Newnan, GA. The company said that billet production would not resume for several months, but that production would continue from the extrusion presses using billet obtained from other sources (Maltais, 2016a, b).

Production from Kaiser Aluminum Corp.'s (Lake Forest, CA) billet casthouse in Sherman, TX, was temporarily shut down in June or early July for an unspecified reason. The casthouse, which produced extrusion billet used to manufacture automobile parts, was restarted in October (Maltais, 2016c, d).

In April, Matalco Inc. (Canada) started producing aluminum billet at its newly constructed secondary smelter in Lordstown, OH. Matalco expected to produce about 40,800 t of billet from the smelter in 2016. The smelter would be ramped up to its full capacity of 159,000 t/yr in 2018 (Matyi, 2016b).

Nikkei MC Aluminum America Inc. [a subsidiary of Nippon Light Metal Holdings Co. Ltd. (Japan)] was planning to expand capacity of its 40,000-t/yr secondary smelter in Columbus, IN. The capacity of the proposed expansion was not stated. The project was awaiting permits (Macaulay, 2016; Nikkei MC Aluminum America Inc., 2016).

In May, Novelis Inc. [a subsidiary of Hindalco Industries Ltd. (India)] completed an expansion of its rolling mill in Oswego, NY, to 360,000 t/yr from 280,000 t/yr to produce sheet for automobile manufacturers. The expansion project started in 2013 (Novelis Inc., 2013, 2016).

Aleris International Inc. (Cleveland, OH) continued an expansion of its rolling mill at Lewisport, KY, that was expected to be completed early in 2017. The rolling mill would have a capacity of approximately 215,000 t/yr of heat-treated sheet for automobile manufacturers (Aleris International Inc., 2016a, b).

Constellium N.V. (Netherlands) and UACJ Corp. (Japan) opened a 100,000-t/yr automobile sheet line at their rolling mill in Bowling Green, KY, in September (Constellium N.V., 2016a).

Alexin LLC expanded the casthouse at its secondary smelter in Bluffton, IN, by adding equipment to make rolling slab in addition to extrusion billet. Construction on the project was approved in February and was completed in October. The project did not increase the capacity of the 100,000-t/yr smelter (Alexin LLC, 2016).

Consumption

Apparent consumption of aluminum in the United States decreased for the first time since 2009, decreasing to 5.09 Mt in 2016, 4% less than in 2015. Shipments of aluminum ingot and semifabricated products by producers in the United States and Canada to their combined domestic markets increased slightly in 2016 compared with the amount shipped in 2015. Combined net United States imports of crude aluminum and semifabricated products from Canada increased 4% compared with those in 2015. Producers of unwrought and semifabricated aluminum products in the United States and Canada reported that they shipped 88.2% of their products to markets in the United States and Canada and exports to external markets accounted for 11.8% of shipments from producers in the United States and Canada in 2016. The shipments to the transportation industry accounted for 35.2%; containers and packaging, 18.0%; building and construction, 12.3%; electrical, 7.0%; consumer durables, 6.6%; machinery and equipment, 6.5%; and other markets, 2.6% (table 6).

Shipments of aluminum to the transportation sector increased slightly and accounted for 35.2% of shipments in 2016 compared with 34.9% of shipments in 2015. Increased automobile production and sales contributed to the increase in shipments of aluminum to the transportation sector. Total light-vehicle production in North America in 2016 increased slightly compared with that of 2015. Passenger car production decreased by 4.4% but light-truck production increased by 4.6% compared with production in 2015. Total light-vehicle sales in 2016 were a record-high 17.87 million units, slightly more

than in 2015 and 68.5% more than the number of units sold in 2009. Light-vehicle sales have increased every year since 2009 (Ward's Automotive Group, 2017a, b).

The increase in aluminum shipments for use in automobiles was partly offset by decreased consumption in commercial aircraft. The Boeing Co. (Chicago, IL) reported that its deliveries of commercial aircraft decreased slightly in 2016 compared with deliveries in 2015. Deliveries of the 787 Dreamliner—an aircraft with a fuselage and wings made from composite materials instead of aluminum, but which has a significant amount of aluminum in other parts—increased slightly and accounted for 18% of commercial aircraft deliveries; deliveries of Boeing's other commercial aircraft decreased by 3% in 2016 compared with deliveries in 2015 (Boeing Co., The, 2017, p. 27). The decrease in aircraft deliveries was attributed to airlines delaying deliveries as oil prices dropped in 2015 and remained at lower levels in 2016. The lower fuel costs make existing aircraft more economically viable compared to replacing them with more-fuel-efficient aircraft (Rich, 2016).

To meet the increasing demand for aerospace products manufactured with three-dimensional (3D) printing technology, Alcoa opened a new metal powder production facility near Pittsburgh, PA, in July. The facility would produce powders of aluminum alloys, nickel, and titanium used in 3D printing for aerospace and other markets (Alcoa Inc., 2016b).

Shipments of aluminum to the building and construction sector increased by 3% in 2016 from those in 2015 owing to increased commercial and residential construction. In the United States, housing starts increased by 5.6% in 2016 compared with starts in 2015, and the number of houses completed in 2016 was 9.5% more than in 2015. Total U.S. construction spending during 2016 increased by 4.5% compared with that in 2015, which was attributed to a 5.2% increase in spending on residential construction and a 7.8% increase in spending on the more aluminum-intensive nonresidential construction (U.S. Census Bureau, 2017a, b).

Aluminum shipments to the consumer durables sector increased by 7%, and shipments to the electrical sector increased by 5% compared with those in 2015. Shipments to the containers and packaging and machinery and equipment sectors increased slightly compared with those in 2015. Shipments to other markets decreased by 5% compared with those in 2015.

Stocks

According to data reported by The Aluminum Association (2016, 2017), United States and Canadian producers' combined inventories of aluminum ingot, mill products, and scrap increased by 3% to 1.40 Mt at yearend 2016 from 1.35 Mt at yearend 2015. The LME reported that primary aluminum metal ingot stocks in its approved U.S. warehouses decreased to 265,000 t at yearend 2016 from 460,000 t at yearend 2015 and 1.11 Mt at yearend 2014. At yearend 2016, LME warehouses in the United States also held 97,400 t of North American Special Aluminum Alloy Contract metal ingot, more than double the 47,100 t held at yearend 2015. Global yearend 2016 inventories of unalloyed aluminum metal held by LME-registered warehouses decreased by 24% to 2.2 Mt from 2.89 Mt at yearend 2015, and aluminum alloy inventories increased by 77% to 110,000 t from 62,200 t (London Metal Exchange Ltd., 2014, 2015, 2016).

Prices

The monthly average U.S. spot market price of primary aluminum metal, as reported by Platts Metals Week, averaged $0.764 per pound in January, and generally increased throughout the year to a monthly average of $0.865 per pound in December. The annual average price in 2016 decreased to $0.804 per pound from $0.882 per pound in 2015. In 2016, the annual average LME cash price decreased to $0.727 per pound from $0.754 per pound in 2015. The U.S. market price premium to the LME cash price averaged $0.093 per pound (14%) in January, decreased to a low of $0.063 per pound (8%) in August, and averaged $0.077 per pound (11%) for the year, a decrease from $0.128 per pound (17%) in 2015. The indicator prices for selected secondary aluminum ingots and scrap, as published in American Metal Market, followed the same trend as primary ingot prices. Scrap prices generally followed the trend of primary aluminum prices (table 8).

Foreign Trade

In 2016, as a result of decreased primary production, net imports of unmanufactured aluminum materials [crude metal and alloys, semifabricated (plates, sheet, and bars), and scrap] increased by 55% compared with net imports in 2015 (tables 10, 12). Total imports of unmanufactured aluminum increased by 19% during 2016 compared with those of 2015. Imports for consumption of crude aluminum metal and alloy increased by 25%, scrap imports increased by 17%, and imports of semifabricated aluminum materials were unchanged. Canada remained the leading source country, accounting for 54% of crude metal and alloys, 22% of semifabricated aluminum materials, 60% of scrap, and 48% of total unmanufactured aluminum imports in 2016. China accounted for 31% of semifabricated aluminum material imports. Mexico accounted for 22% of scrap imports. Russia and the United Arab Emirates accounted for 17% and 13%, respectively, of crude aluminum metal and alloy imports (table 12).

Total exports of unmanufactured aluminum decreased by 6% during 2016 compared with those of 2015 (table 10). Exports of crude aluminum and scrap decreased by 16% and 13%, respectively, and semifabricated aluminum material exports increased by 4%. In 2016, about 74% of United States exports of unmanufactured aluminum were shipped to Canada, China, or Mexico. Canada and Mexico were the leading destinations for semifabricated aluminum exports, with each receiving 36% of exports. China accounted for 26% of unmanufactured United States aluminum exports during 2016, 95% of which was scrap (table 10).

World Industry Structure

Production.—World primary aluminum production increased slightly in 2016 compared with that of 2015 owing to new capacity in Canada, China, India, and Malaysia. These gains were partially offset by smelter closures in the United States

as a result of lower aluminum prices, high power costs, and unfavorable currency exchange rates. China was the leading producer and accounted for 54% of global primary aluminum production. Russia, Canada, India, and the United Arab Emirates, in decreasing order of production, accounted for an additional 20% of production (table 13).

Mergers, Acquisitions, and Divestitures.—Alcoa Inc. completed its separation into two separate entities on November 1. Alcoa Corp. will own the upstream commodity assets including primary aluminum smelters, bauxite mines, alumina refineries, and powerplants. Arconic Inc. will own the downstream, value-added businesses including rolling mills and associated secondary aluminum capacity, as well as specialty metal, aerospace, and automobile product assets. In September 2015, Alcoa Inc. announced that it would split into two separate companies, citing the desire to have the individual companies be able to focus on either value-added products or upstream commodities. During the past several years, Alcoa Inc. had been preparing for this restructuring by shutting down or selling high-cost upstream assets and investing in assets that produced value-added products (Alcoa Inc., 2015, 2016a).

Noranda filed for Chapter 11 bankruptcy protection on February 8. During the restructuring, the company shut down the one potline that was still producing at the New Madrid, MO, smelter in March. The two other potlines were previously shut down a month earlier after an electrical supply circuit failure on January 7. Noranda also sold most of its assets in the second half of the year. On October 28, ARG International AG (Switzerland) completed the purchase of the idled New Madrid primary aluminum smelter. Granges AB (Sweden) acquired Noranda's rolling mills in Huntingdon, TN, Salisbury, NC, and Newport, AR. New Day Aluminum LLC, an affiliate of DADA Holdings LLC (Ft. Lauderdale, FL), purchased the alumina refinery in Gramercy, LA, and the St. Ann Mine in Jamaica from Noranda (Dent, 2016; Granges AB, 2016; Matyi, 2016a, c; Noranda Aluminum Holding Corp., 2016b).

Zhongwang USA (China) reached an agreement to acquire Aleris from a consortium of private equity firms led by Oaktree Capital Management. Aleris produced aluminum sheet and plate products used for aerospace, automobile, and building and construction applications. The transaction was expected to close in the first quarter of 2017, pending regulatory approval (Baltic and McBeth, 2016; Maltais, 2016h).

Real Alloy Holding Inc. [a subsidiary of Real Industry Inc. (Beachwood, OH)] acquired Beck Aluminum Alloys Ltd. (Sherman Oaks, CA) in November. Three secondary aluminum smelters were included in the acquisition, located in Mount Pleasant, WI, Houston, TX, and Lebanon, PA. The Lebanon smelter was closed throughout the year (Real Industry Inc., 2016).

In December, Rio Tinto plc (United Kingdom) sold the 50,000-t/yr Lochaber smelter and the nearby Kinlochleven hydroelectric power plant in Scotland to subsidiaries of GFG Alliance Ltd. (Australia) in order to reduce debt and focus on its core assets. The smelter was purchased by Liberty House Group Ltd., and the powerplant was purchased by SIMEC Ltd. (Liberty House Group Ltd., 2016; Rio Tinto plc, 2016a).

World Review

Australia.—On December 1, a power failure took place at the 358,000-t/yr smelter in Portland, Victoria. Prior to the power failure, the smelter had been producing at 85% of its capacity but was producing at less than 30% of its capacity after the power failure. Alcoa restarted the shutdown capacity on January 19, 2017, but said the rampup of the smelter would take about 6 months. The smelter was a joint venture of Alcoa (55%), CITIC Nominees Pty. Ltd. (22.5%), and Marubeni Aluminium Australia Pty. Ltd. (22.5%) (Teo, 2016; Alcoa Corp., 2017c).

Bahrain.—In April, Aluminium Bahrain B.S.C. (Alba) signed a contract with International Bechtel Co. Ltd. to construct and engineer a sixth potline that would have a capacity of 540,000 t/yr when completed in 2019; work on the potline commenced by June. In September, Alba began to upgrade two of its potlines to improve efficiency and increase capacity to 1.05 Mt/yr from 970,000 t/yr by yearend 2017. In November, Alba completed an upgrade of one of its casthouses to increase production of value-added products (Aluminium Bahrain B.S.C., 2016a, b, c, d).

Brazil.—Primary aluminum production increased to 793,000 t, slightly more than that in 2015. Decreased power prices during the first half of the year encouraged smelters to restart some capacity that was shut down when power prices increased in 2013. However, at the end of 2016, power prices were rising again. Aluminum consumption declined for the third year in a row as a result of decreased demand by Brazil's automobile and construction sectors, but consumption stabilized during the second half of the year. With increased production and decreased consumption, exports of aluminum in the first 11 months of 2016 increased by 9% compared with those in the same period of 2015. The Government extended the elimination of a 6% tariff on unwrought primary aluminum imports through August 2017. In 2014, the tariff was eliminated as shutdowns of primary smelting capacity forced manufacturers to rely on imports (Carvalho, 2014; Assalve, 2015; Metal Bulletin, 2017).

Canada.—Rio Tinto completed ramping up production at the 420,000-t/yr smelter in Kitimat, British Columbia, in March. An expansion and modernization project, which increased capacity to 420,000 t/yr from 280,000 t/yr, was completed and started production in June 2015 (Rio Tinto plc, 2016b, p. 9, 18; 2016c, p. 3).

China.—Primary aluminum production in 2016 was 31.9 Mt, slightly more than that in 2015. Aluminum production generally increased throughout the year; production in January was 2.59 Mt, and in December production was 2.89 Mt. Smelters were restarted in September and October in Gansu, Guizhou, Ningxia, Shanxi, and Sichuan Provinces. New capacity was started in Shandong Province and Guangxi Zhuang, Inner Mongolia, and Xinjiang Uyghur Autonomous Regions. In October, more than 34 Mt/yr of capacity was producing, up from 30.4 Mt/yr in January. The Government ordered local authorities to strictly control expansion of primary aluminum smelting capacity in December. Provincial and municipal governments were prohibited from giving approval, allocating land, or granting environmental permits for new smelting capacity. Banks were also prohibited from financing new smelting

capacity. However, expansion projects with a combined capacity of 2.7 Mt/yr were already under construction. Total smelting capacity at yearend 2016 was estimated to be 43.2 Mt/yr, 11% more than that at yearend 2015. Capacity increases were focused in Qinghai, Shandong, and Shanxi Provinces and Guangxi Zhuang, Inner Mongolia, and Xinjiang Uyghur Autonomous Regions. Aluminum consumption in China was estimated to be 32.7 Mt, 8% more than the amount consumed during 2015 (China Metal Market—Alumina and Aluminum, 2016a, b, c; 2017a, b, c; Maltais, 2016g; Xizhi and Lan, 2017, p. 11).

Chiping Xinfa Group Ltd. started production in the first quarter of the year at its 1-Mt/yr smelter in Shandong Province that was completed in 2015. By May, the production rate was 200,000 t/yr and was at 500,000 t/yr in July with the rampup expected to be completed by yearend. East Hope Group Ltd. was expanding the capacity of its smelter in Xinjiang to 1.2 Mt/yr from 800,000 t/yr. Completion of the expansion was expected by yearend, and capacity already completed was producing at a rate of 900,000 t/yr in July. Yinhai Aluminum Ltd. was expanding capacity of its 250,000-t/yr smelter in Laibin, Guangxi Zhuang Autonomous Region, to 500,000 t/yr. Construction started in mid-2016 and was expected to be completed in mid-2017 (Mok, 2016a, c, d).

France.—Constellium completed a 100,000-t/yr automobile sheet line at its rolling mill in Neuf-Brisach in October (Constellium N.V., 2016b).

Germany.—In May, Norsk Hydro ASA (Norway) commissioned a 50,000-t/yr secondary smelter at its Neuss facility to recycle UBCs. In June, Norsk Hydro announced that it had signed a power-supply contract with Axpo Trading AG (Switzerland) that would provide 150 megawatts (MW) of generating capacity from 2021 to 2025 to its 235,000-t/yr primary smelter and rolling mill at Neuss. The contract supplemented a previous contract signed in 2015 that would provide 100 MW of generating capacity from 2018 to 2025 (Norsk Hydro ASA, 2016b, d).

Norsk Hydro started trial production of its rolling mill in Grevenbroich during the third quarter. The capacity of the rolling mill was increased to 200,000 t/yr from 50,000 t/yr, and output would supply automobile manufacturers (Norsk Hydro ASA, 2015, 2016f).

Trimet Aluminium SE's Voerde smelter reached full production capacity of 95,000 t/yr in June. Trimet acquired the Voerde smelter in 2014 and had been increasing production gradually (Trimet Aluminium SE, 2016).

Greece.—Aluminium of Greece (a subsidiary of Mytilineos Holdings S.A.) signed a power-supply contract with Public Power Corp. of Greece for its 182,000-t/yr smelter. The contracted price was retroactive to 2014 and will last through 2020. Aluminium of Greece also started a modernization project to increase productivity and reduce energy costs of the smelter (Blamey, 2016a; Mytilineos Holdings S.A., 2017).

Hungary.—Alumetal Group S.A. (Poland) completed the construction of a secondary aluminum smelter in Komarom. The 60,000-t/yr smelter started production in September and would supply casting alloys to consumers in the automotive parts industry located in Hungary and southern Europe (Alumetal Group S.A., 2016).

India.—Primary aluminum production in 2016 increased by 16% compared with that in 2015 as new capacity ramped up. Vedanta Resources plc's (United Kingdom) 325,000-t/yr Korba II smelter reached full production capacity in August. However, in September technical issues forced the shutdown of one-half of the smelting capacity. At yearend, the smelter was producing at 60% capacity. The rampup of the first potline at Vedanta's 1.25-Mt/yr Jharsuguda II smelter was completed at the end of July. The potline was subsequently affected by a power outage in early August and a transformer failure in December. At yearend, the first potline was operating at 24% capacity. The second potline rampup at Jharsuguda II began in July and was producing at nearly full capacity by yearend; rampup of the third potline commenced in December (Vedanta Resources plc, 2016a, p. 10; 2016b, p. 8; 2016c, p. 7–8; 2017, p. 8–9).

In the first quarter, Hindalco completed ramping up production at the 360,000-t/yr Aditya smelter to full capacity. The smelter was commissioned in January 2014 (Hindalco Industries Ltd., 2016a, p. 13–14; 2016b, p. 16–17).

Indonesia.—Inalum was expanding capacity of its smelter to 300,000 t/yr from 250,000 t/yr. Completion of the project was expected by yearend 2017. Further expansion to 400,000 t/yr by yearend 2019 was planned (Lim, 2016a; Mok, 2017).

Italy.—Alcoa began to dismantle its 150,000-t/yr Portovesme smelter in 2016. The company, which had been trying to find a buyer for Portovesme since 2011, idled the smelter in November 2012 after being unable to secure a power-supply contract at a competitive price (Trabattoni, 2016).

Malaysia.—Press Metal Berhad's Samalaju smelter completed the rampup of new capacity in May, 7 months after initial production began in November 2015. The expansion doubled the capacity of the smelter to 640,000 t/yr from 320,000 t/yr. The rampup of new capacity and the restart of capacity that was temporarily shut down after a fire in May 2015 accounted for the 55% increase in total production in Malaysia in 2016 compared with that in 2015 (Lim, 2016b; Mok, 2016b; Press Metal Berhad, 2017, p. 11).

Norway.—In February, Norsk Hydro temporarily shut down about 20,000 t/yr of capacity at the 190,000-t/yr Ardal smelter, citing a power failure related to adverse weather. The affected capacity was restarted by midyear (Norsk Hydro ASA, 2016a, f).

Norsk Hydro started construction of a 75,000-t/yr pilot plant in Karmoy to test more efficient smelting processes. The Karmoy pilot plant would be completed in the second half of 2017 (Norsk Hydro ASA, 2016e).

Norsk Hydro signed a power-supply contract with Nordic Wind Power DA to replace the contract with the state-owned hydropower company, Statkraft, when it expires in 2020. Under the new contract, Nordic Wind Power will provide between 0.6 and 1.0 terawatthours of power from 2020 through 2039 (Norsk Hydro ASA, 2016c).

Romania.—Alro S.A. (a subsidiary of Vimetco N.V.) was expanding its secondary production capacity adjacent to its primary smelter in Slatina. The expansion would increase Alro's secondary aluminum capacity to 90,000 t/yr from 30,000 t/yr and was part of an investment to increase energy efficiency at the Alro's facilities (Blamey, 2016b).

Russia.—United Company RUSAL Plc continued trial production at the 147,000-t/yr Boguchansky smelter, which was completed in 2015. The smelter would be powered by the 3,000-MW Boguchanskaya hydroelectric powerplant on the Angara River (United Company RUSAL Plc, 2016).

Outlook

World consumption of aluminum in 2017 is expected to increase in proportion to growth in global gross domestic product. Inventories at LME-registered warehouses are expected to remain stable after destocking during the past few years.

Primary aluminum smelters in the United States are expected to continue producing unless prices decline dramatically in the near future, with most having power contracts for the next few years. The global trend of permanently closing older smelters or modernizing them in order to comply with environmental regulations, increase efficiency, and reduce costs is expected to continue, although most high-cost smelters outside of China had already been shut down by yearend 2015. Limited expansion of new capacity is expected in locations where power costs are relatively low, most notably in the Middle East and Russia. In China, construction of new capacity is expected to be limited, but the further shutdown of unprofitable capacity is not expected to be significant.

Aluminum consumption by the domestic automobile industry is expected to increase as automobile manufacturers increase the per vehicle aluminum content, including the substitution of aluminum sheet for steel in certain truck models, in response to increasing fuel efficiency standards. However, because of its higher cost, the growth in aluminum sheet use in automobiles will likely be focused on vehicle types with high customer brand loyalty and whose users are not as price sensitive, such as light trucks, luxury sedans, sports cars, and sport utility vehicles. Increased sales of certain aluminum-intensive light-truck and sport-utility-vehicle models are expected to increase aluminum consumption. Aluminum consumption by U.S. and European aircraft manufacturers is expected to remain stable in the near term as airlines delay replacing older aircraft with newer, more-fuel-efficient models as the price of oil price continues to remain well below its previous peak. However, in the longer term, aluminum consumption by the aerospace industry is projected to increase as older aircraft are retired as they reach the end of useful service and as air travel increases in emerging economies. Competition from carbon composites, magnesium, and high-strength steel is expected to continue as the transportation sector seeks lighter weight materials to improve fuel efficiency; however, the aluminum industry continues to develop new aluminum alloys to compete with other materials.

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TABLE 1
SALIENT ALUMINUM STATISTICS[1]

(Thousand metric tons unless otherwise specified)

		2012	2013	2014	2015	2016
United States:						
Primary production:						
Quantity		2,070	1,946	1,710	1,587	818
Value	millions	$4,608	$4,042	$3,937	$3,085	$1,450
Price, average, U.S. market, spot	cents per pound	101.0	94.2	104.5	88.2	80.4
Inventories (December 31):						
Aluminum industry[2]		1,140	1,130	1,280	1,350	1,400
London Metal Exchange, U.S. warehouses[3]		2,120	1,950	1,190	507	362
Secondary recovery:[4]						
New scrap		1,750 r	1,790 r	1,870 r	2,000 r	2,010
Old scrap		1,620 r	1,630 r	1,690 r	1,560 r	1,580
Total		3,380	3,410 r	3,570	3,560 r	3,580
Exports, crude, semicrude, and scrap		3,480	3,390	3,230	3,010	2,820
Imports for consumption, crude and semicrude[5]		3,760	4,160	4,290	4,560	5,410
Supply, apparent[6]		5,880 r	6,310 r	6,940 r	7,310 r	7,100
Consumption, apparent[7]		4,130	4,520 r	5,070 r	5,300 r	5,090
World, production		49,300 r	52,200 r	54,200	58,100 r	58,900

rRevised.
[1]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits except "Primary production: Quantity and Value" and "Price, average, U.S. market, spot"; may not add to totals shown.
[2]Data from The Aluminum Association Inc.; includes ingot, semifabricated material, and scrap inventory levels for producers in the United States and Canada.
[3]Includes aluminum alloyed material.
[4]Metallic recovery from purchased, tolled, or imported new and old scrap expanded for full industry coverage.
[5]Does not include 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) 2015	2016
Alcoa Corp.:		
Evansville, IN (Warrick)	269	269 [2]
Ferndale, WA (Intalco)	279	279
Massena, NY	130	130
Rockdale, TX	191 [2]	191 [2]
Wenatchee, WA	184	184 [2]
Total	1,050	1,050
Century Aluminum Co.:		
Hawesville, KY	252	252
Mount Holly, SC	231 [r]	231
Sebree, KY	218 [r]	218
Total	701	701
Noranda Aluminum Holding Corp., New Madrid, MO	263	263 [2, 3]
Grand total	2,020	2,020

[r]Revised.
[1]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Temporarily idle at yearend.
[3]ARG International AG purchased the smelter on October 28, 2016, from Noranda Aluminum Holding Corp.

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
2015:			
Secondary smelters[r]	1,870,000	1,340,000	1,440,000
Independent mill fabricators[r]	1,720,000	1,470,000	1,570,000
Foundries	97,300	80,500	86,100
Other consumers	4,180	4,180	4,180
Total	3,690,000	2,900,000	3,100,000
Estimated full industry coverage	3,980,000	3,120,000	3,560,000 [r]
2016:			
Secondary smelters	1,780,000	1,320,000	1,410,000
Independent mill fabricators	1,800,000	1,540,000	1,640,000
Foundries	84,500	72,200	77,300
Other consumers	3,550	3,540	3,540
Total	3,670,000	2,930,000	3,130,000
Estimated full industry coverage	3,940,000	3,140,000	3,580,000

[r]Revised.
[1]Excludes recovery from other than aluminum-base scrap.
[2]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2016[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	17,400	363,000	362,000	18,500
Can stock clippings	3,850	49,500	49,800	3,560
Other wrought sheet and clippings	2,310	248,000	248,000	2,470
Casting	1,810	65,000	64,900	1,880
Borings and turnings	2,180	97,400	96,900	2,680
Dross and skimmings	7,060	377,000	376,000	7,290
Total	34,600	1,200,000	1,200,000	36,400
Old scrap:				
Castings	2,440	128,000	128,000	2,560
Extrusion	10,100	125,000	126,000	8,500
Aluminum cans[4]	8,160	79,900	81,000	7,130
Other wrought products	11,800	158,000	162,000	7,240
Auto shredder scrap	2,870	84,700	85,700	1,840
Total	35,300	576,000	584,000	27,300
Sweated pig	183	1,810	1,810	183
Grand total secondary smelters	70,100	1,780,000	1,780,000	63,900
Integrated aluminum companies, foundries, independent mill fabricators, other consumers:				
New scrap:				
Extrusion	1,060	326,000	326,000	1,160
Can stock clippings	1,820	236,000	236,000	1,720
Other wrought sheet and clippings	10,300	305,000	312,000	3,370
Casting	240	16,300	16,300	240
Borings and turnings	752	12,400	12,500	687
Dross and skimmings	103	1,780	1,770	115
Total	14,300	898,000	905,000	7,290
Old scrap:				
Castings	4,830	153,000	153,000	4,830
Extrusion	61	54,800	54,900	--
Aluminum cans[4]	1,450	600,000	600,000	1,310
Other wrought products	12,300	172,000	168,000	16,300
Auto shredder scrap	385	5,080	4,950	520
Total	19,000	985,000	981,000	23,000
Grand total integrated aluminum companies, etc.	33,300	1,880,000	1,890,000	30,300
All scrap consumed:				
New scrap:				
Extrusion	18,500	689,000	688,000	19,700
Can stock clippings	5,670	286,000	286,000	5,280
Other wrought sheet and clippings	12,600	553,000	560,000	5,840
Casting	2,050	81,300	81,300	2,120
Borings and turnings	2,930	110,000	109,000	3,370
Dross and skimmings	7,170	378,000	378,000	7,410
Total	48,900	2,100,000	2,100,000	43,700
Old scrap:				
Castings	7,270	281,000	281,000	7,390
Extrusion	10,200	180,000	181,000	8,500
Aluminum cans[4]	9,600	680,000	681,000	8,440
Other wrought products	24,000	330,000	330,000	23,500
Auto shredder scrap	3,250	89,800	90,700	2,360
Total	54,300	1,560,000	1,570,000	50,200
Sweated pig	183	1,810	1,810	183
Grand total of all scrap consumed	103,000	3,660,000	3,670,000	94,100

-- Zero.

[1]Includes imported scrap. According to reporting companies, 4.19% of total receipts of aluminum-base scrap, or 169,866 metric tons, was received on toll arrangements.

TABLE 4—Continued
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2016[1, 2]

(Metric tons)

[2]Table includes data available through June 7, 2017. 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 integrated 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)

	2015		2016	
	Production	Net shipments[2]	Production	Net shipments[2]
Diecast alloys:				
13% Si, 360, etc. (0.6% Cu, maximum)	35,300	33,900	29,500	30,600
380 and variations	157,000	166,000	150,000	153,000
Sand and permanent mold:				
95/5 Al-Si, 356, etc. (0.6% Cu, maximum)	51,200	51,100	51,300	51,400
No. 12 and variations	1,360	1,360	1,360	1,360
No. 319 and variations	82,600	82,600	35,000	35,200
F-132 alloy and variations	4,220	4,140	4,090	4,140
Al-Mg alloys	10,800	9,620	10,100	10,800
Al-Zn alloys	2,140	1,830	1,560	1,620
Al-Si alloys (0.6% to 2.0% Cu)	2,800	2,770	2,950	2,890
Al-Cu alloys (1.5% Si, maximum)	861	788	999	972
Al-Si-Cu-Ni alloys	2,080	2,080	2,460	2,480
Other	89	68	40,200	40,200
Wrought alloys, extrusion billets	748,000 r	750,000 r	778,000	758,000
Miscellaneous:				
Steel deoxidation	9,250	9,250	9,250	9,250
Pure (97.0% Al)	W	W	W	W
Other[3]	43,900	45,600	117,000	111,000
Total	1,150,000 r	1,160,000 r	1,230,000	1,210,000
Less consumption of materials other than scrap:				
Primary aluminum	208,000	XX	224,000	XX
Primary silicon	24,300	XX	29,500	XX
Other	14,900	XX	16,000	XX
Net metallic recovery from aluminum scrap and sweated pig consumed in production of secondary aluminum ingot[4]	904,000 r	XX	964,000	XX

[r]Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous: Other." XX Not applicable.
[1]Table includes data available through June 7, 2017. 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	2015 Quantity (thousand metric tons)	2015 Percent of grand total[r]	2016[p] Quantity (thousand metric tons)	2016[p] Percent of grand total
Containers and packaging	2,140 [r]	17.8	2,160	18.0
Building and construction	1,420	11.8	1,470	12.3
Transportation	4,180	34.9	4,220	35.2
Electrical	800 [r]	6.7	836	7.0
Consumer durables	741	6.2	794	6.6
Machinery and equipment	768 [r]	6.4	784	6.5
Other markets	327	2.7	312	2.6
Total	10,400	86.5	10,600	88.2
Exports	1,620 [r]	13.5	1,410	11.8
Grand total	12,000 [r]	100	12,000	100

[p]Preliminary. [r]Revised.
[1]Table includes data available through August 3, 2017. 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)

	2014	2015	2016[p]
Wrought products:[3]			
Sheet, plate, foil	5,020	5,220	5,330
Pipe, tube, extruded shapes	2,100	2,460 [r]	2,490
Rod, bar, wire, cable	664	400 [r]	423
Forgings (including impacts)	155	158	144
Powder, flake, paste	68	71	59
Total	8,010	8,310 [r]	8,440
Castings:			
Sand	214	295	284
Permanent and semipermanent mold	563	526	505
Die	1,330	1,470	1,550
Other	15	7	17
Total	2,120	2,300	2,350
Grand total	10,100	10,600	10,800

[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]Table includes data available through August 3, 2017. 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[1]

(Dollars per pound)

Material	2015	2016
Primary aluminum, average:[2]		
U.S. market	0.882	0.804
London Metal Exchange cash price	0.754	0.727
NASAAC[3] cash price, average	0.801	0.772
Secondary alloy, average:[4]		
A319 (3% Cu)	1.010	0.889
A356 (0.2% Cu)	1.035	0.912
A360 (0.6% Cu)	1.032	0.905
A380 (3% Zn)	0.938	0.845
A413 (0.6% Cu)	1.035	0.907
Scrap, average:[4]		
Clean, dry turnings	0.559	0.544
Mixed low-copper-content clips	0.610	0.570
Old cast	0.601	0.565
Old sheet	0.572	0.537
Used beverage cans	0.651	0.620

[1]Table includes data available through June 7, 2017.
[2]Source: Platts Metals Week.
[3]North American Special Aluminum Alloy Contract.
[4]Source: American Metal Market.

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

	2015		2016	
Class	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude, semicrude, and scrap:				
Metals and alloys, crude	310,000	$730,000	262,000	$565,000
Scrap	1,550,000	2,450,000 r	1,350,000	1,880,000
Plates, sheets, bars, strip, etc.	1,080,000	4,520,000 r	1,130,000	4,490,000
Castings and forgings	17,100	324,000 r	17,500	322,000
Semifabricated forms, n.e.c.[2]	49,100 r	431,000 r	50,000	404,000
Total	3,010,000	8,450,000	2,820,000	7,660,000
Manufactures:				
Foil and leaf	57,100	281,000	59,100	263,000
Powders and flakes	4,570 r	18,900 r	4,330	17,200
Wire and cable	43,700	154,000	35,100	126,000
Total	105,000	454,000	98,600	406,000
Grand total	3,120,000	8,910,000	2,910,000	8,070,000

rRevised.
[1]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Not elsewhere classified.

Source: U.S. Census Bureau.

TABLE 10
U.S. EXPORTS OF ALUMINUM, BY COUNTRY OR LOCALITY[1]

	Metals and alloys, crude		Plates, sheets, bars, etc.[2]		Scrap		Total	
Country or locality	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2015:								
Brazil	1,770	$4,120 r	5,900	$49,200	1,360	$2,040	9,030	$55,400
Canada	105,000	240,000	436,000 r	1,590,000 r	119,000	229,000	660,000 r	2,060,000 r
China	487	1,800	38,100	261,000 r	845,000 r	1,310,000	884,000 r	1,570,000
France	4,440	14,000	15,500	136,000	2,290	10,700	22,200	161,000
Germany	3,150	11,100	12,000	116,000	5,550	7,170	20,700	134,000
Hong Kong	38	135	1,940 r	17,300 r	29,400 r	33,900 r	31,400 r	51,400 r
Italy	61	301	2,860	38,200	160	1,300	3,080	39,800
Japan	1,830	7,300	22,400	235,000	13,900	32,700	38,200	275,000
Kazakhstan	--	--	65	463	--	--	65	463
Korea, Republic of	1,350	3,290	32,700	261,000	169,000 r	266,000 r	203,000 r	530,000 r
Mexico	180,000	410,000	460,000	1,810,000	179,000 r	305,000 r	818,000 r	2,530,000
Netherlands	1,300	3,710	788	8,160	209	360	2,290	12,200
Philippines	65	169	401	4,600	147	889	613	5,660
Russia	3	15	57	1,020	299	445	359	1,480
Saudi Arabia	8	59	5,960	27,600	94	116	6,070	27,800
Singapore	1,460	3,940	3,400	37,100	143	159	5,010	41,200
South Africa	14	87	188	1,920	--	--	202	2,010
Taiwan	4,550 r	12,400 r	4,440 r	36,400	37,500 r	56,800 r	46,400 r	106,000
Thailand	94	306	5,430	29,100	2,420 r	3,360 r	7,950 r	32,800 r
United Kingdom	734	3,430	17,200	159,000	1,340	1,230	19,200	163,000 r
Venezuela	11	48	1,230	11,100	--	--	1,240	11,200
Other	3,890 r	13,700 r	83,700	438,000	143,000	189,000	231,000	640,000 r
Total	310,000	730,000	1,150,000	5,270,000 r	1,550,000	2,450,000 r	3,010,000	8,450,000
2016:								
Brazil	126	298	5,260	44,200	75	104	5,460	44,600
Canada	91,500	184,000	437,000	1,500,000	109,000	202,000	637,000	1,890,000
China	489	2,030	35,200	245,000	690,000	916,000	726,000	1,160,000
France	5,870	19,600	11,700	112,000	2,800	10,200	20,300	142,000
Germany	1,470	6,080	9,540	96,500	5,090	5,140	16,100	108,000
Hong Kong	47	197	1,870	18,400	46,500	59,700	48,400	78,400
Italy	128	316	2,290	31,300	23	102	2,440	31,700
Japan	1,680	6,040	27,200	278,000	18,100	36,300	46,900	321,000
Kazakhstan	--	--	1	175	--	--	1	175
Korea, Republic of	587	3,460	33,200	260,000	145,000	191,000	179,000	454,000
Mexico	151,000	314,000	436,000	1,670,000	128,000	193,000	715,000	2,180,000
Netherlands	1,450	3,750	2,680	22,900	271	390	4,400	27,100
Philippines	1	8	428	4,810	1,740	1,540	2,170	6,360
Russia	3	40	53	1,140	2,170	5,380	2,230	6,560
Saudi Arabia	21	151	7,220	32,700	--	--	7,240	32,800
Singapore	141	1,610	2,840	32,300	--	--	2,980	33,900
South Africa	12	28	101	926	--	--	113	954
Taiwan	3,110	7,740	4,990	40,100	33,300	43,600	41,400	91,500
Thailand	159	306	5,570	29,300	3,570	4,540	9,310	34,200
United Kingdom	879	3,280	14,900	145,000	1,130	2,350	16,900	151,000
Venezuela	7	62	381	2,640	3	180	391	2,890
Other	3,390	12,000	162,000	642,000	164,000	212,000	330,000	866,000
Total	262,000	565,000	1,200,000	5,210,000	1,350,000	1,880,000	2,820,000	7,660,000

rRevised. -- Zero.
[1]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes castings, forgings, and unclassified semifabricated forms.

Source: U.S. Census Bureau.

TABLE 11
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY CLASS[1]

Class	2015 Quantity (metric tons)	2015 Value (thousands)	2016 Quantity (metric tons)	2016 Value (thousands)
Crude, semicrude, and scrap:				
Metals and alloys, crude	3,380,000	$7,300,000 r	4,230,000	$7,860,000
Plates, sheets, strip, etc., n.e.c.[2]	954,000 r	3,060,000 r	947,000	2,750,000
Pipes, tubes, etc.	32,500 r	247,000 r	28,800	228,000
Rods and bars	191,000	805,000 r	203,000	801,000
Scrap	521,000	795,000	609,000	806,000
Total	5,080,000	12,200,000	6,020,000	12,400,000
Manufactures:				
Foil and leaf[3]	179,000	626,000	196,000	603,000
Powders and flakes	19,500	71,300	15,200	59,700
Wire	201,000 r	500,000 r	270,000	589,000
Total	399,000 r	1,200,000	481,000	1,250,000
Grand total	5,480,000	13,400,000	6,500,000	13,700,000

rRevised.
[1]Table includes data available through June 7, 2017. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes circles, disks, plates, and sheets; not elsewhere classified.
[3]Does not include etched capacitor foil.

Source: U.S. Census Bureau.

TABLE 12
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY COUNTRY OR LOCALITY[1]

Country or locality	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)
2015:								
Argentina	85,900	$187,000	5	$47	--	--	85,900	$187,000
Australia	19,400	44,800	220	2,500	251	$393	19,800	47,700
Bahrain	74,400	168,000	35,000 r	102,000	--	--	109,000	269,000
Belgium	1,640	7,880	7,160	35,800 r	15	28	8,810	43,800
Brazil	3,700	8,420	10,000	27,100	13,300	21,400	27,000	56,900
Canada	2,230,000	4,670,000	253,000	945,000	340,000	514,000 r	2,820,000	6,130,000
China	3,220	8,470 r	391,000	1,110,000	369	813	394,000 r	1,120,000
France	10,900 r	87,600	10,100 r	66,200 r	159	133	21,100 r	154,000 r
Germany	7,010 r	18,600 r	70,000 r	299,000 r	1,160	7,320	78,100 r	325,000 r
Italy	7,620	14,000	10,900	56,100 r	760	333	19,300	70,500 r
Japan	15	70	27,000 r	120,000	760 r	1,410 r	27,800	121,000 r
Korea, Republic of	15,900	34,200	22,000	73,100	545	1,290	38,400	109,000
Mexico	21,700	42,300 r	43,000 r	200,000 r	97,200 r	144,000	162,000	386,000 r
Netherlands	1,780	5,860	2,730	15,300	467	730	4,980	21,900
Panama	142	224	43	188	4,830	6,660	5,010	7,070
Russia	279,000	617,000	16,900	65,200	739	1,430	297,000	683,000
South Africa	9,870	24,300	47,100 r	154,000 r	--	--	57,000 r	178,000 r
Spain	7,250	14,000	982	5,980 r	1,120	1,420	9,360	21,400
United Arab Emirates	293,000	662,000	17	102	1,410	2,090	294,000	664,000 r
United Kingdom	566	2,500	12,500	50,200 r	3,990	6,550	17,000 r	59,200 r
Venezuela	63,700	120,000	141	260	5,090 r	8,100 r	68,900	128,000
Other	245,000 r	566,000 r	218,000 r	787,000 r	48,900	76,300 r	512,000 r	1,430,000 r
Total	3,380,000	7,300,000 r	1,180,000	4,110,000	521,000	795,000	5,080,000	12,200,000
2016:								
Argentina	174,000	304,000	--	--	15	22,700	174,000	326,000
Australia	6,370	10,900	232	3,110	1,320	1,730	7,920	15,800
Bahrain	107,000	195,000	51,200	134,000	--	--	158,000	329,000
Belgium	1,320	5,580	7,310	34,300	--	--	8,630	39,900
Brazil	28,300	48,100	15,000	33,000	15,800	20,700	59,200	102,000
Canada	2,300,000	4,230,000	254,000	888,000	364,000	488,000	2,920,000	5,600,000
China	2,080	6,070	368,000	934,000	801	1,250	371,000	941,000
France	9,990	86,200	16,800	93,900	1,620	387	28,400	181,000
Germany	1,720	5,290	65,400	250,000	801	980	67,900	256,000
Italy	574	1,080	10,200	47,700	289	110	11,100	48,900
Japan	6	34	29,100	124,000	496	1,270	29,600	125,000
Korea, Republic of	7,440	14,600	14,400	48,500	8,520	17,000	30,400	80,100
Mexico	11,700	18,200	43,600	189,000	133,000	168,000	188,000	375,000
Netherlands	1,450	5,030	4,230	21,500	934	1,210	6,610	27,700
Panama	35	50	71	183	5,700	7,080	5,810	7,320
Russia	721,000	1,260,000	15,600	50,700	--	--	737,000	1,310,000
South Africa	12,000	25,300	61,200	161,000	77	107	73,300	186,000
Spain	1,780	3,780	1,650	7,880	3,930	4,370	7,360	16,000
United Arab Emirates	547,000	1,010,000	1	13	1,870	1,720	549,000	1,020,000
United Kingdom	785	3,090	10,400	41,100	3,670	4,710	14,800	48,900
Venezuela	59	98,100	507	912	12,300	19,700	12,900	119,000
Other	301,000	531,000	209,000	713,000	54,400	45,000	565,000	1,290,000
Total	4,230,000	7,860,000	1,180,000	3,770,000	609,000	806,000	6,020,000	12,400,000

rRevised. -- Zero.
[1]Table includes data available through June 7, 2017. 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 OR LOCALITY[1, 2]

(Thousand metric tons)

Country or locality	2012	2013	2014	2015	2016
Argentina	413	440	440 r	438 r	425
Australia	1,860 r	1,777 r	1,703 r	1,646 r	1,634
Azerbaijan	55	53	50	53 r	50 e
Bahrain	890	913	931	961	971
Bosnia and Herzegovina[3]	101 r	129 r	126 r	125 e, r	125 e
Brazil	1,436	1,304	962	772	793
Cameroon	52	75	93	60 r	60 e
Canada	2,781	2,967 r	2,858	2,880	3,209
China	23,500	26,500	28,300	31,400	31,873
Egypt	337 r	307 r	304	300 e	300 e
France[e]	349	346	360	420	425
Germany	410	492	531	541 r	575 e
Ghana	38	37	38	40	40 e
Greece	165	169	173	179 r	180 e
Iceland	803	836 r	830 e, r	845 r	855 e
India	1,704 r	1,703	1,939	2,355	2,723
Indonesia	248	255	211	250	250 e
Iran	337	350 r	355 r	355 r	355 e
Italy	110	--	--	--	--
Japan	26	29	46	42 r	45 e
Kazakhstan	250	250	209 r	222 r	250 e
Malaysia	120 e	291	400 e	400 r	620 e
Montenegro	75	48 r	43 r	42 r	45 e
Mozambique	564	561 r	567	558	571
Netherlands	110 e	50 e	--	75	110 e
New Zealand	327	325	328 r	333 r	339
Nigeria	26	2	--	--	--
Norway	1,145	1,155	1,250 e	1,225	1,220 e
Oman	360	354	364	377	386
Qatar	628	634	640 r	638 r	610
Romania[4]	249	250	263	271	273
Russia	4,024	3,601	3,300	3,530	3,561
Saudi Arabia	--	187	662 r	835 r	840
Slovakia	181	192	203	209	173
Slovenia[3]	83	84 r	84 r	84 r	85 e
South Africa	665	822	745	695	701
Spain[e]	230	235	350 r	350 r	350
Sweden	129	131	113	116 r	124
Tajikistan	273	216	125 r	175 r	200 e
Turkey	44	42 r	59 r	62 r	60 e
United Arab Emirates	1,820	1,864	2,341 r	2,464 r	2,500
United Kingdom	60	44	42	47	48
United States	2,070	1,946	1,710	1,587	818
Venezuela	208 r	186 r	138	119 r	140 e
Total	49,300 r	52,200 r	54,200	58,100 r	58,900

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

[1]Includes data available through May 1, 2017. All data are reported unless otherwise noted. Totals, U.S. data, and estimated data are rounded to 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, with some nations conforming to the forgoing 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 a footnote.

[3]Primary ingot plus secondary ingot.

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