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ALUMINUM [ADVANCE RELEASE]

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Aluminum

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During 2019, total aluminum production (primary plus aluminum recovered from scrap) in the United States was 4.56 million metric tons (Mt), slightly less than that in 2018, whereas apparent consumption was 4.94 Mt, slightly more than the revised amount in 2018 (table 1). Primary production increased in 2019, but total inventories, net imports, and secondary production decreased. Net imports of crude metal in 2019 were 3.56 Mt, 293,000 metric tons (t) less than those in 2018, a decrease of 8%; however, net imports of semifabricated aluminum products increased by 45% (174,000 t). Net exports of scrap increased by 19% (198,000 t) compared with those in 2018 (tables 10, 12). Total aluminum inventories in the United States stored in London Metal Exchange Ltd. (LME)-registered warehouses (including estimated off-warrant inventories) and by industry decreased slightly at yearend 2019 compared with those at yearend 2018 (table 1).

Domestic primary aluminum smelters produced 1.09 Mt of aluminum metal, 23% more than the amount in 2018; production increased for the second year in a row (table 1). The value of production, based on the average U.S. market price, increased to $2.40 billion, 6% more than the value in 2018. The increase in value in 2019 was due to a 23% increase in production, which was partially offset by a 13% decrease in price. At yearend, three companies were operating a total of seven primary aluminum smelters in six States. One smelter remained on care-and-maintenance status throughout 2019. About 39% [700,000 metric tons per year (t/yr)] of the 1.79 million metric tons per year (Mt/yr) of domestic primary aluminum smelting capacity was idle at yearend (including idle potlines at operating smelters) (table 2). Aluminum prices generally declined throughout the year. The annual average aluminum price decreased by 13% compared with the annual average price in 2018. Globally, consumption continued to increase, and increased production from new smelting capacity kept pace with increased consumption and was partially offset by decreases in production from shutdowns of capacity in some locations. Combined world inventories of aluminum metal and alloys held by LME-registered warehouses (including estimated off-warrant stocks) increased by approximately 13% to 1.6 Mt from 1.42 Mt (London Metal Exchange Ltd., 2018, 2019). In 2019, world primary production decreased slightly to 63.2 Mt from 63.6 Mt in 2018 (table 13).

The LME cash price for aluminum averaged $0.813 per pound, 15% less than that in 2018. The 2019 annual average U.S. market price of primary aluminum ingot decreased by 13% to $0.995 per pound from $1.15 per pound in 2018 (table 8).

Aluminum recovered from purchased and tolled scrap was 3.47 Mt in 2019, 7% less than that in 2018 (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 33% of the old scrap consumed in 2019 and 13% of total scrap consumed (table 4).

Apparent consumption of aluminum in the United States increased slightly compared with the revised amount in 2018 (table 1). Owing to increased domestic primary production and decreased net imports, the U.S. net import reliance for aluminum as a percentage of apparent consumption decreased to 47% in 2019 from 50% in 2018 and was at its lowest level since 2016. Producers of unwrought and semifabricated aluminum products in the United States and Canada reported that they shipped 89.6% of their products to markets in the United States and Canada and 10.4% to external markets (table 6).

Primary aluminum was produced in 41 countries in 2019. China was the world's leading producer, accounting for 55% of world production. The other major producing countries were India and Russia (6% each), Canada (5%), and the United Arab Emirates (4%). World primary metal production decreased slightly compared with that in 2018. Increased production in Bahrain, Norway, and the United States was offset by decreased production in Canada, China, Spain, and Venezuela. The United States was the 9th-ranked producer of primary aluminum, the same ranking as in 2018; it had been 12th in 2017, 10th in 2016, 7th in 2015, 6th in 2014, and 4th in 2013 (table 13).

Legislation and Government Programs

On May 19, 2019, the United States, Canada, and Mexico reached an agreement to remove the 10% tariff on imports of aluminum imposed under authority of section 232 of the Trade Expansion Act of 1962. The tariff on aluminum imports into the United States was imposed on March 23, 2018, but Canada and Mexico were granted temporary exemptions which expired on June 1, 2018. Canada and Mexico agreed to remove retaliatory measures that they imposed on exports from the United States. Under the agreement, a quota on aluminum imports would not be imposed but if imports increased dramatically compared with historical market share volumes, the United States reserved the right to reimpose the tariff. Canada and Mexico reserved the right to reimpose retaliatory measures if the tariff was reimposed by the United States. The agreement also included the same terms for removal of the 25% tariff on steel imports from Canada and Mexico. Argentina and Australia were granted exemptions from the 10% tariff on aluminum imports in 2018, and that exemption continued in 2019 (Coyne, 2019b; Trump, 2019a).

After the agreement to remove the tariff on aluminum imports from Canada and Mexico was reached, Canada and Mexico withdrew complaints they had filed with the World Trade Organization (WTO) against the United States in June 2018. Canada and Mexico had filed separate complaints alleging that the tariffs on aluminum imports to the United States violated the WTO's General Agreement on Tariffs and Trade. China,

Norway, Russia, Turkey, and the European Union also filed complaints with the WTO against the United States for the section 232 tariff. These complaints were still pending resolution by the WTO (Coyne, 2019a).

On May 8, 2019, the President of the United States signed an Executive order imposing sanctions on aluminum, copper, iron, and steel produced in Iran. The metals industry was the second-leading export industry in Iran and accounted for 10% of Iran's exports, having an estimated value of $10 billion in 2017. The United States had not imported significant volumes of these metals from Iran in recent years. Iran was not a major exporter of aluminum but in recent years had explored the possibility of increasing its capacity. The impacts of the sanctions were expected to be greatest on the iron and steel industry (Innace, 2019a; Trump, 2019b; Watanabe, 2019a).

The U.S. Department of the Treasury lifted sanctions on United Company RUSAL Plc on January 27. In April 2018, RUSAL and its principal owner, who also was formerly its chief executive officer, were sanctioned by the U.S. Department of the Treasury. The principal owner decreased his ownership to a level acceptable to the U.S. Department of the Treasury, and the company agreed to audits of its operations and reporting requirements. Companies with supply contracts with RUSAL were permitted to continue receiving shipments during the sanction period. After the sanctions were lifted, the LME removed its ban on deliveries of metal produced by RUSAL to LME warehouses (Butt, 2019; U.S. Department of the Treasury, 2019).

On October 30, the U.S. Department of Commerce announced its final determination in an antidumping investigation of aluminum cable and wire imports from China, which affirmed the preliminary finding announced on May 30. The finding determined that aluminum cable and wire from China was sold below fair market value, and an antidumping rate ranging from 58.51% to 63.47% was assigned. On November 20, the U.S. International Trade Commission determined that Chinese subsidies and dumping by producers in China materially injured cable and wire producers in the United States (Lazzaro, 2019a, c; U.S. Department of Commerce, 2019a, b).

On September 28, the Government of Vietnam imposed antidumping tariffs ranging from 2.49% to 35.58% on aluminum products made in China by 16 companies. The duties would be effective for 5 years. The Government of Vietnam and the United States were jointly investigating transshipments of aluminum produced in China. Vietnam Customs reported that 1.8 Mt of aluminum imported from China was stockpiled by a company named Global Vietnam Aluminium Co. Ltd. for later shipment to the United States (Platts Metals Daily, 2019).

In an effort to control pollution during winter months, the Government of China reinstituted an order requiring aluminum smelters and alumina refineries in certain areas to shut down capacity from October 1, 2018, to March 31, 2019. The policy required aluminum smelters and alumina refineries to close 30% of their capacity and carbon anode plants to close 50% of their capacity. The policy also required secondary aluminum smelters in the affected locations to decrease production by 50%. The policy applied to facilities in 26 cities. The order was first instituted in 2017 and was expected to be renewed each winter in the future (Hotter, 2017; Mok, 2017; China Metal Market—Alumina and Aluminum, 2018).

In July, the Government of China imposed restrictions on aluminum scrap imports to China. Licenses and import quotas for secondary aluminum smelters consuming imported scrap were established by the Ministry of Environment and Ecology. After the measures were announced, some secondary smelters in China increased scrap imports to build stocks while others stopped ordering scrap imports before the restrictions went into effect, citing concerns that shipments ordered might not arrive before the deadline (Watanabe, 2019b).

Since 2014, the Government of Brazil has eliminated the 6% tariff on imported aluminum for a limited quota of metal during a specific time, citing the shutdown of smelting capacity caused by high power prices and other issues. This policy continued throughout most of 2019. The previous quota, for up to 282,500 t of aluminum imports, was valid from July 1, 2018, to June 30, 2019. During this time period, Brazil imported 245,000 t of aluminum. On August 2, 2019, the Government of Brazil renewed the elimination of the 6% tariff on unwrought primary aluminum imports through yearend. A quota of 141,250 t of unwrought primary aluminum would be permitted to be imported without payment of the tariff (Carvalho, 2014; Ribeiro, 2019).

Production

Primary.—Primary aluminum production in the United States was 1.09 Mt, 23% more than that in 2018 (table 1). Domestic production data were based on information compiled from U.S. Geological Survey (USGS) monthly surveys sent to seven primary aluminum smelters owned by three companies, all of which responded.

In March, the New York Power Authority extended the power supply contract with Alcoa Corp. for the Massena, NY, smelter through March 2026. The prior contract, signed in November 2015, was set to expire at the end of March 2019. Under the extended contract, Alcoa would receive power generated by 240 megawatts per year of capacity at the 130,000-t/yr smelter (Dey Bera, 2019; Matyi, 2019e).

On September 19, workers represented by the United Steelworkers (USW) union ratified a 4-year contract with Alcoa. The contract covered about 1,700 employees, most of whom were at the 269,000-t/yr Warrick smelter in Evansville, IN, the 130,000-t/yr smelter in Massena, NY, and a rolling mill in Gum Springs, AR. The 146,000-t/yr Wenatchee, WA, smelter and the Point Comfort, TX, alumina refinery also were covered by the contract but were temporarily shut down. The new contract was retroactive to May 15 when the prior contract expired, and production continued without disruption during the negotiations (Alcoa Corp., 2019a, f).

In March, Century Aluminum Co. shut down a 50,000-t/yr potline at its 252,000-t/yr smelter in Hawesville, KY, for maintenance work. The work was completed and the potline was restarted by yearend, and the potline was expected to be producing at full capacity in early 2020. In October, Century shut down another 50,000-t/yr potline at the Hawesville smelter. The potline had been scheduled to be shut down for

maintenance work in early 2020, but an immediate shutdown was necessary because the pots were several years past their normal service life and were too fragile to continue operating safely. The potline was expected to restart production in mid-2020 (Century Aluminum Co., 2019a, b, d, 2020b; Matyi, 2019b; Roh, 2019b).

In the second quarter of the year, Century completed an upgrade and modernization project announced in November 2018 at the Sebree, KY, smelter. The capacity of the billet casthouse was expanded by 90,000 t/yr. The project would not affect primary smelting capacity, which was 218,000 t/yr (Century Aluminum Co., 2018, 2019c).

Secondary and Semifabricated Products.—Domestic secondary aluminum production was 3.47 Mt, 7% less than that in 2018 (table 1). Domestic production data were based on information compiled from USGS monthly and annual surveys sent to 52 secondary aluminum facilities. For 2019, responses were received from 30 of the facilities.

In February, Arconic Inc. started an expansion project at its rolling mill in Alcoa, TN. The project would increase capacity for automobile body sheet and industrial applications, but the amount of additional capacity was not available. The project was scheduled to be completed by yearend 2020. On July 11, employees of Arconic represented by the USW union ratified a 3-year contract. The contract covered more than 3,000 employees at rolling mills and casthouses in Alcoa, TN, Davenport, IA, Lafayette, IN, and Massena, NY. The new contract was retroactive to May 15 when the prior contract expired, and production continued without disruption during the negotiations (Arconic Inc., 2019a; Innace, 2019d).

In August, RePlanet Inc. closed all of its remaining sites in California. The company had 248 recycling collection centers that provided beverage container deposit redemption services. RePlanet cited declining prices for aluminum scrap, including UBC scrap, for the reason for the closures (Roh, 2019g).

In October, Matalco Inc. (Canada) started construction on a secondary aluminum smelter in Wisconsin Rapids, WI. The smelter would have approximately 100,000 t/yr of capacity to produce extrusion billet when completed by yearend 2020 (Matyi, 2019d; Roh, 2019e).

Century completed a project to add 20,000 t/yr of secondary smelting capacity adjacent to its primary smelter in Sebree, KY. The project was started in November 2018 (Century Aluminum Co., 2018; 2020a, p. 2).

Gränges AB (Sweden) completed an expansion of its rolling mill in Huntingdon, TN, to 200,000 t/yr from 160,000 t/yr. Rampup of the new capacity was completed by yearend. The rolling mill produced aluminum foil used for air conditioning, automobile heat exchangers, and heating and ventilation applications. Gränges also restarted its rolling mill in Newport, AR, that produced light-gauge aluminum foil (Matyi, 2019c; Gränges AB, 2020).

JW Aluminum Holding Corp. continued an expansion project to increase the capacity of its rolling mill and secondary smelter in Goose Creek, SC. The project would increase capacity by 80,000 t/yr. Construction started in June 2018 and was expected to be completed in early 2020 (South Carolina Department of Commerce, 2018; JW Aluminum Holding Corp., undated).

In October, Novelis Inc. [a subsidiary of Hindalco Industries Ltd. (India)] started construction on a modernization and upgrade project of its rolling mill in Greensboro, GA. The project would enable the plant to consume used scrap for making automotive body sheet but would not increase capacity significantly. The project would be completed by yearend 2021 (Novelis Inc., 2019; Roh, 2019f). Logan Aluminum Inc. was building a 200,000-t/yr rolling mill in Guthrie, KY. The rolling mill was scheduled to start production in mid-2020 and would produce sheet for use in the automotive industry. Logan Aluminum was a joint venture between Novelis and Tri-Arrows Aluminum Inc. (Matyi, 2018).

On January 22, there was an explosion at the secondary aluminum smelter in Henderson, KY, owned by Hydro ASA. No injuries were reported, but the furnace was damaged and shut down for repairs. Repairs were completed and production resumed in about 2 months. The smelter capacity was 90,000 t/yr of extrusion billet (Cha, 2019a; Hydro ASA, 2019d). Hydro also announced that it was permanently shutting down two extrusion plants by yearend, citing efforts to rationalize production for its customers in North America. The plants in Belton, SC, and Kalamazoo, MI, produced extrusions used in automotive and construction applications (Roh, 2019d).

RUSAL announced that it would invest $200 million in a rolling mill being constructed in Ashland, KY, by Braidy Industries Inc. The rolling mill would produce sheet for the automobile industry and would reach full production in 2021. The hot mill capacity would be 500,000 t/yr, and the cold mill would produce 300,000 t/yr of finished sheet. As part of the joint venture, RUSAL would provide the mill with an average of 200,000 t/yr of rolling slab for 10 years from a smelter being constructed in Taishet, Russia. The mill also would have a furnace and casthouse to produce slab from scrap. When the investment is finalized, Braidy would own 60% of the project and RUSAL would own 40%. Construction of the mill started in June 2018 (Braidy Industries Inc., 2019; Innace, 2019c; United Company RUSAL Plc, 2019a).

Consumption

Apparent consumption of aluminum in the United States increased to 4.94 Mt in 2019, slightly more than the revised amount in 2018 (table 1). Shipments of aluminum ingot and semifabricated products by producers in the United States and Canada to their combined domestic markets were essentially unchanged in 2019 compared with the amount shipped in 2018. Combined net United States imports of crude aluminum and semifabricated products from Canada increased slightly from that in 2018. Producers of unwrought and semifabricated aluminum products in the United States and Canada reported that they shipped 89.6% of their products to markets in the United States and Canada, of which the transportation industry accounted for 40.8%; containers and packaging, 19.9%; building and construction, 13.7%; electrical, 7.9%; consumer durables, 7.4%; machinery and equipment, 7.3%; and other markets, 3.1%. Exports to external markets accounted for 10.4% of shipments from producers in the United States and Canada in 2019 (table 6).

Shipments of aluminum to the transportation sector increased slightly and accounted for 36.5% of total shipments in 2019 compared with 35.4% of total shipments in 2018 (table 6). Increased aluminum content in automobiles offset decreased automobile production and contributed to the increase in aluminum shipments to the transportation sector. Total 2019 light-vehicle sales in the United States in 2019 were 17.1 million units, slightly less than the 17.3 million units sold in 2018. A labor dispute in September and October between General Motors Corp. and employees represented by the United Autoworkers union was cited as the reason for lower shipments by at least one company that supplied aluminum to the automobile sector. Toyota Motor Corp. announced that it would use aluminum sheet for several body parts on the Corolla sedan and RAV4 crossover vehicles. Previously, most automobile manufacturers restricted aluminum sheet to body applications in trucks, luxury sedans, and sport utility vehicles with high consumer-brand loyalty marketed to consumers who were less price-sensitive because of the higher cost of using aluminum sheet compared with the cost of using steel (Cha, 2019c; Watanabe, 2019c; Constellium SE, 2020, p. 1–4; Lassa, 2020; Lazzaro, 2020b).

The Boeing Co. (Chicago, IL) reported that its deliveries of commercial aircraft decreased by 53% in 2019 compared with deliveries in 2018; the decrease was attributed to suspension of deliveries of the 737 MAX aircraft. The 737 MAX was grounded and deliveries were suspended in March after investigations of two crashes involving the 737 MAX identified a software flaw in a computerized system. Production of the aircraft decreased from 52 per month in April to 42 per month by yearend. In December, Boeing announced that production would be suspended in January 2020 until the aircraft was certified to return to service. Deliveries of Boeing's other commercial aircraft increased by 12% in 2019 compared with deliveries in 2018 and accounted for 66% of Boeing's 2019 commercial aircraft deliveries (28% in 2018). Decreased aluminum deliveries for commercial aircraft were partially offset by increased aluminum deliveries for military aircraft built by Boeing and other manufactures, according to Kaiser Aluminum Corp., a major aerospace sheet manufacturer (Boeing Co., The, 2019a, b, 2020, p. 27, 32; Kaiser Aluminum Corp., 2020).

Shipments of aluminum to the building and construction sector decreased slightly in 2019 from those in 2018 (table 6). In the United States, housing starts increased by 3.3% in 2019 compared with starts in 2018, and the number of houses completed in 2019 was 6% more than in 2018. Total U.S. construction spending during 2019 was essentially unchanged compared with that in 2018; spending on residential construction decreased by 4.6%, and spending on the more aluminum-intensive nonresidential construction increased by 3.1% (U.S. Census Bureau, 2020a, b).

Aluminum shipments for containers and packaging increased slightly in 2019 compared with those in 2018. In 2019, aluminum shipments decreased compared with those in 2018 for consumer durables (3%) and machinery and equipment (4%), and shipments to other markets decreased slightly. Shipments for electrical products were essentially unchanged in 2019 compared with shipments in 2018 (table 6).

Research and Development

ELYSIS Corp., a joint venture between Alcoa and Rio Tinto plc, made its first shipment of aluminum to Apple Inc. in December from its pilot plant. The joint venture developed a primary aluminum smelting process that does not use carbon anodes or generate carbon dioxide and perfluorocarbons. Construction of the pilot plant in Saguenay, Quebec, Canada, started in August 2019, and further expansion to commercial scale was expected to be completed in 2024. The capacity of the smelter was not available (ELYSIS Corp., 2019a, b). RUSAL was testing primary aluminum production using inert ceramic anodes at its Krasnoyarsk, Russia, smelter. Details about when RUSAL planned to use the process for full-scale production using the inert ceramic anodes were not available (Bouckley, 2019).

Stocks

According to data reported by The Aluminum Association Inc. (2019, 2020), United States and Canadian producers' combined inventories of aluminum ingot, mill products, and scrap increased slightly to 1.6 Mt at yearend 2019 from 1.57 Mt at yearend 2018. Primary aluminum metal ingot stocks in LME-approved U.S. warehouses (including estimated off-warrant stocks) increased by 32% to 70,000 t at yearend 2019 from 53,050 t at yearend 2018. At yearend 2019, LME warehouses in the United States also held 50,000 t of North American Special Aluminum Alloy Contract metal ingot (including estimated off-warrant stocks), 62% less than the 133,200 t held at yearend 2018. Global yearend 2019 inventories of unalloyed aluminum metal held by LME-registered warehouses (including estimated off-warrant stocks) increased by 21% to 1.54 Mt from 1.27 Mt at yearend 2018, but aluminum alloy inventories decreased by 62% to 55,400 t from 144,320 t (London Metal Exchange Ltd., 2018, 2019, 2020).

Prices

The monthly average U.S. spot market price of primary aluminum metal, as reported by Platts Metals Week, averaged $1.03 per pound in January, then increased in February and March, reaching $1.04 per pound. The price generally dropped throughout the rest of the year and finished the year at $0.945 per pound in December. The annual average price in 2019 decreased to $0.995 per pound from $1.15 per pound in 2018 (table 8). In 2019, the annual average LME cash price decreased to $0.813 per pound from $0.957 per pound in 2018. 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. Scrap prices continued to decline throughout the year, following the trend started in mid-2018. By midyear 2019, prices for most common scrap grades reached their lowest levels since 2009 and were at their lowest in November before slightly increasing in December. The price declines for scrap were attributed to available surplus scrap. Since midyear 2018, increased volumes of aluminum scrap recovered as a byproduct from steel scrap shredders and restrictions on scrap imports by China imposed in

2018 created a surplus of aluminum scrap in the United States (MacAulay, 2018; Ramanand, 2018a, b; Tolomeo, 2018).

Foreign Trade

Imports of unmanufactured aluminum decreased by 7% during 2019 compared with those in 2018. Imports for consumption of crude aluminum metal and alloys decreased by 9%, and scrap imports decreased by 14%. Imports of semifabricated aluminum materials increased slightly. Canada remained the leading source country, accounting for 55% of crude metal and alloys, 14% of semifabricated aluminum materials, 63% of scrap, and 46% of total unmanufactured aluminum imports in 2019. China accounted for 8% of semifabricated aluminum material imports, compared with 18% in 2018 and 33% in 2017. Mexico accounted for 25% of scrap imports. The United Arab Emirates accounted for 12% of crude aluminum metal and alloy imports. Russia accounted for 5% of crude aluminum metal and alloy imports, compared with 9% in 2018 and 15% in 2017 (table 12).

Exports of unmanufactured aluminum decreased by 4% during 2019 compared with the revised amount in 2018. Exports of crude aluminum and semifabricated aluminum material decreased by 20% and 16%, respectively, but scrap exports increased by 6%. In 2019, 52% of United States exports of unmanufactured aluminum were shipped to Canada, China, and Mexico, compared with 63% in 2018 and 76% in 2017. Mexico and Canada were the leading destinations of semifabricated aluminum exports, receiving 42% and 39%, respectively. Scrap accounted for 63% of total aluminum exports in 2019; China (17%), Malaysia (16%), India (15%), the Republic of Korea (15%), and Mexico (10%) were the leading destinations. China accounted for 12% of unmanufactured United States aluminum exports during 2019, compared with 17% in 2018 and 30% in 2017; 92% of the exports to China in 2019 were scrap (table 10).

World Industry Structure

Production.—World primary aluminum production decreased slightly in 2019 compared with that in 2018. Increased production in Bahrain, Norway, and the United States was offset by shutdowns of capacity in Canada, China, Spain, and Venezuela. A labor dispute was cited for the shutdown of capacity at one smelter in Canada. In China, several smelters decreased production owing to environmental restrictions. In Spain, two smelters were shut down owing to high costs. In Venezuela, a power shortage was cited for all capacity being shut down in March. China was the leading producer and accounted for 55% of global primary aluminum production. India, Russia, Canada, and the United Arab Emirates, in decreasing order of production, accounted for an additional 20% of production (table 13). Since 2000, production increased in China by 32.2 Mt (1,152%), in India by 3 Mt (465%), in the United Arab Emirates by 2.13 Mt (453%), in Canada by 481,000 t (20%), and in Russia by 392,000 t (12%), but production decreased in the United States by 2.58 Mt (70%) and in Australia by 199,000 t (11%).

Mergers, Acquisitions, and Divestitures.—Alcoa completed the sale of two smelters in Spain to PARTNER Capital Group AG (Switzerland) on July 31. High power costs and low aluminum prices were cited for the smelter shutdowns at Aviles and La Coruna in February, but both smelters were maintained for possible restart under the new ownership. The casthouses at both smelters and the paste plant at La Coruña continued production using metal from other smelters. The capacity of the Avilés smelter was 93,000 t/yr and the La Coruña smelter capacity was 87,000 t/yr (Alcoa Corp., 2019c, p. 2; 2019e; Baratti, 2019b; Mason, 2019).

In June, Alcoa sold its 25.1% interest in a rolling mill in Saudi Arabia to Saudi Arabian Mining Co., its partner. The rolling mill produced beverage can sheet and automobile body sheet. The rolling mill also included 100,000 t/yr of UBC recycling capacity. The rolling mill was located adjacent to a 740,000-t/yr primary aluminum smelter which was not a part of the transaction (Alcoa Corp., 2019b; 2019d, p. 2; Lim, 2019).

Constellium N.V. (Netherlands) purchased a 49% share of a rolling mill in Bowling Green, KY, from its partner Tri-Arrows Aluminum Holding Inc. in January. The rolling mill had 100,000 t/yr of capacity used to produce automobile body sheet (Constellium N.V., 2018, 2019).

Arconic agreed to sell its rolling mill in Itapissuma, Brazil, to Companhia Brasileira de Aluminio (CBA). The rolling mill had 50,000 t/yr of capacity to produce sheet and foil. The sale was expected to be completed in the first quarter of 2020 (Arconic Inc., 2019b; Rostas, 2019).

In September, the U.S. Department of Justice filed a lawsuit to prevent the proposed acquisition of Aleris Corp. (Cleveland, OH) by Novelis. In July 2018, the two companies, which specialized in aluminum rolling and recycling wrought aluminum scrap, reached an acquisition agreement. Aleris had 13 production facilities in Europe, China, and the United States. Novelis had 24 production facilities in Europe, Brazil, Canada, China, the Republic of Korea, the United States, and Vietnam. The lawsuit alleged that the acquisition would reduce competition in the automobile body sheet market and harm automobile consumers in the United States as the combined company would have 60% of the market share for automobile body sheet. The European Union approved the acquisition on condition that a rolling mill in Duffel, Belgium, be sold to satisfy concerns about competition in Europe's automobile body sheet market. In December, Novelis reached an agreement to sell the Duffel rolling mill to GFG Alliance SA. The sale was expected to be completed in early 2020 pending regulatory approval (Aleris Corp., 2018; Novelis Inc., 2018b, p. 4–5, 8–15; Kinch, 2019; Lazzaro, 2019b; Roh, 2019c).

World Review

Bahrain.—In November 2018, Aluminium Bahrain B.S.C. (Alba) completed construction of the sixth potline at its smelter, increasing capacity to 1.54 Mt/yr from 960,000 t/yr. The project also included an expansion of Alba's captive powerplant. Production from some pots started in December 2018, and full rampup of the new capacity was scheduled for 2020. With the new capacity, Bahrain's production increased by 35% to 1.365 Mt from 1.01 Mt in 2018 (Aluminium Bahrain B.S.C., 2018, 2020; Lazzaro, 2020a).

Bosnia and Herzegovina.—In July, Aluminij d.d. Mostar shut down its 130,000-t/yr smelter, citing high power prices, and filed for bankruptcy protection. With financial support from the Government, the casthouse would continue production using purchased ingot or scrap, but a restart of the smelter was not expected. The Government of Bosnia and Herzegovina owned 44% of the Mostar smelter (Santos, 2019).

Brazil.—In May, the Albras Alumínio Brasileiro S.A (Albras) 460,000-t/yr smelter in Barcarena restarted production from 230,000 t/yr of capacity, and the rampup of capacity was completed by yearend. The smelter had shut down one-half of its capacity in April 2018 after the adjacent Alumina do Norte do Brasil S.A. alumina refinery was ordered by environmental regulators to shut down one-half of its 6.3 Mt/yr of capacity after a suspected leak from its red mud impoundment in February 2018. On May 20, 2019, a court lifted the restrictions on production at the refinery. The smelter was a joint venture between Hydro (51%) and Nippon Amazon Aluminium Co. Ltd. (49%) (Hydro ASA, 2019a, c).

CBA was expanding billet capacity at its smelter in Sao Paulo to 270,000 t/yr from 180,000 t/yr. The expansion was expected to be completed in 2020. Novelis was expanding its secondary smelting and rolling capacity in Pindamonhangaba. Smelting capacity would increase to 450,000 t/yr from 390,000 t/yr, and rolling capacity would increase to 680,000 t/yr from 580,000 t/yr. The mill produced beverage can sheet and other aluminum packaging products from UBCs and other scrap. The project was scheduled to be completed in 2021 (Novelis Inc., 2018a; Rostas, 2019).

Canada.—Production decreased slightly compared with that in 2018, attributed to production from the Aluminerie de Bécancour Inc. (ABI) smelter in Quebec decreasing by 43% during a labor dispute. The smelter was partially shut down in January 2018 when the labor dispute, involving more than 1,000 employees, began after a contract offer was rejected by the employees. Production continued by management employees at a rate of 150,000 t/yr at the 450,000-t/yr smelter until December 2018 when the production rate decreased to 75,000 t/yr. The labor dispute at the ABI smelter ended in July 2019 when employees, represented by the USW union, voted to accept a 6-year contract agreement. The restart process of the idled capacity began on July 26, and the smelter was expected to be producing at full capacity by April 2020. The smelter was a joint venture of Alcoa (74.95%) and Rio Tinto (25.05%) (Alcoa Corp., 2019d, p. 2; Poole, 2019a; Rio Tinto plc, 2020, p. 22).

In May, Alcoa and employees at the Baie-Comeau smelter, represented by the Syndicat National des Employés de l'Aluminium de Baie-Comeau union, reached a labor agreement. Production at the 337,000-t/yr smelter continued without interruption during the negotiations (Alcoa Corp., 2019d, p. 2; Matyi, 2019a).

In June, Alcoa started a modernization project at the Deschambault smelter in Quebec. The project would increase smelting capacity to 286,000 t/yr from 260,000 t/yr and would be completed by yearend 2021 (Alcoa Corp., 2019d, p. 3; Roh, 2019a).

China.—Primary aluminum production in 2019 was 35 Mt, slightly less than the 35.8 Mt in 2018 (table 1). Decreased production was attributed to lower aluminum prices, restrictions on capacity expansions, enforcement of shutdowns during winter months in the eastern and northern Provinces, accidents that damaged equipment at two smelters, and flooding from a typhoon in some coastal areas. At the end of November, primary aluminum smelting capacity was 41.3 Mt/yr, about 7% less than that at yearend 2018; of the total capacity, 36.2 Mt/yr was producing. The decrease in capacity was attributed to enforcement of a policy requiring new smelters to obtain capacity permits from old smelters that were permanently shut down. In order to contain smelter capacity, the Government had implemented a capacity replacement quota system in recent years—to expand capacity, companies were required to purchase capacity-replacement quotas from companies that had shut down older, inefficient capacity (China Metal Market—Alumina and Aluminum, 2019c, j, m, p, 2020c, d).

In January, a report by the Organisation for Economic Co-operation and Development (OECD) documented alleged massive subsidies for aluminum producers in China. Primary aluminum capacity in China increased by nearly 6% in 2018, according to the OECD report, despite trade actions taken by the United States and other countries, even as demand in China declined. The report suggested that subsidies to the entire aluminum industry in China needed to be investigated further (Hotter, 2019).

China increased its exports of aluminum to countries other than the United States in response to the trade actions taken by the United States. The 10% tariff on all aluminum imports (except those from exempt countries) and antidumping and countervailing duties on specific aluminum products from China increased prices in the United States, resulting in the United States increasing aluminum imports from several other countries. China responded by increasing exports to other countries to recoup the lost market share in the United States (Watanabe, 2019d).

Fujian Province.—In March, Fujian Nanping Aluminum Co. Ltd. permanently shut down 75,000 t/yr of capacity at its smelter in Nanping, citing high power prices and low aluminum prices. The smelter, the only one in the Province, continued to produce from the remaining 75,000 t/yr of capacity, and production continued at the company's rolling mill (China Metal Market—Alumina and Aluminum, 2019h).

Guangxi Autonomous Region.—In February, Baise Mining Group Co. Ltd. started production from the second of three potlines at its new 300,000-t/yr smelter in Debao County. The first potline was started in April 2018. In October, Baise started production from the second phase of its 300,000-t/yr smelter in Tianlin County. Production from the first phase of the Tianlin smelter started in May 2018 (China Metal Market—Alumina and Aluminum, 2019b, g).

Guizhou Province.—Xingren Denggao Aluminum Co. Ltd. completed ramping up a new 250,000-t/yr smelter in June. Expansion to 500,000 t/yr was planned, and the project would include a rolling mill and a captive coal-fired powerplant, but a schedule for these other projects was not available. In April,

Guizhou Huaren New Material Co. Ltd. Completed the rampup of its 500,000-t/yr smelter in Qingzhen. Production from the smelter started in January 2018 (China Metal Market—Alumina and Aluminum, 2019e, 2020a).

Henan Province.—In May, a fire caused the shutdown of the Henan Shenhuo Group Co. Ltd. Smelter in Yongcheng. The smelter had 460,000 t/yr of capacity but only 250,000 t/yr was producing at the time of the fire. The company had already announced that the smelter would be shut down and its capacity would be replaced by a new smelter being constructed in Yunnan Province (China Metal Market—Alumina and Aluminum, 2019d).

Inner Mongolia Autonomous Region.—In October, Inner Mongolia Mengtai Aluminum Co. Ltd. Completed the rampup of its new 450,000-t/yr smelter in Erdos. Construction of the smelter started in March 2017, and production from the first phase of the smelter started in January 2018. Baiyinhua Coal and Power Co. Ltd. continued construction of a 400,000-t/yr primary aluminum smelter in Xinlingele. Construction of the smelter started in September 2016 and was scheduled to be completed in October 2020. The project also included a coal-fired powerplant and a rolling mill, and an additional 400,000 t/yr of smelting capacity was planned but a construction schedule was not available. East Hope Group Ltd. continued construction of a 500,000-t/yr aluminum smelter in Baotou. The project also included a coal-fired powerplant and was scheduled to be completed in October. In February, Tongshun Aluminum Co. Ltd. permanently shut down production at its 115,000-t/yr smelter in Tongliao. Outdated technology and low profits were cited for the shutdown (China Metal Market—Alumina and Aluminum, 2019b, h, o, 2020a).

Ningxia Province.—Ningxia Jinning Aluminum & Magnesium New Material Co. Ltd. permanently shut down 110,000 t/yr of capacity at its primary aluminum smelter in Zhongning County in August. High power prices were cited for the shutdown. The smelter had an additional 200,000 t/yr of capacity that was still producing, although the company said it was not profitable and was seeking a discounted price for power (China Metal Market—Alumina and Aluminum, 2019f).

Shandong Province.—In August, Shandong Weiqiao Aluminum & Power Co. Ltd. temporarily shut down capacity at its smelter in Zouping because of flooding from a typhoon. The company expected production for the year to decrease by 200,000 to 300,000 t from that of the prior year. Production was restarted in November (China Metal Market—Alumina and Aluminum, 2019n, 2020d).

Sichuan Province.—In November, Guangyuan Zhongfu Aluminum Co. Ltd. started production from a 250,000-t/yr aluminum smelter in Guangyuan. Construction on the potline started in March 2019. An additional 250,000 t/yr of capacity was planned but a construction schedule was not available (China Metal Market—Alumina and Aluminum, 2019i).

Xinjiang Province.—In August, an accident caused an explosion that forced some capacity at the Xinfa Aluminum Co. Ltd. smelter in Xinjiang to be shut down. In November, the damaged capacity was restarted (China Metal Market—Alumina and Aluminum, 2019n, 2020d).

Yunnan Province.—In March, Yunluv Haixin Aluminum Co. Ltd. started production from the second phase of its 340,000-t/yr smelter in Zhaotong. In June, production from the third phase of the smelter started. The first phase started production in July 2018. In March, Yunlv Yixin Aluminum Co. Ltd. started production from a new 210,000-t/yr smelter in Dali. The smelter was to be expanded to 450,000 t/yr. Aluminum Corp. of China (Chinalco) continued building a 500,000-t/yr smelter in Wenshan that was expected to be completed by July 2020. The Wenshan smelter was started by Yunnan Aluminum in December 2017 but was sold to Chinalco in November 2018. An additional 500,000 t/yr of capacity was planned but a schedule was not available. The smelter would be supplied by an adjacent alumina refinery and local hydroelectric powerplants. In December, Henan Shenhuo Group Co. Ltd. started production from a new 450,000-t/yr smelter in Funing County. Construction started in July 2018. An additional 450,000 t/yr of capacity was being constructed and was expected to be completed by yearend 2020 (China Metal Market—Alumina and Aluminum, 2019a, b, e, 2020a).

In April, Yunnan Qiya Aluminum Co. Ltd. started construction of a 350,000-t/yr smelter in Heqing. A construction schedule was not available. In December, Yunnan Hongtai New Material Co. Ltd., (a subsidiary of Shandong Weiqiao Aluminum and Power Co. Ltd.) started construction of a smelter in Yanshan County. The smelter capacity would be 2.03 Mt/yr when completed. The first phase of the project was scheduled to be completed in July 2020, and capacity would be ramped up when it was completed. The new smelter would replace the same amount of capacity owned by Shandong Weiqiao in Binzhou, Shandong Province, that would be shut down permanently as the new capacity started production. Hydroelectric powerplants in the Province would supply power to the smelter (China Metal Market—Alumina and Aluminum, 2019d, 2020b).

Germany.—In March, Hydro shut down production from approximately 20,000 t/yr of capacity at the Neuss smelter, citing damage to the building's roof. The smelting pots were not damaged, but some pots had to be shut down to safely repair the roof. Production from the affected pots was restarted after the repairs were completed. The smelter had 235,000 t/yr of capacity but only 160,000 t/yr was producing at the time of the incident (Hydro ASA, 2019b; 2020, p. 55).

Iceland.—In July, Rio Tinto temporarily shut down one of the three potlines at the ISAL smelter in Hafnarjordur. A shortage of alumina was cited as the reason for the shutdown of approximately 68,000 t/yr of capacity at the 205,000-t/yr smelter. Production was restarted by yearend, and the shutdown resulted in about a 25,000-t decrease in production for the year compared with that in 2018. The two other potlines at the smelter continued producing (Innace, 2019b; Rio Tinto plc, 2019, p. 4; 2020, p. 22).

Iran.—In March, trial production started at the Jajarm smelter. By July, the smelter was producing at a rate of more than 15,000 t/yr and was expected to ramp up to its full 40,000-t/yr capacity by early 2020. Further expansion to 110,000 t/yr was planned, but a construction schedule was not available. In September, South Aluminum Corp. started

production from a 20,000-t/yr smelter. Despite the new capacity being put into production, Iran's total aluminum production for the year was about 30% less than that in 2018, as its two largest smelters decreased production. For the period of March 21 to October 22, production at Hormozal Aluminum Co. and the Almahdi Aluminum Co. decreased by 67% and 56%, respectively, compared with that of the same period in 2018 (CRU Aluminium Monitor, 2019; Financial Tribune, 2019).

Italy.—SiderAlloys started to make upgrades to the Portovesme smelter in July and planned to restart production in 2020. China Aluminum International Engineering Corp. Ltd. (a subsidiary of Chinalco) was contracted to perform the upgrades and the project was the company's first in the European Union. The restart was dependent upon a power supply contract, but negotiations with the Government of Italy had not been finalized by yearend. SiderAlloys acquired the smelter from Alcoa in February 2018 in a deal brokered by Italy's state-owned investment vehicle, Invitalia. Alcoa shut down the 150,000-t/yr smelter in 2012, citing high power prices (China Metal Market—Alumina and Aluminum, 2019k; Trabattoni, 2019a, b).

Malaysia.—Press Metal Aluminum Holdings Berhad signed a contract with Seventh Metallurgical Construction Group Co. Ltd. for construction of a 320,000-t/yr potline at its Samalaju smelter in Bintulu. The project would increase the capacity of the smelter to 960,000 t/yr from 640,000 t/yr and was scheduled to be completed in June 2020 (China Metal Market—Alumina and Aluminum, 2019l; Press Metal Berhad, 2020, p. 5).

Norway.—On March 19, a cyberattack targeted Hydro. Several of the company's extrusion plants and rolling mills shut down production until the attack was resolved. The company's primary smelters, including several in Norway, continued to produce without computerized systems using manual controls instead. Several plants resumed production within days, and about 80% of the affected capacity was producing within a week of the attack (Cha, 2019b; Hydro ASA, 2019f, j).

On April 1, Hydro shut down approximately 27,000 t/yr of capacity at the Karmoy smelter citing a power failure. The smelter had 270,000 t/yr of capacity, including a 75,000-t/yr experimental pilot plant which was not affected by the power failure. A company spokesperson stated that it would take several months to restore production to the affected capacity (Hydro ASA, 2019g, i; Solsvik, 2019).

Hydro continued upgrades on a 95,000-t/yr potline at the Husnes smelter and planned to restart it in the first half of 2020. The potline was shut down in 2009, and Hydro had used it as a source of spare parts for other potlines. The project would include improvements to the casthouse to enable production of extrusion billet and forging stock for use in the automotive industry. The other potline, also having 95,000 t/yr of capacity, was producing already (Hydro ASA, 2017, 2019e).

Romania.—ALRO S.A. (a subsidiary of Vimetco N.V.) was modernizing its smelter in Slatina. The project would upgrade potline technology to increase efficiency and decrease production costs. Capacity would not be increased at the smelter, but processed product capacity would be increased to 120,000 t/yr from 90,000 t/yr when the project was completed in 2022 (ALRO S.A., 2019).

Russia.—RUSAL commissioned the second half of the 300,000-t/yr Boguchansky smelter in March. Production from the first half started in 2015. A casthouse to produce foundry alloys was completed in July. Construction continued on the Taishet smelter that was scheduled for completion in 2020, which would have about 430,000 t/yr of capacity (United Company RUSAL Plc, 2019b, c; 2020, p. 19).

Slovakia.—Hydro planned to temporarily shut down 35,000 t/yr of capacity at the 175,000-t/yr Slovalco smelter in January 2020. High power costs and low aluminum prices were cited for the shutdown. The smelter was a joint venture between Hydro (55.3%) and Penta Investments Ltd. (44.7%) (Hydro ASA, 2019h).

Spain.—In January, Alcoa reached a tentative agreement with representatives of the workers at the Avilés and La Coruña primary aluminum smelters that Alcoa had announced in October 2018 would be shut down. After employees voted to accept the terms of the agreement, the smelters were shut down in February. The production capacity of the Avilés smelter was 93,000 t/yr and the La Coruña smelter capacity was 87,000 t/yr, but only 124,000 t/yr of the combined capacity was producing prior to the shutdowns. High power costs and low aluminum prices were cited for the shutdowns, but both smelters were maintained for a possible restart under the new ownership after the smelters were sold in July to PARTNER Capital Group. The casthouses at both smelters and the paste plant at La Coruña continued production using metal from other smelters (Alcoa Corp., 2019c, p. 2; 2019e; Baratti, 2019a, b; Mason, 2019).

Venezuela.—In March, the Alcasa and Venalum smelters were shut down after a power failure at the Guri Dam hydroelectric powerplant. According to media reports, capacity utilization at yearend 2018 was only 3.7% at the 170,000-t/yr Alcasa smelter and 8.2% at the 440,000-t/yr Venalum smelter. In 2017, the smelters' capacity utilization rates were 18% and 35%, respectively (Poole, 2019b; Rodriguez, 2019; Van, 2019).

Outlook

World consumption of aluminum in 2020 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.

Some primary aluminum smelters in the United States producing at yearend 2019 are expected to face concerns of lower aluminum prices and increasing power prices as supply contracts expire. Limited expansion of new capacity is expected in locations where power costs are relatively low, most notably in Russia and in countries that want to encourage production of value-added products from mineral resources, such as Indonesia and Malaysia. In China, construction of new capacity is expected to continue as some projects were in progress at yearend, but the further shutdown of unprofitable capacity is not expected to be significant.

Aluminum consumption per vehicle by the domestic automobile industry is expected to continue to increase as automobile manufacturers substitute aluminum sheet for steel in more models. Many automobile manufacturers plan to continue increasing fuel efficiency, even if regulatory standards are relaxed, and substitution of aluminum for steel is expected

to be important to increasing fuel efficiency. As automobile manufacturers have gained experience with aluminum sheet, its use has increased beyond 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, a trend that is expected to continue. However, automobile sales were expected to decline with decreased economic activity resulting from the coronavirus disease 2019 (COVID-19) pandemic that emerged in China late in 2019. Aluminum consumption by United States and European aircraft manufacturers is expected to decline temporarily in response to the COVID-19 pandemic and the stoppage of production of Boeing's 737 MAX. In the long term, aluminum use for aerospace was expected to increase as older aircraft are retired as they reach the end of useful service and as air travel again increases in emerging economies after the COVID-19 pandemic subsides. 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, new aluminum alloys have been developed by the industry to compete with these materials (Janson, 2020).

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TABLE 1
SALIENT ALUMINUM STATISTICS[1]

(Thousand metric tons unless otherwise specified)

		2015	2016	2017	2018	2019
United States:						
Primary production:						
Quantity		1,587	818	741	891	1,093
Value	millions	$3,085	$1,450	$1,611	$2,254 r	$2,398
Price, average, U.S. market, spot	cents per pound	88.2	80.4	98.3	114.7	99.5
Stocks, December 31:						
Aluminum industry[2]		1,350	1,400	1,470	1,570	1,600
London Metal Exchange, U.S. warehouses[3]		507	362	254	186	120
Secondary recovery:[4]						
New scrap		1,910	2,010	2,050	2,140	1,920
Old scrap		1,470	1,570	1,590	1,570	1,540
Total		3,380	3,580	3,630	3,710	3,470
Exports, crude, semicrude, and scrap		3,010	2,820	2,900	3,080 r	2,950
Imports for consumption, crude and semicrude[5]		4,560	5,410	6,220	5,550 r	5,210
Supply, apparent[6]		7,120	7,100	7,730	7,040 r	6,860
Consumption, apparent[7]		5,220	5,090	5,680	4,900 r	4,940
World, production		57,800 r	59,500 r	59,500	63,600	63,200

rRevised.
[1]Table includes data available through March 16, 2022. Data are rounded to no more than three significant digits except "Primary production" 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. Includes estimated off-warrant inventories at yearend 2019.
[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) 2018	2019	Ownership in 2019
Alcoa Corp.:			
Evansville, IN (Warrick)	269	269	Alcoa Corp., 100%.
Ferndale, WA (Intalco)	279	279	Do.
Massena, NY	130	130	Do.
Wenatchee, WA	146 [2]	146 [2]	Do.
Total	824	824	
Century Aluminum Co.:			
Hawesville, KY	252	252	Century Aluminum Co., 100%.
Mount Holly, SC	231	231	Do.
Sebree, KY	218	218	Do.
Total	701	701	
Magnitude 7 Metals LLC,[3] New Madrid, MO	263	263	
Grand total	1,790	1,790	

Do. Ditto.
[1]Table includes data available through July 27, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Temporarily idle at yearend.
[3]A subsidiary of ARG International AG.

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
2018:			
Secondary smelters	1,930,000	1,380,000	1,470,000
Independent mill fabricators	1,910,000	1,640,000	1,750,000
Foundries	84,500	72,200	77,300
Other consumers	3,280	3,280	3,280
Total	3,930,000	3,090,000	3,300,000
Estimated full industry coverage	4,220,000	3,310,000	3,710,000
2019:			
Secondary smelters	2,010,000	1,440,000	1,540,000
Independent mill fabricators	1,590,000	1,360,000	1,450,000
Foundries	84,500	72,200	77,300
Other consumers	3,270	3,270	3,270
Total	3,680,000	2,880,000	3,070,000
Estimated full industry coverage	3,970,000	3,100,000	3,470,000

[1]Table includes data available through July 27, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Excludes recovery from other than aluminum-base scrap.

TABLE 4

U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP IN 2019[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	15,500	334,000	332,000	17,200
Can stock clippings	4,460	35,900	36,800	3,560
Other wrought sheet and clippings	7,050	233,000	235,000	4,200
Castings	4,370	68,700	69,800	3,310
Borings and turnings	4,990	152,000	153,000	3,280
Dross and skimmings[4]	16,700	477,000	483,000	10,700
Total	53,100	1,300,000	1,310,000	42,300
Old scrap:				
Castings	4,670	183,000	185,000	2,170
Extrusions	9,590	169,000	171,000	7,320
Aluminum cans[5]	8,740	54,800	56,400	7,210
Other wrought products	6,080	133,000	136,000	3,130
Auto shredder scrap	4,240	146,000	147,000	3,690
Total	33,300	686,000	695,000	23,500
Grand total secondary smelters	86,400	1,980,000	2,010,000	65,800
Integrated aluminum companies, foundries, independent mill fabricators, other consumers:				
New scrap:				
Extrusions	3,120	360,000	360,000	3,190
Can stock clippings	1,880	254,000	253,000	2,060
Other wrought sheet and clippings	19,900	294,000	232,000	82,100
Castings	240	16,300	16,300	240
Borings and turnings	695	12,100	12,100	706
Dross and skimmings[4]	108	1,560	1,540	123
Total	26,000	938,000	876,000	88,500
Old scrap:				
Castings	4,830	153,000	153,000	4,830
Extrusions	--	--	--	--
Aluminum cans[5]	1,610	433,000	433,000	1,550
Other wrought products	10,500	206,000	205,000	11,500
Auto shredder scrap	407	6,780	6,750	434
Total	17,400	799,000	798,000	18,300
Grand total integrated aluminum companies, etc.	43,400	1,740,000	1,670,000	107,000
All scrap consumed:				
New scrap:				
Extrusions	18,700	694,000	692,000	20,400
Can stock clippings	6,350	289,000	290,000	5,620
Other wrought sheet and clippings	27,000	527,000	468,000	86,300
Castings	4,610	85,100	86,100	3,550
Borings and turnings	5,690	164,000	165,000	3,980
Dross and skimmings[4]	16,800	479,000	485,000	10,900
Total	79,100	2,240,000	2,190,000	131,000
Old scrap:				
Castings	9,500	336,000	339,000	7,000
Extrusions	9,590	169,000	171,000	7,320
Aluminum cans[5]	10,300	488,000	490,000	8,760
Other wrought products	16,600	339,000	341,000	14,600
Auto shredder scrap	4,640	153,000	154,000	4,120
Total	50,700	1,480,000	1,490,000	41,800
Grand total of all scrap	130,000	3,720,000	3,680,000	173,000

-- Zero.

[1]Table includes data available through July 27, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes imported scrap. According to reporting companies, 2.47% of total receipts of aluminum-base scrap, or 94,755 metric tons, was received on toll arrangements.

[3]Includes inventory adjustment.

[4]Consumption of dross and skimmings is the gross weight of material processed to recover contained aluminum. The volume of metal recovered from dross and skimmings varies but generally ranges between 15% and 30% of the gross weight consumed.

[5]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)

	2018		2019	
	Production	Net shipments[2]	Production	Net shipments[2]
Diecast alloys:				
13% Si, 360, etc. (0.6% Cu, maximum)	23,600	22,600	27,300	27,600
380 and variations	191,000	190,000	237,000	238,000
Sand and permanent mold:				
95/5 Al-Si, 356, etc. (0.6% Cu, maximum)	35,600	35,400	37,600	37,100
No. 12 and variations	1,360	1,360	1,360	1,360
No. 319 and variations	40,700	39,900	46,200	45,200
F-132 alloy and variations	4,630	4,380	2,990	3,220
Al-Mg alloys	9,080	8,310	7,650	7,390
Al-Zn alloys	W	W	W	W
Al-Si alloys (0.6% to 2.0% Cu)	1,710	1,600	1,590	1,590
Al-Cu alloys (1.5% Si, maximum)	W	W	W	W
Al-Si-Cu-Ni alloys	1,090	1,070	928	973
Other	42,000	41,800 r	44,500	44,500
Wrought alloys, extrusion billets	730,000 r	729,000 r	722,000	722,000
Miscellaneous:				
Steel deoxidation	9,530	9,530	9,530	9,530
Pure (97.0% Al)	(3)	(3)	(3)	(3)
Other[4]	53,900	53,100 r	60,400	59,300
Total	1,140,000 r	1,140,000 r	1,200,000	1,200,000
Less consumption of materials other than scrap:				
Primary aluminum	157,000	XX	154,000	XX
Primary silicon	23,100	XX	22,900	XX
Other	12,000	XX	10,400	XX
Net metallic recovery from aluminum scrap and sweated pig consumed in production of secondary aluminum ingot[5]	951,000 r	XX	1,010,000	XX

rRevised. W Withheld to avoid disclosing company proprietary data; included with "Sand and permanent mold: Other." XX Not applicable.
[1]Table includes data available through July 27, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes inventory adjustment.
[3]Withheld to avoid disclosing company proprietary data; included with "Miscellaneous: Other."
[4]Includes other diecast alloys.
[5]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	2018 Quantity (thousand metric tons)	2018 Percent of grand total	2019 Quantity (thousand metric tons)	2019 Percent of grand total
Containers and packaging	2,170 r	17.0 r	2,220	17.8
Building and construction	1,570 r	12.3 r	1,530	12.3
Transportation	4,520 r	35.4 r	4,560	36.5
Electrical	880 r	6.9 r	879	7
Consumer durables	860 r	6.8 r	833	6.7
Machinery and equipment	852 r	6.7 r	818	6.5
Other markets	356 r	2.8 r	346	2.8
Total	11,200	87.9 r	11,200	89.6
Exports	1,550 r	12.1 r	1,300	10.4
Grand total	12,800 r	100	12,500	100

rRevised.
[1]Table includes data available through July 27, 2020. 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)

	2017	2018	2019
Wrought products:[3]			
Sheet, plate, foil	5,580	5,760 r	5,840
Pipe, tube, extruded shapes	2,580	2,710 r	2,600
Rod, bar, wire, cable	491	438 r	439
Forgings (including impacts)	158	168 r	163
Powder, flake, paste	59	63 r	57
Total	8,870	9,140 r	9,100
Castings:			
Sand	237 r	272 r	352
Permanent and semipermanent mold	645 r	517 r	494
Die	1,400 r	1,410 r	1,300
Other	8 r	15 r	4
Total	2,290 r	2,220 r	2,150
Grand total	11,200 r	11,400 r	11,200

rRevised.
[1]Table includes data available through July 27, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]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.
[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	2018	2019
Primary aluminum, average:[2]		
U.S. market	1.147	0.995
London Metal Exchange cash price	0.957	0.813
NASAAC[3] cash price, average	0.756	0.548
Secondary alloy, average:[4]		
A319 (3% Cu)	1.050	0.841
A356 (0.2% Cu)	1.108	0.954
A360 (0.6% Cu)	1.080	0.910
A380 (3% Zn)	0.958	0.734
A413 (0.6% Cu)	1.082	0.914
Scrap, average:[4]		
Clean, dry turnings	0.520	0.353
Mixed low-copper-content clips	0.619	0.460
Old cast	0.554	0.399
Old sheet	0.551	0.409
Used beverage cans	0.730	0.550

[1]Table includes data available through July 27, 2020.
[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]

	2018		2019	
Class	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude, semicrude, and scrap:				
Metals and alloys, crude	293,000 r	$777,000 r	233,000	$541,000
Scrap	1,760,000	2,630,000 r	1,860,000	2,280,000
Plate, sheet, bar, strip, etc.	1,020,000 r	4,950,000 r	860,000	4,280,000
Castings and forgings	21,100 r	340,000 r	19,800	337,000
Semifabricated forms, n.e.c.[2]	63,400 r	475,000 r	58,400	436,000
Total	3,160,000 r	9,160,000 r	3,030,000	7,870,000
Manufactures:				
Foil and leaf	67,900	314,000	71,000	323,000
Powder and flake	3,630	22,100	5,260	31,800
Wire and cable	28,400 r	121,000	15,100	72,400
Total	100,000 r	457,000	91,400	427,000
Grand total	3,260,000 r	9,620,000 r	3,120,000	8,300,000

rRevised.
[1]Table includes data available through June 23, 2020. 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]

Country or locality	Metals and alloys, crude		Plate, sheet, bar, etc.[2]		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2018:								
Brazil	163	$694 r	3,820 r	$30,600 r	18,300	$39,900 r	22,300 r	$71,200 r
Canada	123,000	308,000	382,000	1,610,000 r	104,000	206,000 r	609,000	2,120,000 r
China	1,060	4,500	26,400 r	184,000 r	493,000 r	700,000 r	521,000 r	889,000 r
France	7,230 r	29,200	9,480 r	81,800 r	2,660	11,400	19,400 r	122,000 r
Germany	1,680 r	6,000 r	7,490 r	61,000 r	7,790	13,400	17,000 r	80,400 r
Hong Kong	45	130	1,600 r	20,600 r	42,300 r	63,000 r	44,000 r	83,700 r
India	312	1,400 r	4,360 r	27,700 r	216,000	307,000 r	220,000 r	336,000 r
Indonesia	19	61	662 r	4,480 r	76,100 r	101,000	76,700	106,000
Italy	115 r	485 r	1,410 r	15,900 r	1,300	1,600	2,830 r	18,000 r
Japan	1,640 r	5,650 r	17,200 r	163,000 r	23,800	40,200 r	42,600 r	209,000 r
Korea, Republic of	560	2,830	30,700 r	221,000 r	240,000 r	339,000	271,000 r	562,000 r
Malaysia	74	219	4,960 r	33,900 r	183,000 r	230,000 r	188,000 r	264,000 r
Mexico	146,000	385,000 r	462,000 r	2,020,000 r	195,000	333,000	803,000 r	2,740,000 r
Philippines	123	896	288 r	3,120 r	5,100 r	5,290 r	5,520 r	9,300 r
Russia	31	1,160	138 r	3,220 r	12,000	18,100 r	12,200	22,500 r
Saudi Arabia	1	24	1,950 r	12,000 r	76 r	208 r	2,030 r	12,200 r
Singapore	895	2,190	4,360 r	28,200 r	2,240 r	2,950 r	7,500 r	33,300 r
Taiwan	3,710	10,700 r	7,920 r	61,700 r	69,000 r	121,000 r	80,600 r	193,000 r
Thailand	361	775	4,370 r	29,100 r	15,000	17,600 r	19,700 r	47,600 r
United Kingdom	616	3,280	10,500 r	81,100 r	2,560	4,790	13,600 r	89,200 r
Venezuela	6	42	20 r	176 r	--	--	26 r	218 r
Other	4,820	13,900	41,100 r	258,000 r	51,400 r	69,800 r	97,200 r	341,000 r
Total	293,000 r	777,000 r	1,020,000 r	4,950,000 r	1,760,000	2,630,000 r	3,080,000 r	8,350,000 r
2019:								
Brazil	1,120	2,440	5,960	44,100	23,700	41,600	30,800	88,200
Canada	98,300	208,000	335,000	1,340,000	93,000	162,000	527,000	1,710,000
China	1,810	3,960	27,300	206,000	316,000	352,000	345,000	562,000
France	7,040	27,300	8,010	70,300	2,240	9,870	17,300	107,000
Germany	2,510	6,480	6,510	49,900	8,980	15,200	18,000	71,600
Hong Kong	31	100	1,520	18,000	91,000	122,000	92,500	140,000
India	326	1,370	2,080	17,700	270,000	321,000	272,000	340,000
Indonesia	508	648	82	1,450	89,700	101,000	90,300	103,000
Italy	83	292	1,840	18,800	11,600	14,800	13,500	33,900
Japan	1,880	5,010	18,100	195,000	15,700	26,100	35,700	226,000
Korea, Republic of	598	1,790	27,500	213,000	273,000	324,000	301,000	539,000
Malaysia	2,890	4,050	3,400	28,000	290,000	298,000	297,000	330,000
Mexico	108,000	251,000	364,000	1,650,000	186,000	255,000	657,000	2,160,000
Philippines	10	37	372	10,400	11,600	11,800	12,000	22,200
Russia	6	838	154	3,060	7,960	8,980	8,120	12,900
Saudi Arabia	7	78	785	8,210	2,910	3,740	3,700	12,000
Singapore	504	2,670	1,910	15,800	6,350	7,100	8,760	25,600
Taiwan	2,380	6,560	5,480	47,200	60,700	79,300	68,600	133,000
Thailand	459	934	1,650	12,900	36,000	37,000	38,100	50,900
United Kingdom	880	4,380	9,050	71,400	2,520	4,440	12,400	80,200
Venezuela	3	9	23	173	--	--	26	182
Other	4,100	12,200	38,700	256,000	62,200	85,700	105,000	354,000
Total	233,000	541,000	860,000	4,280,000	1,860,000	2,280,000	2,950,000	7,100,000

rRevised. -- Zero.
[1]Table includes data available through July 1, 2020. 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	2018 Quantity (metric tons)	2018 Value (thousands)	2019 Quantity (metric tons)	2019 Value (thousands)
Crude, semicrude, and scrap:				
Metals and alloys, crude	4,140,000 r	$10,200,000	3,790,000	$8,280,000
Plate, sheet, strip, etc., n.e.c.[2]	1,410,000 r	5,080,000 r	1,420,000	4,750,000
Pipe, tube, etc.	29,100 r	233,000 r	26,600	210,000
Rod and bar	257,000	1,150,000	203,000	871,000
Scrap	695,000	1,200,000	596,000	847,000
Total	6,530,000 r	17,900,000 r	6,040,000	15,000,000
Manufactures:				
Foil and leaf[3]	216,000 r	945,000 r	91,500	410,000
Powder and flake	16,300	70,200	13,800	54,900
Wire	273,000 r	716,000	121,000	305,000
Total	506,000 r	1,730,000 r	227,000	770,000
Grand total	7,040,000 r	19,600,000 r	6,260,000	15,700,000

rRevised.
[1]Table includes data available through June 25, 2020. 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]

	Metals and alloys, crude		Plate, sheet, bar, 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)
2018:								
Argentina	169,000	$423,000	38	$175	--	--	169,000	$423,000
Australia	134,000 r	315,000 r	806 r	4,680 r	2,290	$3,550	137,000 r	323,000 r
Austria	67	141	36,200 r	161,000 r	(3)	7	36,300 r	161,000 r
Bahrain	129,000	328,000 r	58,900 r	199,000	--	--	188,000	527,000
Brazil	10,600	24,400	27,900 r	86,800 r	4,970	8,550	43,500 r	120,000 r
Canada	2,130,000	5,300,000	230,000	965,000 r	402,000	693,000	2,760,000	6,960,000
China	4,510	14,600	257,000 r	770,000 r	488 r	870 r	262,000 r	785,000 r
France	13,200 r	51,400 r	35,300 r	156,000	2,390	572	50,900	208,000 r
Germany	538 r	6,300	52,700 r	250,000 r	5,280 r	7,510 r	58,500 r	264,000 r
India	181,000	434,000	49,900 r	145,000 r	91	124	231,000 r	578,000
Indonesia	36	86	97,500 r	283,000 r	--	--	97,600 r	283,000 r
Japan	108	261	37,800 r	153,000 r	740 r	1,290 r	38,700 r	154,000 r
Korea, Republic of	1,050	2,580	22,600 r	83,500 r	17,900	47,200	41,600 r	133,000
Mexico	12,500	25,500	46,100 r	197,000 r	175,000 r	295,000	234,000	518,000 r
Oman	34,700 r	77,200 r	66,200 r	174,000	--	--	101,000	251,000 r
Russia	361,000 r	821,000 r	22,300 r	82,200 r	--	--	384,000 r	903,000 r
South Africa	99,400 r	218,000 r	67,600 r	228,000 r	--	--	167,000 r	446,000 r
Taiwan	141	397	39,400 r	129,000	2,810 r	5,160 r	42,300	134,000
United Arab Emirates	587,000	1,510,000	3,340	13,700 r	2,040	3,400	592,000	1,530,000
United Kingdom	248 r	1,320 r	12,400 r	47,200 r	3,860	6,880	16,500 r	55,400 r
Venezuela	49,600	105,000	1,540	3,560	7,760 r	13,900 r	58,900	123,000
Other	223,000 r	559,000 r	247,000 r	952,000 r	66,800 r	109,000	536,000 r	1,620,000 r
Total	4,140,000 r	10,200,000	1,410,000	5,080,000 r	695,000	1,200,000	6,250,000 r	16,500,000
2019:								
Argentina	171,000	393,000	21	80	--	--	171,000	393,000
Australia	267,000	564,000	844	4,980	389	980	269,000	570,000
Austria	--	--	23,300	104,000	--	--	23,300	104,000
Bahrain	131,000	282,000	69,700	241,000	--	--	201,000	523,000
Brazil	1,640	3,600	35,200	103,000	174	222	37,000	107,000
Canada	2,090,000	4,540,000	198,000	758,000	376,000	534,000	2,670,000	5,830,000
China	14,800	32,600	119,000	379,000	220	781	134,000	412,000
France	5,540	42,500	19,600	79,400	1,030	1,280	26,200	123,000
Germany	386	3,630	106,000	402,000	2,180	2,890	109,000	409,000
India	183,000	389,000	52,700	148,000	23	27	236,000	537,000
Indonesia	--	--	69,100	194,000	1	3	69,100	194,000
Japan	78	470	47,100	158,000	10,200	16,700	57,400	175,000
Korea, Republic of	8,660	19,900	43,100	140,000	11,400	23,900	63,100	184,000
Mexico	415	1,080	34,800	156,000	151,000	213,000	186,000	371,000
Oman	6,770	13,700	84,600	206,000	--	--	91,400	219,000
Russia	205,000	403,000	13,000	44,200	--	--	218,000	448,000
South Africa	9,810	19,500	50,900	151,000	--	--	60,700	171,000
Taiwan	207	659	57,400	175,000	945	1,430	58,600	177,000
United Arab Emirates	473,000	1,030,000	2,830	9,220	134	410	476,000	1,040,000
United Kingdom	1,650	2,820	8,240	30,500	3,790	5,630	13,700	38,900
Venezuela	46	94	289	625	1,020	1,490	1,350	2,210
Other	218,000	541,000	387,000	1,270,000	37,200	44,000	642,000	1,850,000
Total	3,790,000	8,280,000	1,420,000	4,750,000	596,000	847,000	5,810,000	13,900,000

rRevised. -- Zero.
[1]Table includes data available through June 24, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes circles, disks, pipes, rods, tubes, etc.
[3]Less than ½ unit.

Source: U.S. Census Bureau.

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

(Thousand metric tons)

Country or locality	2015	2016	2017	2018	2019
Argentina	433	412	403	419	427
Australia	1,646	1,635	1,487	1,574 r	1,570
Azerbaijan	53	37	29 r	47 r	50 e
Bahrain	961	971	981	1,011	1,365
Bosnia and Herzegovina[3]	99	107	105 r, e	107 r	55 e
Brazil	772	793	802	659	650
Cameroon[e]	65	65	65	75	70
Canada	2,880	3,209	3,212	2,923 r	2,854
China	31,400	32,698 r	32,273	35,802	35,044
Egypt	300	296	314 r	300 e	300 e
France[e]	420	425	429	380	430
Germany	541	547	550	529 r	550 e
Ghana[e]	40	40	35	42 r	42
Greece	179	181	182	185 r	180 e
Iceland	878	854	870 e	885 e	845 e
India	2,355	2,723	3,269	3,675	3,640
Indonesia	257 r	245 r	219	242 r	240 e
Iran	355	360	340	350 e	360 e
Kazakhstan	222	246	254 r	258 r	260 e
Malaysia[e]	400	620	700	750	760
Montenegro	42	40 e	50 e	60 r, e	60 e
Mozambique	558	571	577	571	565
Netherlands[e]	25	50	50	100	150
New Zealand	335	339	337	341	351
Norway	1,225	1,247 r	1,250 r, e	1,300 e	1,400 e
Oman	377	386	253	380	391
Qatar	610	612	620	616 r	627
Romania[4]	271	273	282	283 r	280
Russia	3,529	3,561	3,583	3,627	3,637
Saudi Arabia	682	740	786 r	802 r	790 e
Slovakia	209	215	219	218 r	220 e
Slovenia[3]	84	84	84 r	81 r	80 e
South Africa	695	701	716	714	717
Spain[e]	350	350	350	350	240
Sweden	116	124	123	125	120
Tajikistan	140	129	103	96 r	100 e
Turkey	46	79	80 e	80 e	80 e
United Arab Emirates	2,464	2,500	2,600	2,640	2,600
United Kingdom	47	48	48 e	48 e	48 e
United States	1,587	818	741	891	1,093
Venezuela	119	147	144	86 r	8 e
Total	57,800 r	59,500 r	59,500	63,600	63,200

[e]Estimated. [r]Revised.

[1]Table includes data available through June 29, 2020. All data are reported unless otherwise noted. 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 and (or) localities 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.