

## ALUMINUM<sup>1</sup>

(Data in thousand metric tons of metal unless otherwise noted)

**Domestic Production and Use:** In 2015, three companies operated eight primary aluminum smelters in six States, primarily east of the Mississippi River. One additional smelter remained on standby throughout the year, and two other nonoperating smelters were permanently shut down during 2015. Based on published market prices, the value of primary aluminum production was \$3.11 billion. Aluminum consumption was centered in the East Central United States. Transportation accounted for an estimated 39% of domestic consumption; in descending order of consumption, the remainder was used in packaging, 20%; building, 14%; electrical, 9%; consumer durables, 8%; machinery, 7%; and other, 3%.

<b>Salient Statistics—United States:</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015<sup>e</sup></b>
Production:					
Primary	1,986	2,070	1,946	1,710	1,600
Secondary (from old scrap)	1,470	1,440	1,630	1,700	1,640
Imports for consumption (crude and semimanufactures)	3,710	3,760	4,160	4,290	4,700
Exports, total	3,420	3,480	3,390	3,230	3,020
Consumption, apparent <sup>2</sup>	3,570	3,950	4,530	5,080	5,390
Price, ingot, average U.S. market (spot), cents per pound	116.1	101.0	94.2	104.5	88.0
Stocks:					
Aluminum industry, yearend	1,060	1,140	1,130	1,280	1,350
LME, U.S. warehouses, yearend <sup>3</sup>	2,360	2,120	1,950	1,190	650
Employment, number <sup>4</sup>	30,300	31,500	30,100	30,900	30,000
Net import reliance <sup>5</sup> as a percentage of apparent consumption	3	11	21	33	40

**Recycling:** In 2015, aluminum recovered from purchased scrap in the United States was about 3.61 million tons, of which about 54% came from new (manufacturing) scrap and 46% from old scrap (discarded aluminum products). Aluminum recovered from old scrap was equivalent to about 30% of apparent consumption.

**Import Sources (2011–14):** Canada, 65%; Russia and United Arab Emirates, 6% each; and other, 23%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12–31–15</b>
Aluminum, not alloyed:		
Unwrought (in coils)	7601.10.3000	2.6% ad val.
Unwrought (other than aluminum alloys)	7601.10.6000	Free.
Unwrought (billet)	7601.20.9045	Free.
Aluminum waste and scrap:		
Used beverage container scrap	7602.00.0030	Free.
Other	7602.00.0090	Free.

**Depletion Allowance:** Not applicable.<sup>1</sup>

**Government Stockpile:** None.

**Events, Trends, and Issues:** Owing to permanent smelter closures and temporary potline closures, U.S. production of primary aluminum decreased for the third consecutive year, declining by about 6% in 2015. Despite an employee lockout for about 4 weeks in May and June at a 252,000-ton-per-year smelter in Hawesville, KY, production continued at full capacity until a new labor contract was ratified. However, in September, one of the five potlines at the smelter was temporarily shut down and two other potlines were shut down in October owing to low aluminum prices. In December, the same company shut down 112,000 tons per year of capacity in Mount Holly, SC. One company announced that it would temporarily shut down 373,000 tons per year of smelting capacity in Ferndale, WA, and Wenatchee, WA, at yearend or early in 2016. New power contracts were obtained by primary smelters in Missouri, New York, and South Carolina. In October, domestic smelters were operating at about 74% of capacity of 2 million tons per year. World primary aluminum production increased by about 10% in 2015 compared with production in 2014, and total (primary plus secondary) production increased by 16%. New capacity built in recent years in China, where primary production increased by 18% and total production increased by 31%, accounted for most of the increased production.

## ALUMINUM

U.S. import reliance increased in 2015 as primary production and exports decreased and U.S. manufacturers were supplied by increased imports and a drawdown of domestic stocks. Total U.S. imports of aluminum (crude, semimanufactures, and scrap) increased by 8% in 2015 compared with those in 2014. Canada was the leading supplier of imported aluminum, accounting for 65% of crude aluminum, 21% of semimanufactures, 64% of scrap, and 54% of total aluminum imports. Imports of crude aluminum (metal and alloys) and semimanufactures in 2015 were 5% and 26% higher, respectively, than the quantities imported in 2014, but imports of scrap were 4% lower. Imports of semimanufactures from China increased by 57% in 2015 compared with those in 2014; China accounted for 54% of semimanufactures imported in 2015 compared with 29% in 2014. Total aluminum exports (crude, semimanufactures, and scrap) from the United States decreased by 7% in 2015 compared with those in 2014.

The monthly average U.S. market price for primary ingot quoted by Platts Metals Week remained at about \$1.06 per pound through February, then gradually decreased throughout the year to \$0.80 per pound in September, the lowest price since 2009. U.S. market prices generally followed the trend of prices on the London Metal Exchange (LME). However, during the first 4 months of 2015, the U.S. market price averaged about 25% higher than the LME price, similar to the 23% average premium in 2014, but significantly higher than the average premium in 2013 (13%) and May to September 2015 (12%). The higher market price premium during 2014 and the first part of 2015 was attributed to uncertainty about proposed LME warehouse rules. In 2014, the LME proposed rule changes to increase the allowable outflows of aluminum stored in LME-bonded warehouses. The proposed changes were struck down by a court in the United Kingdom in March 2014, but that ruling was overturned on appeal in October 2014. Global inventories of primary aluminum metal held by LME-bonded warehouses decreased to 3.04 million tons in mid-November 2015 from 5.59 million tons at yearend 2013.

### World Smelter Production and Capacity:

	Production		Yearend capacity	
	2014	2015 <sup>e</sup>	2014	2015 <sup>e</sup>
United States	1,710	1,600	2,340	2,000
Australia	1,700	1,650	1,720	1,720
Bahrain	931	960	970	970
Brazil	962	780	1,700	1,600
Canada	2,860	2,900	3,130	3,270
China	24,400	32,000	35,000	36,000
Iceland	800	820	840	840
India	1,940	2,350	2,890	3,850
Norway	1,330	1,320	1,550	1,550
Qatar	640	640	640	640
Russia	3,490	3,500	4,180	4,180
Saudi Arabia	665	740	740	740
South Africa	745	690	715	715
United Arab Emirates	2,330	2,340	2,400	2,400
Other countries	6,000	6,010	8,130	8,320
World total (rounded)	50,500	58,300	66,900	68,800

**World Resources:** Global resources of bauxite are estimated to be between 55 to 75 billion tons and are sufficient to meet world demand for metal well into the future.<sup>1</sup>

**Substitutes:** Composites can substitute for aluminum in aircraft fuselages and wings. Glass, paper, plastics, and steel can substitute for aluminum in packaging. Magnesium, steel, and titanium can substitute for aluminum in ground transportation and structural uses. Composites, steel, vinyl, and wood can substitute for aluminum in construction. Copper can replace aluminum in electrical and heat-exchange applications.

<sup>e</sup>Estimated.

<sup>1</sup>See also Bauxite and Alumina.

<sup>2</sup>Defined as domestic primary metal production + recovery from old aluminum scrap + net import reliance; excludes imported scrap.

<sup>3</sup>Includes aluminum alloy.

<sup>4</sup>Alumina and aluminum production workers (North American Industry Classification System—3313). Source: U.S. Department of Labor, Bureau of Labor Statistics.

<sup>5</sup>Defined as imports – exports + adjustments for industry stock changes.