

ALUMINUM¹

(Data in thousand metric tons unless otherwise specified)

Domestic Production and Use: In 2023, three companies operated five primary aluminum smelters across five States. Two of these smelters operated at full capacity throughout the year, whereas three smelters operated at reduced capacity. A sixth smelter, located in Hawesville, KY, has been temporarily shut down since 2022. In March, permanent closure was announced for a seventh smelter located in Ferndale, WA, that had ceased operations in 2020. Domestic smelter capacity decreased to 1.36 million tons per year from 1.64 million tons per year in 2022. Estimated primary production decreased by 13% from that in 2022, whereas estimated secondary production from new and old scrap was essentially unchanged from that in 2022. Based on published prices, the value of primary aluminum production was about \$2.15 billion, 26% less than that in 2022. The estimated average annual U.S. market price decreased by 15% from that in 2022. Transportation applications accounted for 35% of domestic consumption; the remainder was used in packaging, 22%; building, 14%; electrical, 9%; consumer durables and machinery, 8% each; and other, 4%.

Salient Statistics—United States:	2019	2020	2021	2022	2023^e
Production:					
Primary	1,090	1,010	889	861	750
Secondary (from old scrap)	1,540	1,420	1,520	1,450	1,500
Secondary (from new scrap)	1,920	1,630	1,780	1,890	1,800
Imports for consumption:					
Crude and semimanufactures	5,280	4,260	4,820	5,610	4,800
Scrap	596	542	680	690	740
Exports:					
Crude and semimanufactures	1,110	906	900	1,040	1,200
Scrap	1,860	1,840	2,100	2,000	2,100
Consumption, apparent ²	4,980	3,930	4,020	4,760	4,000
Supply, apparent ³	6,910	5,560	5,800	6,650	5,800
Price, ingot, average U.S. market (spot), cents per pound ⁴	99.5	89.7	138.5	152.6	130
Stocks, yearend:					
Aluminum industry	1,600	1,490	1,870	2,050	1,800
London Metal Exchange (LME), U.S. warehouses ⁵	120	235	69	9	4
Employment, number ⁶	32,900	30,100	28,900	30,200	30,000
Net import reliance ⁷ as a percentage of apparent consumption	47	38	40	52	44

Recycling: In 2023, aluminum recovered from purchased scrap in the United States was about 3.3 million tons, of which about 55% came from new (manufacturing) scrap and 45% from old scrap (discarded aluminum products). Aluminum recovered from old scrap was equivalent to about 38% of apparent consumption.

Import Sources (2019–22): Canada, 52%; United Arab Emirates, 8%; Bahrain, 4%; Russia, 4%; and other, 32%.

Tariff:	Item	Number	Normal Trade Relations 12–31–23
	Aluminum, not alloyed:		
	Unwrought (in coils)	7601.10.3000	2.6% ad valorem.
	Unwrought (other than aluminum alloys)	7601.10.6000	Free.
	Aluminum alloys, unwrought (billet)	7601.20.9045	Free.
	Aluminum scrap:		
	Used beverage container scrap	7602.00.0030	Free.
	Industrial process scrap	7602.00.0091	Free.
	Other	7602.00.0096	Free.

Depletion Allowance: Not applicable.¹

Government Stockpile:⁸

Material	FY 2023		FY 2024	
	Potential acquisitions	Potential disposals	Potential acquisitions	Potential disposals
Aluminum, high-purity and alloys	—	—	18.5	—

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Events, Trends, and Issues: In April, a U.S. primary aluminum producer acquired a majority stake in a company operating a bauxite mine and a 1.4-million-ton-per-year alumina refinery located in Jamaica. The Government of Jamaica did not object to the transaction and stated that the company would be responsible for investments to repair damage caused by a fire that shut down production in 2021. In May, a 4-year collective bargaining agreement was ratified at an aluminum rolling mill in Evansville, IN, while a 3-year agreement was ratified at primary aluminum smelters in Warrick, IN, and Massena, NY. In October, a 3-year power deal was signed between the owner of a 229,000-ton-per-year primary aluminum smelter in Mt. Holly, SC, and its power provider. The contract is scheduled to remain in effect through 2026.

The United States announced a 200% tariff on imported aluminum products and aluminum derivatives from Russia, effective March 10, and April 10, respectively. These ad valorem tariffs are authorized under section 232 of the Trade Expansion Act of 1962, which authorizes the President to impose trade restrictions when products are imported in a manner that threatens to impair national security.

In February, workers at a 228,000-ton-per-year primary aluminum smelter located in San Ciprian, Spain, approved a plan to restart the smelter in January 2024. Originally curtailed in 2021, the smelter is expected to return to 75% capacity by 2026. In March, a 230,000-ton-per-year primary aluminum smelter located in Neuss, Germany, began fully ramping down operations and a 358,000-ton-per-year primary aluminum smelter located in Victoria, Australia, reduced production by 75%. In May, the operator of a 120,000-ton-per-year primary aluminum smelter in Podgorica, Montenegro, ceased operations and began permanent closure. In October, a 432,000-ton-per-year primary aluminum smelter located in British Columbia, Canada, returned to full production. The smelter has been operating at reduced production levels since 2018.

World Smelter Production and Capacity: Capacity data for China and the United States were revised based on company and Government reports.

	Smelter production		Yearend capacity	
	2022	2023 ^e	2022	2023 ^e
United States	861	750	1,640	1,360
Australia	1,510	1,500	1,730	1,730
Bahrain	1,600	1,600	1,600	1,600
Brazil	811	1,100	1,280	1,280
Canada	2,770	3,000	3,270	3,270
China	40,200	41,000	44,300	45,000
Iceland	^e 720	730	880	880
India	^e 4,100	4,100	4,060	4,060
Malaysia	^e 900	980	1,080	1,080
Norway	^e 1,400	1,300	1,460	1,460
Russia	3,720	3,800	4,080	4,080
United Arab Emirates	2,650	2,700	2,790	2,790
Other countries	7,110	7,000	10,300	10,000
World total (rounded)	68,400	70,000	78,500	79,000

World Resources:⁹ Global resources of bauxite are estimated to be between 55 billion and 75 billion tons and are sufficient to meet world demand for metal well into the future.

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

^eEstimated. — Zero.

¹See also the Bauxite and Alumina chapter.

²Defined as primary production + secondary production from old scrap + imports – exports ± adjustments for stock changes; excludes imported scrap.

³Defined as primary production + secondary production + imports – exports ± adjustments for stock changes; excludes imported scrap.

⁴Source: S&P Global Platts Metals Week.

⁵Includes aluminum alloy. Starting with 2019, also includes off-warrant stocks of primary and alloyed aluminum; estimated for 2019.

⁶Alumina and aluminum production workers (North American Industry Classification System—3313). Source: U.S. Department of Labor, Bureau of Labor Statistics.

⁷Defined as imports – exports ± adjustments for industry stock changes; excludes imported scrap.

⁸See Appendix B for definitions.

⁹See Appendix C for resource and reserve definitions and information concerning data sources.