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(Data in thousand metric tons of copper content unless otherwise noted)

Domestic Production and Use: In 2019, U.S. mine production of recoverable copper increased by 6% to an estimated 1.3 million tons and was valued at an estimated $7.9 billion, slightly less than $8.05 billion in 2018. Arizona was the leading copper-producing State and accounted for an estimated 68% of domestic output, followed by, in descending order, Utah, New Mexico, Nevada, Montana, Michigan, and Missouri. Twenty-four mines recovered copper, 15 of which accounted for 99% of production. Three smelters, 3 electrolytic refineries, 4 fire refineries, and 14 electrowinning facilities operated during 2019. Refined copper and scrap were used at about 30 brass mills, 15 rod mills, and 500 foundries and miscellaneous consumers. Copper and copper alloy products were used in building construction, 43%; electrical and electronic products, 20%; transportation equipment, 20%; consumer and general products, 10%; and industrial machinery and equipment, 7%.[1]

Salient Statistics—United States:	2015	2016	2017	2018	2019[e]
Production:					
Mine, recoverable	1,380	1,430	1,260	1,220	1,300
Refinery:					
Primary (from ore)	1,090	1,180	1,040	1,070	1,000
Secondary (from scrap)	49	46	40	41	45
Copper recovered from old (post-consumer) scrap[2]	166	149	146	149	160
Imports for consumption:					
Ores and concentrates	([3])	([3])	14	32	35
Refined	687	708	813	778	650
Exports:					
Ores and concentrates	392	331	237	253	330
Refined	86	134	94	190	140
Consumption:					
Reported, refined metal	1,810	1,800	1,800	1,820	1,850
Apparent (primary refined and old scrap)[2, 4]	1,840	1,880	1,860	1,830	1,800
Price, annual average, cents per pound:					
U.S. producer, cathode (COMEX + premium)	256.2	224.9	285.4	298.7	280.0
COMEX, high-grade, first position	250.8	219.7	280.4	292.6	270.0
London Metal Exchange, high-grade	249.5	220.6	279.5	296.0	270.0
Stocks, yearend, refined, held by U.S. producers, consumers, and metal exchanges	209	223	265	244	130
Employment, mine and plant, thousands	11.2	10.1	10.5	11.7	12.0
Net import reliance[5] as a percentage of apparent consumption	32	30	36	33	35

Recycling: Old (post-consumer) scrap, converted to refined metal and alloys, provided an estimated 160,000 tons of copper, equivalent to 9% of apparent consumption. Purchased new (manufacturing) scrap, derived from fabricating operations, yielded an estimated 710,000 tons of copper. Of the total copper recovered from scrap (including aluminum- and nickel-base scrap), brass and wire-rod mills recovered approximately 80%; copper smelters, refiners, and ingot makers, 15%; and miscellaneous chemical plants, foundries, and manufacturers, 5%. Copper in all scrap contributed about 35% of the U.S. copper supply.[6]

Import Sources (2015–18): Copper content of blister and anodes: South Africa, 61%; Finland, 29%; Malaysia, 8%; and other, 2%. Copper content of ores and concentrates: Mexico, 99%; and other, 1%. Copper content of scrap: Canada, 55%; Mexico, 33%; and other, 12%. Refined copper: Chile, 56%; Canada, 26%; Mexico, 11%; and other, 7%. Refined copper accounted for 85% of all unwrought copper imports.

Tariff: Item	Number	Normal Trade Relations 12–31–19
Copper ores and concentrates, copper content	2603.00.0010	1.7¢/kg on lead content.
Unrefined copper anodes	7402.00.0000	Free.
Refined copper and alloys, unwrought	7403.00.0000	1.0% ad val.
Copper wire rod	7408.11.0000	1.0% or 3.0% ad val.

Depletion Allowance: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

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Events, Trends, and Issues: In 2019, U.S. mine production of copper increased by an estimated 6% owing to higher ore grades and (or) higher mining and milling rates at several operations. Output from the Mission Mine rose from that in 2018, when production was significantly affected by a landslide early in the year. On October 11, about 75% of unionized workers at a company with mines and plants in Arizona and Texas voted to go on strike. The company announced that it would temporarily close its smelter and refinery but did not address the status of its Arizona mines. Non-striking workers may have continued to extract ore at some sites, based on media reports. Production of refined copper in the United States fell by an estimated 7% as a result of the strike, which had not been resolved as of early December, and maintenance shutdowns at two other smelters. Two projects (Gunnison in Arizona and Pumpkin Hollow in Nevada) planned to begin production by yearend but had not started up as of the end of November.

Estimated global mine production of copper decreased slightly to 20 million tons in 2019 from 20.4 million tons in 2018, owing primarily to reduced output from the Batu Hijau and Grasberg Mines in Indonesia, where mining was shifting to new ore zones. Production also declined in Chile as a result of lower ore grades, strikes, and weather-related disruptions. These decreases were partially offset by increased output from multiple other countries. Global refined production increased slightly to an estimated 25 million tons in 2019 from 24.4 million tons in 2018. Higher refinery capacity in China was mostly offset by smelter shutdowns for maintenance and upgrades in other countries. In Zambia, mined and refined copper output were affected by a new import duty on copper concentrates, which lowered smelter production and constrained the supply of sulfuric acid needed to produce electrowon copper.

Through November 2019, the monthly average COMEX spot copper price varied between $2.56 per pound (October) and $2.92 per pound (April). It was projected to average about $2.70 per pound for the full year, a decrease of 8% from $2.93 per pound in 2018.

World Mine Production and Reserves: Reserves for multiple countries were revised based on reported company data and (or) information from the Governments of those countries.

	Mine production		Reserves[7]
	2018	2019[e]	
United States	1,220	1,300	51,000
Australia	920	960	[8]87,000
Chile	5,830	5,600	200,000
China	1,590	1,600	26,000
Congo (Kinshasa)	1,230	1,300	19,000
Indonesia	651	340	28,000
Kazakhstan	603	700	20,000
Mexico	751	770	53,000
Peru	2,440	2,400	87,000
Russia	751	750	61,000
Zambia	854	790	19,000
Other countries	3,540	3,800	220,000
World total (rounded)	20,400	20,000	870,000

World Resources: A 2014 U.S. Geological Survey assessment of copper deposits indicated that identified resources contained about 2.1 billion tons of copper, and undiscovered resources contained an estimated 3.5 billion tons.[9]

Substitutes: Aluminum substitutes for copper in automobile radiators, cooling and refrigeration tube, electrical equipment, and power cable. Titanium and steel are used in heat exchangers. Optical fiber substitutes for copper in telecommunications applications, and plastics substitute for copper in drain pipe, plumbing fixtures, and water pipe.

[e]Estimated.

[1]Distribution reported by the Copper Development Association. Some electrical components are included in each end use.

[2]Includes copper converted to refined metal and alloys by brass and wire-rod mills, foundries, refineries, and other manufacturers.

[3]Less than ½ unit.

[4]Primary refined production + copper in old scrap converted to refined metal and alloys + refined imports – refined exports ± refined stock changes.

[5]Defined as refined imports – refined exports ± adjustments for refined copper stock changes.

[6]Primary refined production + copper recovered from old and new scrap + refined imports – refined exports ± refined stock changes.

[7]See Appendix C for resource and reserve definitions and information concerning data sources.

[8]For Australia, Joint Ore Reserves Committee-compliant reserves were 23 million tons.

[9]Johnson, K.M., Hammarstrom, J.M., Zientek, M.L., and Dicken, C.L., 2014, Estimate of undiscovered copper resources of the world, 2013: U.S. Geological Survey Fact Sheet 2014–3004, 3 p., *https://doi.org/10.3133/fs20143004.*